

# SECTION **DAS**

## DRIVER ASSISTANCE SYSTEM

A  
B  
C

### CONTENTS

D  
E

|   |    |  |
|---|----|--|
| <b>ADAS CONTROL UNIT</b>  |    |  |
| <b>PRECAUTION</b> .....   | 13 |  |
| <b>PRECAUTIONS</b> .....  | 13 |  |
| Precautions For Harness Repair .....                                    | 13 |  |
| <b>SYSTEM DESCRIPTION</b> .....   | 14 |  |
| <b>COMPONENT PARTS</b> .....  | 14 |  |
| Component Parts Location .....  | 14 |  |
| Component Description .....   | 14 |  |
| <b>SYSTEM</b> .....   | 15 |  |
| System Description .....  | 15 |  |
| Fail-safe .....   | 19 |  |
| <b>DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)</b> .....                       | 21 |  |
| On Board Diagnosis Function .....                                       | 21 |  |
| CONSULT Function (ICC/ADAS) .....                                       | 22 |  |
| <b>ECU DIAGNOSIS INFORMATION</b> .....                                  | 33 |  |
| <b>ADAS CONTROL UNIT</b> .....  | 33 |  |
| Reference Value .....   | 33 |  |
| Fail-safe .....   | 38 |  |
| DTC Inspection Priority Chart .....                                     | 39 |  |
| DTC Index .....   | 40 |  |
| <b>WIRING DIAGRAM</b> .....   | 45 |  |
| <b>DRIVER ASSISTANCE SYSTEMS</b> .....                                  | 45 |  |
| Wiring Diagram .....  | 45 |  |
| <b>DTC/CIRCUIT DIAGNOSIS</b> .....                                      | 49 |  |
| <b>C1A00 CONTROL UNIT</b> .....   | 49 |  |
| DTC Logic .....   | 49 |  |
| Diagnosis Procedure .....   | 49 |  |
| <b>C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2</b> ..... | 50 |  |
|   |    | DTC Logic .....  |
|   |    | Diagnosis Procedure .....  |
|   |    | <b>U1000 CAN COMM CIRCUIT</b> .....  |
|   |    | Description .....  |
|   |    | DTC Logic .....  |
|   |    | Diagnosis Procedure .....  |
|   |    | <b>U1010 CONTROL UNIT (CAN)</b> .....  |
|   |    | Description .....  |
|   |    | DTC Logic .....  |
|   |    | Diagnosis Procedure .....  |
|   |    | <b>U150F AV CAN 3</b> .....  |
|   |    | DTC Logic .....  |
|   |    | Diagnosis Procedure .....  |
|   |    | <b>POWER SUPPLY AND GROUND CIRCUIT</b> ....  |
|   |    | Diagnosis Procedure .....  |
|   |    | <b>REMOVAL AND INSTALLATION</b> .....  |
|   |    | <b>ADAS CONTROL UNIT</b> .....   |
|   |    | Removal and Installation .....   |
|   |    | <b>DCA</b>   |
|   |    | <b>PRECAUTION</b> .....  |
|   |    | <b>PRECAUTIONS</b> .....   |
|   |    | Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" ..... |
|   |    | Precautions For Harness Repair .....   |
|   |    | DCA System Service .....   |
|   |    | <b>SYSTEM DESCRIPTION</b> .....  |
|   |    | <b>COMPONENT PARTS</b> .....   |
|   |    | Component Parts Location .....   |
|   |    | Component Description .....  |
|   |    | <b>SYSTEM</b> .....  |
|   |    | System Description .....   |

F  
G  
H  
I  
J  
K  
L

M  
N



P

|   |            |   |            |
|---|------------|---|------------|
| Fail-safe (ADAS Control Unit) .....                                       | 64         | <b>ACTION TEST</b> .....  | <b>110</b> |
| Fail-safe (ICC Sensor) .....  | 64         | Description .....   | 110        |
| <b>OPERATION</b> .....  | <b>65</b>  | Work Procedure .....  | 110        |
| Switch Name and Function .....  | 65         | <b>DTC/CIRCUIT DIAGNOSIS</b> .....                                      | <b>111</b> |
| Menu Displayed by Pressing Each Switch .....                              | 65         | <b>C1A00 CONTROL UNIT</b> .....   | <b>111</b> |
| <b>HANDLING PRECAUTION</b> .....  | <b>68</b>  | DTC Logic .....   | 111        |
| Precautions for Distance Control Assist .....                             | 68         | Diagnosis Procedure .....   | 111        |
| <b>DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)</b> .....                         | <b>70</b>  | <b>C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2</b> ..... | <b>112</b> |
| On Board Diagnosis Function .....   | 70         | DTC Logic .....   | 112        |
| CONSULT Function (ICC/ADAS) .....   | 71         | Diagnosis Procedure .....   | 112        |
| <b>DIAGNOSIS SYSTEM (ICC SENSOR)</b> .....                                | <b>82</b>  | <b>C1A03 VEHICLE SPEED SENSOR</b> .....                                 | <b>113</b> |
| CONSULT Function (LASER) .....  | 82         | DTC Logic .....   | 113        |
| <b>DIAGNOSIS SYSTEM (ACCELERATOR PEDAL ACTUATOR)</b> .....                | <b>83</b>  | Diagnosis Procedure .....   | 113        |
| CONSULT Function (ACCELERATOR PEDAL ACT) .....                            | 83         | <b>C1A04 ABS/TCS/VDC SYSTEM</b> .....                                   | <b>115</b> |
| <b>ECU DIAGNOSIS INFORMATION</b> .....                                    | <b>85</b>  | DTC Logic .....   | 115        |
| <b>ADAS CONTROL UNIT</b> .....  | <b>85</b>  | Diagnosis Procedure .....   | 115        |
| Reference Value .....   | 85         | <b>C1A05 BRAKE SW/STOP LAMP SW</b> .....                                | <b>116</b> |
| Fail-safe .....   | 90         | DTC Logic .....   | 116        |
| DTC Inspection Priority Chart .....                                       | 91         | Diagnosis Procedure .....   | 116        |
| DTC Index .....   | 92         | Component Inspection (ICC Brake Switch) .....                           | 119        |
| <b>ICC SENSOR</b> .....   | <b>97</b>  | Component Inspection (Stop Lamp Switch) .....                           | 119        |
| Reference Value .....   | 97         | <b>C1A06 OPERATION SW</b> .....   | <b>121</b> |
| Fail-safe .....   | 98         | DTC Logic .....   | 121        |
| DTC Inspection Priority Chart .....                                       | 98         | Diagnosis Procedure .....   | 121        |
| DTC Index .....   | 98         | Component Inspection .....  | 122        |
| <b>ACCELERATOR PEDAL ACTUATOR</b> .....                                   | <b>100</b> | <b>C1A12 LASER BEAM OFF CENTER</b> .....                                | <b>124</b> |
| Reference Value .....   | 100        | DTC Logic .....   | 124        |
| DTC Inspection Priority Chart .....                                       | 101        | Diagnosis Procedure .....   | 124        |
| DTC Index .....   | 101        | <b>C1A13 STOP LAMP RELAY</b> .....                                      | <b>125</b> |
| <b>WIRING DIAGRAM</b> .....   | <b>102</b> | DTC Logic .....   | 125        |
| <b>DRIVER ASSISTANCE SYSTEMS</b> .....                                    | <b>102</b> | Diagnosis Procedure .....   | 125        |
| Wiring Diagram .....  | 102        | Component Inspection .....  | 130        |
| <b>BASIC INSPECTION</b> .....   | <b>106</b> | <b>C1A14 ECM</b> .....  | <b>131</b> |
| <b>DIAGNOSIS AND REPAIR WORK FLOW</b> .....                               | <b>106</b> | DTC Logic .....   | 131        |
| Work Flow .....   | 106        | Diagnosis Procedure .....   | 131        |
| <b>ADDITIONAL SERVICE WHEN REPLACING ICC SENSOR</b> .....                 | <b>108</b> | <b>C1A15 GEAR POSITION</b> .....  | <b>132</b> |
| Description .....   | 108        | Description .....   | 132        |
| Work Procedure .....  | 108        | DTC Logic .....   | 132        |
| <b>ADDITIONAL SERVICE WHEN REPLACING ACCELERATOR PEDAL ASSEMBLY</b> ..... | <b>109</b> | Diagnosis Procedure .....   | 132        |
| Description .....   | 109        | <b>C1A16 RADAR STAIN</b> .....  | <b>134</b> |
| Work Procedure .....  | 109        | DTC Logic .....   | 134        |
|   |            | Diagnosis Procedure .....   | 134        |
|   |            | <b>C1A17 ICC SENSOR</b> .....   | <b>135</b> |
|   |            | DTC Logic .....   | 135        |
|   |            | Diagnosis Procedure .....   | 135        |
|   |            | <b>C1A18 LASER AIMING INCOMP</b> .....                                  | <b>136</b> |
|   |            | DTC Logic .....   | 136        |

|  |            |  |            |     |
|--|------------|--|------------|-----|
| Diagnosis Procedure .....                              | 136        | ACCELERATOR PEDAL ACTUATOR : DTC Logic .....                       | 150        | A   |
| <b>C1A21 UNIT HIGH TEMP .....</b>                      | <b>137</b> | ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure .....             | 151        | B   |
| DTC Logic .....  | 137        | <b>C1F02 ACCELERATOR PEDAL ACTUATOR. 152</b>                       |            |     |
| Diagnosis Procedure .....                              | 137        | <b>ADAS CONTROL UNIT .....</b>                                     | <b>152</b> | C   |
| <b>C1A24 NP RANGE .....</b>                            | <b>138</b> | ADAS CONTROL UNIT : DTC Logic .....                                | 152        |     |
| DTC Logic .....  | 138        | ADAS CONTROL UNIT : Diagnosis Procedure ...                        | 152        |     |
| Diagnosis Procedure .....                              | 138        | <b>ACCELERATOR PEDAL ACTUATOR .....</b>                            | <b>152</b> | D   |
| <b>C1A26 ECD MODE MALFUNCTION .....</b>                | <b>140</b> | ACCELERATOR PEDAL ACTUATOR : DTC Logic .....                       | 152        |     |
| DTC Logic .....  | 140        | ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure .....             | 152        | E   |
| Diagnosis Procedure .....                              | 140        | <b>C1F03 ACCELERATOR PEDAL ACTUATOR. 154</b>                       |            |     |
| <b>C1A27 ECD POWER SUPPLY CIRCUIT .....</b>            | <b>141</b> | DTC Logic .....  | 154        | F   |
| DTC Logic .....  | 141        | Diagnosis Procedure .....  | 154        |     |
| Diagnosis Procedure .....                              | 141        | <b>C1F05 ACCELERATOR PEDAL ACTUATOR POWER SUPPLY CIRCUIT .....</b> | <b>155</b> | G   |
| <b>C1A2A ICC SENSOR POWER SUPPLY CIRCUIT .....</b>     | <b>142</b> | <b>ADAS CONTROL UNIT .....</b>                                     | <b>155</b> | H   |
| DTC Logic .....  | 142        | ADAS CONTROL UNIT : DTC Logic .....                                | 155        |     |
| Diagnosis Procedure .....                              | 142        | ADAS CONTROL UNIT : Diagnosis Procedure ...                        | 155        |     |
| <b>C1A33 CAN TRANSMISSION ERROR .....</b>              | <b>143</b> | <b>ACCELERATOR PEDAL ACTUATOR .....</b>                            | <b>155</b> | I   |
| DTC Logic .....  | 143        | ACCELERATOR PEDAL ACTUATOR : DTC Logic .....                       | 155        |     |
| Diagnosis Procedure .....                              | 143        | ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure .....             | 156        | J   |
| <b>C1A34 COMMAND ERROR .....</b>                       | <b>144</b> | <b>C1F06 CAN CIRCUIT2 .....</b>                                    | <b>157</b> | K   |
| DTC Logic .....  | 144        | DTC Logic .....  | 157        |     |
| Diagnosis Procedure .....                              | 144        | Diagnosis Procedure .....  | 157        |     |
| <b>C1A35 ACCELERATOR PEDAL ACTUATOR. 145</b>           |            | <b>C1F07 CAN CIRCUIT1 .....</b>                                    | <b>158</b> | L   |
| DTC Logic .....  | 145        | DTC Logic .....  | 158        |     |
| Diagnosis Procedure .....                              | 145        | Diagnosis Procedure .....  | 158        |     |
| <b>C1A36 ACCELERATOR PEDAL ACTUATOR CAN COMM .....</b> | <b>146</b> | <b>U0121 VDC CAN 2 .....</b>                                       | <b>159</b> | M   |
| DTC Logic .....  | 146        | DTC Logic .....  | 159        |     |
| Diagnosis Procedure .....                              | 146        | Diagnosis Procedure .....  | 159        |     |
| <b>C1A37 ACCELERATOR PEDAL ACTUATOR CAN 2 .....</b>    | <b>147</b> | <b>U0126 STRG SEN CAN 1 .....</b>                                  | <b>160</b> | N   |
| DTC Logic .....  | 147        | DTC Logic .....  | 160        |     |
| Diagnosis Procedure .....                              | 147        | Diagnosis Procedure .....  | 160        |     |
| <b>C1A38 ACCELERATOR PEDAL ACTUATOR CAN 1 .....</b>    | <b>148</b> | <b>U0235 ICC SENSOR CAN 1 .....</b>                                | <b>161</b> | DAS |
| DTC Logic .....  | 148        | DTC Logic .....  | 161        |     |
| Diagnosis Procedure .....                              | 148        | Diagnosis Procedure .....  | 161        |     |
| <b>C1A39 STEERING ANGLE SENSOR .....</b>               | <b>149</b> | <b>U0401 ECM CAN 1 .....</b>                                       | <b>162</b> | P   |
| DTC Logic .....  | 149        | DTC Logic .....  | 162        |     |
| Diagnosis Procedure .....                              | 149        | Diagnosis Procedure .....  | 162        |     |
| <b>C1F01 ACCELERATOR PEDAL ACTUATOR. 150</b>           |            | <b>U0402 TCM CAN 1 .....</b>                                       | <b>163</b> |     |
| <b>ADAS CONTROL UNIT .....</b>                         | <b>150</b> | DTC Logic .....  | 163        |     |
| ADAS CONTROL UNIT : DTC Logic .....                    | 150        | Diagnosis Procedure .....  | 163        |     |
| ADAS CONTROL UNIT : Diagnosis Procedure ...            | 150        | <b>U0415 VDC CAN 1 .....</b>                                       | <b>164</b> |     |
| <b>ACCELERATOR PEDAL ACTUATOR .....</b>                | <b>150</b> |  |            |     |

|   |            |   |            |
|---|------------|---|------------|
| DTC Logic .....   | 164        | Diagnosis Procedure .....                                 | 175        |
| Diagnosis Procedure .....                                 | 164        |   |            |
| <b>U0428 STRG SEN CAN 2 .....</b>                         | <b>165</b> | <b>U1515 ICC SENSOR CAN 3 .....</b>                       | <b>176</b> |
| DTC Logic .....   | 165        | DTC Logic .....   | 176        |
| Diagnosis Procedure .....                                 | 165        | Diagnosis Procedure .....                                 | 176        |
| <b>U1000 CAN COMM CIRCUIT .....</b>                       | <b>166</b> | <b>U1517 ACCELERATOR PEDAL ACTUATOR</b>                   |            |
| <b>ADAS CONTROL UNIT .....</b>                            | <b>166</b> | <b>CAN 3 .....</b>  | <b>177</b> |
| ADAS CONTROL UNIT : Description .....                     | 166        | DTC Logic .....   | 177        |
| ADAS CONTROL UNIT : DTC Logic .....                       | 166        | Diagnosis Procedure .....                                 | 177        |
| ADAS CONTROL UNIT : Diagnosis Procedure ....              | 166        | <b>POWER SUPPLY AND GROUND CIRCUIT ...</b>                | <b>178</b> |
| <b>ACCELERATOR PEDAL ACTUATOR .....</b>                   | <b>166</b> | <b>ADAS CONTROL UNIT .....</b>                            | <b>178</b> |
| ACCELERATOR PEDAL ACTUATOR : Descrip-<br>tion .....       | 166        | ADAS CONTROL UNIT : Diagnosis Procedure ...               | 178        |
| ACCELERATOR PEDAL ACTUATOR : DTC Log-<br>ic .....         | 166        | <b>ACCELERATOR PEDAL ACTUATOR .....</b>                   | <b>178</b> |
| ACCELERATOR PEDAL ACTUATOR : Diagnosis<br>Procedure ..... | 167        | ACCELERATOR PEDAL ACTUATOR : Diagnosis<br>Procedure ..... | 178        |
| <b>U1010 CONTROL UNIT (CAN) .....</b>                     | <b>168</b> | <b>SYMPTOM DIAGNOSIS .....</b>                            | <b>180</b> |
| <b>ADAS CONTROL UNIT .....</b>                            | <b>168</b> | <b>DISTANCE CONTROL ASSIST SYSTEM</b>                     |            |
| ADAS CONTROL UNIT : Description .....                     | 168        | <b>SYMPTOMS .....</b>                                     | <b>180</b> |
| ADAS CONTROL UNIT : DTC Logic .....                       | 168        | Symptom Table .....                                       | 180        |
| ADAS CONTROL UNIT : Diagnosis Procedure ....              | 168        | <b>SWITCH DOES NOT TURN ON / SWITCH</b>                   |            |
| <b>ACCELERATOR PEDAL ACTUATOR .....</b>                   | <b>168</b> | <b>DOES NOT TURN OFF .....</b>                            | <b>181</b> |
| ACCELERATOR PEDAL ACTUATOR : Descrip-<br>tion .....       | 168        | Description .....   | 181        |
| ACCELERATOR PEDAL ACTUATOR : DTC Log-<br>ic .....         | 168        | Diagnosis Procedure .....                                 | 181        |
| ACCELERATOR PEDAL ACTUATOR : Diagnosis<br>Procedure ..... | 168        | <b>DCA SYSTEM SETTINGS CANNOT BE</b>                      |            |
| <b>U150B ECM CAN 3 .....</b>                              | <b>169</b> | <b>TURNUED ON/OFF ON THE NAVIGATION</b>                   |            |
| DTC Logic .....   | 169        | <b>SCREEN .....</b>                                       | <b>183</b> |
| Diagnosis Procedure .....                                 | 169        | Description .....   | 183        |
| <b>U150C VDC CAN 3 .....</b>                              | <b>170</b> | Diagnosis Procedure .....                                 | 183        |
| DTC Logic .....   | 170        | <b>DCA SYSTEM NOT ACTIVATED (SWITCH IS</b>                |            |
| Diagnosis Procedure .....                                 | 170        | <b>ON) .....</b>  | <b>184</b> |
| <b>U150D TCM CAN 3 .....</b>                              | <b>171</b> | Description .....   | 184        |
| DTC Logic .....   | 171        | Diagnosis Procedure .....                                 | 184        |
| Diagnosis Procedure .....                                 | 171        | <b>CHIME DOES NOT SOUND .....</b>                         | <b>186</b> |
| <b>U150E BCM CAN 3 .....</b>                              | <b>172</b> | Description .....   | 186        |
| DTC Logic .....   | 172        | Diagnosis Procedure .....                                 | 186        |
| Diagnosis Procedure .....                                 | 172        | <b>NO FORCE GENERATED FOR PUTTING</b>                     |            |
| <b>U1502 ICC SENSOR CAN COMM CIRC .....</b>               | <b>173</b> | <b>BACK THE ACCELERATOR PEDAL .....</b>                   | <b>188</b> |
| DTC Logic .....   | 173        | Description .....   | 188        |
| Diagnosis Procedure .....                                 | 173        | Diagnosis Procedure .....                                 | 188        |
| <b>U1513 METER CAN 3 .....</b>                            | <b>174</b> | <b>FREQUENTLY CANNOT DETECT THE VEHI-</b>                 |            |
| DTC Logic .....   | 174        | <b>CLE AHEAD / DETECTION ZONE IS SHORT..</b>              | <b>189</b> |
| Diagnosis Procedure .....                                 | 174        | Description .....   | 189        |
| <b>U1514 STRG SEN CAN 3 .....</b>                         | <b>175</b> | Diagnosis Procedure .....                                 | 189        |
| DTC Logic .....   | 175        | <b>THE SYSTEM DOES NOT DETECT THE VE-</b>                 |            |
|   |            | <b>HICLE AHEAD AT ALL .....</b>                           | <b>191</b> |
|   |            | Description .....   | 191        |
|   |            | Diagnosis Procedure .....                                 | 191        |
|   |            | <b>NORMAL OPERATING CONDITION .....</b>                   | <b>193</b> |

|   |            |   |            |   |
|---|------------|---|------------|---|
| Description .....                               | 193        | <b>DRIVER ASSISTANCE SYSTEMS .....</b>        | <b>235</b> |   |
| <b>REMOVAL AND INSTALLATION .....</b>           | <b>195</b> | Wiring Diagram .....                          | 235        | A |
| <b>ICC SENSOR .....</b>                         | <b>195</b> | <b>BASIC INSPECTION .....</b>                 | <b>239</b> |   |
| Exploded View .....                             | 195        | <b>DIAGNOSIS AND REPAIR WORK FLOW .....</b>   | <b>239</b> | B |
| Removal and Installation .....                  | 195        | Work Flow .....                               | 239        |   |
| <b>ACCELERATOR PEDAL ASSEMBLY .....</b>         | <b>196</b> | <b>SYMPTOM DIAGNOSIS .....</b>                | <b>241</b> | C |
| Exploded View .....                             | 196        | <b>FORWARD COLLISION WARNING SYSTEM</b>       |            |   |
| <b>DYNAMIC DRIVER ASSISTANCE SWITCH ..</b>      | <b>197</b> | <b>SYMPTOMS .....</b>                         | <b>241</b> | D |
| Exploded View .....                             | 197        | Symptom Table .....                           | 241        |   |
| <b>FCW</b>                                      |            |   |            |   |
| <b>PRECAUTION .....</b>                         | <b>198</b> | <b>FCW SYSTEM IS NOT ACTIVATED .....</b>      | <b>242</b> | E |
| <b>PRECAUTIONS .....</b>                        | <b>198</b> | Description .....                             | 242        |   |
| Precaution for FCW System Service .....         | 198        | Diagnosis Procedure .....                     | 242        |   |
| <b>SYSTEM DESCRIPTION .....</b>                 | <b>199</b> | <b>FCW SYSTEM SETTINGS CANNOT BE</b>          |            |   |
| <b>COMPONENT PARTS .....</b>                    | <b>199</b> | <b>TURNOFF ON THE NAVIGATION</b>              |            | F |
| Component Parts Location .....                  | 199        | <b>SCREEN .....</b>                           | <b>243</b> |   |
| Component Description .....                     | 199        | Description .....                             | 243        | G |
| <b>SYSTEM .....</b>                             | <b>201</b> | Diagnosis Procedure .....                     | 243        |   |
| System Description .....                        | 201        | <b>NORMAL OPERATING CONDITION .....</b>       | <b>244</b> | H |
| Fail-safe (ADAS Control Unit) .....             | 202        | Description .....                             | 244        |   |
| Fail-safe (ICC Sensor) .....                    | 203        | <b>REMOVAL AND INSTALLATION .....</b>         | <b>245</b> |   |
| <b>OPERATION .....</b>                          | <b>204</b> | <b>WARNING SYSTEMS SWITCH .....</b>           | <b>245</b> | I |
| Switch Name and Function .....                  | 204        | Removal and Installation .....                | 245        |   |
| Menu Displayed by Pressing Each Switch .....    | 204        | <b>LDW &amp; LDP</b>                          |            |   |
| <b>HANDLING PRECAUTION .....</b>                | <b>206</b> | <b>PRECAUTION .....</b>                       | <b>246</b> | J |
| Precautions for Forward Collision Warning ..... | 206        | <b>PRECAUTIONS .....</b>                      | <b>246</b> | K |
| <b>DIAGNOSIS SYSTEM (ADAS CONTROL</b>           |            | Precaution for Supplemental Restraint System  |            |   |
| <b>UNIT) .....</b>                              | <b>207</b> | (SRS) "AIR BAG" and "SEAT BELT PRE-TEN-       |            | L |
| On Board Diagnosis Function .....               | 207        | SIONER" .....                                 | 246        |   |
| CONSULT Function (ICC/ADAS) .....               | 208        | Precautions For Harness Repair .....          | 246        |   |
| <b>DIAGNOSIS SYSTEM (ICC SENSOR) .....</b>      | <b>219</b> | Precaution for LDW/LDP System Service .....   | 247        |   |
| CONSULT Function (LASER) .....                  | 219        | <b>SYSTEM DESCRIPTION .....</b>               | <b>248</b> | M |
| <b>ECU DIAGNOSIS INFORMATION .....</b>          | <b>220</b> | <b>COMPONENT PARTS .....</b>                  | <b>248</b> | N |
| <b>ADAS CONTROL UNIT .....</b>                  | <b>220</b> | <b>LANE DEPARTURE WARNING (LDW) SYSTEM ..</b> | <b>248</b> |   |
| Reference Value .....                           | 220        | LANE DEPARTURE WARNING (LDW) SYSTEM           |            |   |
| Fail-safe .....                                 | 225        | : Component Parts Location .....              | 248        |   |
| DTC Inspection Priority Chart .....             | 226        | LANE DEPARTURE WARNING (LDW) SYSTEM           |            |   |
| DTC Index .....                                 | 227        | : Component Description .....                 | 248        |   |
| <b>ICC SENSOR .....</b>                         | <b>232</b> | <b>LANE DEPARTURE PREVENTION (LDP) SYS-</b>   |            |   |
| Reference Value .....                           | 232        | <b>TEM .....</b>                              | <b>249</b> | P |
| Fail-safe .....                                 | 233        | LANE DEPARTURE PREVENTION (LDP) SYS-          |            |   |
| DTC Inspection Priority Chart .....             | 233        | TEM : Component Parts Location .....          | 249        |   |
| DTC Index .....                                 | 233        | LANE DEPARTURE PREVENTION (LDP) SYS-          |            |   |
| <b>WIRING DIAGRAM .....</b>                     | <b>235</b> | TEM : Component Description .....             | 250        |   |
|   |            | <b>SYSTEM .....</b>                           | <b>251</b> |   |
|   |            | <b>LANE DEPARTURE WARNING (LDW) SYSTEM ..</b> | <b>251</b> |   |

|   |            |   |            |
|---|------------|---|------------|
| LANE DEPARTURE WARNING (LDW) SYSTEM<br>: System Description .....                       | 251        | <b>BASIC INSPECTION .....</b>   | <b>299</b> |
| LANE DEPARTURE WARNING (LDW) SYSTEM<br>: Fail-safe (ADAS Control Unit) .....            | 253        | <b>DIAGNOSIS AND REPAIR WORK FLOW .....</b>                                 | <b>299</b> |
| LANE DEPARTURE WARNING (LDW) SYSTEM<br>: Fail-safe (Lane Camera Unit) .....             | 254        | Work Flow .....   | 299        |
| <b>LANE DEPARTURE PREVENTION (LDP) SYS-<br/>TEM .....</b>                               | <b>254</b> | Diagnostic Work Sheet .....   | 300        |
| LANE DEPARTURE PREVENTION (LDP) SYS-<br>TEM : System Description .....                  | 255        | <b>PRE-INSPECTION FOR DIAGNOSIS .....</b>                                   | <b>302</b> |
| LANE DEPARTURE PREVENTION (LDP) SYS-<br>TEM : Fail-safe (ADAS Control Unit) .....       | 258        | Inspection Procedure .....  | 302        |
| LANE DEPARTURE PREVENTION (LDP) SYS-<br>TEM : Fail-safe (Lane Camera Unit) .....        | 259        | <b>ACTION TEST .....</b>  | <b>303</b> |
| <b>OPERATION .....</b>  | <b>260</b> | Description .....   | 303        |
| <b>LANE DEPARTURE WARNING (LDW) SYSTEM ..</b>   | <b>260</b> | Inspection Procedure .....  | 303        |
| LANE DEPARTURE WARNING (LDW) SYSTEM<br>: Switch Name and Function .....                 | 260        | <b>ADDITIONAL SERVICE WHEN REPLACING<br/>LANE CAMERA UNIT .....</b>         | <b>306</b> |
| LANE DEPARTURE WARNING (LDW) SYSTEM<br>: Menu Displayed by Pressing Each Switch .....   | 260        | Description .....   | 306        |
| <b>LANE DEPARTURE PREVENTION (LDP) SYS-<br/>TEM .....</b>                               | <b>261</b> | Work Procedure .....  | 306        |
| LANE DEPARTURE PREVENTION (LDP) SYS-<br>TEM : Switch Name and Function .....            | 261        | <b>CAMERA AIMING ADJUSTMENT .....</b>                                       | <b>307</b> |
| LANE DEPARTURE PREVENTION (LDP) SYS-<br>TEM : Menu Displayed by Pressing Each Switch .. | 261        | Description .....   | 307        |
| <b>HANDLING PRECAUTION .....</b>  | <b>263</b> | Work Procedure (Preparation) .....  | 307        |
| Precautions for Lane Departure Warning/Lane<br>Departure Prevention .....               | 263        | Work Procedure (Target Setting) .....                                       | 308        |
| <b>DIAGNOSIS SYSTEM (ADAS CONTROL<br/>UNIT) .....</b>                                   | <b>265</b> | Work Procedure (Camera Aiming Adjustment) ....                              | 309        |
| On Board Diagnosis Function .....   | 265        | Work Procedure (Target Mark Sample) .....                                   | 310        |
| CONSULT Function (ICC/ADAS) .....   | 266        | <b>DTC/CIRCUIT DIAGNOSIS .....</b>  | <b>312</b> |
| <b>DIAGNOSIS SYSTEM (LANE CAMERA<br/>UNIT) .....</b>                                    | <b>277</b> | <b>C1A00 CONTROL UNIT .....</b>   | <b>312</b> |
| CONSULT Function (LANE CAMERA) .....  | 277        | DTC Logic .....   | 312        |
| <b>ECU DIAGNOSIS INFORMATION .....</b>  | <b>279</b> | Diagnosis Procedure .....   | 312        |
| <b>ADAS CONTROL UNIT .....</b>  | <b>279</b> | <b>C1A01 POWER SUPPLY CIRCUIT 1, C1A02<br/>POWER SUPPLY CIRCUIT 2 .....</b> | <b>313</b> |
| Reference Value .....   | 279        | DTC Logic .....   | 313        |
| Fail-safe .....   | 284        | Diagnosis Procedure .....   | 313        |
| DTC Inspection Priority Chart .....   | 285        | <b>C1A03 VEHICLE SPEED SENSOR .....</b>                                     | <b>314</b> |
| DTC Index .....   | 286        | DTC Logic .....   | 314        |
| <b>LANE CAMERA UNIT .....</b>   | <b>291</b> | Diagnosis Procedure .....   | 314        |
| Reference Value .....   | 291        | <b>C1A04 ABS/TCS/VDC SYSTEM .....</b>                                       | <b>315</b> |
| Fail-safe .....   | 292        | DTC Logic .....   | 315        |
| DTC Inspection Priority Chart .....   | 293        | Diagnosis Procedure .....   | 315        |
| DTC Index .....   | 293        | <b>C1A05 BRAKE SW/STOP LAMP SW .....</b>                                    | <b>316</b> |
| <b>WIRING DIAGRAM .....</b>   | <b>295</b> | DTC Logic .....   | 316        |
| <b>DRIVER ASSISTANCE SYSTEMS .....</b>  | <b>295</b> | Diagnosis Procedure .....   | 316        |
| Wiring Diagram .....  | 295        | Component Inspection (ICC Brake Switch) .....                               | 319        |
|   |            | Component Inspection (Stop Lamp Switch) .....                               | 319        |
|   |            | <b>C1A06 OPERATION SW .....</b>   | <b>321</b> |
|   |            | DTC Logic .....   | 321        |
|   |            | Diagnosis Procedure .....   | 321        |
|   |            | Component Inspection .....  | 322        |
|   |            | <b>C1A14 ECM .....</b>  | <b>324</b> |
|   |            | DTC Logic .....   | 324        |
|   |            | Diagnosis Procedure .....   | 324        |
|   |            | <b>C1A15 GEAR POSITION .....</b>  | <b>325</b> |
|   |            | Description .....   | 325        |
|   |            | DTC Logic .....   | 325        |

|  |            |  |            |   |
|--|------------|--|------------|---|
| Diagnosis Procedure .....                    | 325        | <b>U0415 VDC CAN 1 .....</b>                 | <b>341</b> |   |
| <b>C1A24 NP RANGE .....</b>                  | <b>327</b> | DTC Logic .....                              | 341        | A |
| DTC Logic .....                              | 327        | Diagnosis Procedure .....                    | 341        |   |
| Diagnosis Procedure .....                    | 327        | <b>U0428 STRG SEN CAN 2 .....</b>            | <b>342</b> | B |
| <b>C1A50 ADAS CONTROL UNIT .....</b>         | <b>329</b> | DTC Logic .....                              | 342        |   |
| DTC Logic .....                              | 329        | Diagnosis Procedure .....                    | 342        |   |
| Diagnosis Procedure .....                    | 329        | <b>U1000 CAN COMM CIRCUIT .....</b>          | <b>343</b> | C |
| <b>C1B00 CAMERA UNIT MALF .....</b>          | <b>330</b> | <b>ADAS CONTROL UNIT .....</b>               | <b>343</b> |   |
| <b>ADAS CONTROL UNIT .....</b>               | <b>330</b> | ADAS CONTROL UNIT : Description .....        | 343        | D |
| ADAS CONTROL UNIT : DTC Logic .....          | 330        | ADAS CONTROL UNIT : DTC Logic .....          | 343        |   |
| ADAS CONTROL UNIT : Diagnosis Procedure ...  | 330        | ADAS CONTROL UNIT : Diagnosis Procedure ...  | 343        |   |
| <b>LANE CAMERA UNIT .....</b>                | <b>330</b> | <b>LANE CAMERA UNIT .....</b>                | <b>343</b> | E |
| LANE CAMERA UNIT : DTC Logic .....           | 330        | LANE CAMERA UNIT : Description .....         | 343        |   |
| LANE CAMERA UNIT : Diagnosis Procedure ..... | 330        | LANE CAMERA UNIT : DTC Logic .....           | 343        |   |
| <b>C1B01 CAM AIMING INCOMP .....</b>         | <b>332</b> | LANE CAMERA UNIT : Diagnosis Procedure ..... | 344        | F |
| <b>ADAS CONTROL UNIT .....</b>               | <b>332</b> | <b>U1010 CONTROL UNIT (CAN) .....</b>        | <b>345</b> |   |
| ADAS CONTROL UNIT : DTC Logic .....          | 332        | <b>ADAS CONTROL UNIT .....</b>               | <b>345</b> | G |
| ADAS CONTROL UNIT : Diagnosis Procedure ...  | 332        | ADAS CONTROL UNIT : Description .....        | 345        |   |
| <b>LANE CAMERA UNIT .....</b>                | <b>332</b> | ADAS CONTROL UNIT : DTC Logic .....          | 345        |   |
| LANE CAMERA UNIT : DTC Logic .....           | 332        | ADAS CONTROL UNIT : Diagnosis Procedure ...  | 345        | H |
| LANE CAMERA UNIT : Diagnosis Procedure ..... | 332        | <b>LANE CAMERA UNIT .....</b>                | <b>345</b> |   |
| <b>C1B03 ABRML TEMP DETECT .....</b>         | <b>334</b> | LANE CAMERA UNIT : Description .....         | 345        | I |
| <b>ADAS CONTROL UNIT .....</b>               | <b>334</b> | LANE CAMERA UNIT : DTC Logic .....           | 345        |   |
| ADAS CONTROL UNIT : DTC Logic .....          | 334        | LANE CAMERA UNIT : Diagnosis Procedure ..... | 345        |   |
| ADAS CONTROL UNIT : Diagnosis Procedure ...  | 334        | <b>U150B ECM CAN 3 .....</b>                 | <b>346</b> | J |
| <b>LANE CAMERA UNIT .....</b>                | <b>334</b> | DTC Logic .....                              | 346        |   |
| LANE CAMERA UNIT : DTC Logic .....           | 334        | Diagnosis Procedure .....                    | 346        |   |
| LANE CAMERA UNIT : Diagnosis Procedure ..... | 334        | <b>U150C VDC CAN 3 .....</b>                 | <b>347</b> | K |
| <b>C1B03 ABRML TEMP DETECT .....</b>         | <b>334</b> | DTC Logic .....                              | 347        |   |
| <b>ADAS CONTROL UNIT .....</b>               | <b>334</b> | Diagnosis Procedure .....                    | 347        |   |
| ADAS CONTROL UNIT : DTC Logic .....          | 334        | <b>U150D TCM CAN 3 .....</b>                 | <b>348</b> | L |
| ADAS CONTROL UNIT : Diagnosis Procedure ...  | 334        | DTC Logic .....                              | 348        |   |
| <b>LANE CAMERA UNIT .....</b>                | <b>334</b> | Diagnosis Procedure .....                    | 348        |   |
| LANE CAMERA UNIT : DTC Logic .....           | 334        | <b>U150E BCM CAN 3 .....</b>                 | <b>349</b> | M |
| LANE CAMERA UNIT : Diagnosis Procedure ..... | 334        | DTC Logic .....                              | 349        |   |
| <b>U0104 ADAS CAN 1 .....</b>                | <b>335</b> | Diagnosis Procedure .....                    | 349        |   |
| DTC Logic .....                              | 335        | <b>U1500 CAM CAN 2 .....</b>                 | <b>350</b> | N |
| Diagnosis Procedure .....                    | 335        | DTC Logic .....                              | 350        |   |
| <b>U0121 VDC CAN 2 .....</b>                 | <b>336</b> | Diagnosis Procedure .....                    | 350        |   |
| DTC Logic .....                              | 336        | <b>U1501 CAM CAN 1 .....</b>                 | <b>351</b> |   |
| Diagnosis Procedure .....                    | 336        | DTC Logic .....                              | 351        |   |
| <b>U0126 STRG SEN CAN 1 .....</b>            | <b>337</b> | Diagnosis Procedure .....                    | 351        | P |
| DTC Logic .....                              | 337        | <b>U1512 HVAC CAN 3 .....</b>                | <b>352</b> |   |
| Diagnosis Procedure .....                    | 337        | DTC Logic .....                              | 352        |   |
| <b>U0401 ECM CAN 1 .....</b>                 | <b>338</b> | Diagnosis Procedure .....                    | 352        |   |
| DTC Logic .....                              | 338        | <b>U1513 METER CAN 3 .....</b>               | <b>353</b> |   |
| Diagnosis Procedure .....                    | 338        | DTC Logic .....                              | 353        |   |
| <b>U0402 TCM CAN 1 .....</b>                 | <b>339</b> | Diagnosis Procedure .....                    | 353        |   |
| DTC Logic .....                              | 339        | <b>U0405 ADAS CAN 2 .....</b>                | <b>340</b> |   |
| Diagnosis Procedure .....                    | 339        | DTC Logic .....                              | 340        |   |
| <b>U0405 ADAS CAN 2 .....</b>                | <b>340</b> | Diagnosis Procedure .....                    | 340        |   |
| DTC Logic .....                              | 340        |  |            |   |
| Diagnosis Procedure .....                    | 340        |  |            |   |

DAS

|   |            |  |            |
|---|------------|--|------------|
| <b>U1516 CAM CAN 3</b> .....  | <b>354</b> | Removal and Installation .....   | 372        |
| DTC Logic .....   | 354        | <b>DYNAMIC DRIVER ASSISTANCE SWITCH</b> ..   | <b>373</b> |
| Diagnosis Procedure .....   | 354        | Exploded View .....  | 373        |
| <b>POWER SUPPLY AND GROUND CIRCUIT</b> ..   | <b>355</b> | <b>WARNING BUZZER</b> .....  | <b>374</b> |
| <b>ADAS CONTROL UNIT</b> .....  | <b>355</b> | Removal and Installation .....   | 374        |
| ADAS CONTROL UNIT : Diagnosis Procedure ..  | 355        | <b>BSW &amp; BSI</b>   |            |
| <b>LANE CAMERA UNIT</b> .....   | <b>355</b> | <b>PRECAUTION</b> .....  | <b>375</b> |
| LANE CAMERA UNIT : Diagnosis Procedure .....  | 355        | <b>PRECAUTIONS</b> .....   | <b>375</b> |
| <b>WARNING SYSTEMS SWITCH CIRCUIT</b> .....   | <b>357</b> | Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" ..... | 375        |
| Component Function Check .....  | 357        | Precaution for BSW/BSI System Service .....  | 375        |
| Diagnosis Procedure .....   | 357        | <b>SYSTEM DESCRIPTION</b> .....  | <b>377</b> |
| Component Inspection .....  | 358        | <b>COMPONENT PARTS</b> .....   | <b>377</b> |
| <b>WARNING SYSTEMS ON INDICATOR CIRCUIT</b> .....                                     | <b>359</b> | Component Parts Location .....   | 377        |
| Component Function Check .....  | 359        | Component Description .....  | 378        |
| Diagnosis Procedure .....   | 359        | <b>SYSTEM</b> .....  | <b>380</b> |
| Component Inspection .....  | 360        | <b>BLIND SPOT WARNING (BSW) SYSTEM</b> .....   | <b>380</b> |
| <b>WARNING BUZZER CIRCUIT</b> .....   | <b>361</b> | BLIND SPOT WARNING (BSW) SYSTEM : System Description .....                                       | 380        |
| Component Function Check .....  | 361        | BLIND SPOT WARNING (BSW) SYSTEM : Fail-safe (ADAS Control Unit) .....                            | 384        |
| Diagnosis Procedure .....   | 361        | BLIND SPOT WARNING (BSW) SYSTEM : Fail-safe (Lane Camera Unit) .....                             | 384        |
| <b>SYMPTOM DIAGNOSIS</b> .....  | <b>363</b> | BLIND SPOT WARNING (BSW) SYSTEM : Fail-safe (Side Radar) .....                                   | 384        |
| <b>LDW &amp; LDP SYSTEM SYMPTOMS</b> .....  | <b>363</b> | <b>BLIND SPOT INTERVENTION (BSI) SYSTEM</b> .....  | <b>385</b> |
| Symptom Table .....   | 363        | BLIND SPOT INTERVENTION (BSI) SYSTEM : System Description .....                                  | 385        |
| <b>LANE DEPARTURE WARNING LAMP DOES NOT TURNED ON</b> .....                           | <b>365</b> | BLIND SPOT INTERVENTION (BSI) SYSTEM : Fail-safe (ADAS Control Unit) .....                       | 389        |
| Description .....   | 365        | BLIND SPOT INTERVENTION (BSI) SYSTEM : Fail-safe (Lane Camera Unit) .....                        | 390        |
| Diagnosis Procedure .....   | 365        | BLIND SPOT INTERVENTION (BSI) SYSTEM : Fail-safe (Side Radar) .....                              | 390        |
| <b>LDP ON INDICATOR LAMP DOES NOT TURNED ON</b> .....                                 | <b>366</b> | <b>OPERATION</b> .....   | <b>391</b> |
| Description .....   | 366        | <b>BLIND SPOT WARNING (BSW) SYSTEM</b> .....   | <b>391</b> |
| Diagnosis Procedure .....   | 366        | BLIND SPOT WARNING (BSW) SYSTEM : Switch Name and Function .....                                 | 391        |
| <b>THE SYSTEM OPERATES EVEN WHEN USING TURN SIGNAL</b> .....                          | <b>367</b> | BLIND SPOT WARNING (BSW) SYSTEM : System Display and Warning .....                               | 391        |
| Description .....   | 367        | <b>BLIND SPOT INTERVENTION (BSI) SYSTEM</b> .....  | <b>392</b> |
| Diagnosis Procedure .....   | 367        | BLIND SPOT INTERVENTION (BSI) SYSTEM : System Description .....                                  | 385        |
| <b>LDW/LDP SYSTEM SETTINGS CANNOT BE TURNED ON/OFF ON THE NAVIGATION SCREEN</b> ..... | <b>368</b> | BLIND SPOT INTERVENTION (BSI) SYSTEM : Fail-safe (ADAS Control Unit) .....                       | 389        |
| Description .....   | 368        | BLIND SPOT INTERVENTION (BSI) SYSTEM : Fail-safe (Lane Camera Unit) .....                        | 390        |
| Diagnosis Procedure .....   | 368        | BLIND SPOT INTERVENTION (BSI) SYSTEM : Fail-safe (Side Radar) .....                              | 390        |
| <b>NORMAL OPERATING CONDITION</b> .....   | <b>369</b> | <b>BLIND SPOT INTERVENTION (BSI) SYSTEM</b> .....  | <b>392</b> |
| Description .....   | 369        | BLIND SPOT INTERVENTION (BSI) SYSTEM : Switch Name and Function .....                            | 392        |
| <b>REMOVAL AND INSTALLATION</b> .....   | <b>371</b> | BLIND SPOT INTERVENTION (BSI) SYSTEM : System Display and Warning .....                          | 393        |
| <b>LANE CAMERA UNIT</b> .....   | <b>371</b> | <b>HANDLING PRECAUTION</b> .....   | <b>395</b> |
| Removal and Installation .....  | 371        | Precautions for Blind Spot Warning/Blind Spot Intervention .....                                 | 395        |
| <b>WARNING SYSTEMS SWITCH</b> .....   | <b>372</b> |  |            |



|   |            |   |            |     |
|---|------------|---|------------|-----|
| <b>DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)</b> .....               | <b>397</b> | <b>DTC/CIRCUIT DIAGNOSIS</b> .....                                      | <b>445</b> | A   |
| On Board Diagnosis Function .....                               | 397        | <b>C1A00 CONTROL UNIT</b> .....   | <b>445</b> | B   |
| CONSULT Function (ICC/ADAS) .....                               | 398        | DTC Logic .....   | 445        |     |
| <b>DIAGNOSIS SYSTEM (SIDE RADAR LH)</b> .....                   | <b>409</b> | Diagnosis Procedure .....   | 445        |     |
| CONSULT Function (SIDE RADAR LEFT) .....                        | 409        | <b>C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2</b> ..... | <b>446</b> | C   |
| <b>DIAGNOSIS SYSTEM (SIDE RADAR RH)</b> .....                   | <b>410</b> | DTC Logic .....   | 446        |     |
| CONSULT Function (SIDE RADAR RIGHT) .....                       | 410        | Diagnosis Procedure .....   | 446        |     |
| <b>DIAGNOSIS SYSTEM (LANE CAMERA UNIT)</b> .....                | <b>411</b> | <b>C1A03 VEHICLE SPEED SENSOR</b> .....                                 | <b>447</b> | D   |
| CONSULT Function (LANE CAMERA) .....                            | 411        | DTC Logic .....   | 447        |     |
| <b>ECU DIAGNOSIS INFORMATION</b> .....                          | <b>413</b> | Diagnosis Procedure .....   | 447        |     |
| <b>ADAS CONTROL UNIT</b> .....                                  | <b>413</b> | <b>C1A04 ABS/TCS/VDC SYSTEM</b> .....                                   | <b>448</b> | E   |
| Reference Value .....   | 413        | DTC Logic .....   | 448        |     |
| Fail-safe .....   | 418        | Diagnosis Procedure .....   | 448        |     |
| DTC Inspection Priority Chart .....                             | 419        | <b>C1A05 BRAKE SW/STOP LAMP SW</b> .....                                | <b>449</b> | F   |
| DTC Index .....   | 420        | DTC Logic .....   | 449        |     |
| <b>SIDE RADAR LH</b> .....                                      | <b>425</b> | Diagnosis Procedure .....   | 449        |     |
| Reference Value .....   | 425        | Component Inspection (ICC Brake Switch) .....                           | 452        | G   |
| Fail-safe .....   | 425        | Component Inspection (Stop Lamp Switch) .....                           | 452        |     |
| DTC Inspection Priority Chart .....                             | 426        | <b>C1A06 OPERATION SW</b> .....   | <b>454</b> | H   |
| DTC Index .....   | 426        | DTC Logic .....   | 454        |     |
| <b>SIDE RADAR RH</b> .....                                      | <b>427</b> | Diagnosis Procedure .....   | 454        |     |
| Reference Value .....   | 427        | Component Inspection .....  | 455        | I   |
| Fail-safe .....   | 427        | <b>C1A14 ECM</b> .....  | <b>457</b> | J   |
| DTC Inspection Priority Chart .....                             | 428        | DTC Logic .....   | 457        |     |
| DTC Index .....   | 428        | Diagnosis Procedure .....   | 457        |     |
| <b>LANE CAMERA UNIT</b> .....                                   | <b>429</b> | <b>C1A15 GEAR POSITION</b> .....  | <b>458</b> | K   |
| Reference Value .....   | 429        | Description .....   | 458        |     |
| Fail-safe .....   | 430        | DTC Logic .....   | 458        |     |
| DTC Inspection Priority Chart .....                             | 431        | Diagnosis Procedure .....   | 458        |     |
| DTC Index .....   | 431        | <b>C1A24 NP RANGE</b> .....   | <b>460</b> | L   |
| <b>WIRING DIAGRAM</b> .....                                     | <b>433</b> | DTC Logic .....   | 460        |     |
| <b>DRIVER ASSISTANCE SYSTEMS</b> .....                          | <b>433</b> | Diagnosis Procedure .....   | 460        |     |
| Wiring Diagram .....  | 433        | <b>C1A39 STEERING ANGLE SENSOR</b> .....                                | <b>462</b> | M   |
| <b>BASIC INSPECTION</b> .....                                   | <b>437</b> | DTC Logic .....   | 462        |     |
| <b>DIAGNOSIS AND REPAIR WORK FLOW</b> .....                     | <b>437</b> | Diagnosis Procedure .....   | 462        |     |
| Work Flow .....   | 437        | <b>C1A50 ADAS CONTROL UNIT</b> .....                                    | <b>463</b> | N   |
| <b>PRE-INSPECTION FOR DIAGNOSIS</b> .....                       | <b>440</b> | DTC Logic .....   | 463        |     |
| Inspection Procedure .....                                      | 440        | Diagnosis Procedure .....   | 463        |     |
| <b>ADDITIONAL SERVICE WHEN REPLACING LANE CAMERA UNIT</b> ..... | <b>441</b> | <b>C1B00 CAMERA UNIT MALF</b> .....                                     | <b>464</b> | DAS |
| Description .....   | 441        | <b>ADAS CONTROL UNIT</b> .....  | <b>464</b> |     |
| Work Procedure .....  | 441        | ADAS CONTROL UNIT : DTC Logic .....                                     | 464        | P   |
| <b>ACTION TEST</b> .....  | <b>442</b> | ADAS CONTROL UNIT : Diagnosis Procedure .....                           | 464        |     |
| Description .....   | 442        | <b>LANE CAMERA UNIT</b> .....   | <b>464</b> |     |
| Work Procedure .....  | 442        | LANE CAMERA UNIT : DTC Logic .....                                      | 464        |     |
|   |            | LANE CAMERA UNIT : Diagnosis Procedure .....                            | 464        |     |
|   |            | <b>C1B01 CAM AIMING INCOMP</b> .....                                    | <b>466</b> |     |

|  |            |   |            |
|--|------------|---|------------|
| <b>ADAS CONTROL UNIT</b> .....                           | <b>466</b> | LANE CAMERA UNIT : DTC Logic .....            | 478        |
| ADAS CONTROL UNIT : DTC Logic .....                      | 466        | LANE CAMERA UNIT : Diagnosis Procedure .....  | 478        |
| ADAS CONTROL UNIT : Diagnosis Procedure .....            | 466        |   |            |
| <b>LANE CAMERA UNIT</b> .....                            | <b>466</b> | <b>U1010 CONTROL UNIT (CAN)</b> .....         | <b>479</b> |
| LANE CAMERA UNIT : DTC Logic .....                       | 466        | <b>SIDE RADAR LH</b> .....                    | <b>479</b> |
| LANE CAMERA UNIT : Diagnosis Procedure .....             | 467        | SIDE RADAR LH : Description .....             | 479        |
|  |            | SIDE RADAR LH : DTC Logic .....               | 479        |
| <b>C1B03 ABRMML TEMP DETECT</b> .....                    | <b>468</b> | SIDE RADAR LH : Diagnosis Procedure .....     | 479        |
| <b>ADAS CONTROL UNIT</b> .....                           | <b>468</b> | <b>SIDE RADAR RH</b> .....                    | <b>479</b> |
| ADAS CONTROL UNIT : DTC Logic .....                      | 468        | SIDE RADAR RH : Description .....             | 479        |
| ADAS CONTROL UNIT : Diagnosis Procedure .....            | 468        | SIDE RADAR RH : DTC Logic .....               | 479        |
| <b>LANE CAMERA UNIT</b> .....                            | <b>468</b> | SIDE RADAR RH : Diagnosis Procedure .....     | 479        |
| LANE CAMERA UNIT : DTC Logic .....                       | 468        | <b>ADAS CONTROL UNIT</b> .....                | <b>479</b> |
| LANE CAMERA UNIT : Diagnosis Procedure .....             | 468        | ADAS CONTROL UNIT : Description .....         | 479        |
| <b>C1B50 SIDE RADAR MALFUNCTION</b> .....                | <b>469</b> | ADAS CONTROL UNIT : DTC Logic .....           | 480        |
| DTC LOGIC .....  | 469        | ADAS CONTROL UNIT : Diagnosis Procedure ..... | 480        |
| Diagnosis Procedure .....                                | 469        | <b>LANE CAMERA UNIT</b> .....                 | <b>480</b> |
| <b>C1B51 BSW/BSI INDICATOR SHORT CIR-<br/>CUIT</b> ..... | <b>470</b> | LANE CAMERA UNIT : Description .....          | 480        |
| DTC Logic .....  | 470        | LANE CAMERA UNIT : DTC Logic .....            | 480        |
| Diagnosis Procedure .....                                | 470        | LANE CAMERA UNIT : Diagnosis Procedure .....  | 480        |
| <b>C1B52 BSW/BSI INDICATOR OPEN CIR-<br/>CUIT</b> .....  | <b>471</b> | <b>U0104 ADAS CAN 1</b> .....                 | <b>481</b> |
| DTC Logic .....  | 471        | <b>SIDE RADAR</b> .....                       | <b>481</b> |
| Diagnosis Procedure .....                                | 471        | SIDE RADAR : DTC Logic .....                  | 481        |
| <b>C1B53 SIDE RADAR RIGHT MALFUNCTION</b> .....          | <b>473</b> | SIDE RADAR : Diagnosis Procedure .....        | 481        |
| DTC Logic .....  | 473        | <b>LANE CAMERA UNIT</b> .....                 | <b>481</b> |
| Diagnosis Procedure .....                                | 473        | LANE CAMERA UNIT : DTC Logic .....            | 481        |
| <b>C1B54 SIDE RADAR LEFT MALFUNCTION</b> .....           | <b>474</b> | LANE CAMERA UNIT : Diagnosis Procedure .....  | 482        |
| DTC Logic .....  | 474        | <b>U0121 VDC CAN 2</b> .....                  | <b>483</b> |
| Diagnosis Procedure .....                                | 474        | DTC Logic .....                               | 483        |
| <b>C1B55 RADAR BLOCKAGE</b> .....                        | <b>475</b> | Diagnosis Procedure .....                     | 483        |
| DTC Logic .....  | 475        | <b>U0126 STRG SEN CAN 1</b> .....             | <b>484</b> |
| Diagnosis Procedure .....                                | 475        | <b>ADAS CONTROL UNIT</b> .....                | <b>484</b> |
| <b>U1000 CAN COMM CIRCUIT</b> .....                      | <b>476</b> | ADAS CONTROL UNIT : DTC Logic .....           | 484        |
| <b>SIDE RADAR LH</b> .....                               | <b>476</b> | ADAS CONTROL UNIT : Diagnosis Procedure ..... | 484        |
| SIDE RADAR LH : Description .....                        | 476        | <b>LANE CAMERA UNIT</b> .....                 | <b>484</b> |
| SIDE RADAR LH : DTC Logic .....                          | 476        | LANE CAMERA UNIT : DTC Logic .....            | 484        |
| SIDE RADAR LH : Diagnosis Procedure .....                | 476        | LANE CAMERA UNIT : Diagnosis Procedure .....  | 485        |
| <b>SIDE RADAR RH</b> .....                               | <b>476</b> | <b>U0401 ECM CAN 1</b> .....                  | <b>486</b> |
| SIDE RADAR RH : Description .....                        | 476        | DTC Logic .....                               | 486        |
| SIDE RADAR RH : DTC Logic .....                          | 477        | Diagnosis Procedure .....                     | 486        |
| SIDE RADAR RH : Diagnosis Procedure .....                | 477        | <b>U0402 TCM CAN 1</b> .....                  | <b>487</b> |
| <b>ADAS CONTROL UNIT</b> .....                           | <b>477</b> | DTC Logic .....                               | 487        |
| ADAS CONTROL UNIT : Description .....                    | 477        | Diagnosis Procedure .....                     | 487        |
| ADAS CONTROL UNIT : DTC Logic .....                      | 477        | <b>U0405 ADAS CAN 2</b> .....                 | <b>488</b> |
| ADAS CONTROL UNIT : Diagnosis Procedure .....            | 477        | <b>SIDE RADAR</b> .....                       | <b>488</b> |
| <b>LANE CAMERA UNIT</b> .....                            | <b>478</b> | SIDE RADAR : DTC Logic .....                  | 488        |
| LANE CAMERA UNIT : Description .....                     | 478        | SIDE RADAR : Diagnosis Procedure .....        | 488        |
|  |            | <b>LANE CAMERA UNIT</b> .....                 | <b>488</b> |

|  |            |  |            |     |
|--|------------|--|------------|-----|
| LANE CAMERA UNIT : DTC Logic .....           | 488        | Diagnosis Procedure .....                    | 504        |     |
| LANE CAMERA UNIT : Diagnosis Procedure ..... | 489        |  |            | A   |
| <b>U0415 VDC CAN 1 .....</b>                 | <b>490</b> | <b>U1518 SIDE RDR L CAN 3 .....</b>          | <b>505</b> |     |
| DTC Logic .....                              | 490        | DTC Logic .....                              | 505        | B   |
| Diagnosis Procedure .....                    | 490        | Diagnosis Procedure .....                    | 505        |     |
| <b>U0428 STRG SEN CAN 2 .....</b>            | <b>491</b> | <b>U1519 SIDE RDR R CAN 3 .....</b>          | <b>506</b> |     |
|  |            | DTC Logic .....                              | 506        | C   |
| <b>ADAS CONTROL UNIT .....</b>               | <b>491</b> | Diagnosis Procedure .....                    | 506        |     |
| ADAS CONTROL UNIT : DTC Logic .....          | 491        | <b>U150B ECM CAN 3 .....</b>                 | <b>507</b> |     |
| ADAS CONTROL UNIT : Diagnosis Procedure ...  | 491        | DTC Logic .....                              | 507        | D   |
| <b>LANE CAMERA UNIT .....</b>                | <b>491</b> | Diagnosis Procedure .....                    | 507        |     |
| LANE CAMERA UNIT : DTC Logic .....           | 491        | <b>U150C VDC CAN 3 .....</b>                 | <b>508</b> |     |
| LANE CAMERA UNIT : Diagnosis Procedure ..... | 492        | DTC Logic .....                              | 508        | E   |
| <b>U1500 CAM CAN 2 .....</b>                 | <b>493</b> | Diagnosis Procedure .....                    | 508        |     |
| DTC Logic .....                              | 493        | <b>U150D TCM CAN 3 .....</b>                 | <b>509</b> |     |
| Diagnosis Procedure .....                    | 493        | DTC Logic .....                              | 509        | F   |
| <b>U1501 CAM CAN 1 .....</b>                 | <b>494</b> | Diagnosis Procedure .....                    | 509        |     |
| DTC Logic .....                              | 494        | <b>U150E BCM CAN 3 .....</b>                 | <b>510</b> |     |
| Diagnosis Procedure .....                    | 494        | DTC Logic .....                              | 510        | G   |
| <b>U1503 SIDE RDR L CAN 2 .....</b>          | <b>495</b> | Diagnosis Procedure .....                    | 510        |     |
| DTC Logic .....                              | 495        | <b>POWER SUPPLY AND GROUND CIRCUIT ..</b>    | <b>511</b> | H   |
| Diagnosis Procedure .....                    | 495        | <b>ADAS CONTROL UNIT .....</b>               | <b>511</b> |     |
| <b>U1504 SIDE RDR L CAN 1 .....</b>          | <b>496</b> | ADAS CONTROL UNIT : Diagnosis Procedure ...  | 511        | I   |
| DTC Logic .....                              | 496        | <b>SIDE RADAR LH .....</b>                   | <b>511</b> |     |
| Diagnosis Procedure .....                    | 496        | SIDE RADAR LH : Diagnosis Procedure .....    | 511        | J   |
| <b>U1505 SIDE RDR R CAN 2 .....</b>          | <b>497</b> | <b>SIDE RADAR RH .....</b>                   | <b>512</b> |     |
| DTC Logic .....                              | 497        | SIDE RADAR RH : Diagnosis Procedure .....    | 512        | K   |
| Diagnosis Procedure .....                    | 497        | <b>LANE CAMERA UNIT .....</b>                | <b>513</b> |     |
| <b>U1506 SIDE RDR R CAN 1 .....</b>          | <b>498</b> | LANE CAMERA UNIT : Diagnosis Procedure ..... | 513        | L   |
| DTC Logic .....                              | 498        | <b>RIGHT/LEFT SWITCHING SIGNAL CIRCUIT .</b> | <b>514</b> |     |
| Diagnosis Procedure .....                    | 498        | Diagnosis Procedure .....                    | 514        | M   |
| <b>U1507 LOST COMM(SIDE RDR R) .....</b>     | <b>499</b> | <b>WARNING SYSTEMS SWITCH CIRCUIT .....</b>  | <b>515</b> |     |
| DTC Logic .....                              | 499        | Component Function Check .....               | 515        | N   |
| Diagnosis Procedure .....                    | 499        | Diagnosis Procedure .....                    | 515        |     |
| <b>U1508 LOST COMM(SIDE RDR L) .....</b>     | <b>500</b> | Component Inspection .....                   | 516        |     |
| DTC Logic .....                              | 500        | <b>WARNING SYSTEMS ON INDICATOR CIR-</b>     | <b>517</b> |     |
| Diagnosis Procedure .....                    | 500        | <b>CUIT .....</b>                            | <b>517</b> |     |
| <b>U1512 HVAC CAN 3 .....</b>                | <b>501</b> | Component Function Check .....               | 517        |     |
| DTC Logic .....                              | 501        | Diagnosis Procedure .....                    | 517        | DAS |
| Diagnosis Procedure .....                    | 501        | Component Inspection .....                   | 518        |     |
| <b>U1513 METER CAN 3 .....</b>               | <b>502</b> | <b>WARNING BUZZER CIRCUIT .....</b>          | <b>519</b> |     |
| DTC Logic .....                              | 502        | Component Function Check .....               | 519        | P   |
| Diagnosis Procedure .....                    | 502        | Diagnosis Procedure .....                    | 519        |     |
| <b>U1514 STRG SEN CAN 3 .....</b>            | <b>503</b> | <b>SYMPTOM DIAGNOSIS .....</b>               | <b>521</b> |     |
| DTC Logic .....                              | 503        | <b>BSW &amp; BSI SYSTEM SYMPTOMS .....</b>   | <b>521</b> |     |
| Diagnosis Procedure .....                    | 503        | Symptom Table .....                          | 521        |     |
| <b>U1516 CAM CAN 3 .....</b>                 | <b>504</b> |  |            |     |
| DTC Logic .....                              | 504        |  |            |     |

|   |            |  |            |
|---|------------|--|------------|
| <b>SWITCH DOES NOT TURN ON / SWITCH DOES NOT TURN OFF</b> .....                       | <b>523</b> | <b>SIDE RADAR</b> .....                    | <b>528</b> |
| Description .....   | 523        | Removal and Installation .....             | 528        |
| Diagnosis Procedure .....   | 523        | <b>BSW/BSI INDICATOR</b> .....             | <b>530</b> |
| <b>BSW/BSI SYSTEM SETTINGS CANNOT BE TURNED ON/OFF ON THE NAVIGATION SCREEN</b> ..... | <b>525</b> | Removal and Installation .....             | 530        |
| Description .....   | 525        | <b>LANE CAMERA UNIT</b> .....              | <b>531</b> |
| Diagnosis Procedure .....   | 525        | Removal and Installation .....             | 531        |
| <b>NORMAL OPERATING CONDITION</b> .....   | <b>526</b> | <b>WARNING BUZZER</b> .....                | <b>532</b> |
| Description .....   | 526        | Removal and Installation .....             | 532        |
| <b>REMOVAL AND INSTALLATION</b> .....   | <b>528</b> | <b>WARNING SYSTEMS SWITCH</b> .....        | <b>533</b> |
|   |            | Removal and Installation .....             | 533        |
|   |            | <b>DYNAMIC DRIVER ASSISTANCE SWITCH</b> .. | <b>534</b> |
|   |            | Exploded View .....                        | 534        |

< PRECAUTION >

# PRECAUTION

## PRECAUTIONS

### Precautions For Harness Repair

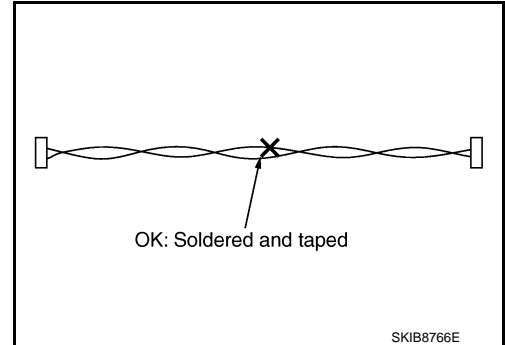
INFOID:000000006886094

ITS communication uses a twisted pair line. Be careful when repairing it.

- Solder the repaired area and wrap tape around the soldered area.

**NOTE:**

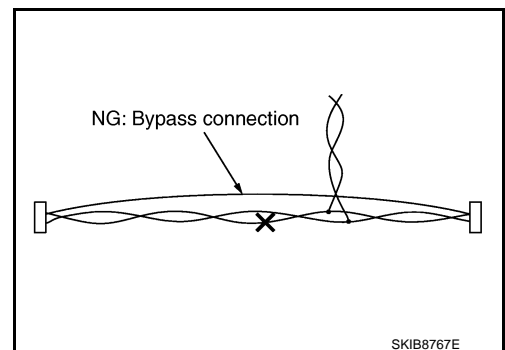
A fray of twisted lines must be within 110 mm (4.33 in).



- Bypass connection is never allowed at the repaired area.

**NOTE:**

Bypass connection may cause ITS communication error. The spliced wire becomes separated and the characteristics of twisted line are lost.



A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

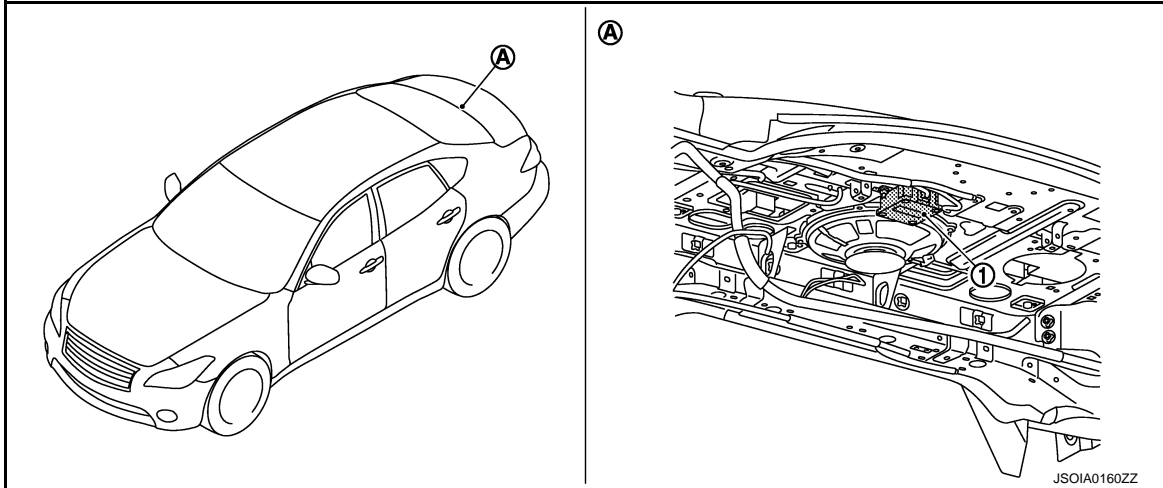
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000006886095



- 1. ADAS control unit
- A. Trunk side of rear parcel shelf

Component Description

INFOID:000000006886096

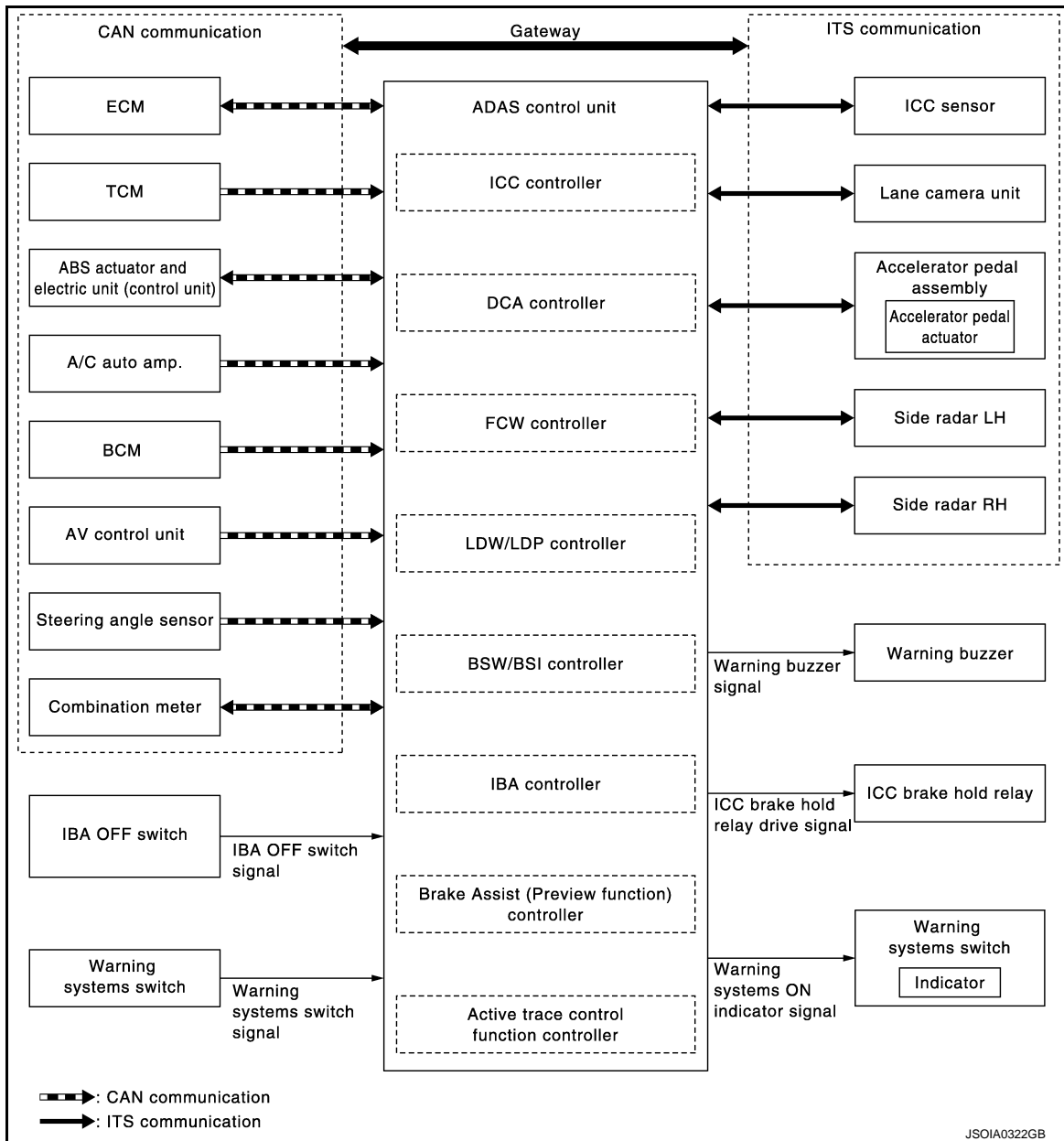
| Component         | Description  |
|-------------------|--|
| ADAS control unit | <ul style="list-style-type: none"> <li>• Controls each system, based on ITS communication signals received from the ICC sensor, the accelerator pedal actuator, the lane camera unit, and the side radar LH/RH and CAN communication signals received from each control unit</li> <li>• Transmits signals necessary for control between CAN communication and ITS communication</li> </ul> |

SYSTEM

System Description

INFOID:000000006886097

SYSTEM DIAGRAM



ADAS CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# SYSTEM

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

| Transmit unit                                 | Signal name                                      |   | Description   |   |
|---|--|---|---|---|
| ECM   | CAN communication                                | Closed throttle position signal         | Receives idle position state (ON/OFF)   |   |
|   |  | Accelerator pedal position signal       | Receives accelerator pedal position (angle)   |   |
|   |  | ICC prohibition signal                  | Receives an operable/inoperable state of the ICC system   |   |
|   |  | ICC steering switch signal              | Main switch signal  | Receives the operational state of the ICC steering switch |
|   |  |   | SET/COAST switch signal   |   |
|   |  |   | CANCEL switch signal  |   |
|   |  |   | RESUME/ACCELERATE switch signal   |   |
|   |  |   | DISTANCE switch signal  |   |
|   |  | Dynamic driver assistance switch signal |   |   |
|   |  | Engine speed signal                     | Receives engine speed   |   |
|   |  | ECO pedal reaction force control signal | Receives a reaction force limiting value of the accelerator pedal during ECO mode (ECO pedal ON) selected by operating the drive mode select switch |   |
|   |  | Stop lamp switch signal                 | Receives an operational state of the brake pedal  |   |
| ICC brake switch signal                       | Receives an operational state of the brake pedal |   |   |   |
| Snow mode switch signal                       | Receives an operational state of the snow mode   |   |   |   |
| TCM   | CAN communication                                | Input speed signal                      | Receives the number of revolutions of input shaft   |   |
|   |  | Current gear position signal            | Receives a current gear position  |   |
|   |  | Shift position signal                   | Receives a select lever position  |   |
|   |  | Output shaft revolution signal          | Receives the number of revolutions of output shaft  |   |
|   |  | Drive mode select signal                | Receives a drive mode state of ECM and TCM  |   |
| ABS actuator and electric unit (control unit) | CAN communication                                | ABS malfunction signal                  | Receives a malfunction state of ABS   |   |
|   |  | ABS operation signal                    | Receives an operational state of ABS  |   |
|   |  | ABS warning lamp signal                 | Receives an ON/OFF state of ABS warning lamp  |   |
|   |  | TCS malfunction signal                  | Receives a malfunction state of TCS   |   |
|   |  | TCS operation signal                    | Receives an operational state of TCS  |   |
|   |  | VDC OFF switch signal                   | Receives an ON/OFF state of VDC   |   |
|   |  | VDC malfunction signal                  | Receives a malfunction state of VDC   |   |
|   |  | VDC operation signal                    | Receives an operational state of VDC  |   |
|   |  | Vehicle speed signal (ABS)              | Receives wheel speeds of four wheels  |   |
|   |  | Stop lamp switch signal                 | Receives an operational state of the brake pedal  |   |
|   |  | Yaw rate signal                         | Receives yaw rate acting on the vehicle   |   |
| Side G sensor signal                          | Receives lateral G acting on the vehicle         |   |   |   |
| Combination meter                             | CAN communication                                | Parking brake switch signal             | Receives an operational state of the parking brake  |   |
| BCM   | CAN communication                                | Front wiper request signal              | Receives an operational state of front wiper(s)   |   |
|   |  | Turn indicator signal                   | Receives an operational state of the turn signal lamp and the hazard lamp   |   |
|   |  | Dimmer signal                           | Receives ON/OFF state of dimmer signal  |   |



# SYSTEM

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

| Transmit unit              | Signal name                   |  | Description  |
|----------------------------|-------------------------------|--|--|
| Steering angle sensor      | CAN communication             | Steering angle sensor malfunction signal           | Receives a malfunction state of steering angle sensor  |
|                            |                               | Steering angle sensor signal                       | Receives the number of revolutions, turning direction of the steering wheel                                    |
|                            |                               | Steering angle speed signal                        | Receives the turning angle speed of the steering wheel   |
| AV control unit            | CAN communication             | System selection signal                            | Receives a selection state of each item in "Driver Assistance" selected with the navigation system             |
| A/C auto amp.              | CAN communication             | ECO mode signal                                    | Receives a mode selection state of the drive mode select switch  |
|                            |                               | SNOW mode signal                                   |  |
|                            |                               | SPORT mode signal                                  |  |
|                            |                               | STANDARD mode signal                               |  |
| ICC sensor                 | ITS communication             | ICC sensor signal                                  | Receives detection results, such as the presence or absence of a leading vehicle and distance from the vehicle |
| Lane camera unit           | ITS communication             | Detected lane condition signal                     | Receives detection results of lane marker  |
| Accelerator pedal actuator | ITS communication             | Accelerator pedal actuator operation status signal | Receives an operational state of accelerator pedal actuator  |
| Side radar LH, RH          | ITS communication             | Vehicle detection signal                           | Receives vehicle detection condition of detection zone   |
| IBA OFF switch             | IBA OFF switch signal         |  | Receives an ON/OFF state of the IBA OFF switch   |
| Warning systems switch     | Warning systems switch signal |  | Receives an ON/OFF state of the warning systems switch   |

Output Signal Item

| Reception unit                                | Signal name       |                                     | Description   |
|---|-------------------|-------------------------------------|---|
| ECM   | CAN communication | ICC operation signal                | Transmits an ICC operation signal necessary for intelligent cruise control                      |
| TCM   | CAN communication | ICC operation signal                | Transmits an ICC operation signal necessary for intelligent cruise control via ECM              |
| ABS actuator and electric unit (control unit) | CAN communication | Active trace control signal         | Transmits an active trace control signal necessary to control the active trace control function |
|   |                   | Brake fluid pressure control signal | Transmits a brake fluid pressure control signal to activates the brake                          |
|   |                   | Target yaw moment signal            | Transmits a target yaw moment signal to generate yaw moment to the vehicle                      |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# SYSTEM

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

| Reception unit                | Signal name                   |   | Description  |
|-------------------------------|-------------------------------|---|--|
| Combination meter             | CAN communication             | Own vehicle indicator signal  | Transmits a signal to display a state of the system on the information display   |
|                               |                               | Vehicle ahead detection indicator signal  |  |
|                               |                               | Set vehicle speed indicator signal  |  |
|                               |                               | Set distance indicator signal   |  |
|                               |                               | SET switch indicator signal   |  |
|                               |                               | MAIN switch indicator signal  |  |
|                               |                               | DCA system switch indicator signal  |  |
|                               | BSW/BSI warning lamp signal   | BSI ON indicator lamp signal  | Transmits a BSW/BSI warning lamp signal to turn ON the BSW/BSI warning lamp  |
|                               | LDP ON indicator lamp signal  | Lane departure warning lamp signal  | Transmits a BSI ON indicator lamp signal to turn ON the BSI ON indicator lamp  |
|                               | ICC warning lamp signal       | IBA OFF indicator lamp signal   | Transmits a LDP ON indicator lamp signal to turn ON the LDP ON indicator lamp  |
| Buzzer output signal          | ICC warning lamp signal       | Transmits a lane departure warning lamp signal to turn ON the lane departure warning lamp   |  |
| IBA OFF indicator lamp signal | Buzzer output signal          | Transmits a ICC warning lamp signal to turn ON the ICC system warning lamp  |  |
| Buzzer output signal          | IBA OFF indicator lamp signal | <ul style="list-style-type: none"> <li>• Transmits a signal to turn ON the IBA OFF indicator lamp</li> <li>• Transmits an ON/OFF state of the intelligent brake assist</li> </ul>   |  |
| Buzzer output signal          | Buzzer output signal          | Transmits a buzzer output signal to turn ON the buzzer of the following systems: <ul style="list-style-type: none"> <li>• Intelligent Cruise Control (ICC)</li> <li>• Distance Control Assist (DCA)</li> <li>• Intelligent Brake Assist (IBA)</li> <li>• Forward Collision Warning (FCW)</li> </ul> |  |
| ICC sensor                    | ITS communication             | Vehicle speed signal  | Transmits a vehicle speed calculated by the ADAS control unit  |
|                               |                               | Steering angle sensor signal  | Transmits a steering angle sensor signal received from the steering angle sensor   |
| Lane camera unit              | ITS communication             | Vehicle speed signal  | Transmits a vehicle speed calculated by the ADAS control unit  |
|                               |                               | Turn indicator signal   | Transmits a turn indicator signal received from BCM  |
| Accelerator pedal actuator    | ITS communication             | Accelerator pedal position signal   | Transmits an accelerator pedal angle calculated by the ADAS control unit   |
|                               |                               | Accelerator pedal feedback force control signal (ECO pedal reaction force control signal)   | <ul style="list-style-type: none"> <li>• Transmits a target actuation force value calculated by the ADAS control unit</li> <li>• Transfer a signal received from ECM (ECO pedal ON)</li> </ul> |
| Side radar LH, RH             | ITS communication             | Vehicle speed signal  | Transmits a vehicle speed calculated by the ADAS control unit  |
|                               |                               | BSW/BSI indicator signal  | Transmits a BSW/BSI indicator signal to turn ON the BSW/BSI indicator  |
|                               |                               | BSW/BSI indicator dimmer signal   | Transmits a BSW/BSI indicator dimmer signal to dimmer BSW/BSI indicator  |

# SYSTEM

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

| Reception unit               | Signal name                         | Description   |
|------------------------------|-------------------------------------|---|
| ICC brake hold relay         | ICC brake hold relay drive signal   | Activates the brake hold relay and turns ON the stop lamp |
| Warning buzzer               | Warning buzzer signal               | Activates the warning buzzer                              |
| Warning systems ON indicator | Warning systems ON indicator signal | Turns ON the warning systems ON indicator                 |

## DESCRIPTION

- ADAS\* control unit controls the following systems, based on ITS communication signals from the ICC sensor, the accelerator pedal actuator, the lane camera unit, and the side radar LH/RH and a CAN communication signal from each control unit.

**NOTE:**

\*: Advanced Driver Assistance Systems

- Intelligent Cruise Control (ICC)
- Distance Control Assist (DCA)
- Intelligent Brake Assist (IBA)
- Brake Assist (with preview function)
- Forward Collision Warning (FCW)
- Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- Active trace control function

| System   | Reference   |
|--|---|
| Intelligent Cruise Control (ICC)                             | <a href="#">CCS-13, "System Description"</a>  |
| Distance Control Assist (DCA)                                | <a href="#">DAS-60, "System Description"</a>  |
| Intelligent Brake Assist (IBA)                               | <a href="#">BRC-159, "INTELLIGENT BRAKE ASSIST : System Description"</a>  |
| Brake Assist (with preview function)                         | <a href="#">BRC-151, "BRAKE ASSIST (WITH PREVIEW FUNCTION) : System Description"</a>  |
| Forward Collision Warning (FCW)                              | <a href="#">DAS-201, "System Description"</a>   |
| Lane Departure Warning (LDW)/Lane Departure Prevention (LDP) | <ul style="list-style-type: none"> <li>• LDW: <a href="#">DAS-251, "LANE DEPARTURE WARNING (LDW) SYSTEM : System Description"</a></li> <li>• LDP: <a href="#">DAS-255, "LANE DEPARTURE PREVENTION (LDP) SYSTEM : System Description"</a></li> </ul> |
| Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)       | <ul style="list-style-type: none"> <li>• BSW: <a href="#">DAS-380, "BLIND SPOT WARNING (BSW) SYSTEM : System Description"</a></li> <li>• BSI: <a href="#">DAS-385, "BLIND SPOT INTERVENTION (BSI) SYSTEM : System Description"</a></li> </ul>       |
| Active trace control function                                | <a href="#">BRC-36, "ACTIVE STABILITY ASSIST : Active Trace Control Function"</a>   |

## Fail-safe

INFOID:0000000006886098

If a malfunction occurs in each system, ADAS control unit cancels each control, sounds a beep, and turns ON the warning lamp or indicator lamp.

| System   | Buzzer            | Warning lamp/Indicator lamp | Description |
|--|-------------------|-----------------------------|-------------|
| Vehicle-to-vehicle distance control mode       | High-pitched tone | ICC system warning lamp     | Cancel      |
| Conventional (fixed speed) cruise control mode | High-pitched tone | ICC system warning lamp     | Cancel      |

# SYSTEM

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

| System                          | Buzzer            | Warning lamp/Indicator lamp | Description  |
|---------------------------------|-------------------|-----------------------------|--|
| Intelligent Brake Assist (IBA)  | High-pitched tone | IBA OFF indicator lamp      | Cancel   |
| Forward Collision Warning (FCW) | High-pitched tone | IBA OFF indicator lamp      | Cancel   |
| Distance Control Assist (DCA)   | High-pitched tone | ICC system warning lamp     | Cancel   |
| Lane Departure Warning (LDW)    | —                 | Lane departure warning lamp | Cancel   |
| Lane Departure Prevention (LDP) | Low-pitched tone  | Lane departure warning lamp | Cancel   |
| Blind Spot Warning (BSW)        | —                 | BSW/BSI warning lamp        | Cancel   |
| Blind Spot Intervention (BSI)   | Low-pitched tone  | BSW/BSI warning lamp        | Cancel   |
| Active trace control function   | —                 | IBA OFF indicator lamp      | <ul style="list-style-type: none"> <li>• Cancel</li> <li>• If a communication error occurs between the A/C auto amp. and CAN communication line, a mode at the instant of error occurrence is maintained until the mode is fixed to STANDARD after turning the ignition switch from OFF to ON</li> </ul> |

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

## DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

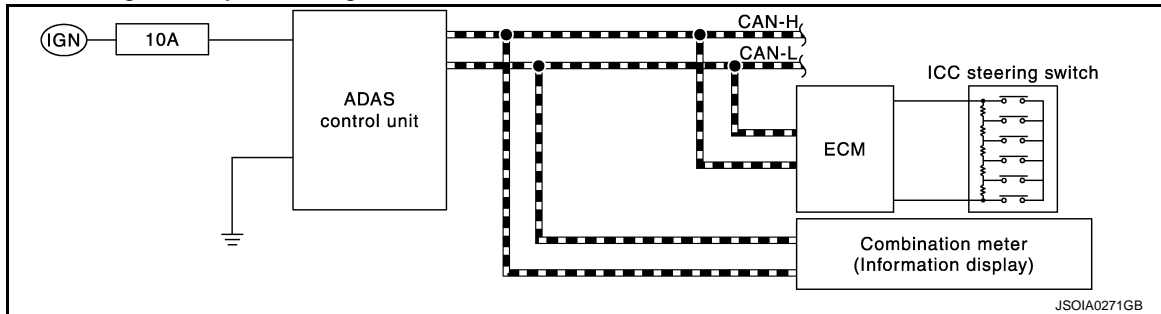
### On Board Diagnosis Function

INFOID:000000006886099

#### DESCRIPTION

The DTC is displayed on the information display by operating the ICC steering switch.

#### On Board Self-diagnosis System Diagram



#### METHOD OF STARTING

##### CAUTION:

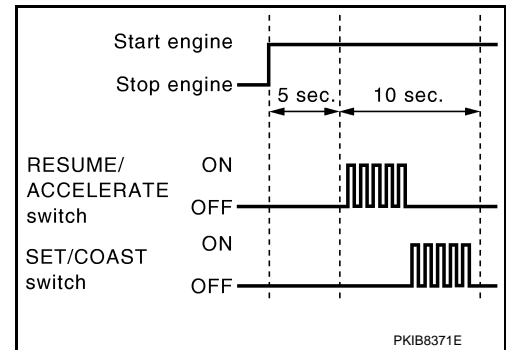
##### Start condition of on board self-diagnosis

- ICC system OFF
- DCA system OFF
- Vehicle speed 0 km/h (0 MPH)

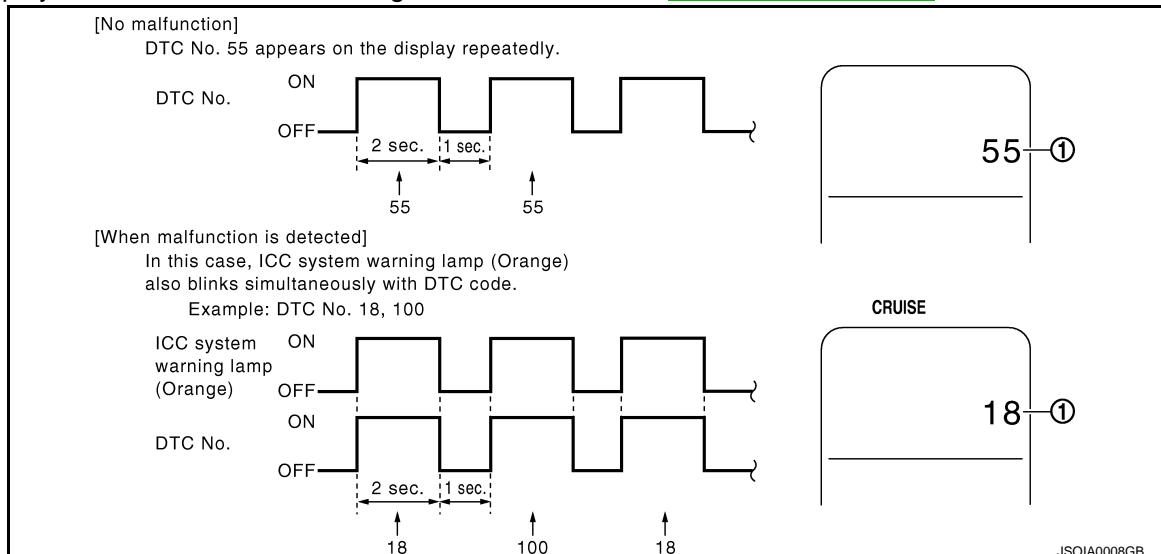
1. Turn the ignition switch OFF.
2. Start the engine.
3. Wait for 5 seconds after starting the engine. Push up the RESUME/ACCELERATE switch 5 times and push down the SET/COAST switch 5 times within 10 seconds.

##### NOTE:

If the above operation cannot be performed within 10 seconds after waiting for 5 seconds after starting the engine, repeat the procedure from step 1.



4. The DTC is displayed on the set vehicle speed indicator (1) on the ICC system display on the information display when the on board self-diagnosis starts. Refer to [DAS-40, "DTC Index"](#).



##### NOTE:

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

- It displays for up to 5 minutes and then stops.
- If multiple malfunctions exist, up to 6 DTCs can be stored in memory at the most, and the most recent one is displayed first.

## WHEN THE ON BOARD SELF-DIAGNOSIS DOES NOT START

If the on board self-diagnosis does not start, check the following items.

| Assumed abnormal part                                   |                               | Inspection item   |
|---|-------------------------------|---|
| Information display                                     | Combination meter malfunction | Check that the self-diagnosis function of the combination meter operates. Refer to <a href="#">MWI-30, "On Board Diagnosis Function"</a> .  |
| ICC steering switch malfunction                         |                               | Perform the inspection for DTC "C1A06". Refer to <a href="#">CCS-88, "DTC Logic"</a> .  |
| Harness malfunction between ICC steering switch and ECM |                               |   |
| ECM malfunction   |                               |   |
| ADAS control unit malfunction                           |                               | <ul style="list-style-type: none"> <li>• Check power supply and ground circuit of ADAS control unit. Refer to <a href="#">DAS-54, "Diagnosis Procedure"</a>.</li> <li>• Perform SELF-DIAGNOSIS for "ICC/ADAS" with CONSULT, and then check the malfunctioning parts. Refer to <a href="#">DAS-40, "DTC Index"</a>.</li> </ul> |

## HOW TO ERASE ON BOARD SELF-DIAGNOSIS

1. Turn the ignition switch OFF.
2. Start the engine, and then start the on board self-diagnosis.
3. Press the CANCEL switch 5 times, and then press the DISTANCE switch 5 times under the condition that the on board self-diagnosis starts.

### NOTE:

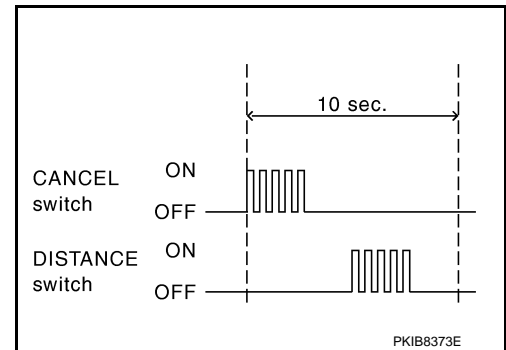
- Complete the operation within 10 seconds after pressing the CANCEL switch first.
- If the operation is not completed within 10 seconds, repeat the procedure from step 1.

4. DTC 55 is displayed after erasing.

### NOTE:

DTCs for existing malfunction can not be erased.

5. Turn ignition switch OFF, and finish the diagnosis.



## CONSULT Function (ICC/ADAS)

INFOID:000000006886100

## APPLICATION ITEMS

CONSULT performs the following functions via CAN communication using ADAS control unit.

| Diagnosis mode           | Description  |
|--------------------------|--|
| Work Support             | Displays causes of automatic system cancellation occurred during system control                                |
| Self Diagnostic Result   | Displays the name of a malfunctioning system stored in the ADAS control unit                                   |
| Data Monitor             | Displays ADAS control unit input/output data in real time  |
| Active Test              | Enables an operational check of a load by transmitting a driving signal from the ADAS control unit to the load |
| Ecu Identification       | Displays ADAS control unit part number   |
| CAN Diag Support Monitor | Displays a reception/transmission state of CAN communication and ITS communication                             |

## WORK SUPPORT

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

| Work support items     | Description   |
|------------------------|---|
| CAUSE OF AUTO-CANCEL 1 | Displays causes of automatic system cancellation occurred during control of the following systems <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle control mode</li> <li>• Conventional (fixed speed) control mode</li> <li>• Distance Control Assist (DCA)</li> </ul> |
| CAUSE OF AUTO-CANCEL 2 | Displays causes of automatic system cancellation occurred during control of the following systems <ul style="list-style-type: none"> <li>• Lane Departure Prevention (LDP)</li> <li>• Blind Spot Intervention (BSI)</li> </ul>  |

**NOTE:**

- Causes of the maximum five cancellations (system cancel) are displayed.
- The displayed cancellation causes display the number of the ignition switch ON/OFF up to 254. It is fixed to 254 if it is over 254. It returns to 0 when the same cancellation cause is detected again.

Display Items for The Cause of Automatic Cancellation 1

| Cause of cancellation | Vehicle-to-vehicle distance control mode | Conventional (fixed speed) cruise control mode | Distance Control Assist | Description  |
|-----------------------|--|--|-------------------------|--|
| OPERATING WIPER       | ×  |  |                         | The wiper operates at HI (it includes when the wiper is operated at HI with the wiper switch AUTO position)  |
| OPERATING ABS         | ×  |  | ×                       | ABS function was operated  |
| OPERATING TCS         | ×  | ×  | ×                       | TCS function was operated  |
| OPERATING VDC         | ×  | ×  | ×                       | VDC function was operated  |
| ECM CIRCUIT           | ×  | ×  |                         | ECM did not permit ICC operation   |
| OPE SW VOLT CIRC      | ×  | ×  | ×                       | The ICC steering switch input voltage is not within standard range   |
| LASER SUNBEAM         | ×  |  | ×                       | Intense light such as sunlight entered ICC sensor light sensing part   |
| LASER TEMP            | ×  |  | ×                       | Temperature around ICC sensor became low   |
| SNOW MODE SW          | ×  |  | ×                       | Shifting of the drive mode selector to SNOW position   |
| OP SW DOUBLE TOUCH    | ×  | ×  |                         | ICC steering switches were pressed at the same time  |
| VHCL SPD DOWN         | ×  | ×  | ×                       | Vehicle speed lower than the speed as follows <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle distance control mode is 24 km/h (15 MPH)</li> <li>• Conventional (fixed speed) cruise control mode is 32 km/h (20 MPH)</li> </ul> |
| WHL SPD ELEC NOISE    | ×  | ×  | ×                       | Wheel speed sensor signal caught electromagnetic noise   |
| VDC/TCS OFF SW        | ×  |  | ×                       | VDC OFF switch was pressed   |
| VHCL SPD UNMATCH      | ×  | ×  | ×                       | Wheel speed became different from A/T vehicle speed  |
| TIRE SLIP             | ×  | ×  |                         | Wheel slipped  |
| IGN LOW VOLT          | ×  | ×  | ×                       | Decrease in ADAS control unit IGN voltage  |
| PARKING BRAKE ON      | ×  | ×  |                         | The parking brake is operating   |

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

|                         |   |   |   |   |
|-------------------------|---|---|---|---|
| WHEEL SPD UNMATCH       | × | × | × | The wheel speeds of 4 wheels are out of the specified values  |
| INCHING LOST            | × |   |   | A vehicle ahead is not detected during the following driving when the vehicle speed is approximately 24 km/h (15 MPH) or less |
| CAN COMM ERROR          | × | × | × | ADAS control unit received an abnormal signal with CAN communication  |
| ABS/TCS/VDC CIRC        | × | × | × | An abnormal condition occurs in VDC/TCS/ABS system  |
| ECD CIRCUIT             | × | × | × | An abnormal condition occurs in ECD system  |
| ASCD VHCL SPD DTAC      |   | × |   | Vehicle speed is detached from set vehicle speed  |
| ASCD DOUBLE COMD        |   | × |   | Cancel switch and operation switch are detected simultaneously  |
| APA HI TEMP             |   |   | × | The accelerator pedal actuator integrated motor temperature is high   |
| ICC SENSOR CAN COMM ERR | × |   | × | Communication error between ADAS control unit and the ICC sensor  |
| ABS WARNING LAMP        | × |   | × | ABS warning lamp ON   |
| NO RECORD               | × | × | × | —   |

## Display Items for The Cause of Automatic Cancellation 2

| Cause of cancellation   | Lane departure prevention | Blind spot intervention | Description  |
|-------------------------|---------------------------|-------------------------|--|
| OPE VDC/TCS/ABS 1       | ×                         |                         | The activation of VDC, TCS, or ABS during LDP system control                                 |
| Vehicle dynamics        | ×                         |                         | Vehicle behavior exceeds specified value   |
| Steering speed          | ×                         |                         | Steering speed was more than the specified value in evasive direction                        |
| End by yaw angle        | ×                         |                         | Yaw angle was the end of LDP control   |
| Departure yaw large     | ×                         |                         | Detected more than the specified value of yaw angle in departure direction                   |
| ICC WARNING             | ×                         |                         | Target approach warning of ICC system, IBA system, or FCW system was activated               |
| CURVATURE               | ×                         |                         | Road curve was more than the specified value   |
| Steering angle large    | ×                         |                         | Steering angle was more than the specified value   |
| Brake is operated       | ×                         |                         | Brake pedal was operated   |
| IGN LOW VOLT            | ×                         |                         | Decrease in ADAS control unit IGN voltage  |
| Lateral offset          | ×                         |                         | Distance of vehicle and lane was detached in lateral direction more than the specified value |
| Lane marker lost        | ×                         |                         | Lane camera unit lost the trace of lane marker   |
| Lane marker unclear     | ×                         |                         | Detected lane marker was unclear   |
| Yaw acceleration        | ×                         |                         | Detected yawing speed was more than the specified value                                      |
| Deceleration large      | ×                         |                         | Deceleration in a longitudinal direction was more than the specified value                   |
| Accel is operated       | ×                         |                         | Accelerator pedal was depressed  |
| Departure steering      | ×                         |                         | Steering wheel was steered more than the specified value in departure direction              |
| Evasive steering        | ×                         |                         | Steering wheel was steered more than the specified value in the evasive direction            |
| R range                 | ×                         |                         | Selector lever was operated to R range   |
| Parking brake drift     | ×                         |                         | Rear wheels lock was detected  |
| Not operating condition | ×                         |                         | Did not meet the operating condition (vehicle speed, turn signal operation, etc.)            |
| SNOW MODE SW            | ×                         |                         | Shifting of the drive mode selector to SNOW position   |



# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

| Cause of cancellation        | Lane departure prevention | Blind spot intervention | Description  |
|------------------------------|---------------------------|-------------------------|--|
| VDC OFF SW                   | ×                         |                         | VDC OFF switch was pressed   |
| OPE VDC/ABS 2                | ×                         |                         | The activation of VDC or ABS during a standby time of LDP system control                     |
| BSI WARNING                  | ×                         |                         | Blind Spot Intervention system was activated   |
| BSI) OPE VDC/TCS/ABS 1       |                           | ×                       | The activation of VDC, TCS, or ABS during Blind Spot Intervention system control             |
| BSI) Vehicle dynamics        |                           | ×                       | Vehicle behavior exceeds specified value   |
| BSI) Steering speed          |                           | ×                       | Steering speed was more than the specified value in evasive direction                        |
| BSI) End by yaw angle        |                           | ×                       | Yaw angle was the end of Blind Spot Intervention control                                     |
| BSI) Departure yaw large     |                           | ×                       | Detected more than the specified value of yaw angle in departure direction                   |
| BSI) ICC WARNING             |                           | ×                       | Target approach warning of ICC system, IBA system or FCW system was activated                |
| BSI) CURVATURE               |                           | ×                       | Road curve was more than the specified value   |
| BSI) Steering angle large    |                           | ×                       | Steering angle was more than the specified value   |
| BSI) Brake is operated       |                           | ×                       | Brake pedal was operated   |
| BSI) IGN LOW VOLT            |                           | ×                       | Decrease in ADAS control unit IGN voltage  |
| BSI) Lateral offset          |                           | ×                       | Distance of vehicle and lane was detached in lateral direction more than the specified       |
| BSI) Lane marker lost        |                           | ×                       | Lane camera unit lost the trace of lane marker   |
| BSI) Lane marker unclear     |                           | ×                       | Detected lane marker was unclear   |
| BSI) Yaw acceleration        |                           | ×                       | Detected yawing speed was more than the specified value                                      |
| BSI) Deceleration large      |                           | ×                       | Deceleration in a longitudinal direction was more than the specified value                   |
| BSI) Accel is operated       |                           | ×                       | Accelerator pedal was depressed  |
| BSI) Departure steering      |                           | ×                       | Steering wheel was steered more than the specified value in departure direction              |
| BSI) Evasive steering        |                           | ×                       | Steering wheel was steered more than the specified value in the evasive direction            |
| BSI) R range                 |                           | ×                       | Selector lever was operated to R range   |
| BSI) Parking brake drift     |                           | ×                       | Rear wheels lock was detected  |
| BSI) SNOW MODE SW            |                           | ×                       | Shifting of the drive mode selector to SNOW position   |
| BSI) VDC OFF SW              |                           | ×                       | VDC OFF switch was pressed   |
| BSI) OPE VDC/ABS 2           |                           | ×                       | The activation of VDC or ABS during a standby time of Blind Spot Intervention system control |
| BSI) Not operating condition |                           | ×                       | Did not meet the operating condition (vehicle speed, turn signal operation, etc.)            |
| Side Radar Lost              |                           | ×                       | Unrecognized side radar LH or RH by the ADAS control unit                                    |
| NO RECORD                    | ×                         | ×                       | —  |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## SELF DIAGNOSTIC RESULT

Refer to [DAS-40. "DTC Index"](#).

## DATA MONITOR

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

| Monitored item<br>[Unit]         | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description  |
|----------------------------------|------------------|-------------------|-----------------------|-----------------------|--|
| MAIN SW<br>[On/Off]              | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| SET/COAST SW<br>[On/Off]         | ×                | ×                 |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| CANCEL SW<br>[On/Off]            | ×                | ×                 |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| RESUME/ACC SW<br>[On/Off]        | ×                | ×                 |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| DISTANCE SW<br>[On/Off]          | ×                |                   |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| CRUISE OPE<br>[On/Off]           | ×                | ×                 |                       |                       | Indicates whether controlling or not (ON means "controlling")  |
| BRAKE SW<br>[On/Off]             | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status as judged from ICC brake switch signal (ECM transmits ICC brake switch signal through CAN communication)   |
| STOP LAMP SW<br>[On/Off]         | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status as judged from stop lamp switch signal (ECM transmits stop lamp switch signal through CAN communication)   |
| IDLE SW<br>[On/Off]              | ×                |                   |                       |                       | Indicates [On/Off] status of idle switch read from ADAS control unit through CAN communication (ECM transmits On/Off status through CAN communication)   |
| SET DISTANCE<br>[Short/Mid/Long] | ×                | ×                 |                       |                       | Indicates set distance memorized in ADAS control unit  |
| CRUISE LAMP<br>[On/Off]          | ×                | ×                 |                       |                       | Indicates [On/Off] status of MAIN switch indicator output  |
| OWN VHCL<br>[On/Off]             | ×                |                   |                       |                       | Indicates [On/Off] status of own vehicle indicator output  |
| VHCL AHEAD<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of vehicle ahead detection indicator output  |
| ICC WARNING<br>[On/Off]          | ×                |                   |                       |                       | Indicates [On/Off] status of ICC system warning lamp output  |
| VHCL SPEED SE<br>[km/h] or [mph] | ×                | ×                 | ×                     | ×                     | Indicates vehicle speed calculated from ADAS control unit through CAN communication [ABS actuator and electric unit (control unit) transmits vehicle speed signal (wheel speed) through CAN communication] |
| SET VHCL SPD<br>[km/h] or [mph]  | ×                | ×                 |                       |                       | Indicates set vehicle speed memorized in ADAS control unit   |
| BUZZER O/P<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of ICC warning chime output  |
| THRTL SENSOR<br>[deg]            | ×                | ×                 |                       |                       | <b>NOTE:</b><br>The item is displayed, but it is not monitored   |
| ENGINE RPM<br>[rpm]              | ×                |                   |                       |                       | Indicates engine speed read from ADAS control unit through CAN communication (ECM transmits engine speed signal through CAN communication)   |
| WIPER SW<br>[OFF/LOW/HIGH]       | ×                |                   |                       |                       | Indicates wiper [OFF/LOW/HIGH] status (BCM transmits front wiper request signal through CAN communication)   |
| YAW RATE<br>[deg/s]              | ×                |                   |                       |                       | <b>NOTE:</b><br>The item is displayed, but it is not monitored   |
| BA WARNING<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of IBA OFF indicator lamp output   |
| STP LMP DRIVE<br>[On/Off]        | ×                | ×                 |                       |                       | Indicates [On/Off] status of ICC brake hold relay drive output   |
| D RANGE SW<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of "D" or "M" positions read from ADAS control unit through CAN communication; ON when position "D" or "M" (TCM transmits shift position signal through CAN communication).      |

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

| Monitored item<br>[Unit]          | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description  |
|-----------------------------------|------------------|-------------------|-----------------------|-----------------------|--|
| NP RANGE SW<br>[On/Off]           | ×                |                   |                       |                       | Indicates shift position signal read from ADAS control unit through CAN communication (TCM transmits shift position signal through CAN communication)  |
| PKB SW<br>[On/Off]                | ×                |                   |                       |                       | Parking brake switch status [On/Off] judged from the parking brake switch signal that ADAS control unit readout via CAN communication is displayed (combination meter transmits the parking brake switch signal via CAN communication) |
| PWR SUP MONI<br>[V]               | ×                | ×                 |                       |                       | Indicates IGN voltage input by ADAS control unit   |
| VHCL SPD AT<br>[km/h] or [mph]    | ×                |                   |                       |                       | Indicates vehicle speed calculated from A/T vehicle speed sensor read from ADAS control unit through CAN communication (TCM transmits A/T vehicle speed sensor signal through CAN communication)                                       |
| THRTL OPENING<br>[%]              | ×                | ×                 |                       |                       | Indicates throttle position read from ADAS control unit through CAN communication (ECM transmits accelerator pedal position signal through CAN communication).   |
| GEAR<br>[1, 2, 3, 4, 5, 6, 7]     | ×                |                   |                       |                       | Indicates A/T gear position read from ADAS control unit through CAN communication (TCM transmits current gear position signal through CAN communication)   |
| MODE SIG<br>[OFF, ICC, ASCD]      | ×                |                   |                       |                       | Indicates the active mode from ICC or ASCD [conventional (fixed speed) cruise control mode]  |
| SET DISP IND<br>[On/Off]          | ×                |                   |                       |                       | Indicates [On/Off] status of SET switch indicator output   |
| DISTANCE<br>[m]                   | ×                |                   |                       |                       | Indicates the distance from the vehicle ahead  |
| RELATIVE SPD<br>[m/s]             | ×                |                   |                       |                       | Indicates the relative speed of the vehicle ahead  |
| DYNA ASIST SW<br>[On/Off]         | ×                | ×                 |                       | ×                     | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| DCA ON IND<br>[On/Off]            | ×                |                   |                       |                       | The status [ON/OFF] of DCA system switch indicator output is displayed   |
| DCA VHL AHED<br>[On/Off]          | ×                |                   |                       |                       | The status [ON/OFF] of vehicle ahead detection indicator output in DCA system is displayed   |
| IBA SW<br>[On/Off]                | ×                | ×                 |                       |                       | Indicates [On/Off] status of IBA OFF switch  |
| FCW SYSTEM ON<br>[On/Off]         | ×                | ×                 |                       |                       | Indicates [On/Off] status of FCW system  |
| APA TEMP<br>[°C]                  | ×                |                   |                       |                       | Accelerator pedal actuator integrated motor temperature that the ADAS control unit readout via ITS communication is displayed (Accelerator pedal actuator transmits the integrated motor temperature via ITS communication)            |
| APA PWR<br>[V]                    | ×                |                   |                       |                       | Accelerator pedal actuator power supply voltage that the ADAS control unit readout via ITS communication is displayed (Accelerator pedal actuator transmits the power supply voltage via ITS communication)                            |
| LDW SYSTEM ON<br>[On/Off]         |                  |                   | ×                     |                       | Indicates [On/Off] status of LDW system  |
| LDW ON LAMP<br>[On/Off]           |                  |                   | ×                     |                       | Indicates [On/Off] status of warning systems ON indicator output   |
| LDP ON IND<br>[On/Off]            |                  |                   | ×                     |                       | Indicates [On/Off] status of LDP ON indicator lamp (Green) output  |
| LANE DPRT W/L<br>[On/Off]         |                  |                   | ×                     |                       | Indicates [On/Off] status of lane departure warning lamp (Yellow) output   |
| LDW BUZER OUT-<br>PUT<br>[On/Off] |                  |                   | ×                     |                       | Indicates [On/Off] status of warning buzzer output   |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

| Monitored item<br>[Unit]                      | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description   |
|---|------------------|-------------------|-----------------------|-----------------------|---|
| LDP SYSTEM ON<br>[On/Off]                     |                  |                   | ×                     |                       | Indicates [On/Off] status of LDP system   |
| WARN REQ<br>[On/Off]                          |                  |                   | ×                     |                       | Indicates an ADAS control unit judged warning state (ON/OFF) of LDP system  |
| READY signal<br>[On/Off]                      |                  |                   | ×                     |                       | Indicates LDP system settings   |
| Camera lost<br>[Detect/Deviate/Both]          |                  |                   | ×                     | ×                     | Indicates a lane marker detection state judged from a lane marker detection signal read by the ADAS control unit via ITS communication<br>(Lane camera unit transmits a lane marker signal via ITS communication)   |
| Shift position<br>[Off, P, R, N, D, M/T1 - 7] |                  |                   | ×                     | ×                     | Indicates shift position read from ADAS control unit through CAN communication<br>(TCM transmits shift position signal through CAN communication)   |
| Turn signal<br>[OFF/LH/RH/LH&RH]              |                  |                   | ×                     | ×                     | Indicates turn signal operation status read from ADAS control unit through CAN communication (BCM transmits turn indicator signal through CAN communication)  |
| SIDE G<br>[G]                                 |                  |                   | ×                     | ×                     | Indicates lateral G acting on the vehicle. This lateral G is judged from a side G sensor signal read by ADAS control unit via CAN communication<br>(The ABS actuator and electric unit (control unit) transmits a side G sensor signal via CAN communication) |
| STATUS signal<br>[Stnby/Warn/Cancel/Off]      |                  |                   | ×                     |                       | Indicates a control state of LDP system   |
| Lane unclear<br>[On/Off]                      |                  |                   | ×                     | ×                     | Indicates an ON/OFF state of the lane marker. The ON/OFF state is judged from a detected lane condition signal read by the ADAS control unit via ITS communication<br>(The lane camera unit transmits a detected lane condition signal via ITS communication) |
| FUNC ITEM<br>[FUNC3]                          | ×                | ×                 | ×                     | ×                     | Indicates systems which can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system<br>FUNC3: Distance Control Assist (DCA), Lane Departure Prevention (LDP) and Blind Spot Intervention (BSI)             |
| FUNC ITEM (NV-ICC)<br>[Off]                   | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| FUNC ITEM (NV-DCA)<br>[Off]                   | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| DCA SELECT<br>[On/Off]                        | ×                | ×                 | ×                     | ×                     | Indicates an ON/OFF state of the DCA system. The DCA system can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system  |
| LDP SELECT<br>[On/Off]                        | ×                | ×                 | ×                     | ×                     | Indicates an ON/OFF state of LDP system. LDP system can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system  |
| BSI SELECT<br>[On/Off]                        | ×                | ×                 | ×                     | ×                     | Indicates an ON/OFF state of BSI system. BSI system can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system.   |
| NAVI ICC SELECT<br>[Off]                      | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| NAVI DCA SELECT<br>[Off]                      | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| SYS SELECTABILITY<br>[On/Off]                 | ×                | ×                 | ×                     | ×                     | Indicates the availability of ON/OFF switching for "Driver Assistance" items received from the AV control unit via CAN communication  |

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

| Monitored item<br>[Unit]                               | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description  |
|--|------------------|-------------------|-----------------------|-----------------------|--|
| DRIVE MODE STATS<br>[STD/SPORT/ECO/<br>SNOW/MID/ERROR] | ×                | ×                 | ×                     | ×                     | Indicates a drive mode selector select position judged from a drive mode select switch position signal read by the ADAS control unit via CAN communication (The A/C auto amp. transmits a switch position signal of the drive mode select switch signal via CAN communication) |
| WARN SYS SW<br>[On/Off]                                | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status of warning systems switch  |
| BSW/BSI WARN LMP<br>[On/Off]                           |                  |                   |                       | ×                     | Indicates [On/Off] status of BSW/BSI warning lamp output   |
| BSI ON IND<br>[On/Off]                                 |                  |                   |                       | ×                     | Indicates [On/Off] status of BSI ON indicator output   |
| BSW SYSTEM ON<br>[On/Off]                              |                  |                   |                       | ×                     | Indicates [On/Off] status of BSW system  |
| BSI SYSTEM ON<br>[On/Off]                              |                  |                   |                       | ×                     | Indicates [On/Off] status of BSI system  |

## ACTIVE TEST

### CAUTION:

- **Never perform “Active Test” while driving the vehicle.**
- **The “Active Test” cannot be performed when the following systems warning lamp is illuminated.**
  - **ICC system warning lamp**
  - **Lane departure warning lamp**
  - **BSW/BSI warning lamp**
  - **IBA OFF indicator lamp (IBA system ON)**
- **Shift the selector lever to “P” position, and then perform the test.**

| Test item            | Description   |
|----------------------|---|
| METER LAMP           | The ICC system warning lamp, MAIN switch indicator and IBA OFF indicator lamp can be illuminated by ON/OFF operations as necessary  |
| STOP LAMP            | The ICC brake hold relay can be operated by ON/OFF operations as necessary, and the stop lamp can be illuminated  |
| ICC BUZZER           | Sounds a buzzer used for following systems by arbitrarily operating ON/OFF <ul style="list-style-type: none"> <li>• Intelligent Cruise Control (ICC)</li> <li>• Distance Control Assist (DCA)</li> <li>• Forward Collision Warning (FCW)</li> <li>• Intelligent Brake Assist (IBA)</li> </ul> |
| BRAKE ACTUATOR       | Activates the brake by an arbitrary operation   |
| Active Pedal         | The accelerator pedal actuator can be operated as necessary   |
| DCA INDICATOR        | The DCA system switch indicator can be illuminated by ON/OFF operations as necessary  |
| LDP BUZZER           | Sounds a buzzer used for following systems by arbitrarily operating ON/OFF <ul style="list-style-type: none"> <li>• Lane Departure Warning (LDW)</li> <li>• Lane Departure Prevention (LDP)</li> <li>• Blind Spot Warning (BSW)</li> <li>• Blind Spot Intervention (BSI)</li> </ul>           |
| WARNING SYSTEM IND   | The warning systems ON indicator (on warning systems switch) can be illuminated by ON/OFF operations as necessary   |
| LDP ON IND           | The LDP ON indicator lamp can be illuminated by ON/OFF operations as necessary  |
| LANE DEPARTURE W/L   | The Lane departure warning lamp can be illuminated by ON/OFF operations as necessary  |
| BSW/BSI WARNING LAMP | The BSW/BSI warning lamp can be illuminated by ON/OFF operations as necessary   |
| BSI ON INDICATOR     | The BSI ON indicator can be illuminated by ON/OFF operations as necessary   |

## METER LAMP

### NOTE:

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

The test can be performed only when the engine is running.

| Test item  | Operation | Description   | <ul style="list-style-type: none"> <li>• MAIN switch indicator</li> <li>• ICC system warning lamp</li> <li>• IBA OFF indicator lamp</li> </ul> |
|------------|-----------|---|--|
| METER LAMP | Off       | Stops sending the following signals to exit from the test <ul style="list-style-type: none"> <li>• Meter display signal</li> <li>• ICC warning lamp signal</li> <li>• IBA OFF indicator lamp signal</li> </ul>                      | OFF  |
|            | On        | Transmits the following signals to the combination meter via CAN communication <ul style="list-style-type: none"> <li>• Meter display signal</li> <li>• ICC warning lamp signal</li> <li>• IBA OFF indicator lamp signal</li> </ul> | ON   |

## STOP LAMP

| Test item | Operation | Description  | Stop lamp |
|-----------|-----------|--|-----------|
| STOP LAMP | Off       | Stops transmitting the ICC brake hold relay drive signal below to end the test | OFF       |
|           | On        | Transmits the ICC brake hold relay drive signal                                | ON        |

## ICC BUZZER

| Test item  | Operation  | Description  | ICC warning chime operation sound |
|------------|------------|--|-----------------------------------|
| ICC BUZZER | MODE1      | Transmits the buzzer output signals to the combination meter via CAN communication | Intermittent beep sound           |
|            | Test start | Starts the tests of "MODE1"  | —                                 |
|            | Reset      | Stops transmitting the buzzer output signal below to end the test                  | —                                 |
|            | End        | Returns to the "SELECT TEST ITEM" screen   | —                                 |

## BRAKE ACTUATOR

### NOTE:

The test can be performed only when the engine is running.

| Test item      | Operation  | Description  | "PRESS SENS" value |
|----------------|------------|--|--------------------|
| BRAKE ACTUATOR | MODE1      | Transmits the brake fluid pressure control signal to the ABS actuator and electric unit (control unit) via CAN communication | 10 bar             |
|                | MODE2      |  | 20 bar             |
|                | MODE3      |  | 30 bar             |
|                | Test start | Starts the tests of "MODE1", "MODE2" and "MODE3"   | —                  |
|                | Reset      | Stops transmitting the brake fluid pressure control signal below to end the test   | —                  |
|                | End        | Returns to the "SELECT TEST ITEM" screen   | —                  |

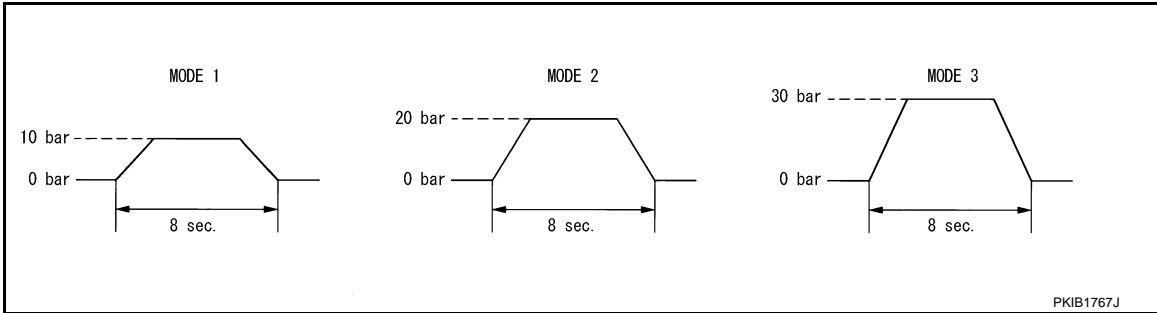
### NOTE:

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

The test is finished in 10 seconds after starting



Active Pedal

**CAUTION:**

- Shift the selector lever to “P” position, and then perform the test.
- Never depress the accelerator pedal excessively. (The engine speed may rise unexpectedly when finishing the test.)

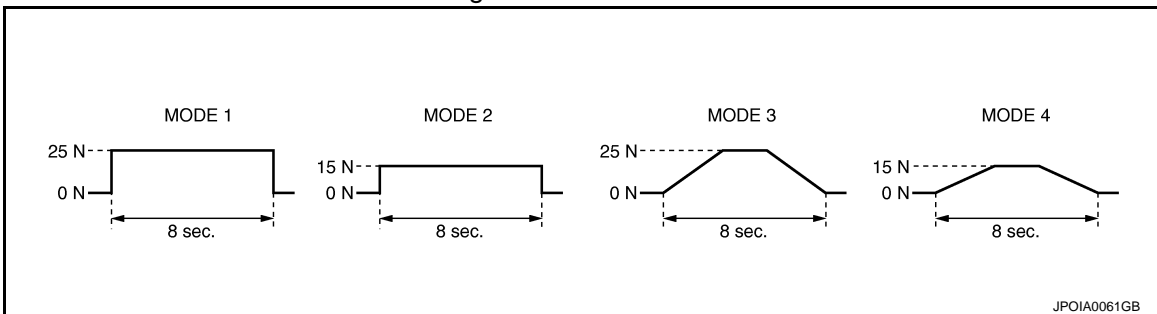
**NOTE:**

- Depress the accelerator pedal to check when performing the test.
- The test can be performed only when the engine is running.

| Test item    | Operation   | Description   | Accelerator pedal operation                 |
|--------------|---|---|---|
| Active Pedal | MODE1   | Transmit the accelerator pedal feedback force control signal to the accelerator pedal actuator via ITS communication. | Constant with a force of 25 N for 8 seconds |
|              | MODE2   |   | Constant with a force of 15 N for 8 seconds |
|              | MODE3   |   | Change up to a force of 25 N for 8 seconds  |
|              | MODE4   |   | Change up to a force of 15 N for 8 seconds  |
|              | Test start  | Starts the tests of “MODE1”, “MODE2”, “MODE3” and “MODE4”   | —   |
| Reset        | Stops transmitting the accelerator pedal feedback force control signal below to end the test. | —   |   |
| End          | Returns to the “SELECT TEST ITEM” screen  | —   |   |

**NOTE:**

The test is finished in 10 seconds after starting



DCA INDICATOR

**NOTE:**

The test can be performed only when the engine is running.

| Test item     | Operation | Description   | DCA system switch indicator |
|---------------|-----------|---|-----------------------------|
| DCA INDICATOR | Off       | Stops transmitting the DCA system switch indicator signal below to end the test                 | —                           |
|               | On        | Transmits the DCA system switch indicator signal to the combination meter via CAN communication | ON                          |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[ADAS CONTROL UNIT]

## LDP BUZZER

| Test item  | Operation | Description  | Warning buzzer |
|------------|-----------|--|----------------|
| LDP BUZZER | Off       | Stops transmitting the warning buzzer signal below to end the test | —              |
|            | On        | Transmits the warning buzzer signal to the warning buzzer          | ON             |

## WARNING SYSTEM IND

| Test item          | Operation | Description  | Warning systems ON indicator |
|--------------------|-----------|--|------------------------------|
| WARNING SYSTEM IND | Off       | Stops transmitting the warning systems ON indicator signal below to end the test       | —                            |
|                    | On        | Transmits the warning systems ON indicator signal to the warning systems ON indicator. | ON                           |

## LDP ON IND

| Test item  | Operation | Description   | LDP ON indicator lamp (Green) |
|------------|-----------|---|-------------------------------|
| LDP ON IND | Off       | Stops transmitting the LDP ON indicator lamp signal below to end the test                 | —                             |
|            | On        | Transmits the LDP ON indicator lamp signal to the combination meter via CAN communication | ON                            |

## LANE DEPARTURE W/L

| Test item          | Operation | Description   | Lane departure warning lamp (Yellow) |
|--------------------|-----------|---|--------------------------------------|
| LANE DEPARTURE W/L | Off       | Stops transmitting the lane departure warning lamp signal below to end the test                 | —                                    |
|                    | On        | Transmits the lane departure warning lamp signal to the combination meter via CAN communication | ON                                   |

## BSW/BSI WARNING LAMP

| Test item            | Operation | Description  | BSW/BSI warning lamp (Yellow) |
|----------------------|-----------|--|-------------------------------|
| BSW/BSI WARNING LAMP | Off       | Stops transmitting the BSW/BSI warning lamp signal below to end the test                 | —                             |
|                      | On        | Transmits the BSW/BSI warning lamp signal to the combination meter via CAN communication | ON                            |

## BSI ON INDICATOR

| Test item        | Operation | Description  | BSI ON indicator lamp (Green) |
|------------------|-----------|--|-------------------------------|
| BSI ON INDICATOR | Off       | Stops transmitting the BSI ON indicator signal below to end the test                 | —                             |
|                  | On        | Transmits the BSI ON indicator signal to the combination meter via CAN communication | ON                            |



## ECU DIAGNOSIS INFORMATION

### ADAS CONTROL UNIT

#### Reference Value

INFOID:000000006886101

#### VALUES ON THE DIAGNOSIS TOOL

| Monitor item  | Condition  |  | Value/Status |
|---------------|--|--|--------------|
| MAIN SW       | Ignition switch ON   | When MAIN switch is pressed  | On           |
|               |  | When MAIN switch is not pressed  | Off          |
| SET/COAST SW  | Ignition switch ON   | When SET/COAST switch is pressed   | On           |
|               |  | When SET/COAST switch is not pressed   | Off          |
| CANCEL SW     | Ignition switch ON   | When CANCEL switch is pressed  | On           |
|               |  | When CANCEL switch is not pressed  | Off          |
| RESUME/ACC SW | Ignition switch ON   | When RESUME/ACCELERATE switch is pressed                                     | On           |
|               |  | When RESUME/ACCELERATE switch is not pressed                                 | Off          |
| DISTANCE SW   | Ignition switch ON   | When DISTANCE switch is pressed  | On           |
|               |  | When DISTANCE switch is not pressed  | Off          |
| CRUISE OPE    | Drive the vehicle and activate the vehicle-to-vehicle distance control mode  | When ICC system is controlling   | On           |
|               |  | When ICC system is not controlling   | Off          |
| BRAKE SW      | Ignition switch ON   | When brake pedal is depressed  | Off          |
|               |  | When brake pedal is not depressed  | On           |
| STOP LAMP SW  | Ignition switch ON   | When brake pedal is depressed  | On           |
|               |  | When brake pedal is not depressed  | Off          |
| IDLE SW       | Engine running   | Idling   | On           |
|               |  | Except idling (depress accelerator pedal)                                    | Off          |
| SET DISTANCE  | <ul style="list-style-type: none"> <li>• Start the engine and turn the ICC system ON</li> <li>• Press the DISTANCE switch to change the vehicle-to-vehicle distance setting</li> </ul> | When set to "long"   | Long         |
|               |  | When set to "middle"   | Mid          |
|               |  | When set to "short"  | Short        |
| CRUISE LAMP   | Start the engine and press MAIN switch   | ICC system ON (MAIN switch indicator ON)                                     | On           |
|               |  | ICC system OFF (MAIN switch indicator OFF)                                   | Off          |
| OWN VHCL      | Start the engine and press MAIN switch   | ICC system ON (Own vehicle indicator ON)                                     | On           |
|               |  | ICC system OFF (Own vehicle indicator OFF)                                   | Off          |
| VHCL AHEAD    | Drive the vehicle and activate the vehicle-to-vehicle distance control mode  | When a vehicle ahead is detected (vehicle ahead detection indicator ON)      | On           |
|               |  | When a vehicle ahead is not detected (vehicle ahead detection indicator OFF) | Off          |
| ICC WARNING   | Start the engine and press MAIN switch   | When ICC system is malfunctioning (ICC system warning lamp ON)               | On           |
|               |  | When ICC system is normal (ICC system warning lamp OFF)                      | Off          |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[ADAS CONTROL UNIT]

| Monitor item  | Condition   |   | Value/Status   |
|---------------|---|---|--|
| VHCL SPEED SE | While driving   |   | Displays the vehicle speed calculated by ADAS control unit |
| SET VHCL SPD  | While driving   | When vehicle speed is set   | Displays the set vehicle speed                             |
| BUZZER O/P    | Engine running  | When the buzzer of the following system operates <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle distance control mode</li> <li>• DCA system</li> <li>• FCW system</li> <li>• IBA system</li> </ul>     | On   |
|               |   | When the buzzer of the following system not operates <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle distance control mode</li> <li>• DCA system</li> <li>• FCW system</li> <li>• IBA system</li> </ul> | Off  |
| THRTL SENSOR  | <b>NOTE:</b><br>The item is indicated, but not monitored                    |   | 0.0  |
| ENGINE RPM    | Engine running  |   | Equivalent to tachometer reading                           |
| WIPER SW      | Ignition switch ON  | Wiper not operating   | Off  |
|               |   | Wiper LO operation  | Low  |
|               |   | Wiper HI operation  | High   |
| YAW RATE      | <b>NOTE:</b><br>The item is indicated, but not monitored                    |   | 0.0  |
| BA WARNING    | Engine running  | IBA OFF indicator lamp ON <ul style="list-style-type: none"> <li>• When IBA system is malfunctioning</li> <li>• When IBA system is turned to OFF</li> </ul>   | On   |
|               |   | IBA OFF indicator lamp OFF <ul style="list-style-type: none"> <li>• When IBA system is normal</li> <li>• When IBA system is turned to ON</li> </ul>   | Off  |
| STP LMP DRIVE | Drive the vehicle and activate the vehicle-to-vehicle distance control mode | When ICC brake hold relay is activated  | On   |
|               |   | When ICC brake hold relay is not activated  | Off  |
| D RANGE SW    | Engine running  | When the selector lever is in "D" position or manual mode   | On   |
|               |   | When the selector lever is in any position other than "D" or manual mode  | Off  |
| NP RANGE SW   | Engine running  | When the selector lever is in "N", "P" position   | On   |
|               |   | When the selector lever is in any position other than "N", "P"  | Off  |
| PKB SW        | Ignition switch ON  | When the parking brake is applied   | On   |
|               |   | When the parking brake is released  | Off  |
| PWR SUP MONI  | Engine running  |   | Power supply voltage value of ADAS control unit            |
| VHCL SPD AT   | While driving   |   | Value of A/T vehicle speed sensor signal                   |
| THRTL OPENING | Engine running  | Depress accelerator pedal   | Displays the throttle position                             |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[ADAS CONTROL UNIT]

| Monitor item  | Condition   |  | Value/Status  |
|---------------|---|--|---|
| GEAR          | While driving   |  | Displays the gear position  |
| MODE SIG      | Start the engine and press MAIN switch  | When ICC system is deactivated   | Off   |
|               |   | When vehicle-to-vehicle distance control mode is activated                   | ICC   |
|               |   | When conventional (fixed speed) cruise control mode is activated             | ASCD  |
| SET DISP IND  | <ul style="list-style-type: none"> <li>• Drive the vehicle and activate the conventional (fixed speed) cruise control mode</li> <li>• Press SET/COAST switch</li> </ul> | SET switch indicator ON  | On  |
|               |   | SET switch indicator OFF   | Off   |
| DISTANCE      | Drive the vehicle and activate the vehicle-to-vehicle distance control mode   | When a vehicle ahead is detected   | Displays the distance from the preceding vehicle                    |
|               |   | When a vehicle ahead is not detected   | 0.0   |
| RELATIVE SPD  | Drive the vehicle and activate the vehicle-to-vehicle distance control mode   | When a vehicle ahead is detected   | Displays the relative speed.  |
|               |   | When a vehicle ahead is not detected   | 0.0   |
| DYNA ASIST SW | Ignition switch ON  | When dynamic driver assistance switch is pressed                             | On  |
|               |   | When dynamic driver assistance switch is not pressed                         | Off   |
| DCA ON IND    | Start the engine and press dynamic driver assistance switch (When DCA setting is ON)  | DCA system OFF (DCA system switch indicator OFF)                             | Off   |
|               |   | DCA system ON (DCA system switch indicator ON)                               | On  |
| DCA VHL AHED  | Drive the vehicle and activate the DCA system   | When a vehicle ahead is not detected (vehicle ahead detection indicator OFF) | Off   |
|               |   | When a vehicle ahead is detected (vehicle ahead detection indicator ON)      | On  |
| IBA SW        | Ignition switch ON  | When the IBA OFF switch is pressed   | On  |
|               |   | When the IBA OFF switch is not pressed                                       | Off   |
| FCW SYSTEM ON | Ignition switch ON  | When the FCW system is ON (Warning systems ON indicator ON)                  | On  |
|               |   | When the FCW system is OFF (Warning systems ON indicator OFF)                | Off   |
| APA TEMP      | Engine running  |  | Display the accelerator pedal actuator integrated motor temperature |
| APA PWR       | Ignition switch ON  |  | Power supply voltage value of accelerator pedal actuator            |
| LDW SYSTEM ON | Ignition switch ON  | When the LDW system is ON (Warning systems ON indicator ON)                  | On  |
|               |   | When the LDW system is OFF (Warning systems ON indicator OFF)                | Off   |
| LDW ON LAMP   | Ignition switch ON  | Warning systems ON indicator ON  | On  |
|               |   | Warning systems ON indicator OFF   | Off   |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[ADAS CONTROL UNIT]

| Monitor item       | Condition   |  | Value/Status                |
|--------------------|---|--|-----------------------------|
| LDP ON IND         | Start the engine and press dynamic driver assistance switch (When LDP system setting is ON) | LDP ON indicator lamp ON   | On                          |
|                    |   | LDP ON indicator lamp OFF  | Off                         |
| LANE DPRT W/L      | Drive the vehicle and activate the LDW system or LDP system                                 | Lane departure warning lamp ON   | On                          |
|                    |   | Lane departure warning lamp OFF  | Off                         |
| LDW BUZER OUTPUT   | Drive the vehicle and activate the LDW/LDP system or BSW/BSI system                         | When the buzzer of the following system operates<br>• LDW/LDP system<br>• BSW/BSI system         | On                          |
|                    |   | When the buzzer of the following system does not operate<br>• LDW/LDP system<br>• BSW/BSI system | Off                         |
| LDP SYSTEM ON      | Start the engine and press dynamic driver assistance switch (When LDP system setting is ON) | When the LDP system is ON  | On                          |
|                    |   | When the LDP system is OFF   | Off                         |
| READY signal       | Start the engine and press dynamic driver assistance switch (When LDP system setting is ON) | When the LDP system is ON  | On                          |
|                    |   | When the LDP system is OFF   | Off                         |
| Camera lost        | Drive the vehicle and activate the LDW system, LDP system or BSI system                     | Both side lane markers are detected  | Detect                      |
|                    |   | Deviate side lane marker is lost   | Deviate                     |
|                    |   | Both side lane markers are lost  | Both                        |
| Shift position     | <ul style="list-style-type: none"> <li>• Engine running</li> <li>• While driving</li> </ul> |  | Displays the shift position |
| Turn signal        | Turn signal lamps OFF   |  | Off                         |
|                    | Turn signal lamp LH blinking  |  | LH                          |
|                    | Turn signal lamp RH blinking  |  | RH                          |
|                    | Turn signal lamp LH and RH blinking   |  | LH&RH                       |
| SIDE G             | While driving   | Vehicle turning right  | Negative value              |
|                    |   | Vehicle turning left   | Positive value              |
| WARN REQ           | Drive the vehicle and activate the LDP system   | Lane departure warning is operating  | On                          |
|                    |   | Lane departure warning is not operating  | Off                         |
| STATUS signal      | Drive the vehicle and activate the LDP system   | When the LDP system is ON  | Stnby                       |
|                    |   | When the LDP system is operating   | Warn                        |
|                    |   | When the LDP system is canceled  | Cancel                      |
|                    |   | When the LDP system is OFF   | Off                         |
| Lane unclear       | While driving   | Lane marker is unclear   | On                          |
|                    |   | Lane marker is clear   | Off                         |
| FUNC ITEM          | Ignition switch ON  |  | FUNC3                       |
| FUNC ITEM (NV-ICC) | <b>NOTE:</b><br>The item is indicated, but not monitored                                    |  | Off                         |
| FUNC ITEM (NV-DCA) | <b>NOTE:</b><br>The item is indicated, but not monitored                                    |  | Off                         |
| DCA SELECT         | Ignition switch ON  | "Distance Control Assist" set with the navigation system is ON                                   | On                          |
|                    |   | "Distance Control Assist" set with the navigation system is OFF                                  | Off                         |

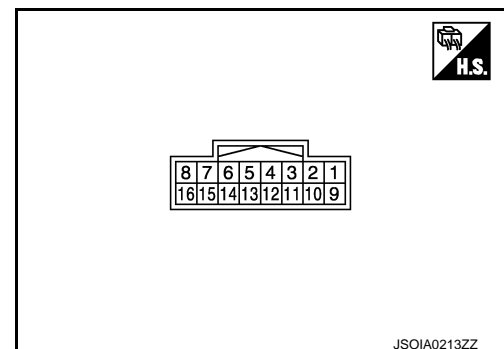
# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[ADAS CONTROL UNIT]

| Monitor item                             | Condition  |  | Value/Status |
|--|--|--|--------------|
| LDP SELECT                               | Ignition switch ON   | "Lane Departure Prevention" set with the navigation system is ON   | On           |
|  |  | "Lane Departure Prevention" set with the navigation system is OFF  | Off          |
| BSI SELECT                               | Ignition switch ON   | "Blind Spot Intervention" set with the navigation system is ON   | On           |
|  |  | "Blind Spot Intervention" set with the navigation system is OFF  | Off          |
| NAVI ICC SELECT                          | <b>NOTE:</b><br>The item is indicated, but not monitored                                       |  | Off          |
| NAVI DCA SELECT                          | <b>NOTE:</b><br>The item is indicated, but not monitored                                       |  | Off          |
| SYS SELECTABILITY                        | Ignition switch ON   | Items set with the navigation system can be switched normally  | On           |
|  |  | Items set with the navigation system cannot be switched normally   | Off          |
| DRIVE MODE STATS                         | Ignition switch ON   | When drive mode select switch position is STANDARD   | STD          |
|  |  | When drive mode select switch position is in SPORT   | SPORT        |
|  |  | When drive mode select switch position is in ECO   | ECO          |
|  |  | When drive mode select switch position is in SNOW  | SNOW         |
|  |  | When position of drive mode select switch is in following states<br><ul style="list-style-type: none"> <li>• In the middle of SNOW-ECO</li> <li>• In the middle of ECO-STANDARD</li> <li>• In the middle of STANDARD-SPORTS</li> </ul> | Mid          |
| A signal other than those above is input | ERROR  |  |              |
| WARN SYS SW                              | Ignition switch ON   | When warning systems switch is pressed   | On           |
|  |  | When warning systems switch is not pressed   | Off          |
| BSW/BSI WARN LMP                         | Ignition switch ON   | BSW/BSI warning lamp ON  | On           |
|  |  | BSW/BSI warning lamp OFF   | Off          |
| BSI ON IND                               | Ignition switch ON   | BSI ON indicator ON  | On           |
|  |  | BSI ON indicator OFF   | Off          |
| BSW SYSTEM ON                            | Ignition switch ON   | When the BSW system is ON<br>(Warning systems ON indicator ON)   | On           |
|  |  | When the BSW system is OFF<br>(Warning systems ON indicator OFF)   | Off          |
| BSI SYSTEM ON                            | Start the engine and press dynamic driver assistance switch<br>(When BSI system setting is ON) | When the BSI system is ON  | On           |
|  |  | When the BSI system is OFF   | Off          |

TERMINAL LAYOUT  
PHYSICAL VALUES



DAS  
P

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[ADAS CONTROL UNIT]

| Terminal No.<br>(Wire color) |                       | Description                       |                    | Condition                    |  | Value<br>(Approx.) |     |
|------------------------------|-----------------------|-----------------------------------|--------------------|------------------------------|--|--------------------|-----|
| +                            | -                     | Signal name                       | Input/<br>Output   |                              |  |                    |     |
| 1<br>(Y)                     | Ground                | Warning systems switch            | Input              | Ignition switch ON           | When warning systems switch is not pressed | 12 V               |     |
|                              |                       |                                   |                    |                              | When warning systems switch is pressed     | 0 V                |     |
| 3<br>(BR)                    |                       | IBA OFF switch                    | Input              | Ignition switch ON           | When IBA OFF switch is not pressed         | 12 V               |     |
|                              |                       |                                   |                    |                              | When IBA OFF switch is pressed             | 0 V                |     |
| 4<br>(O)                     |                       | Warning systems ON indicator      | Output             | Ignition switch ON           | Warning systems ON indicator ON            | 0 V                |     |
|                              |                       |                                   |                    |                              | Warning systems ON indicator OFF           | 12 V               |     |
| 5<br>(SB)                    |                       | ICC brake hold relay drive signal | Output             | Ignition switch ON           | —  | 12 V               |     |
|                              |                       |                                   |                    |                              | At "STOP LAMP" test of "Active test"       | 0 V                |     |
| 6<br>(B/R)                   |                       | Ground                            | —                  | —                            | Ignition switch ON                         | —                  | 0 V |
| 7<br>(L)                     |                       | ITS communication-H               | —                  | —                            | —  | —                  | —   |
| 8<br>(P)                     | ITS communication-L   | —                                 | —                  | —                            | —  | —                  |     |
| 12<br>(W)                    | Warning buzzer signal | Output                            | Ignition switch ON | Warning buzzer operation     | 0 V  |                    |     |
|                              |                       |                                   |                    | Warning buzzer not operating | 12 V                                       |                    |     |
| 14<br>(L)                    | CAN -H                | —                                 | —                  | —                            | —  | —                  |     |
| 15<br>(R)                    | CAN -L                | —                                 | —                  | —                            | —  | —                  |     |
| 16<br>(GR)                   | Ignition power supply | Input                             | Ignition switch ON |                              | Battery voltage                            |                    |     |

## Fail-safe

INFOID:000000006886102

If a malfunction occurs in each system, ADAS control unit cancels each control, sounds a beep, and turns ON the warning lamp or indicator lamp.

| System   | Buzzer            | Warning lamp/Indicator lamp | Description |
|--|-------------------|-----------------------------|-------------|
| Vehicle-to-vehicle distance control mode       | High-pitched tone | ICC system warning lamp     | Cancel      |
| Conventional (fixed speed) cruise control mode | High-pitched tone | ICC system warning lamp     | Cancel      |
| Intelligent Brake Assist (IBA)                 | High-pitched tone | IBA OFF indicator lamp      | Cancel      |
| Forward Collision Warning (FCW)                | High-pitched tone | IBA OFF indicator lamp      | Cancel      |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[ADAS CONTROL UNIT]

| System                          | Buzzer            | Warning lamp/Indicator lamp | Description  |
|---------------------------------|-------------------|-----------------------------|--|
| Distance Control Assist (DCA)   | High-pitched tone | ICC system warning lamp     | Cancel   |
| Lane Departure Warning (LDW)    | —                 | Lane departure warning lamp | Cancel   |
| Lane Departure Prevention (LDP) | Low-pitched tone  | Lane departure warning lamp | Cancel   |
| Blind Spot Warning (BSW)        | —                 | BSW/BSI warning lamp        | Cancel   |
| Blind Spot Intervention (BSI)   | Low-pitched tone  | BSW/BSI warning lamp        | Cancel   |
| Active trace control function   | —                 | IBA OFF indicator lamp      | <ul style="list-style-type: none"> <li>• Cancel</li> <li>• If a communication error occurs between the A/C auto amp. and CAN communication line, a mode at the instant of error occurrence is maintained until the mode is fixed to STANDARD after turning the ignition switch from OFF to ON</li> </ul> |

## DTC Inspection Priority Chart

INFOID:000000006886103

If multiple DTCs are detected simultaneously, check them one by one depending on the following DTC inspection priority chart.

| Priority | Detected items (DTC)   |
|----------|--|
| 1        | <ul style="list-style-type: none"> <li>• U1507: LOST COMM (SIDE RDR R)</li> <li>• U1508: LOST COMM (SIDE RDR L)</li> </ul>   |
| 2        | <ul style="list-style-type: none"> <li>• U1000: CAN COMM CIRCUIT</li> <li>• U1010: CONTROL UNIT (CAN)</li> </ul>   |
| 3        | <ul style="list-style-type: none"> <li>• C1B00: CAMERA UNIT MALF</li> <li>• C1F02: APA C/U MALF</li> <li>• C1A17: ICC SENSOR MALF</li> <li>• C1B53: SIDE RDR R MALF</li> <li>• C1B54: SIDE RDR L MALF</li> </ul> |

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[ADAS CONTROL UNIT]

| Priority | Detected items (DTC)  |
|----------|---|
| 4        | <ul style="list-style-type: none"> <li>• C1A01: POWER SUPPLY CIR</li> <li>• C1A02: POWER SUPPLY CIR 2</li> <li>• C1A04: ABS/TCS/VDC CIRC</li> <li>• C1A05: BRAKE SW/STOP L SW</li> <li>• C1A06: OPERATION SW CIRC</li> <li>• C1A12: LASER BEAM OFFCNTR</li> <li>• C1A13: STOP LAMP RLY FIX</li> <li>• C1A14: ECM CIRCUIT</li> <li>• C1A16: RADAR STAIN</li> <li>• C1A18: LASER AIMING INCOMP</li> <li>• C1A2A: ICC SEN PWR SUP CIR</li> <li>• C1A21: ICC SENSOR HIGH TEMP</li> <li>• C1A24: NP RANGE</li> <li>• C1A26: ECD MODE MALF</li> <li>• C1A27: ECD PWR SUPPLY CIR</li> <li>• C1A33: CAN TRANSMISSION ERR</li> <li>• C1A34: COMMAND ERROR</li> <li>• C1A35: APA CIR</li> <li>• C1A36: APA CAN COMM CIR</li> <li>• C1A37: APA CAN CIR 2</li> <li>• C1A38: APA CAN CIR 1</li> <li>• C1A39: STRG SEN CIR</li> <li>• C1A40: SYSTEM SW CIRC</li> <li>• C1B01: CAM AIMING INCOMP</li> <li>• C1B03: CAM ABNRML TMP DETCT</li> <li>• C1F01: APA MOTOR MALF</li> <li>• C1F05: APA PWR SUPPLY CIR</li> <li>• U0121: VDC CAN CIR 2</li> <li>• U0126: STRG SEN CAN CIR 1</li> <li>• U0235: ICC SENSOR CAN CIRC 1</li> <li>• U0401: ECM CAN CIR 1</li> <li>• U0402: TCM CAN CIR 1</li> <li>• U0415: VDC CAN CIR 1</li> <li>• U0424: HVAC CAN CIR 1</li> <li>• U0428: STRG SEN CAN CIR 2</li> <li>• U1500: CAM CAN CIR 2</li> <li>• U1501: CAM CAN CIR 1</li> <li>• U1502: ICC SEN CAN COMM CIR</li> <li>• U1503: SIDE RDR L CAN CIR 2</li> <li>• U1504: SIDE RDR L CAN CIR 1</li> <li>• U1505: SIDE RDR R CAN CIR 2</li> <li>• U1506: SIDE RDR R CAN CIR 1</li> <li>• U150B: ECM CAN CIRC 3</li> <li>• U150C: VDC CAN CIRC 3</li> <li>• U150D: TCM CAN CIRC 3</li> <li>• U150E: BCM CAN CIRC 3</li> <li>• U150F: AV CAN CIRC 3</li> <li>• U1512: HVAC CAN CIRC3</li> <li>• U1513: METER CAN CIRC 3</li> <li>• U1514: STRG SEN CAN CIRC 3</li> <li>• U1515: ICC SENSOR CAN CIRC 3</li> <li>• U1516: CAM CAN CIRC 3</li> <li>• U1517: APA CAN CIRC 3</li> <li>• U1518: SIDE RDR L CAN CIRC 3</li> <li>• U1519: SIDE RDR R CAN CIRC 3</li> </ul> |
| 5        | <ul style="list-style-type: none"> <li>• C1A03: VHCL SPEED SE CIRC</li> </ul>   |
| 6        | <ul style="list-style-type: none"> <li>• C1A15: GEAR POSITION</li> </ul>  |
| 7        | <ul style="list-style-type: none"> <li>• C1A00: CONTROL UNIT</li> </ul>   |

## DTC Index

INFOID:000000006886104

### NOTE:

- The details of time display are as per the following.



# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[ADAS CONTROL UNIT]

- CRNT: A malfunction is detected now
- PAST: A malfunction was detected in the past
- IGN counter is displayed on FFD (Freeze Frame Data).
- 0: The malfunctions that are detected now  
CAN communication system (U1000, U1010)
- 1 - 39: It increases like 0 → 1 → 2 ... 38 → 39 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 39, it is fixed to 39 until the self-diagnosis results are erased.  
Other than CAN communication system (Other than U1000, U1010)
- 1 - 49: It increases like 0 → 1 → 2 ... 38 → 49 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 49, it is fixed to 49 until the self-diagnosis results are erased.

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC     |                  | CONSULT display      | Warning lamp            |                        |                             |                      | Fail-safe              | Reference               |
|---------|------------------|----------------------|-------------------------|------------------------|-----------------------------|----------------------|------------------------|-------------------------|
| CONSULT | On board display |                      | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System                 |                         |
| C1A00   | 0                | CONTROL UNIT         | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-49</a>  |
| C1A01   | 1                | POWER SUPPLY CIR     | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-50</a>  |
| C1A02   | 2                | POWER SUPPLY CIR 2   | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-50</a>  |
| C1A03   | 3                | VHCL SPEED SE CIRC   | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">CCS-80</a>  |
| C1A04   | 4                | ABS/TCS/VDC CIRC     | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">CCS-82</a>  |
| C1A05   | 5                | BRAKE SW/STOP L SW   | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">CCS-83</a>  |
| C1A06   | 6                | OPERATION SW CIRC    | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">CCS-88</a>  |
| C1A12   | 12               | LASER BEAM OFFCN-TR  | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">CCS-91</a>  |
| C1A13   | 13               | STOP LAMP RLY FIX    | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-92</a>  |
| C1A14   | 14               | ECM CIRCUIT          | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">CCS-98</a>  |
| C1A15   | 15               | GEAR POSITION        | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">CCS-99</a>  |
| C1A16   | 16               | RADAR STAIN          | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">CCS-101</a> |
| C1A17   | 17               | ICC SENSOR MALF      | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-103</a> |
| C1A18   | 18               | LASER AIMING INCOMP  | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">CCS-104</a> |
| C1A21   | 21               | ICC SENSOR HIGH TEMP | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-106</a> |
| C1A24   | 24               | NP RANGE             | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">CCS-108</a> |

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[ADAS CONTROL UNIT]

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC   |                 | CONSULT display                                     | Warning lamp            |                        |                             |                      | Fail-safe              | Reference               |
|---|-----------------|---|-------------------------|------------------------|-----------------------------|----------------------|------------------------|-------------------------|
| CONSULT   | Onboard display |   | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System                 |                         |
| C1A26   | 26              | ECD MODE MALF                                       | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-110</a> |
| C1A27   | 27              | ECD PWR SUPPLY CIR                                  | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-111</a> |
| C1A33   | 33              | CAN TRANSMISSION ERR                                | ON                      |                        |                             |                      | A, B, E, H             | <a href="#">CCS-113</a> |
| C1A34   | 34              | COMMAND ERROR                                       | ON                      |                        |                             |                      | A, B, E, H             | <a href="#">CCS-114</a> |
| C1A35   | 35              | APA CIR   | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-115</a> |
| C1A36   | 36              | APA CAN COMM CIR                                    | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-116</a> |
| C1A37   | 133             | APA CAN CIR 2                                       | ON                      |                        |                             |                      | A, B, E                | <a href="#">CCS-117</a> |
| C1A38   | 132             | APA CAN CIR 1                                       | ON                      |                        |                             |                      | A, B, E                | <a href="#">CCS-118</a> |
| C1A39   | 39              | STRG SEN CIR  | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">CCS-119</a> |
| C1A40   | 40              | SYSTEM SW CIRC                                      |                         | ON                     |                             |                      | C, D                   | <a href="#">CCS-121</a> |
| C1A2A   | 80              | ICC SEN PWR SUP CIR                                 | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">CCS-112</a> |
| C1B00   | 81              | CAMERA UNIT MALF                                    |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-330</a> |
| C1B01   | 82              | CAM AIMING INCMP                                    |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-332</a> |
| C1B03   | 83              | CAM ABNRML TMP DETCT                                |                         |                        | BLINK                       | BLINK                | F, G                   | <a href="#">DAS-334</a> |
| C1B53   | 84              | SIDE RDR R MALF                                     |                         |                        |                             | ON                   | G                      | <a href="#">DAS-473</a> |
| C1B54   | 85              | SIDE RDR L MALF                                     |                         |                        |                             | ON                   | G                      | <a href="#">DAS-474</a> |
| C1F01   | 91              | APA MOTOR MALF                                      | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-124</a> |
| C1F02   | 92              | APA C/U MALF  | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-125</a> |
| C1F05   | 95              | APA PWR SUPPLY CIR                                  | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-126</a> |
| NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED | 55              | NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED | —                       | —                      | —                           | —                    | —                      | —                       |
| U0121   | 127             | VDC CAN CIR 2                                       | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">CCS-128</a> |
| U0126   | 130             | STRG SEN CAN CIR 1                                  | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">CCS-130</a> |
| U0235   | 144             | ICC SENSOR CAN CIRC 1                               | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-132</a> |
| U0401   | 120             | ECM CAN CIR 1                                       | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">CCS-133</a> |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[ADAS CONTROL UNIT]

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC                   |                  | CONSULT display        | Warning lamp            |                        |                             |                      | Fail-safe              | Reference               |
|-----------------------|------------------|------------------------|-------------------------|------------------------|-----------------------------|----------------------|------------------------|-------------------------|
| CONSULT               | On board display |                        | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System                 |                         |
| U0402                 | 122              | TCM CAN CIR 1          | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">CCS-134</a> |
| U0415                 | 126              | VDC CAN CIR 1          | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">CCS-136</a> |
| U0424                 | 156              | HVAC CAN CIR 1         |                         |                        |                             |                      |                        | <a href="#">BRC-118</a> |
| U0428                 | 131              | STRG SEN CAN CIR 2     | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">CCS-138</a> |
| U1000 <sup>NOTE</sup> | 100              | CAN COMM CIRCUIT       | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-51</a>  |
| U1010                 | 110              | CONTROL UNIT (CAN)     | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-52</a>  |
| U1500                 | 145              | CAM CAN CIR 2          |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-350</a> |
| U1501                 | 146              | CAM CAN CIR 1          |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-351</a> |
| U1502                 | 147              | ICC SEN CAN COMM CIR   | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-147</a> |
| U1503                 | 150              | SIDE RDR L CAN CIR 2   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-495</a> |
| U1504                 | 151              | SIDE RDR L CAN CIR 1   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-496</a> |
| U1505                 | 152              | SIDE RDR R CAN CIR 2   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-497</a> |
| U1506                 | 153              | SIDE RDR R CAN CIR 1   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-498</a> |
| U1507                 | 154              | LOST COMM (SIDE RDR R) |                         |                        |                             | ON                   | G                      | <a href="#">DAS-499</a> |
| U1508                 | 155              | LOST COMM (SIDE RDR L) |                         |                        |                             | ON                   | G                      | <a href="#">DAS-500</a> |
| U150B                 | 157              | ECM CAN CIRC 3         | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">CCS-143</a> |
| U150C                 | 158              | VDC CAN CIRC 3         | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">CCS-144</a> |
| U150D                 | 159              | TCM CAN CIRC 3         | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">CCS-145</a> |
| U150E                 | 160              | BCM CAN CIRC 3         | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">CCS-146</a> |
| U150F                 | 161              | AV CAN CIRC 3          |                         |                        |                             |                      |                        | <a href="#">DAS-53</a>  |
| U1512                 | 162              | HVAC CAN CIRC3         |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-352</a> |
| U1513                 | 163              | METER CAN CIRC 3       | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">CCS-148</a> |
| U1514                 | 164              | STRG SEN CAN CIRC 3    | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">CCS-149</a> |
| U1515                 | 165              | ICC SENSOR CAN CIRC 3  | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-150</a> |
| U1516                 | 166              | CAM CAN CIRC 3         |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-354</a> |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[ADAS CONTROL UNIT]

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC     |                 | CONSULT display       | Warning lamp            |                        |                             |                      | Fail-safe | Reference               |
|---------|-----------------|-----------------------|-------------------------|------------------------|-----------------------------|----------------------|-----------|-------------------------|
| CONSULT | Onboard display |                       | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System    |                         |
| U1517   | 167             | APA CAN CIRC 3        | ON                      |                        |                             |                      | A, B, E   | <a href="#">CCS-151</a> |
| U1518   | 168             | SIDE RDR L CAN CIRC 3 |                         |                        |                             | ON                   | G         | <a href="#">DAS-505</a> |
| U1519   | 169             | SIDE RDR R CAN CIRC 3 |                         |                        |                             | ON                   | G         | <a href="#">DAS-506</a> |

**NOTE:**

With the detection of "U1000" some systems do not perform the fail-safe operation.


A system controlling based on a signal received from the control unit performs fail-safe operation when the communication with the ADAS control unit becomes inoperable.

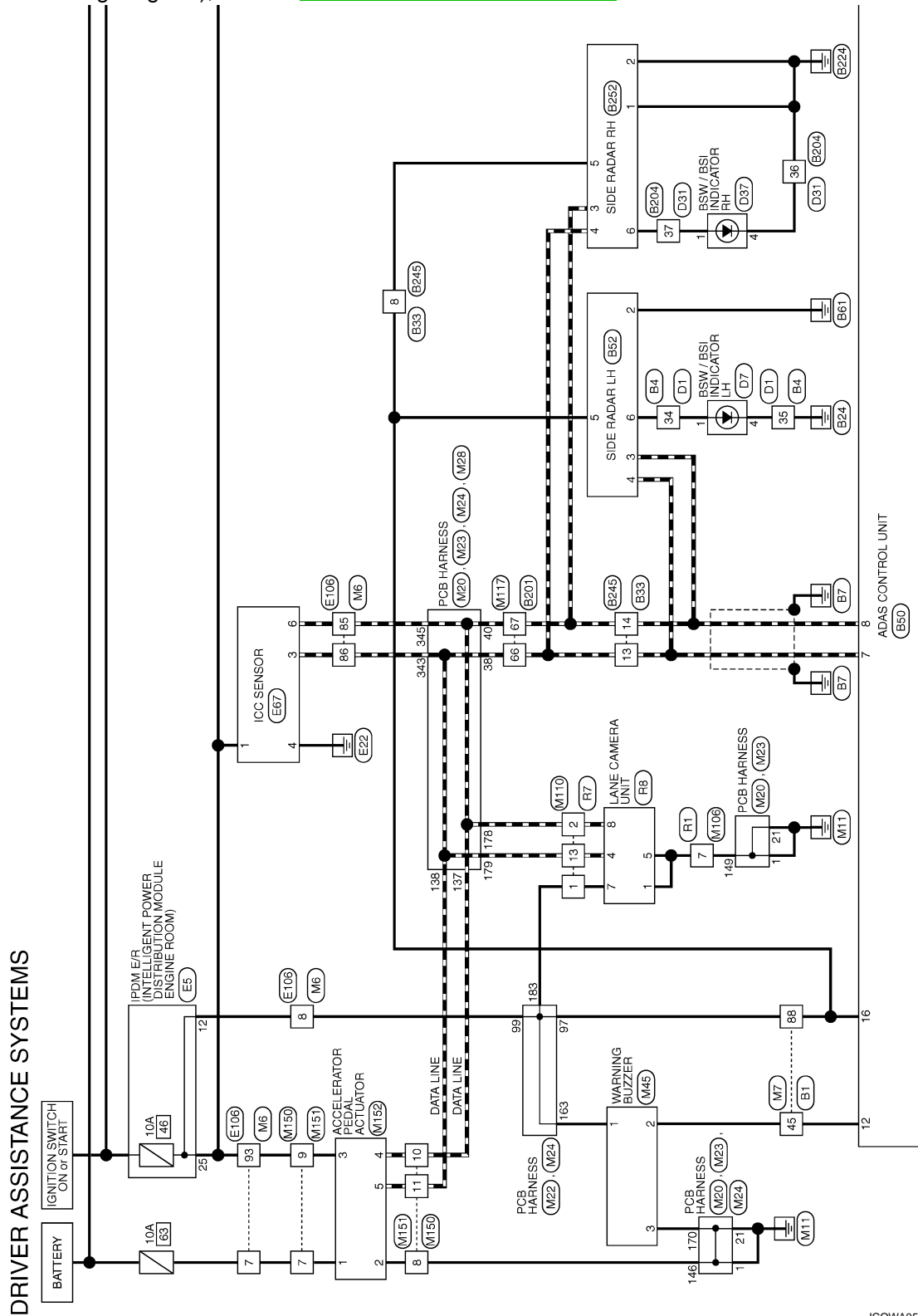
# WIRING DIAGRAM

## DRIVER ASSISTANCE SYSTEMS

### Wiring Diagram

INFOID:000000006886105

For connector terminal arrangements, harness layouts, and alphabets in a  (option abbreviation; if not described in wiring diagram), refer to [GI-12. "Connector Information"](#).



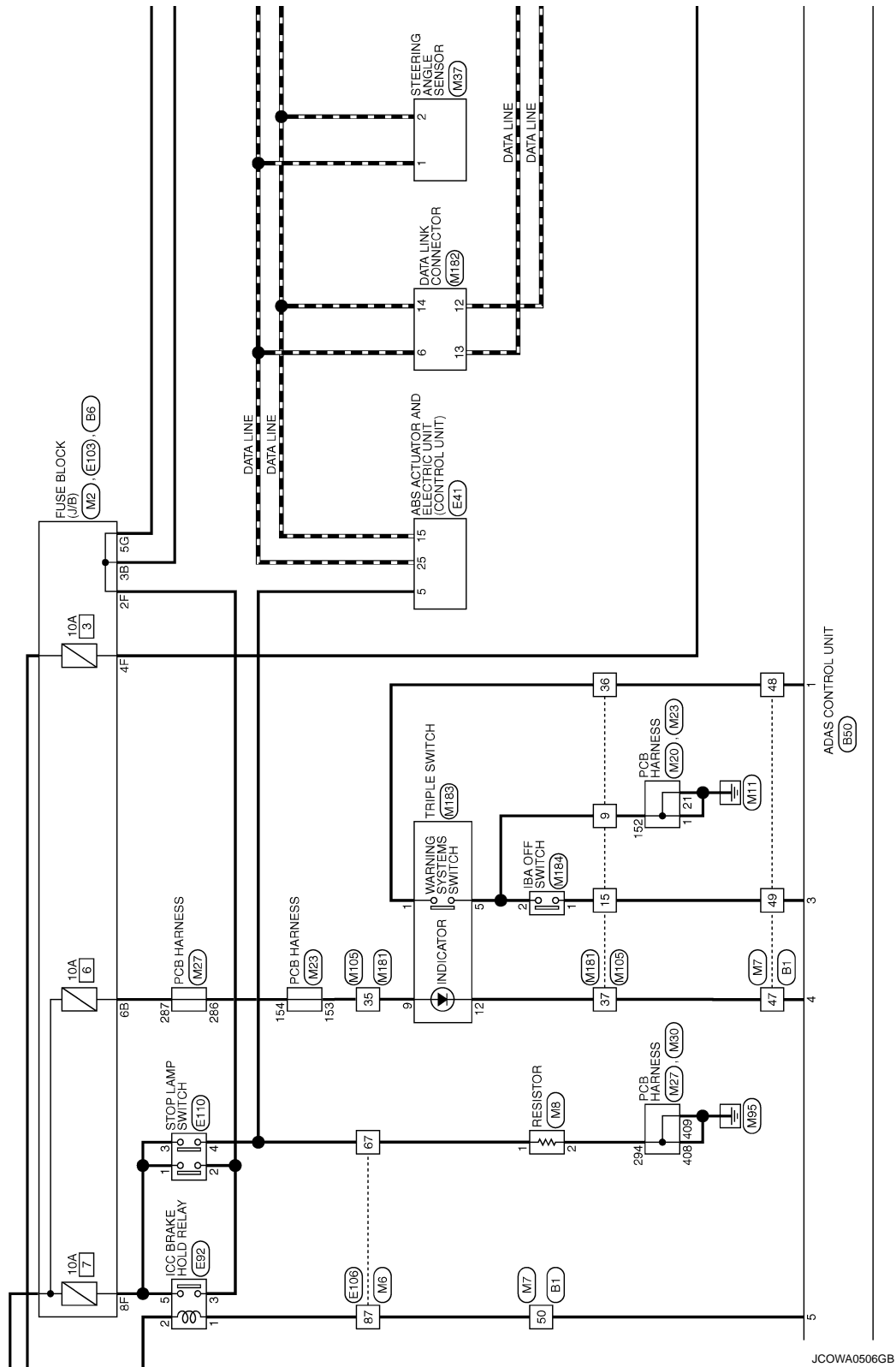
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[ADAS CONTROL UNIT]

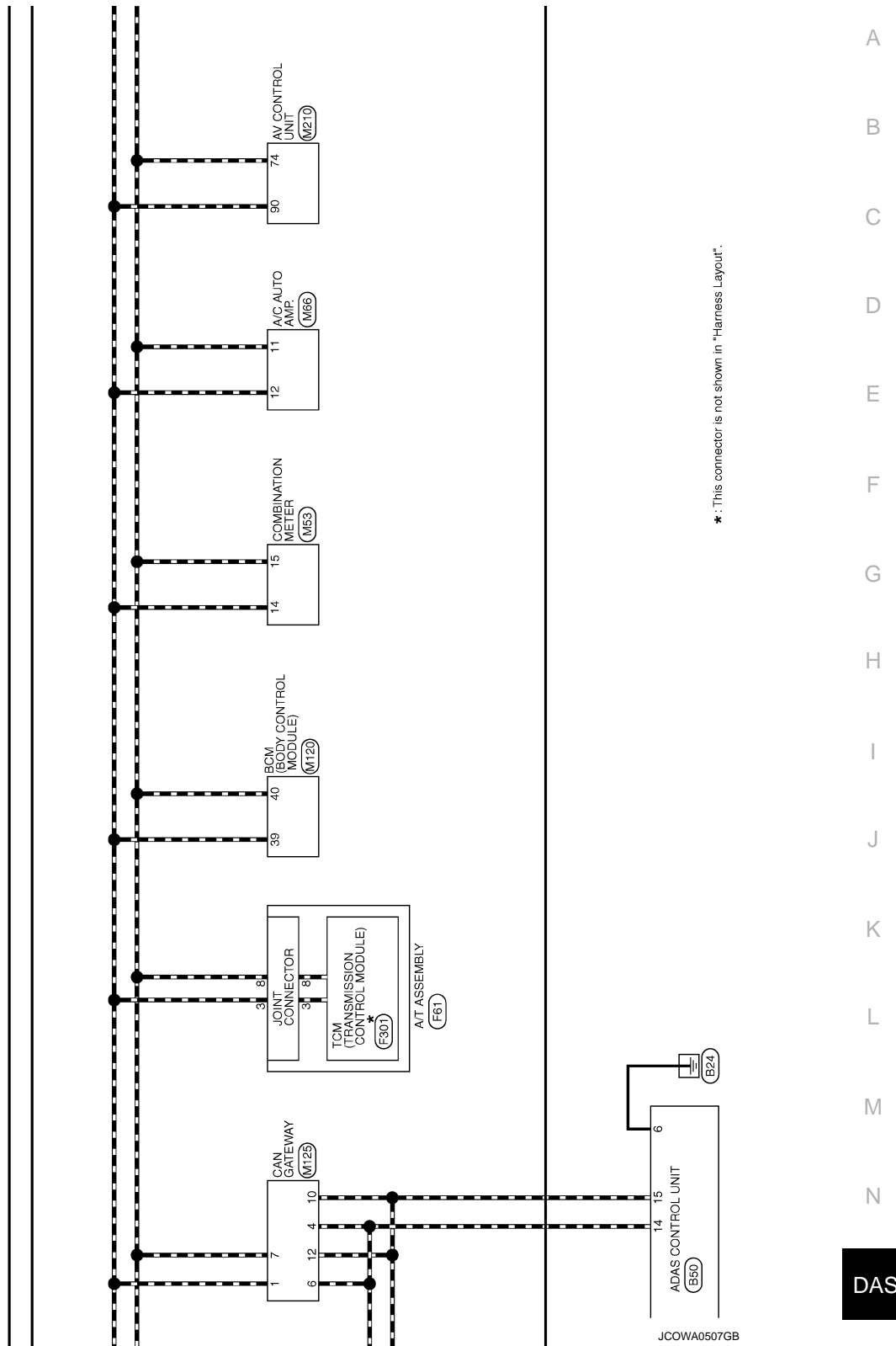


JCOWA0506GB

# DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[ADAS CONTROL UNIT]



JCOWA0507GB

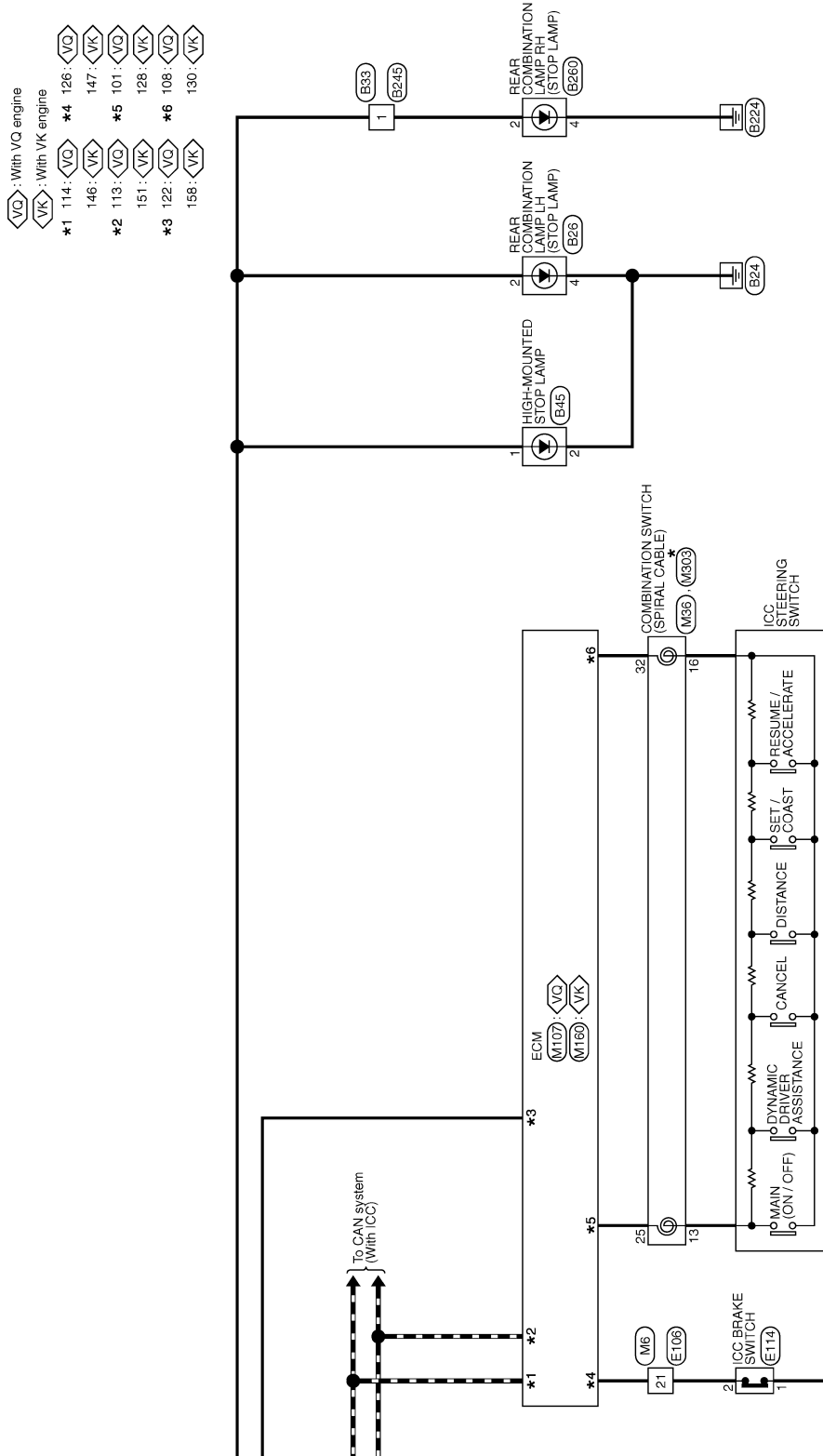
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[ADAS CONTROL UNIT]



\*: This connector is not shown in "Harness Layout".

JCOWA0508GB



**DTC/CIRCUIT DIAGNOSIS**

C1A00 CONTROL UNIT

DTC Logic

INFOID:000000006886106

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                | Possible causes   |
|---------------------------|------------------------|--|-------------------|
| C1A00<br>(0)              | CONTROL UNIT           | ADAS control unit internal malfunction | ADAS control unit |

DTC CONFIRMATION PROCEDURE

**1. PERFORM DTC CONFIRMATION PROCEDURE**

1. Start the engine.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1A00" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A00" detected as the current malfunction?

- YES >> Refer to [DAS-49. "Diagnosis Procedure"](#).
- NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006886107

**1. CHECK SELF-DIAGNOSIS RESULTS**

Check if any DTC other than "C1A00" is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-40. "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P



# C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[ADAS CONTROL UNIT]

## C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

### DTC Logic

INFOID:000000006886108

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|---------------------------|------------------------|--|--|
| C1A01<br>(1)              | POWER SUPPLY CIR       | The battery voltage sent to ADAS control unit remains less than 7.9 V for 5 seconds  | <ul style="list-style-type: none"><li>• Connector, harness, fuse</li><li>• ADAS control unit</li></ul> |
| C1A02<br>(2)              | POWER SUPPLY CIR 2     | The battery voltage sent to ADAS control unit remains more than 19.3 V for 5 seconds |  |

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A01" or "C1A02" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A01" or "C1A02" detected as the current malfunction?

- YES >> Refer to [DAS-50. "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44. "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886109

#### 1. CHECK ADAS CONTROL UNIT POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit of ADAS control unit. Refer to [DAS-54. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).  
NO >> Repair or replace the malfunctioning parts.

## U1000 CAN COMM CIRCUIT

### Description

INFOID:000000006886110

#### CAN COMMUNICATION

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control units, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads the required data only.

CAN communication signal chart. Refer to [LAN-35, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

#### ITS COMMUNICATION

- ITS communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speed by connecting control units with 2 communication lines.
- ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

### DTC Logic

INFOID:000000006886111

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|---------------------------|------------------------|--|--|
| U1000<br>(100)            | CAN COMM CIRCUIT       | If ADAS control unit is not transmitting or receiving CAN communication signal or ITS communication signal for 2 seconds or more | <ul style="list-style-type: none"> <li>• CAN communication system</li> <li>• ITS communication system</li> </ul> |

#### NOTE:

If "U1000" is detected, first diagnose the CAN communication system.

### Diagnosis Procedure

INFOID:000000006886112

#### 1. PERFORM THE SELF-DIAGNOSIS

1. Turn the ignition switch ON.
2. Turn the MAIN switch of ICC system ON, and then wait for 30 seconds or more.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1000" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected as the current malfunction?

YES >> Refer to [LAN-25, "Trouble Diagnosis Flow Chart"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).



# U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[ADAS CONTROL UNIT]

## U1010 CONTROL UNIT (CAN)

### Description

INFOID:000000006886113

CAN controller controls the communication of CAN communication signal and ITS communication signal, and the error detection.

### DTC Logic

INFOID:000000006886114

### DTC DETECTION LOGIC

| DTC<br>(On board<br>display) | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|------------------------------|------------------------|---|-------------------|
| U1010<br>(110)               | CONTROL UNIT (CAN)     | If ADAS control unit detects malfunction by<br>CAN controller initial diagnosis | ADAS control unit |

### Diagnosis Procedure

INFOID:000000006886115

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the MAIN switch of ICC system ON.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "U1010" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1010" detected as the current malfunction?

- YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).
- NO >> INSPECTION END

U150F AV CAN 3

DTC Logic

INFOID:000000006886116

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U150F<br>(161)            | AV CAN CIRC 3          | ADAS control unit detects an error signal that is received from AV control unit via CAN communication | AV control unit |

**NOTE:**

If DTC “U150F” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to [DAS-51, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

**1**.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA, LDP, or BSI system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U150F” is detected as the current malfunction in “Self Diagnostic Result” of “ICC/ADAS”.

Is “U150F” detected as the current malfunction?

- YES >> Refer to [DAS-53, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006886117

**1**.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U150F” in “Self Diagnostic Result” of “ICC/ADAS”.

Is “U1000” detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-51, "DTC Logic"](#).
- NO >> GO TO 2.

**2**.CHECK AV CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “MULTI AV”.

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [AV-168, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P



# POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[ADAS CONTROL UNIT]

## POWER SUPPLY AND GROUND CIRCUIT

### Diagnosis Procedure

INFOID:000000006886118

#### 1. CHECK FUSES

Check if any of the following fuses are blown:

| Signal name           | Fuse No. |
|-----------------------|----------|
| Ignition power supply | 46       |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

#### 2. CHECK ADAS CONTROL UNIT POWER SUPPLY CIRCUIT

Check voltage between ADAS control unit harness connector and ground.

| Terminal          |          | Condition       | Voltage (Approx.) |
|-------------------|----------|-----------------|-------------------|
| (+)               | (-)      |                 |                   |
| ADAS control unit |          | Ignition switch | 0 V               |
| Connector         | Terminal |                 |                   |
| B50               | 16       | OFF             | 0 V               |
|                   |          | ON              | Battery voltage   |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the ADAS control unit power supply circuit.

#### 3. CHECK ADAS CONTROL UNIT GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the ADAS control unit connector.
3. Check for continuity between ADAS control unit harness connector and ground.

| ADAS control unit |          | Ground | Continuity |
|-------------------|----------|--------|------------|
| Connector         | Terminal |        |            |
| B50               | 6        |        | Existed    |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair the ADAS control unit ground circuit.

# REMOVAL AND INSTALLATION

## ADAS CONTROL UNIT

### Removal and Installation

INFOID:000000006886119

#### REMOVAL

1. Remove the rear parcel shelf finisher. Refer to [INT-40. "Removal and Installation"](#).
2. Remove clips on the trunk finisher front upper to obtain space for work. Refer to [INT-51. "TRUNK FINISHER FRONT : Removal and Installation"](#).
3. Disconnect ADAS control unit connector.
4. Remove mounting bolts from ADAS control unit.
5. Remove ADAS control unit.

#### REMOVAL

Install in the reverse order of removal.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P



## PRECAUTION

### PRECAUTIONS

#### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000006886120

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

**WARNING:**

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

#### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

**WARNING:**

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

#### Precautions For Harness Repair

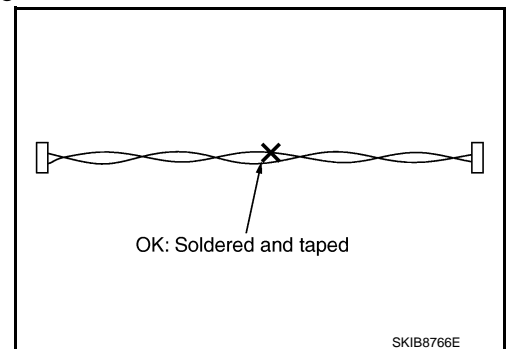
INFOID:000000006886121

ITS communication uses a twisted pair line. Be careful when repairing it.

- Solder the repaired area and wrap tape around the soldered area.

**NOTE:**

A fray of twisted lines must be within 110 mm (4.33 in).





# PRECAUTIONS

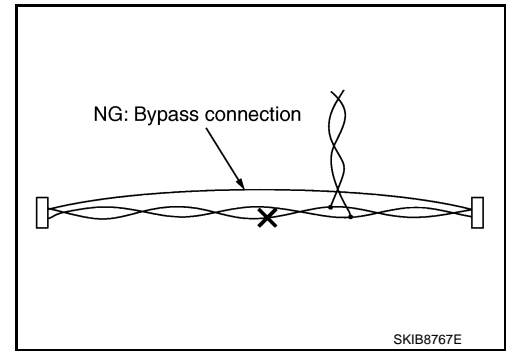
[DCA]

## < PRECAUTION >

- Bypass connection is never allowed at the repaired area.

### NOTE:

Bypass connection may cause ITS communication error. The spliced wire becomes separated and the characteristics of twisted line are lost.



## DCA System Service

INFOID:000000006886122

### CAUTION:

- Never look straight into the laser beam discharger when adjusting laser beam aiming.
- Turn the DCA system OFF in conditions similar to driving, such as free rollers or a chassis dynamometer.
- Never use the ICC sensor removed from vehicle. Never disassemble or remodel.
- Erase DTC when replacing parts of DCA system, then check the operation of DCA system after adjusting laser beam aiming if necessary.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

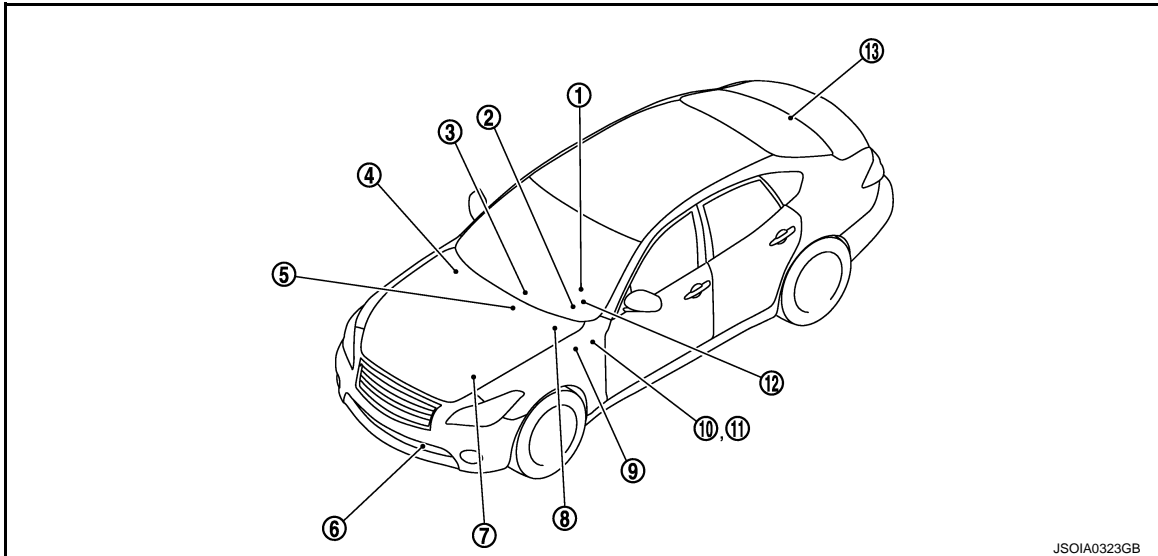
DAS

## SYSTEM DESCRIPTION

### COMPONENT PARTS

#### Component Parts Location

INFOID:000000006886123



JSOIA0323GB

- |   |  |   |
|---|--|---|
| 1. ICC steering switch  | 2. Information display, ICC system warning lamp, buzzer (On the combination meter)                             | 3. AV control unit<br>Refer to <a href="#">AV-127, "Component Parts Location"</a>       |
| 4. ECM<br>Refer to the following.   | 5. TCM<br>Refer to <a href="#">TM-10, "A/T CONTROL SYSTEM : Component Parts Location"</a>                      | 6. ICC sensor<br>Refer to <a href="#">CCS-9, "Component Parts Location"</a>             |
| <ul style="list-style-type: none"> <li>• VQ37VHR: <a href="#">EC-38, "ENGINE CONTROL SYSTEM : Component Parts Location"</a></li> <li>• VK56VD (USA and Canada): <a href="#">EC-990, "ENGINE CONTROL SYSTEM : Component Parts Location"</a></li> <li>• VK56VD (Mexico): <a href="#">EC-1564, "ENGINE CONTROL SYSTEM : Component Parts Location"</a></li> </ul> |  |   |
| 7. ICC brake hold relay<br>Refer to <a href="#">CCS-9, "Component Parts Location"</a>   | 8. ABS actuator and electric unit (control unit)<br>Refer to <a href="#">BRC-9, "Component Parts Location"</a> | 9. Accelerator pedal actuator   |
| 10. ICC brake switch<br>Refer to <a href="#">CCS-9, "Component Parts Location"</a>  | 11. Stop lamp switch<br>Refer to <a href="#">CCS-9, "Component Parts Location"</a>                             | 12. Steering angle sensor<br>Refer to <a href="#">BRC-9, "Component Parts Location"</a> |
| 13. ADAS control unit<br>Refer to <a href="#">DAS-14, "Component Parts Location"</a>  |  |   |

# COMPONENT PARTS

[DCA]

< SYSTEM DESCRIPTION >

## Component Description

INFOID:000000006886124

| Component   | Description   |
|---|---|
| ADAS control unit   | <ul style="list-style-type: none"> <li>• ADAS control unit calculates a target distance between vehicles and a target speed, based on signals received from each sensor and switch to transmit a brake fluid pressure control signal to ABS actuator and electric unit (control unit) via CAN communication</li> <li>• ADAS control unit transmits the buzzer output signal to the combination meter via CAN communication</li> <li>• ADAS control unit transmits an accelerator pedal feedback force control signal to the accelerator pedal actuator via ITS communication</li> </ul> |
| ICC sensor  | <ul style="list-style-type: none"> <li>• ICC sensor detects light reflected from a vehicle ahead by irradiating laser forward and calculates a distance from the vehicle ahead and a relative speed, based on the detected signal</li> <li>• ICC sensor transmits the presence/absence of vehicle ahead and the distance from the vehicle to ADAS control unit via ITS communication</li> </ul>   |
| ECM   | ECM transmits the accelerator pedal position signal, ICC brake switch signal, stop lamp switch signal, ICC steering switch signal, etc. to ADAS control unit via CAN communication  |
| ABS actuator and electric unit (control unit)                 | <ul style="list-style-type: none"> <li>• ABS actuator and electric unit (control unit) transmits the vehicle speed signal (wheel speed), stop lamp signal and VDC/TCS/ABS system operation condition to ADAS control unit via CAN communication</li> <li>• ABS actuator and electric unit (control unit) controls the brake, based on a brake fluid pressure control signal received from ADAS control unit via CAN communication</li> </ul>  |
| TCM   | TCM transmits the signal related to A/T control to ADAS control unit via CAN communication  |
| Combination meter   | <p>Performs the following operations using the signals received from the ADAS control unit via the CAN communication</p> <ul style="list-style-type: none"> <li>• Displays the DCA system operation status using the meter display signal</li> <li>• Illuminates the ICC system warning lamp using the ICC warning lamp signal</li> <li>• Operates the buzzer (ICC warning chime) using the buzzer output signal</li> </ul>   |
| Dynamic driver assistance switch (On the ICC steering switch) | ECM receives an ICC steering switch (dynamic driver assistance switch) signal and transmits the signal to ADAS control unit via CAN communication   |
| ICC brake hold relay  | ICC brake hold relay activates the stop lamp by ICC brake hold relay drive signal (stop lamp drive signal) outputted by the ADAS control unit   |
| ICC brake switch  | <ul style="list-style-type: none"> <li>• ICC brake switch is turned OFF and stop lamp switch is turned ON, when depressing the brake pedal</li> <li>• ICC brake switch signal is input to ECM. These signals are transmitted from ECM to ADAS control unit via CAN communication</li> <li>• Stop lamp switch signal is input to ECM and ABS actuator and electric unit (control unit). These signals are transmitted from ECM and ABS actuator and electric unit (control unit) to ADAS control unit via CAN communication</li> </ul>   |
| Stop lamp switch  |   |
| AV control unit   | AV control unit transmits the system selection signal to the ADAS control unit via CAN communication  |
| Steering angle sensor   | Measures the rotation amount, rotation speed, and rotation direction of steering wheel, and then transmits them to ADAS control unit via CAN communication  |
| Accelerator pedal actuator                                    | Accelerator pedal actuator receives an accelerator pedal feedback force control signal from the ADAS control unit via ITS communication and pushes back the accelerator pedal   |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

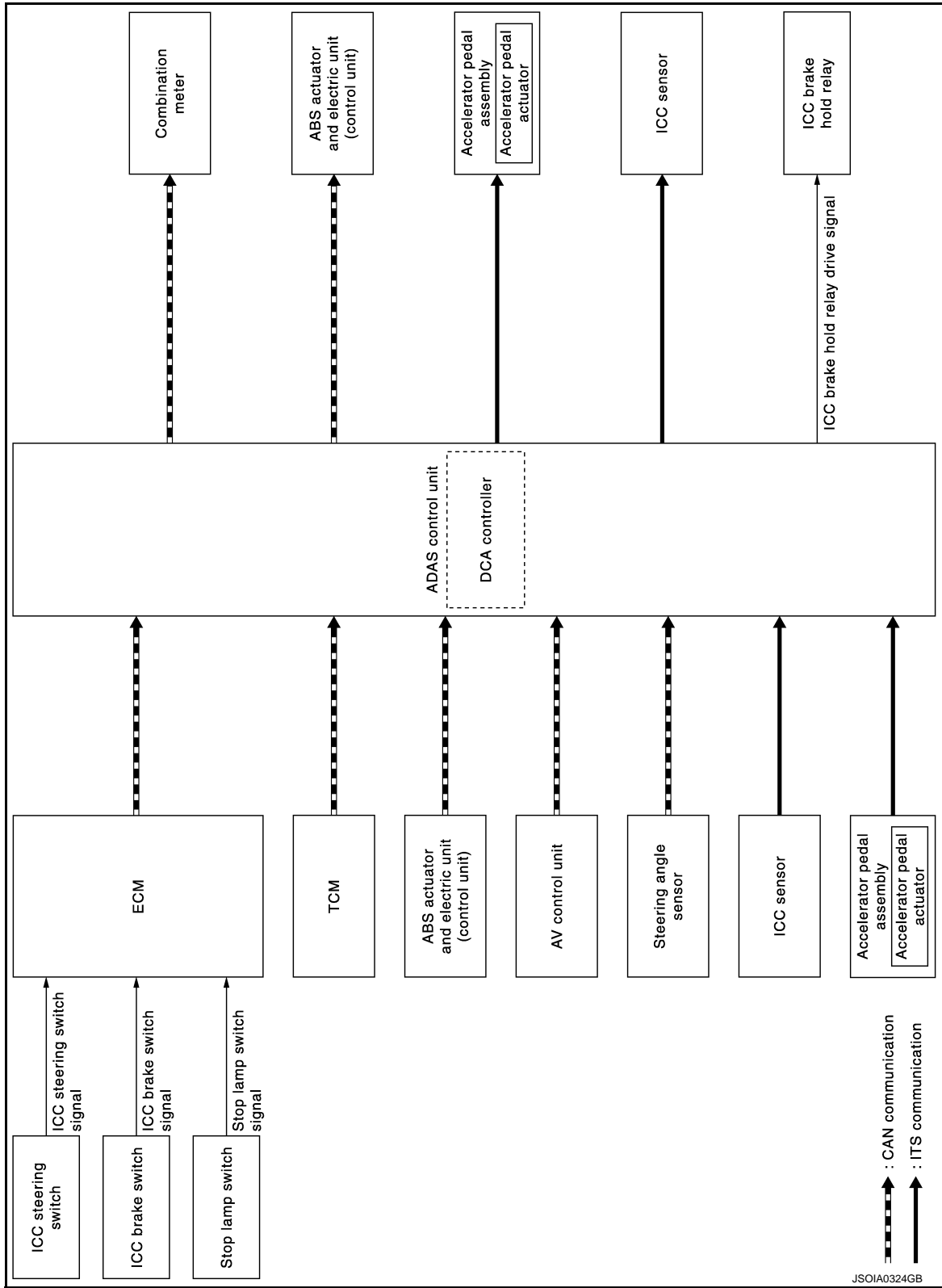
DAS

SYSTEM

System Description

INFOID:000000006886125

SYSTEM DIAGRAM



JSOIA0324GB

ADAS CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

# SYSTEM

< SYSTEM DESCRIPTION >

[DCA]

| Transmit unit                                 | Signal name  | Description  |   |
|---|--|--|---|
| ECM   | Closed throttle position signal                    | Receives idle position state (ON/OFF)  |   |
|   | Accelerator pedal position signal                  | Receives accelerator pedal position (angle)  |   |
|   | ICC steering switch signal                         | Dynamic driver assistance switch signal  | Receives the operational state of the ICC steering switch |
|   | Engine speed signal                                |  | Receives engine speed                                     |
|   | Stop lamp switch signal                            |  | Receives an operational state of the brake pedal          |
|   | Snow mode switch signal                            |  | Receives an operational state of the snow mode            |
| TCM   | Input speed signal                                 | Receives the number of revolutions of input shaft  |   |
|   | Current gear position signal                       | Receives a current gear position   |   |
|   | Shift position signal                              | Receives a selector lever position   |   |
|   | Output shaft revolution signal                     | Receives the number of revolutions of output shaft   |   |
| ABS actuator and electric unit (control unit) | ABS malfunction signal                             | Receives a malfunction state of ABS  |   |
|   | ABS operation signal                               | Receives an operational state of ABS   |   |
|   | ABS warning lamp signal                            | Receives an ON/OFF state of ABS warning lamp   |   |
|   | TCS malfunction signal                             | Receives a malfunction state of TCS  |   |
|   | TCS operation signal                               | Receives an operational state of TCS   |   |
|   | VDC OFF switch signal                              | Receives an ON/OFF state of VDC  |   |
|   | VDC malfunction signal                             | Receives a malfunction state of VDC  |   |
|   | VDC operation signal                               | Receives an operational state of VDC   |   |
|   | Vehicle speed signal (ABS)                         | Receives wheel speeds of four wheels   |   |
|   | Stop lamp switch signal                            | Receives an operational state of the brake pedal   |   |
|   | Yaw rate signal                                    | Receives yaw rate acting on the vehicle  |   |
| Steering angle sensor                         | Steering angle sensor malfunction signal           | Receives a malfunction state of steering angle sensor  |   |
|   | Steering angle sensor signal                       | Receives the number of revolutions, turning direction of the steering wheel                                    |   |
|   | Steering angle speed signal                        | Receives the turning angle speed of the steering wheel   |   |
| AV control unit                               | System selection signal                            | Receives a selection state of each item in "Driver Assistance" selected with the navigation system             |   |
| ICC sensor                                    | ICC sensor signal                                  | Receives detection results, such as the presence or absence of a leading vehicle and distance from the vehicle |   |
| Accelerator pedal actuator                    | Accelerator pedal actuator operation status signal | Receives an operational state of accelerator pedal actuator  |   |

## Output Signal Item

| Reception unit                                | Signal name                         | Description  |
|---|-------------------------------------|--|
| ABS actuator and electric unit (control unit) | Brake fluid pressure control signal | Transmits a brake fluid pressure control signal to activates the brake |

# SYSTEM

## < SYSTEM DESCRIPTION >

[DCA]

| Reception unit             | Signal name                        |   | Description  |
|----------------------------|------------------------------------|---|--|
| Combination meter          | CAN communication                  | Meter display signal                            | Transmits a signal to display a state of the system on the information display   |
|                            |                                    | Vehicle ahead detection indicator signal        |  |
|                            | DCA system switch indicator signal |   |  |
| Combination meter          | CAN communication                  | ICC warning lamp signal                         | Transmits an ICC warning lamp signal to turn ON the ICC system warning lamp      |
|                            |                                    | Buzzer output signal                            | Transmits a buzzer output signal to activate the buzzer                          |
|                            |                                    | Vehicle speed signal                            | Transmits a vehicle speed calculated by the ADAS control unit                    |
| ICC sensor                 | ITS communication                  | Steering angle sensor signal                    | Transmits a steering angle sensor signal received from the steering angle sensor |
|                            |                                    | Accelerator pedal position signal               | Transmits an accelerator pedal angle calculated by the ADAS control unit         |
| Accelerator pedal actuator | ITS communication                  | Accelerator pedal feedback force control signal | Transmits a target actuation force value calculated by the ADAS control unit     |
|                            |                                    | ICC brake hold relay drive signal               | Activates the brake hold relay and turns ON the stop lamp                        |

## FUNCTION DESCRIPTION

When a vehicle is detected ahead

- The vehicle ahead detection indicator comes ON.

When vehicle approaches a vehicle ahead

- If the driver is not depressing the accelerator pedal, the system activates the brakes to decelerate smoothly as necessary. If the vehicle ahead comes to a stop, the vehicle decelerates to a standstill within the limitations of the system.
- If the driver is depressing the accelerator pedal, the system moves the accelerator pedal upward to assist the driver to release the accelerator pedal.

When brake operation by driver is required

- The system alerts the driver by a warning chime and blinking the vehicle ahead detection indicator. If the driver is depressing the accelerator pedal after the warning, the system moves the accelerator pedal upward to assist the driver to switch to the brake pedal.

### **CAUTION:**

**If the vehicle ahead comes to a standstill, the vehicle decelerates to a standstill within the limitations of the system. The system will release brake control with a warning chime once it judges the vehicle is at a standstill. To prevent the vehicle from moving, the driver must depress the brake pedal. [The system will resume control automatically once the system reaches 5 km/h (3 MPH)].**

### **NOTE:**

- Depending on the position of the accelerator pedal, the system may not be able to assist the driver to release the accelerator pedal appropriately.
- When the driver depresses the accelerator pedal even further while the system is moving the accelerator pedal upward, the accelerator pedal control will be canceled.
- When the driver is depressing the accelerator pedal, the brake control by the system is not operated.
- When the driver is depressing the brake pedal, neither the brake control nor the alert by the system operates.
- When the ICC system is set, the DCA system will be canceled.

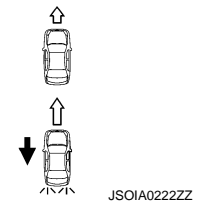
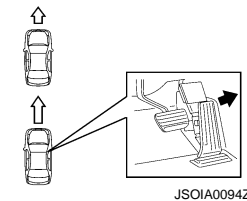
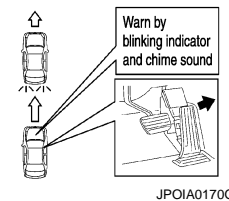
## OPERATION DESCRIPTION

ICC sensor calculates a distance from a vehicle ahead and a relative speed to transmit the ICC sensor signal to the ADAS control unit via ITS communication. Based on the received signal, the ADAS control unit transmits a control signal to the accelerator pedal actuator via ITS communication and to the ABS actuator control unit (control unit) via CAN communication.

# SYSTEM

< SYSTEM DESCRIPTION >

[DCA]

|  |  |   |
|--|--|---|
| When vehicle approaches a vehicle ahead    | If the driver is not depressing the accelerator pedal, the system activates the brakes to decelerate smoothly as necessary   |  |
|  | If the driver is depressing the accelerator pedal, the system moves the accelerator pedal upward to assist the driver to release the accelerator pedal   |  |
| When brake operation by driver is required | The system alerts the driver by a warning chime and blinking the vehicle ahead detection indicator. If the driver is depressing the accelerator pedal after the warning, the system moves the accelerator pedal upward to assist the driver to switch to the brake pedal |  |

|                                     |   |
|-------------------------------------|---|
| Deceleration control                | It transmits the brake fluid pressure control signal to the ABS actuator and electric unit (control unit) via CAN communication and performs the brake control                      |
| Accelerator pedal actuation control | It transmits the accelerator pedal feedback force control signal to the accelerator pedal actuator via ITS communication and controls the accelerator pedal in the upward direction |

## Operation Condition

ADAS control unit performs the control when the following conditions are satisfied.

- When the DCA system setting on the navigation screen is ON.
- When the dynamic driver assistance switch is turned to ON.
- When the brake pedal is not depressed.
- When the vehicle speed is above approximately 5 km/h (3 MPH).
- When the vehicle ahead is detected.
- When the ICC system is not set.

## No Operation Condition

The ADAS control unit is not operate when the system is under any conditions of the no operation condition.

- When the brake pedal depressed.
- When the ICC system is set.
- When the system judges that the vehicle comes to a standstill by the system control.
- When the vehicle ahead is not detected.

## Operation Cancellation Condition

The ADAS control unit cancels the operation when the system is under any conditions of the operation cancellation condition.

- When the dynamic driver assistance switch is turned to OFF.
- When the system malfunction occurs.
- When ABS or VDC (including the TCS) operates.
- When the VDC is turned OFF.
- When the drive mode select switch is in SNOW position.
- When driving into a strong light (i.e., sunlight).
- When the ICC sensor body window is dirty and the measurement of the distance between the vehicles becomes difficult.

## Operation At The Driver Operation

Give priority to the driver operation in the following situation.

- When the accelerator pedal is depressed again.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# SYSTEM

[DCA]

## < SYSTEM DESCRIPTION >

- When the brake pedal is depressed.

### Fail-safe (ADAS Control Unit)

INFOID:000000006886126

If a malfunction occurs in each system, ADAS control unit cancels each control, sounds a beep, and turns ON the warning lamp or indicator lamp.

| System   | Buzzer            | Warning lamp/Indicator lamp | Description  |
|--|-------------------|-----------------------------|--|
| Vehicle-to-vehicle distance control mode       | High-pitched tone | ICC system warning lamp     | Cancel   |
| Conventional (fixed speed) cruise control mode | High-pitched tone | ICC system warning lamp     | Cancel   |
| Intelligent Brake Assist (IBA)                 | High-pitched tone | IBA OFF indicator lamp      | Cancel   |
| Forward Collision Warning (FCW)                | High-pitched tone | IBA OFF indicator lamp      | Cancel   |
| Distance Control Assist (DCA)                  | High-pitched tone | ICC system warning lamp     | Cancel   |
| Lane Departure Warning (LDW)                   | —                 | Lane departure warning lamp | Cancel   |
| Lane Departure Prevention (LDP)                | Low-pitched tone  | Lane departure warning lamp | Cancel   |
| Blind Spot Warning (BSW)                       | —                 | BSW/BSI warning lamp        | Cancel   |
| Blind Spot Intervention (BSI)                  | Low-pitched tone  | BSW/BSI warning lamp        | Cancel   |
| Active trace control function                  | —                 | IBA OFF indicator lamp      | <ul style="list-style-type: none"> <li>• Cancel</li> <li>• If a communication error occurs between the A/C auto amp. and CAN communication line, a mode at the instant of error occurrence is maintained until the mode is fixed to STANDARD after turning the ignition switch from OFF to ON</li> </ul> |

### Fail-safe (ICC Sensor)

INFOID:000000006886127

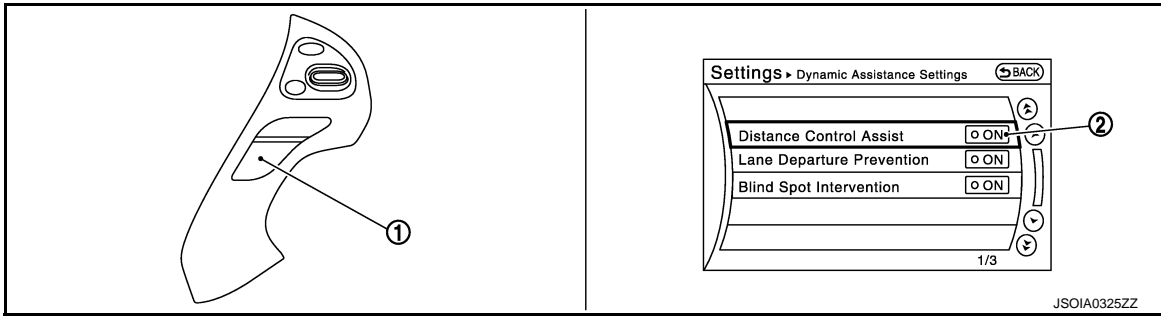
If a malfunction occurs in the ICC sensor, ADAS control unit cancels control, sounds a beep, and turns ON the ICC system warning lamp in the combination meter.



OPERATION

Switch Name and Function

INFOID:000000006886128

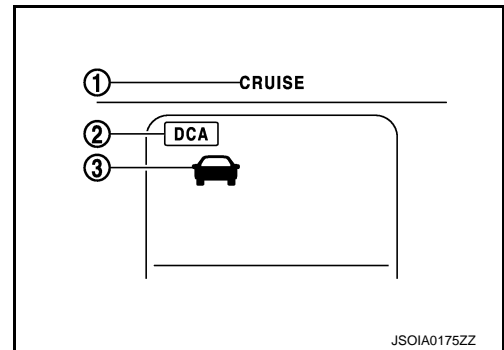


| No. | Switch name  | Description   |
|-----|--|---|
| 1   | Dynamic driver assistance switch                                 | Turns DCA system ON/OFF<br>(When the setting of DCA system on the navigation system setting screen is ON) |
| 2   | DCA system setting screen<br>(Navigation system settings screen) | The setting of DCA system can be switched between ON and OFF  |

Menu Displayed by Pressing Each Switch

INFOID:000000006886129

SYSTEM DISPLAY



| No. | Switch name                       | Description  |
|-----|-----------------------------------|--|
| 1   | ICC system warning lamp           | This indicates that an abnormal condition is present in DCA system   |
| 2   | DCA system switch indicator       | Indicates that DCA system is ON  |
| 3   | Vehicle ahead detection indicator | Indicates whether it detects a vehicle ahead<br><b>NOTE:</b><br>The vehicle ahead detection indicator turns OFF when the no operation condition is satisfied |

DISPLAY AND WARNING LAMP

System Control Condition Display

The DCA system switch indicator illuminates and the system is turned ON by pressing the dynamic driver assistance switch at the system OFF.

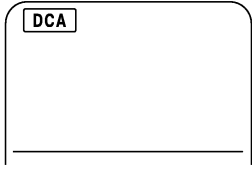
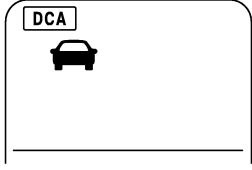
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# OPERATION

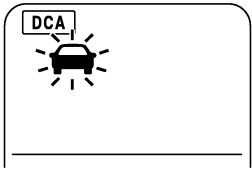
< SYSTEM DESCRIPTION >

[DCA]

|                  | Condition                  | Display on combination meter  |
|------------------|----------------------------|---|
| Operation status | Vehicle ahead not detected | <br><small>JSOIA0207ZZ</small> |
|                  | Vehicle ahead detected     | <br><small>JSOIA0208ZZ</small> |

### Approach Warning Display

- If own vehicle comes closer to the vehicle ahead due to rapid deceleration of that vehicle or if another vehicle cuts in, the system warns the driver with the chime and DCA system display. Decelerate by depressing the brake pedal to maintain a safe vehicle distance if:
  - The chime sounds.
  - The vehicle ahead detection indicator blinks.
- The warning chime may not sound in some cases when there is a short distance between vehicles. Some examples are:
  - When the vehicles are traveling at the same speed and the distance between vehicles is not changing
  - When the vehicle ahead is traveling faster and the distance between vehicles is increasing
  - When a vehicle cuts in near own vehicle
- The warning chime will not sound when own vehicle approaches vehicles that are parked or moving slowly.

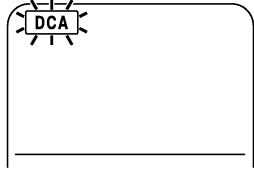
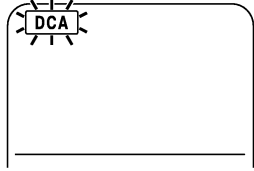
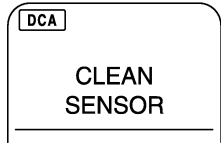
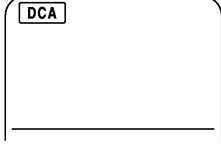
| Condition  | Display on combination meter  |
|--|---|
| When the system judges that the brake operation by the driver is necessary | <br><small>JSOIA0209ZZ</small> |

### Warning Lamp Display

# OPERATION

< SYSTEM DESCRIPTION >

[DCA]

|   | Condition  | Description  | Display on combination meter   |
|---|--|--|--|
| Warning display                               | When the dynamic driver assistance switch is turned ON with settings of DCA system, LDP system and BSI system OFF  | The DCA system is not activated. The DCA system switch indicator blinks  | <br><small>JSOIA0210ZZ</small>  |
|   | <ul style="list-style-type: none"> <li>• When the VDC or ABS (including the TCS) operates</li> <li>• When the VDC is turned OFF</li> <li>• When the drive mode select switch is in SNOW position</li> <li>• When driving into a strong light (i.e., sunlight)</li> </ul> | The DCA system is automatically canceled. The chime will sound and the DCA system switch indicator will blink<br><b>NOTE:</b><br>The system operates if the dynamic driver assistance switch is turned OFF⇒ON after the condition improves   | <br><small>JSOIA0210ZZ</small>  |
|   | When the sensor window is dirty, making it impossible to detect a vehicle ahead  | The DCA system is automatically canceled. The chime sounds and the ICC system warning lamp will come on and the "CLEAN SENSOR" indicator will appear<br><b>NOTE:</b><br>Stop the vehicle in a safe location and turn the ignition switch OFF. Clean the dirty area with soft cloth. The system returns to normal condition when turning the ignition switch ON again | <div style="text-align: center;"><small>CRUISE</small></div> <br><small>JSOIA0326ZZ</small> |
| When the DCA system is not operating properly | The chime sounds and the ICC system warning lamp will come on<br><b>NOTE:</b><br>Turn the ignition switch OFF, and then turn the ignition switch ON again. If there is no malfunction, the system returns to the normal condition  | <div style="text-align: center;"><small>CRUISE</small></div> <br><small>JSOIA0212ZZ</small>  |  |

**NOTE:**

When the DCA system is automatically canceled, the cancellation condition can be displayed on "WORK SUPPORT" of CONSULT (ICC/ADAS).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## HANDLING PRECAUTION

### Precautions for Distance Control Assist

INFOID:00000006886130

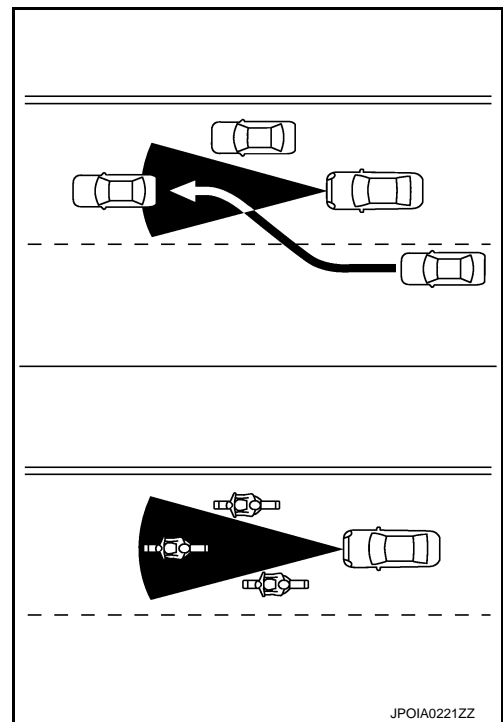
- If the vehicle ahead comes to a stop, the vehicle decelerates to a standstill within the limitations of the system. The system will cancel once it judges that the vehicle has come to a standstill with a warning chime. To prevent the vehicle from moving, the driver must depress the brake pedal.
- The DCA system will not apply brake control while the driver is depressing the accelerator pedal.
- This system is only an aid to assist the driver and is not a collision warning or avoidance device. It is the driver's responsibility to stay alert, drive safely and be in control of the vehicle at all times.
- This system will not adapt automatically to road conditions. Do not use the system on roads with sharp curves, or on icy roads, in heavy rain or in fog.
- The distance sensor will not detect under most conditions.
  - Stationary and slow moving vehicles
  - Pedestrians or objects in the roadway
  - Oncoming vehicles in the same lane
  - Motorcycles traveling offset in the travel lane
- As there is a performance limit to the distance control function, never rely solely on the DCA system. This system does not correct careless, inattentive or absent-minded driving, or overcome poor visibility in rain, fog, or other bad weather. Decelerate the vehicle speed by depressing the brake pedal, depending on the distance to the vehicle ahead and the surrounding circumstances in order to maintain a safe distance between vehicles.
- The system may not detect the vehicle in front of own vehicle in certain road or weather conditions. To avoid accidents, never use the DCA system under the following conditions.
  - On roads with sharp curves
  - On slippery road surfaces such as on ice or snow, etc.
  - During bad weather (rain, fog, snow, etc.)
  - When strong light (for example, at sunrise or sunset) is directly shining on the front of the vehicle
  - When rain, snow or dirt adhere to the system sensor
  - On steep downhill roads (frequent braking may result in overheating the brakes)
  - On repeated uphill and downhill roads
- Do not use the DCA system if own vehicle are towing a trailer. The system may not detect a vehicle ahead.
- In some road or traffic conditions, a vehicle or object can unexpectedly come into the sensor detection zone and cause automatic braking. Driver may need to control the distance from other vehicles using the accelerator pedal. Always stay alert and avoid using the DCA system when it is not recommended in this section.
- The following are some conditions in which the sensor cannot detect the signals.
  - When the reflector of the vehicle ahead is positioned high on the vehicle (trailer, etc.)
  - When the reflector on the vehicle ahead is missing, damaged or covered
  - When the reflector of the vehicle ahead is covered with dirt, snow and road spray
  - When the snow or road spray from traveling vehicles reduces the sensor's visibility
  - When dense exhaust or other smoke (black smoke) from vehicles reduces the sensor's visibility
  - When excessively heavy baggage is loaded in the rear seat or the luggage room of own vehicle
- The DCA system is designed to automatically check the sensor's operation. When the sensor is covered with dirt or is obstructed, the system will automatically be canceled. If the sensor is covered with ice, a transparent or translucent vinyl bag, etc., the DCA system may not detect them. In these instances, the DCA system may not be able to decelerate the vehicle properly. Be sure to check and clean the sensor regularly.
- The DCA system is designed to help assist the driver to maintain a following distance from the vehicle ahead. The system will decelerate as necessary and if the vehicle ahead comes to a stop, the vehicle decelerates to standstill. However, the DCA system can only apply up to 25% of the vehicles total braking power. If a vehicle moves into the traveling lane ahead or if a vehicle traveling ahead rapidly decelerates, the distance between vehicles may become closer because the DCA system cannot decelerate the vehicle quickly enough. If this occurs, the DCA system will sound a warning chime and blink the system display to notify the driver to take necessary action.
- The DCA system does not control vehicle speed or warn when driver approach stationary and slow moving vehicles. Driver must pay attention to vehicle operation to maintain proper distance from vehicles ahead.

# HANDLING PRECAUTION

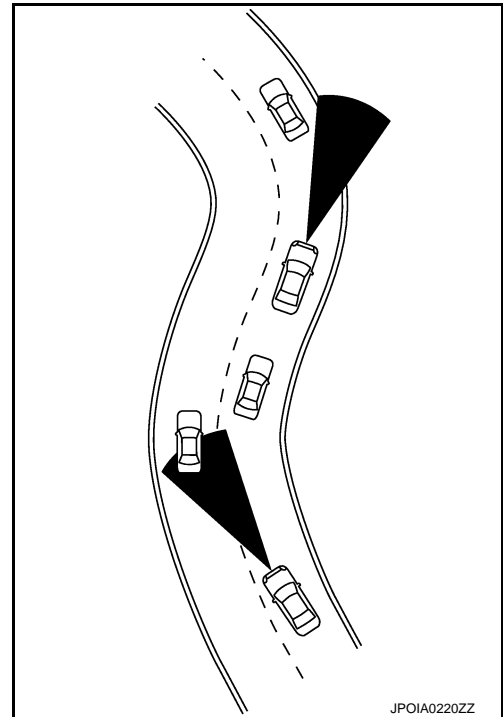
[DCA]

## < SYSTEM DESCRIPTION >

- The detection zone of the sensor is limited. A vehicle ahead must be in the detection zone for the system to operate.
- A vehicle ahead may move outside of the detection zone due to its position within the same lane of travel. Motorcycles may not be detected in the same lane ahead if they are traveling offset from the center line of the lane. A vehicle that is entering the lane ahead may not be detected until the vehicle has completely moved into the lane. If this occurs, the system may warn driver by blinking the system indicator and sounding the chime. The driver may have to manually control the proper distance away from vehicle traveling ahead.



- When driving on some roads, such as winding, hilly, curved, narrow roads, or roads which are under construction, the sensor may detect vehicles in a different lane, or may temporarily not detect a vehicle traveling ahead. This may cause the system to work inappropriately. The detection of vehicles may also be affected by vehicle operation (steering maneuver or traveling position in the lane, etc.) or vehicle condition. If this occurs, the system may warn driver by blinking the system indicator and sounding the chime unexpectedly. The driver will have to manually control the proper distance away from the vehicle traveling ahead.
- The approach warning chime may sound and the system display may blink when the sensor detects some reflectors which are fitted on vehicles in other lanes or on the side of the road. This may cause the DCA system to operate inappropriately. The sensor may detect these reflectors when the vehicle is driven on winding roads, hilly roads or when entering or exiting a curve. The sensor may also detect reflectors on narrow roads or in road construction zones. In these cases driver will have to manually control the proper distance ahead of own vehicle. Also, the sensor sensitivity can be affected by vehicle operation (steering maneuver or driving position in the lane) or traffic or vehicle condition (for example, if a vehicle is being driven with some damage).
- The DCA system automatically decelerates own vehicle to help assist the driver to maintain a following distance from the vehicle ahead. Manually brake when deceleration is required to maintain a safe distance upon sudden braking by the vehicle ahead or when a vehicle suddenly appears in front of own vehicle. Always stay alert when using the DCA system.



- When the vehicle ahead detection indicator lamp is not illuminated, system will not control or warn the driver.
- Never place a foot under the brake pedal. A foot may be caught when the system controls the brake.
- Depending on the position of the accelerator pedal, the system may not be able to assist the driver to release the accelerator pedal appropriately.
- If the vehicle ahead comes to a standstill, the vehicle decelerates to a standstill within the limitations of the system. The system will release brake control with a warning chime once it judges the vehicle is at a standstill. To prevent the vehicle from moving, the driver must depress the brake pedal. [The system will resume control automatically once the system reaches 5 km/h (3 MPH)].

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N

DAS

P

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[DCA]

## DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

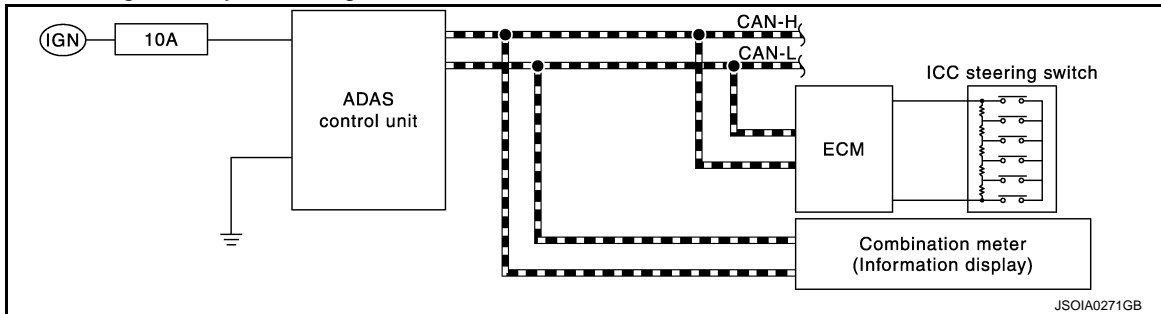
### On Board Diagnosis Function

INFOID:000000007217897

#### DESCRIPTION

The DTC is displayed on the information display by operating the ICC steering switch.

#### On Board Self-diagnosis System Diagram



#### METHOD OF STARTING

##### CAUTION:

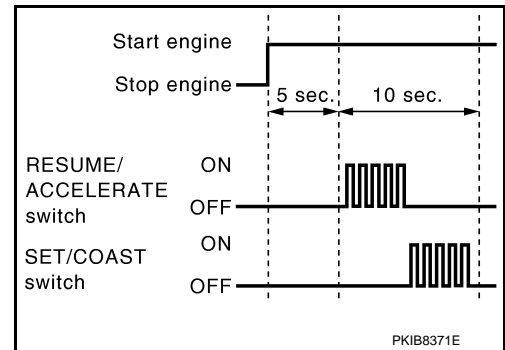
##### Start condition of on board self-diagnosis

- ICC system OFF
- DCA system OFF
- Vehicle speed 0 km/h (0 MPH)

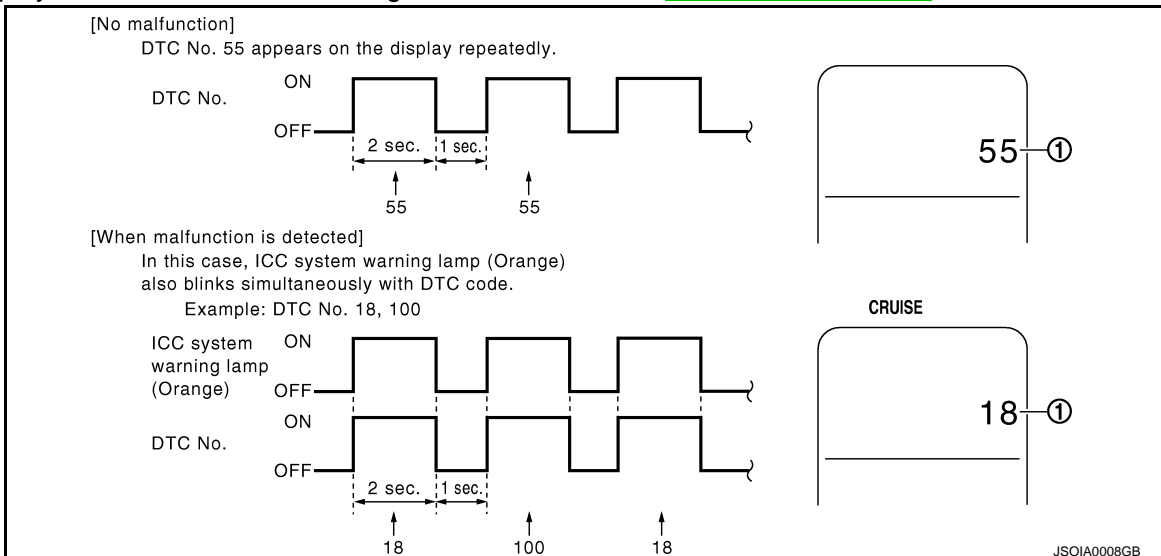
1. Turn the ignition switch OFF.
2. Start the engine.
3. Wait for 5 seconds after starting the engine. Push up the RESUME/ACCELERATE switch 5 times and push down the SET/COAST switch 5 times within 10 seconds.

##### NOTE:

If the above operation cannot be performed within 10 seconds after waiting for 5 seconds after starting the engine, repeat the procedure from step 1.



4. The DTC is displayed on the set vehicle speed indicator (1) on the ICC system display on the information display when the on board self-diagnosis starts. Refer to [DAS-40, "DTC Index"](#).



##### NOTE:

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

[DCA]

## < SYSTEM DESCRIPTION >

- It displays for up to 5 minutes and then stops.
- If multiple malfunctions exist, up to 6 DTCs can be stored in memory at the most, and the most recent one is displayed first.

## WHEN THE ON BOARD SELF-DIAGNOSIS DOES NOT START

If the on board self-diagnosis does not start, check the following items.

| Assumed abnormal part                                   |                               | Inspection item   |
|---|-------------------------------|---|
| Information display                                     | Combination meter malfunction | Check that the self-diagnosis function of the combination meter operates. Refer to <a href="#">MWI-30, "On Board Diagnosis Function"</a> .  |
| ICC steering switch malfunction                         |                               | Perform the inspection for DTC "C1A06". Refer to <a href="#">CCS-88, "DTC Logic"</a> .  |
| Harness malfunction between ICC steering switch and ECM |                               |   |
| ECM malfunction   |                               |   |
| ADAS control unit malfunction                           |                               | <ul style="list-style-type: none"> <li>• Check power supply and ground circuit of ADAS control unit. Refer to <a href="#">DAS-54, "Diagnosis Procedure"</a>.</li> <li>• Perform SELF-DIAGNOSIS for "ICC/ADAS" with CONSULT, and then check the malfunctioning parts. Refer to <a href="#">DAS-40, "DTC Index"</a>.</li> </ul> |

## HOW TO ERASE ON BOARD SELF-DIAGNOSIS

1. Turn the ignition switch OFF.
2. Start the engine, and then start the on board self-diagnosis.
3. Press the CANCEL switch 5 times, and then press the DISTANCE switch 5 times under the condition that the on board self-diagnosis starts.

### NOTE:

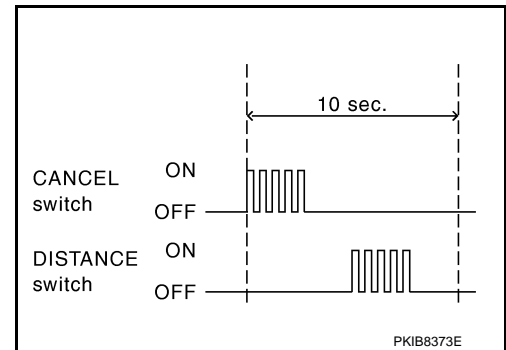
- Complete the operation within 10 seconds after pressing the CANCEL switch first.
- If the operation is not completed within 10 seconds, repeat the procedure from step 1.

4. DTC 55 is displayed after erasing.

### NOTE:

DTCs for existing malfunction can not be erased.

5. Turn ignition switch OFF, and finish the diagnosis.



## CONSULT Function (ICC/ADAS)

INFOID:000000007217898

## APPLICATION ITEMS

CONSULT performs the following functions via CAN communication using ADAS control unit.

| Diagnosis mode           | Description  |
|--------------------------|--|
| Work Support             | Displays causes of automatic system cancellation occurred during system control                                |
| Self Diagnostic Result   | Displays the name of a malfunctioning system stored in the ADAS control unit                                   |
| Data Monitor             | Displays ADAS control unit input/output data in real time  |
| Active Test              | Enables an operational check of a load by transmitting a driving signal from the ADAS control unit to the load |
| Ecu Identification       | Displays ADAS control unit part number   |
| CAN Diag Support Monitor | Displays a reception/transmission state of CAN communication and ITS communication                             |

## WORK SUPPORT

DAS

P

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[DCA]

| Work support items     | Description   |
|------------------------|---|
| CAUSE OF AUTO-CANCEL 1 | Displays causes of automatic system cancellation occurred during control of the following systems <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle control mode</li> <li>• Conventional (fixed speed) control mode</li> <li>• Distance Control Assist (DCA)</li> </ul> |
| CAUSE OF AUTO-CANCEL 2 | Displays causes of automatic system cancellation occurred during control of the following systems <ul style="list-style-type: none"> <li>• Lane Departure Prevention (LDP)</li> <li>• Blind Spot Intervention (BSI)</li> </ul>  |

**NOTE:**

- Causes of the maximum five cancellations (system cancel) are displayed.
- The displayed cancellation causes display the number of the ignition switch ON/OFF up to 254. It is fixed to 254 if it is over 254. It returns to 0 when the same cancellation cause is detected again.

Display Items for The Cause of Automatic Cancellation 1

| Cause of cancellation | Vehicle-to-vehicle distance control mode | Conventional (fixed speed) cruise control mode | Distance Control Assist | Description  |
|-----------------------|--|--|-------------------------|--|
| OPERATING WIPER       | ×  |  |                         | The wiper operates at HI (it includes when the wiper is operated at HI with the wiper switch AUTO position)  |
| OPERATING ABS         | ×  |  | ×                       | ABS function was operated  |
| OPERATING TCS         | ×  | ×  | ×                       | TCS function was operated  |
| OPERATING VDC         | ×  | ×  | ×                       | VDC function was operated  |
| ECM CIRCUIT           | ×  | ×  |                         | ECM did not permit ICC operation   |
| OPE SW VOLT CIRC      | ×  | ×  | ×                       | The ICC steering switch input voltage is not within standard range   |
| LASER SUNBEAM         | ×  |  | ×                       | Intense light such as sunlight entered ICC sensor light sensing part   |
| LASER TEMP            | ×  |  | ×                       | Temperature around ICC sensor became low   |
| SNOW MODE SW          | ×  |  | ×                       | Shifting of the drive mode selector to SNOW position   |
| OP SW DOUBLE TOUCH    | ×  | ×  |                         | ICC steering switches were pressed at the same time  |
| VHCL SPD DOWN         | ×  | ×  | ×                       | Vehicle speed lower than the speed as follows <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle distance control mode is 24 km/h (15 MPH)</li> <li>• Conventional (fixed speed) cruise control mode is 32 km/h (20 MPH)</li> </ul> |
| WHL SPD ELEC NOISE    | ×  | ×  | ×                       | Wheel speed sensor signal caught electromagnetic noise   |
| VDC/TCS OFF SW        | ×  |  | ×                       | VDC OFF switch was pressed   |
| VHCL SPD UNMATCH      | ×  | ×  | ×                       | Wheel speed became different from A/T vehicle speed  |
| TIRE SLIP             | ×  | ×  |                         | Wheel slipped  |
| IGN LOW VOLT          | ×  | ×  | ×                       | Decrease in ADAS control unit IGN voltage  |
| PARKING BRAKE ON      | ×  | ×  |                         | The parking brake is operating   |



# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[DCA]

|                         |   |   |   |   |   |
|-------------------------|---|---|---|---|---|
| WHEEL SPD UNMATCH       | × | × | × | The wheel speeds of 4 wheels are out of the specified values  | A |
| INCHING LOST            | × |   |   | A vehicle ahead is not detected during the following driving when the vehicle speed is approximately 24 km/h (15 MPH) or less | A |
| CAN COMM ERROR          | × | × | × | ADAS control unit received an abnormal signal with CAN communication  | B |
| ABS/TCS/VDC CIRC        | × | × | × | An abnormal condition occurs in VDC/TCS/ABS system  | B |
| ECD CIRCUIT             | × | × | × | An abnormal condition occurs in ECD system  | C |
| ASCD VHCL SPD DTAC      |   | × |   | Vehicle speed is detached from set vehicle speed  | C |
| ASCD DOUBLE COMD        |   | × |   | Cancel switch and operation switch are detected simultaneously  | C |
| APA HI TEMP             |   |   | × | The accelerator pedal actuator integrated motor temperature is high   | D |
| ICC SENSOR CAN COMM ERR | × |   | × | Communication error between ADAS control unit and the ICC sensor  | E |
| ABS WARNING LAMP        | × |   | × | ABS warning lamp ON   | E |
| NO RECORD               | × | × | × | —   | F |

## Display Items for The Cause of Automatic Cancellation 2

| Cause of cancellation   | Lane departure prevention | Blind spot intervention | Description  |   |
|-------------------------|---------------------------|-------------------------|--|---|
| OPE VDC/TCS/ABS 1       | ×                         |                         | The activation of VDC, TCS, or ABS during LDP system control                                 | G |
| Vehicle dynamics        | ×                         |                         | Vehicle behavior exceeds specified value   | H |
| Steering speed          | ×                         |                         | Steering speed was more than the specified value in evasive direction                        | I |
| End by yaw angle        | ×                         |                         | Yaw angle was the end of LDP control   | J |
| Departure yaw large     | ×                         |                         | Detected more than the specified value of yaw angle in departure direction                   | K |
| ICC WARNING             | ×                         |                         | Target approach warning of ICC system, IBA system, or FCW system was activated               | L |
| CURVATURE               | ×                         |                         | Road curve was more than the specified value   | L |
| Steering angle large    | ×                         |                         | Steering angle was more than the specified value   | M |
| Brake is operated       | ×                         |                         | Brake pedal was operated   | M |
| IGN LOW VOLT            | ×                         |                         | Decrease in ADAS control unit IGN voltage  | N |
| Lateral offset          | ×                         |                         | Distance of vehicle and lane was detached in lateral direction more than the specified value | N |
| Lane marker lost        | ×                         |                         | Lane camera unit lost the trace of lane marker   | N |
| Lane marker unclear     | ×                         |                         | Detected lane marker was unclear   | P |
| Yaw acceleration        | ×                         |                         | Detected yawing speed was more than the specified value                                      | P |
| Deceleration large      | ×                         |                         | Deceleration in a longitudinal direction was more than the specified value                   | P |
| Accel is operated       | ×                         |                         | Accelerator pedal was depressed  | P |
| Departure steering      | ×                         |                         | Steering wheel was steered more than the specified value in departure direction              | P |
| Evasive steering        | ×                         |                         | Steering wheel was steered more than the specified value in the evasive direction            | P |
| R range                 | ×                         |                         | Selector lever was operated to R range   | P |
| Parking brake drift     | ×                         |                         | Rear wheels lock was detected  | P |
| Not operating condition | ×                         |                         | Did not meet the operating condition (vehicle speed, turn signal operation, etc.)            | P |
| SNOW MODE SW            | ×                         |                         | Shifting of the drive mode selector to SNOW position   | P |

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

[DCA]

## < SYSTEM DESCRIPTION >

| Cause of cancellation        | Lane departure prevention | Blind spot intervention | Description  |
|------------------------------|---------------------------|-------------------------|--|
| VDC OFF SW                   | ×                         |                         | VDC OFF switch was pressed   |
| OPE VDC/ABS 2                | ×                         |                         | The activation of VDC or ABS during a standby time of LDP system control                     |
| BSI WARNING                  | ×                         |                         | Blind Spot Intervention system was activated   |
| BSI) OPE VDC/TCS/ABS 1       |                           | ×                       | The activation of VDC, TCS, or ABS during Blind Spot Intervention system control             |
| BSI) Vehicle dynamics        |                           | ×                       | Vehicle behavior exceeds specified value   |
| BSI) Steering speed          |                           | ×                       | Steering speed was more than the specified value in evasive direction                        |
| BSI) End by yaw angle        |                           | ×                       | Yaw angle was the end of Blind Spot Intervention control                                     |
| BSI) Departure yaw large     |                           | ×                       | Detected more than the specified value of yaw angle in departure direction                   |
| BSI) ICC WARNING             |                           | ×                       | Target approach warning of ICC system, IBA system or FCW system was activated                |
| BSI) CURVATURE               |                           | ×                       | Road curve was more than the specified value   |
| BSI) Steering angle large    |                           | ×                       | Steering angle was more than the specified value   |
| BSI) Brake is operated       |                           | ×                       | Brake pedal was operated   |
| BSI) IGN LOW VOLT            |                           | ×                       | Decrease in ADAS control unit IGN voltage  |
| BSI) Lateral offset          |                           | ×                       | Distance of vehicle and lane was detached in lateral direction more than the specified       |
| BSI) Lane marker lost        |                           | ×                       | Lane camera unit lost the trace of lane marker   |
| BSI) Lane marker unclear     |                           | ×                       | Detected lane marker was unclear   |
| BSI) Yaw acceleration        |                           | ×                       | Detected yawing speed was more than the specified value                                      |
| BSI) Deceleration large      |                           | ×                       | Deceleration in a longitudinal direction was more than the specified value                   |
| BSI) Accel is operated       |                           | ×                       | Accelerator pedal was depressed  |
| BSI) Departure steering      |                           | ×                       | Steering wheel was steered more than the specified value in departure direction              |
| BSI) Evasive steering        |                           | ×                       | Steering wheel was steered more than the specified value in the evasive direction            |
| BSI) R range                 |                           | ×                       | Selector lever was operated to R range   |
| BSI) Parking brake drift     |                           | ×                       | Rear wheels lock was detected  |
| BSI) SNOW MODE SW            |                           | ×                       | Shifting of the drive mode selector to SNOW position   |
| BSI) VDC OFF SW              |                           | ×                       | VDC OFF switch was pressed   |
| BSI) OPE VDC/ABS 2           |                           | ×                       | The activation of VDC or ABS during a standby time of Blind Spot Intervention system control |
| BSI) Not operating condition |                           | ×                       | Did not meet the operating condition (vehicle speed, turn signal operation, etc.)            |
| Side Radar Lost              |                           | ×                       | Unrecognized side radar LH or RH by the ADAS control unit                                    |
| NO RECORD                    | ×                         | ×                       | —  |

## SELF DIAGNOSTIC RESULT

Refer to [DAS-40. "DTC Index"](#).

## DATA MONITOR

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[DCA]

| Monitored item<br>[Unit]         | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description  |
|----------------------------------|------------------|-------------------|-----------------------|-----------------------|--|
| MAIN SW<br>[On/Off]              | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| SET/COAST SW<br>[On/Off]         | ×                | ×                 |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| CANCEL SW<br>[On/Off]            | ×                | ×                 |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| RESUME/ACC SW<br>[On/Off]        | ×                | ×                 |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| DISTANCE SW<br>[On/Off]          | ×                |                   |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| CRUISE OPE<br>[On/Off]           | ×                | ×                 |                       |                       | Indicates whether controlling or not (ON means "controlling")  |
| BRAKE SW<br>[On/Off]             | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status as judged from ICC brake switch signal (ECM transmits ICC brake switch signal through CAN communication)   |
| STOP LAMP SW<br>[On/Off]         | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status as judged from stop lamp switch signal (ECM transmits stop lamp switch signal through CAN communication)   |
| IDLE SW<br>[On/Off]              | ×                |                   |                       |                       | Indicates [On/Off] status of idle switch read from ADAS control unit through CAN communication (ECM transmits On/Off status through CAN communication)   |
| SET DISTANCE<br>[Short/Mid/Long] | ×                | ×                 |                       |                       | Indicates set distance memorized in ADAS control unit  |
| CRUISE LAMP<br>[On/Off]          | ×                | ×                 |                       |                       | Indicates [On/Off] status of MAIN switch indicator output  |
| OWN VHCL<br>[On/Off]             | ×                |                   |                       |                       | Indicates [On/Off] status of own vehicle indicator output  |
| VHCL AHEAD<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of vehicle ahead detection indicator output  |
| ICC WARNING<br>[On/Off]          | ×                |                   |                       |                       | Indicates [On/Off] status of ICC system warning lamp output  |
| VHCL SPEED SE<br>[km/h] or [mph] | ×                | ×                 | ×                     | ×                     | Indicates vehicle speed calculated from ADAS control unit through CAN communication [ABS actuator and electric unit (control unit) transmits vehicle speed signal (wheel speed) through CAN communication] |
| SET VHCL SPD<br>[km/h] or [mph]  | ×                | ×                 |                       |                       | Indicates set vehicle speed memorized in ADAS control unit   |
| BUZZER O/P<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of ICC warning chime output  |
| THRTL SENSOR<br>[deg]            | ×                | ×                 |                       |                       | <b>NOTE:</b><br>The item is displayed, but it is not monitored   |
| ENGINE RPM<br>[rpm]              | ×                |                   |                       |                       | Indicates engine speed read from ADAS control unit through CAN communication (ECM transmits engine speed signal through CAN communication)   |
| WIPER SW<br>[OFF/LOW/HIGH]       | ×                |                   |                       |                       | Indicates wiper [OFF/LOW/HIGH] status (BCM transmits front wiper request signal through CAN communication)   |
| YAW RATE<br>[deg/s]              | ×                |                   |                       |                       | <b>NOTE:</b><br>The item is displayed, but it is not monitored   |
| BA WARNING<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of IBA OFF indicator lamp output   |
| STP LMP DRIVE<br>[On/Off]        | ×                | ×                 |                       |                       | Indicates [On/Off] status of ICC brake hold relay drive output   |
| D RANGE SW<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of "D" or "M" positions read from ADAS control unit through CAN communication; ON when position "D" or "M" (TCM transmits shift position signal through CAN communication).      |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N

DAS

P

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

[DCA]

## < SYSTEM DESCRIPTION >

| Monitored item<br>[Unit]          | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description  |
|-----------------------------------|------------------|-------------------|-----------------------|-----------------------|--|
| NP RANGE SW<br>[On/Off]           | ×                |                   |                       |                       | Indicates shift position signal read from ADAS control unit through CAN communication (TCM transmits shift position signal through CAN communication)  |
| PKB SW<br>[On/Off]                | ×                |                   |                       |                       | Parking brake switch status [On/Off] judged from the parking brake switch signal that ADAS control unit readout via CAN communication is displayed (combination meter transmits the parking brake switch signal via CAN communication) |
| PWR SUP MONI<br>[V]               | ×                | ×                 |                       |                       | Indicates IGN voltage input by ADAS control unit   |
| VHCL SPD AT<br>[km/h] or [mph]    | ×                |                   |                       |                       | Indicates vehicle speed calculated from A/T vehicle speed sensor read from ADAS control unit through CAN communication (TCM transmits A/T vehicle speed sensor signal through CAN communication)                                       |
| THRTL OPENING<br>[%]              | ×                | ×                 |                       |                       | Indicates throttle position read from ADAS control unit through CAN communication (ECM transmits accelerator pedal position signal through CAN communication).   |
| GEAR<br>[1, 2, 3, 4, 5, 6, 7]     | ×                |                   |                       |                       | Indicates A/T gear position read from ADAS control unit through CAN communication (TCM transmits current gear position signal through CAN communication)   |
| MODE SIG<br>[OFF, ICC, ASCD]      | ×                |                   |                       |                       | Indicates the active mode from ICC or ASCD [conventional (fixed speed) cruise control mode]  |
| SET DISP IND<br>[On/Off]          | ×                |                   |                       |                       | Indicates [On/Off] status of SET switch indicator output   |
| DISTANCE<br>[m]                   | ×                |                   |                       |                       | Indicates the distance from the vehicle ahead  |
| RELATIVE SPD<br>[m/s]             | ×                |                   |                       |                       | Indicates the relative speed of the vehicle ahead  |
| DYNA ASIST SW<br>[On/Off]         | ×                | ×                 |                       | ×                     | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| DCA ON IND<br>[On/Off]            | ×                |                   |                       |                       | The status [ON/OFF] of DCA system switch indicator output is displayed   |
| DCA VHL AHED<br>[On/Off]          | ×                |                   |                       |                       | The status [ON/OFF] of vehicle ahead detection indicator output in DCA system is displayed   |
| IBA SW<br>[On/Off]                | ×                | ×                 |                       |                       | Indicates [On/Off] status of IBA OFF switch  |
| FCW SYSTEM ON<br>[On/Off]         | ×                | ×                 |                       |                       | Indicates [On/Off] status of FCW system  |
| APA TEMP<br>[°C]                  | ×                |                   |                       |                       | Accelerator pedal actuator integrated motor temperature that the ADAS control unit readout via ITS communication is displayed (Accelerator pedal actuator transmits the integrated motor temperature via ITS communication)            |
| APA PWR<br>[V]                    | ×                |                   |                       |                       | Accelerator pedal actuator power supply voltage that the ADAS control unit readout via ITS communication is displayed (Accelerator pedal actuator transmits the power supply voltage via ITS communication)                            |
| LDW SYSTEM ON<br>[On/Off]         |                  |                   | ×                     |                       | Indicates [On/Off] status of LDW system  |
| LDW ON LAMP<br>[On/Off]           |                  |                   | ×                     |                       | Indicates [On/Off] status of warning systems ON indicator output   |
| LDP ON IND<br>[On/Off]            |                  |                   | ×                     |                       | Indicates [On/Off] status of LDP ON indicator lamp (Green) output  |
| LANE DPRT W/L<br>[On/Off]         |                  |                   | ×                     |                       | Indicates [On/Off] status of lane departure warning lamp (Yellow) output   |
| LDW BUZER OUT-<br>PUT<br>[On/Off] |                  |                   | ×                     |                       | Indicates [On/Off] status of warning buzzer output   |

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[DCA]

| Monitored item<br>[Unit]                      | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description   |
|---|------------------|-------------------|-----------------------|-----------------------|---|
| LDP SYSTEM ON<br>[On/Off]                     |                  |                   | ×                     |                       | Indicates [On/Off] status of LDP system   |
| WARN REQ<br>[On/Off]                          |                  |                   | ×                     |                       | Indicates an ADAS control unit judged warning state (ON/OFF) of LDP system  |
| READY signal<br>[On/Off]                      |                  |                   | ×                     |                       | Indicates LDP system settings   |
| Camera lost<br>[Detect/Deviate/Both]          |                  |                   | ×                     | ×                     | Indicates a lane marker detection state judged from a lane marker detection signal read by the ADAS control unit via ITS communication<br>(Lane camera unit transmits a lane marker signal via ITS communication)   |
| Shift position<br>[Off, P, R, N, D, M/T1 - 7] |                  |                   | ×                     | ×                     | Indicates shift position read from ADAS control unit through CAN communication<br>(TCM transmits shift position signal through CAN communication)   |
| Turn signal<br>[OFF/LH/RH/LH&RH]              |                  |                   | ×                     | ×                     | Indicates turn signal operation status read from ADAS control unit through CAN communication (BCM transmits turn indicator signal through CAN communication)  |
| SIDE G<br>[G]                                 |                  |                   | ×                     | ×                     | Indicates lateral G acting on the vehicle. This lateral G is judged from a side G sensor signal read by ADAS control unit via CAN communication<br>(The ABS actuator and electric unit (control unit) transmits a side G sensor signal via CAN communication) |
| STATUS signal<br>[Stnby/Warn/Cancl/Off]       |                  |                   | ×                     |                       | Indicates a control state of LDP system   |
| Lane unclear<br>[On/Off]                      |                  |                   | ×                     | ×                     | Indicates an ON/OFF state of the lane marker. The ON/OFF state is judged from a detected lane condition signal read by the ADAS control unit via ITS communication<br>(The lane camera unit transmits a detected lane condition signal via ITS communication) |
| FUNC ITEM<br>[FUNC3]                          | ×                | ×                 | ×                     | ×                     | Indicates systems which can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system<br>FUNC3: Distance Control Assist (DCA), Lane Departure Prevention (LDP) and Blind Spot Intervention (BSI)             |
| FUNC ITEM (NV-ICC)<br>[Off]                   | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| FUNC ITEM (NV-DCA)<br>[Off]                   | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| DCA SELECT<br>[On/Off]                        | ×                | ×                 | ×                     | ×                     | Indicates an ON/OFF state of the DCA system. The DCA system can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system  |
| LDP SELECT<br>[On/Off]                        | ×                | ×                 | ×                     | ×                     | Indicates an ON/OFF state of LDP system. LDP system can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system  |
| BSI SELECT<br>[On/Off]                        | ×                | ×                 | ×                     | ×                     | Indicates an ON/OFF state of BSI system. BSI system can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system.   |
| NAVI ICC SELECT<br>[Off]                      | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| NAVI DCA SELECT<br>[Off]                      | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| SYS SELECTABILITY<br>[On/Off]                 | ×                | ×                 | ×                     | ×                     | Indicates the availability of ON/OFF switching for "Driver Assistance" items received from the AV control unit via CAN communication  |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
DAS  
P

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

[DCA]

## < SYSTEM DESCRIPTION >

| Monitored item<br>[Unit]                               | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description   |
|--|------------------|-------------------|-----------------------|-----------------------|---|
| DRIVE MODE STATS<br>[STD/SPORT/ECO/<br>SNOW/MID/ERROR] | ×                | ×                 | ×                     | ×                     | Indicates a drive mode selector select position judged from a drive mode select switch position signal read by the ADAS control unit via CAN communication<br>(The A/C auto amp. transmits a switch position signal of the drive mode select switch signal via CAN communication) |
| WARN SYS SW<br>[On/Off]                                | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status of warning systems switch   |
| BSW/BSI WARN LMP<br>[On/Off]                           |                  |                   |                       | ×                     | Indicates [On/Off] status of BSW/BSI warning lamp output  |
| BSI ON IND<br>[On/Off]                                 |                  |                   |                       | ×                     | Indicates [On/Off] status of BSI ON indicator output  |
| BSW SYSTEM ON<br>[On/Off]                              |                  |                   |                       | ×                     | Indicates [On/Off] status of BSW system   |
| BSI SYSTEM ON<br>[On/Off]                              |                  |                   |                       | ×                     | Indicates [On/Off] status of BSI system   |

## ACTIVE TEST

### CAUTION:

- Never perform “Active Test” while driving the vehicle.
- The “Active Test” cannot be performed when the following systems warning lamp is illuminated.
  - ICC system warning lamp
  - Lane departure warning lamp
  - BSW/BSI warning lamp
  - IBA OFF indicator lamp (IBA system ON)
- Shift the selector lever to “P” position, and then perform the test.

| Test item            | Description   |
|----------------------|---|
| METER LAMP           | The ICC system warning lamp, MAIN switch indicator and IBA OFF indicator lamp can be illuminated by ON/OFF operations as necessary  |
| STOP LAMP            | The ICC brake hold relay can be operated by ON/OFF operations as necessary, and the stop lamp can be illuminated  |
| ICC BUZZER           | Sounds a buzzer used for following systems by arbitrarily operating ON/OFF <ul style="list-style-type: none"> <li>• Intelligent Cruise Control (ICC)</li> <li>• Distance Control Assist (DCA)</li> <li>• Forward Collision Warning (FCW)</li> <li>• Intelligent Brake Assist (IBA)</li> </ul> |
| BRAKE ACTUATOR       | Activates the brake by an arbitrary operation   |
| Active Pedal         | The accelerator pedal actuator can be operated as necessary   |
| DCA INDICATOR        | The DCA system switch indicator can be illuminated by ON/OFF operations as necessary  |
| LDP BUZZER           | Sounds a buzzer used for following systems by arbitrarily operating ON/OFF <ul style="list-style-type: none"> <li>• Lane Departure Warning (LDW)</li> <li>• Lane Departure Prevention (LDP)</li> <li>• Blind Spot Warning (BSW)</li> <li>• Blind Spot Intervention (BSI)</li> </ul>           |
| WARNING SYSTEM IND   | The warning systems ON indicator (on warning systems switch) can be illuminated by ON/OFF operations as necessary   |
| LDP ON IND           | The LDP ON indicator lamp can be illuminated by ON/OFF operations as necessary  |
| LANE DEPARTURE W/L   | The Lane departure warning lamp can be illuminated by ON/OFF operations as necessary  |
| BSW/BSI WARNING LAMP | The BSW/BSI warning lamp can be illuminated by ON/OFF operations as necessary   |
| BSI ON INDICATOR     | The BSI ON indicator can be illuminated by ON/OFF operations as necessary   |

## METER LAMP

### NOTE:

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[DCA]

The test can be performed only when the engine is running.

| Test item  | Operation | Description   | <ul style="list-style-type: none"> <li>• MAIN switch indicator</li> <li>• ICC system warning lamp</li> <li>• IBA OFF indicator lamp</li> </ul> |
|------------|-----------|---|--|
| METER LAMP | Off       | Stops sending the following signals to exit from the test <ul style="list-style-type: none"> <li>• Meter display signal</li> <li>• ICC warning lamp signal</li> <li>• IBA OFF indicator lamp signal</li> </ul>                      | OFF  |
|            | On        | Transmits the following signals to the combination meter via CAN communication <ul style="list-style-type: none"> <li>• Meter display signal</li> <li>• ICC warning lamp signal</li> <li>• IBA OFF indicator lamp signal</li> </ul> | ON   |

## STOP LAMP

| Test item | Operation | Description  | Stop lamp |
|-----------|-----------|--|-----------|
| STOP LAMP | Off       | Stops transmitting the ICC brake hold relay drive signal below to end the test | OFF       |
|           | On        | Transmits the ICC brake hold relay drive signal                                | ON        |

## ICC BUZZER

| Test item  | Operation  | Description  | ICC warning chime operation sound |
|------------|------------|--|-----------------------------------|
| ICC BUZZER | MODE1      | Transmits the buzzer output signals to the combination meter via CAN communication | Intermittent beep sound           |
|            | Test start | Starts the tests of "MODE1"  | —                                 |
|            | Reset      | Stops transmitting the buzzer output signal below to end the test                  | —                                 |
|            | End        | Returns to the "SELECT TEST ITEM" screen   | —                                 |

## BRAKE ACTUATOR

### NOTE:

The test can be performed only when the engine is running.

| Test item      | Operation  | Description  | "PRESS SENS" value |
|----------------|------------|--|--------------------|
| BRAKE ACTUATOR | MODE1      | Transmits the brake fluid pressure control signal to the ABS actuator and electric unit (control unit) via CAN communication | 10 bar             |
|                | MODE2      |  | 20 bar             |
|                | MODE3      |  | 30 bar             |
|                | Test start | Starts the tests of "MODE1", "MODE2" and "MODE3"   | —                  |
|                | Reset      | Stops transmitting the brake fluid pressure control signal below to end the test   | —                  |
|                | End        | Returns to the "SELECT TEST ITEM" screen   | —                  |

### NOTE:

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

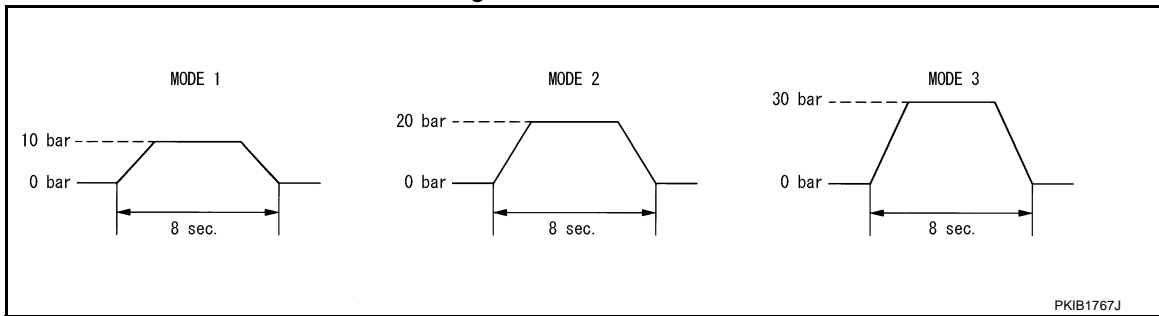
DAS

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

[DCA]

## < SYSTEM DESCRIPTION >

The test is finished in 10 seconds after starting



Active Pedal

**CAUTION:**

- Shift the selector lever to “P” position, and then perform the test.
- Never depress the accelerator pedal excessively. (The engine speed may rise unexpectedly when finishing the test.)

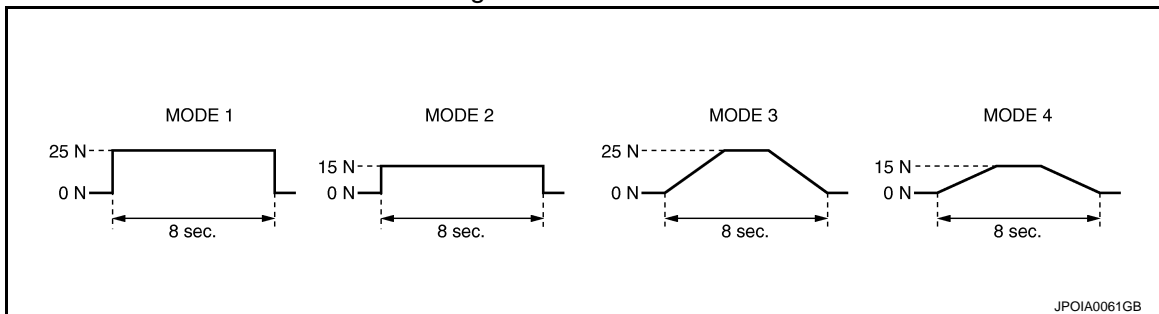
**NOTE:**

- Depress the accelerator pedal to check when performing the test.
- The test can be performed only when the engine is running.

| Test item    | Operation   | Description   | Accelerator pedal operation                 |
|--------------|---|---|---|
| Active Pedal | MODE1   | Transmit the accelerator pedal feedback force control signal to the accelerator pedal actuator via ITS communication. | Constant with a force of 25 N for 8 seconds |
|              | MODE2   |   | Constant with a force of 15 N for 8 seconds |
|              | MODE3   |   | Change up to a force of 25 N for 8 seconds  |
|              | MODE4   |   | Change up to a force of 15 N for 8 seconds  |
|              | Test start  | Starts the tests of “MODE1”, “MODE2”, “MODE3” and “MODE4”   | —   |
| Reset        | Stops transmitting the accelerator pedal feedback force control signal below to end the test. | —   |   |
| End          | Returns to the “SELECT TEST ITEM” screen  | —   |   |

**NOTE:**

The test is finished in 10 seconds after starting



DCA INDICATOR

**NOTE:**

The test can be performed only when the engine is running.

| Test item     | Operation | Description   | DCA system switch indicator |
|---------------|-----------|---|-----------------------------|
| DCA INDICATOR | Off       | Stops transmitting the DCA system switch indicator signal below to end the test                 | —                           |
|               | On        | Transmits the DCA system switch indicator signal to the combination meter via CAN communication | ON                          |



# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[DCA]

## LDP BUZZER

| Test item  | Operation | Description  | Warning buzzer |
|------------|-----------|--|----------------|
| LDP BUZZER | Off       | Stops transmitting the warning buzzer signal below to end the test | —              |
|            | On        | Transmits the warning buzzer signal to the warning buzzer          | ON             |

## WARNING SYSTEM IND

| Test item          | Operation | Description  | Warning systems ON indicator |
|--------------------|-----------|--|------------------------------|
| WARNING SYSTEM IND | Off       | Stops transmitting the warning systems ON indicator signal below to end the test       | —                            |
|                    | On        | Transmits the warning systems ON indicator signal to the warning systems ON indicator. | ON                           |

## LDP ON IND

| Test item  | Operation | Description   | LDP ON indicator lamp (Green) |
|------------|-----------|---|-------------------------------|
| LDP ON IND | Off       | Stops transmitting the LDP ON indicator lamp signal below to end the test                 | —                             |
|            | On        | Transmits the LDP ON indicator lamp signal to the combination meter via CAN communication | ON                            |

## LANE DEPARTURE W/L

| Test item          | Operation | Description   | Lane departure warning lamp (Yellow) |
|--------------------|-----------|---|--------------------------------------|
| LANE DEPARTURE W/L | Off       | Stops transmitting the lane departure warning lamp signal below to end the test                 | —                                    |
|                    | On        | Transmits the lane departure warning lamp signal to the combination meter via CAN communication | ON                                   |

## BSW/BSI WARNING LAMP

| Test item            | Operation | Description  | BSW/BSI warning lamp (Yellow) |
|----------------------|-----------|--|-------------------------------|
| BSW/BSI WARNING LAMP | Off       | Stops transmitting the BSW/BSI warning lamp signal below to end the test                 | —                             |
|                      | On        | Transmits the BSW/BSI warning lamp signal to the combination meter via CAN communication | ON                            |

## BSI ON INDICATOR

| Test item        | Operation | Description  | BSI ON indicator lamp (Green) |
|------------------|-----------|--|-------------------------------|
| BSI ON INDICATOR | Off       | Stops transmitting the BSI ON indicator signal below to end the test                 | —                             |
|                  | On        | Transmits the BSI ON indicator signal to the combination meter via CAN communication | ON                            |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DIAGNOSIS SYSTEM (ICC SENSOR)

< SYSTEM DESCRIPTION >

[DCA]

## DIAGNOSIS SYSTEM (ICC SENSOR)

### CONSULT Function (LASER)

INFOID:000000007217899

#### APPLICATION ITEMS

CONSULT performs the following functions via CAN communication with ADAS control unit and the communication with ICC sensor.

| Diagnosis mode           | Description   |
|--------------------------|---|
| Work Support             | It can monitor the adjustment direction indication in order to perform the laser beam aiming operation smoothly |
| Self Diagnostic Result   | Displays malfunctioning system memorized in ICC sensor  |
| Data Monitor             | Displays real-time input/output data of ICC sensor  |
| Ecu Identification       | Displays ICC sensor part number   |
| CAN Diag Support Monitor | The results of transmit/receive diagnosis of ITS communication can be read                                      |

#### WORK SUPPORT

| Work support items | Description  |
|--------------------|--|
| LASER BEAM ADJUST  | Outputs laser beam, calculates dislocation of the beam, and indicates adjustment direction |

#### Laser Beam Adjust

Refer to [CCS-65. "Description"](#).

#### SELF DIAGNOSTIC RESULT

Refer to [CCS-57. "DTC Index"](#).

#### DATA MONITOR

| Monitored item<br>[Unit]         | Description  |
|----------------------------------|--|
| VHCL SPEED SE<br>[km/h] or [mph] | Vehicle speed judged from a vehicle speed signal read by the ICC sensor via ITS communication is displayed [ADAS control unit receives a vehicle speed signal from ABS actuator and electric unit (control unit) via CAN communication and transmits the calculated vehicle speed to ICC sensor via ITS communication] |
| YAW RATE<br>[deg/s]              | Yaw rate judged from a yaw rate signal read by ICC sensor via ITS communication is displayed [ADAS control unit receives a yaw rate signal from ABS actuator and electric unit (control unit) via CAN communication and transmits the calculated yaw rate to ICC sensor via ITS communication]                         |
| PWR SUP MONI<br>[V]              | Indicates IGN voltage input by ICC sensor  |
| DISTANCE<br>[m]                  | Indicates the distance from the vehicle ahead  |
| RELATIVE SPD<br>[m/s]            | Indicates the relative speed of the vehicle ahead  |
| LASER OFFSET<br>[m]              | <b>NOTE:</b><br>The item is indicated, but not used  |
| LASER HEIGHT<br>[m]              | <b>NOTE:</b><br>The item is indicated, but not used  |
| STEERING ANGLE<br>[deg]          | The steering angle is displayed  |
| STRG ANGLE SPEED<br>[deg/s]      | The steering angle speed is displayed  |
| L/R ADJUST                       | The horizontal correction value of the laser beam is displayed   |
| U/D ADJUST                       | The vertical correction value of the laser beam is displayed   |

# DIAGNOSIS SYSTEM (ACCELERATOR PEDAL ACTUATOR)

< SYSTEM DESCRIPTION >

[DCA]

## DIAGNOSIS SYSTEM (ACCELERATOR PEDAL ACTUATOR)

### CONSULT Function (ACCELERATOR PEDAL ACT)

INFOID:000000006886134

#### DESCRIPTION

CONSULT performs the following functions via CAN communication with ADAS control unit and the communication with accelerator pedal actuator.

| Test mode                | Function   |
|--------------------------|--|
| Self Diagnostic Result   | <ul style="list-style-type: none"><li>Displays malfunctioning system memorized in accelerator pedal actuator</li><li>Displays the Freeze Frame Data when the malfunction is detected</li></ul> |
| DATA MONITOR             | Displays real-time input/output data of accelerator pedal actuator   |
| ACTIVE TEST              | Enables operation check of electrical loads by sending driving signal to them  |
| ECU Identification       | Displays accelerator pedal actuator parts number   |
| CAN Diag Support Monitor | The results of transmit/receive diagnosis of ITS communication can be read   |

#### SELF DIAGNOSTIC RESULT

##### Self Diagnostic Result

Refer to [DAS-101, "DTC Index"](#).

##### FFD (Freeze Frame Data)

The accelerator pedal actuator records the following data when the malfunction is detected.

| Freeze Frame Data item [Unit]   | Description  |
|---------------------------------|--|
| TGT FBK FRC [N]                 | It displays the target accelerator pedal actuation force that the accelerator pedal actuator read out from the accelerator pedal feedback force control signal received via ITS communication at the time when the malfunction is detected |
| TGT MOT POSI [%]                | It displays the target motor position that the accelerator pedal actuator read out from the accelerator pedal feedback force control signal received via ITS communication at the time when the malfunction is detected                    |
| ACT MOT POSI [%]                | It displays the integrated motor position that the accelerator pedal actuator read out at the time when the malfunction is detected  |
| AP OPEN [%]                     | It displays the accelerator pedal position signal that the accelerator pedal actuator read out via ITS communication at the time when the malfunction is detected  |
| APA TEMP [°C]                   | It displays the integrated motor temperature that the accelerator pedal actuator read out at the time when the malfunction is detected   |
| APA CURRENT [A]                 | It displays the integrated motor consumption current that the accelerator pedal actuator read out at the time when the malfunction is detected   |
| APA PWR [V]                     | It displays the power supply voltage that the accelerator pedal actuator read out at the time when the malfunction is detected   |
| APA OPE STATS [On/Off]          | It displays the activation permission status of accelerator pedal actuator at the time when the malfunction is detected  |
| APA STATS [READY/NG/TP NG/INIT] | It displays the condition of accelerator pedal actuator at the time when the malfunction is detected   |
| IGN Counter <sup>Note</sup>     | It displays number of ignition switch OFF → ON after the malfunction is detected   |

#### NOTE:

- The number is 0 when is detected now.
- The number increases like 1 → 2 ... 38 → 39 after returning to the normal condition whenever IGN OFF → ON.
- The number is fixed to 39 until the self-diagnosis results are erased if it is over 39.

#### DATA MONITOR

# DIAGNOSIS SYSTEM (ACCELERATOR PEDAL ACTUATOR)

< SYSTEM DESCRIPTION >

[DCA]

| Monitor item [Unit]                | FUNCTION DESCRIPTION   |
|------------------------------------|--|
| TGT FBK FRC<br>[N]                 | It displays the target accelerator pedal actuation force that the accelerator pedal actuator read out from the accelerator pedal feedback force control signal received via ITS communication<br>(The ADAS control unit transmits the accelerator pedal feedback force control signal via ITS communication) |
| TGT MOT POSI<br>[%]                | It displays the target motor position that the accelerator pedal actuator read out from the accelerator pedal feedback force control signal received via ITS communication<br>(The ADAS control unit transmits the accelerator pedal feedback force control signal via ITS communication)                    |
| ACT MOT POSI<br>[%]                | It displays the integrated motor position that the accelerator pedal actuator read out   |
| AP OPEN<br>[%]                     | It displays the accelerator pedal position signal that the accelerator pedal actuator read out via ITS communication<br>(The ADAS control unit transmits with ITS communication the accelerator pedal position signal that is received from ECM via CAN communication)                                       |
| APA TEMP<br>[°C]                   | It displays the accelerator pedal actuator integrated motor temperature  |
| APA CURRENT<br>[A]                 | It displays the accelerator pedal actuator integrated motor consumption current  |
| APA PWR<br>[V]                     | It displays the power supply voltage that the accelerator pedal actuator read out  |
| APA OPE STATS<br>[On/Off]          | It displays the activation permission status of accelerator pedal actuator   |
| APA STATS<br>[READY/NG/TP NG/INIT] | It displays the condition of accelerator pedal actuator  |

## ACTIVE TEST

### CAUTION:

**Never perform ACTIVE TEST while driving the vehicle.**

### NOTE:

The active test cannot be performed when the ICC system warning lamp is illuminated.

Item list

| Active test item                 | Description  |
|----------------------------------|--|
| ACCELERATOR PEDAL ACTUATOR TEST1 | Drive the accelerator pedal actuator and generate the constant accelerator pedal actuation force |
| ACCELERATOR PEDAL ACTUATOR TEST2 | Drive the accelerator pedal actuator and generate the vibration                                  |

## ACCELERATOR PEDAL ACTUATOR TEST 1

### NOTE:

Check the accelerator pedal by depressing when performing the test.

| Active test item                  | Operation | Description   |
|-----------------------------------|-----------|---|
| ACCELERATOR PEDAL AC-TUATOR TEST1 | STOP      | Finish the test   |
|                                   | START     | Generate the constant accelerator pedal actuation force for accelerator pedal |

## ACCELERATOR PEDAL ACTUATOR TEST 2

### NOTE:

Check the accelerator pedal by depressing when performing the test.

| Active test item                   | Operation | Description                                  |
|------------------------------------|-----------|--|
| ACCELERATOR PEDAL AC-TUATOR TEST 2 | STOP      | Finish the test                              |
|                                    | START     | Generate the vibration for accelerator pedal |

## ECU IDENTIFICATION

Displays accelerator pedal assembly parts number.

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[DCA]

## ECU DIAGNOSIS INFORMATION

### ADAS CONTROL UNIT

Reference Value

INFOID:000000007217976

#### VALUES ON THE DIAGNOSIS TOOL

| Monitor item  | Condition  |  | Value/Status |
|---------------|--|--|--------------|
| MAIN SW       | Ignition switch ON   | When MAIN switch is pressed  | On           |
|               |  | When MAIN switch is not pressed  | Off          |
| SET/COAST SW  | Ignition switch ON   | When SET/COAST switch is pressed   | On           |
|               |  | When SET/COAST switch is not pressed   | Off          |
| CANCEL SW     | Ignition switch ON   | When CANCEL switch is pressed  | On           |
|               |  | When CANCEL switch is not pressed  | Off          |
| RESUME/ACC SW | Ignition switch ON   | When RESUME/ACCELERATE switch is pressed                                     | On           |
|               |  | When RESUME/ACCELERATE switch is not pressed                                 | Off          |
| DISTANCE SW   | Ignition switch ON   | When DISTANCE switch is pressed  | On           |
|               |  | When DISTANCE switch is not pressed  | Off          |
| CRUISE OPE    | Drive the vehicle and activate the vehicle-to-vehicle distance control mode  | When ICC system is controlling   | On           |
|               |  | When ICC system is not controlling   | Off          |
| BRAKE SW      | Ignition switch ON   | When brake pedal is depressed  | Off          |
|               |  | When brake pedal is not depressed  | On           |
| STOP LAMP SW  | Ignition switch ON   | When brake pedal is depressed  | On           |
|               |  | When brake pedal is not depressed  | Off          |
| IDLE SW       | Engine running   | Idling   | On           |
|               |  | Except idling (depress accelerator pedal)                                    | Off          |
| SET DISTANCE  | <ul style="list-style-type: none"> <li>• Start the engine and turn the ICC system ON</li> <li>• Press the DISTANCE switch to change the vehicle-to-vehicle distance setting</li> </ul> | When set to "long"   | Long         |
|               |  | When set to "middle"   | Mid          |
|               |  | When set to "short"  | Short        |
| CRUISE LAMP   | Start the engine and press MAIN switch   | ICC system ON (MAIN switch indicator ON)                                     | On           |
|               |  | ICC system OFF (MAIN switch indicator OFF)                                   | Off          |
| OWN VHCL      | Start the engine and press MAIN switch   | ICC system ON (Own vehicle indicator ON)                                     | On           |
|               |  | ICC system OFF (Own vehicle indicator OFF)                                   | Off          |
| VHCL AHEAD    | Drive the vehicle and activate the vehicle-to-vehicle distance control mode  | When a vehicle ahead is detected (vehicle ahead detection indicator ON)      | On           |
|               |  | When a vehicle ahead is not detected (vehicle ahead detection indicator OFF) | Off          |
| ICC WARNING   | Start the engine and press MAIN switch   | When ICC system is malfunctioning (ICC system warning lamp ON)               | On           |
|               |  | When ICC system is normal (ICC system warning lamp OFF)                      | Off          |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[DCA]

| Monitor item  | Condition   |   | Value/Status   |
|---------------|---|---|--|
| VHCL SPEED SE | While driving   |   | Displays the vehicle speed calculated by ADAS control unit |
| SET VHCL SPD  | While driving   | When vehicle speed is set   | Displays the set vehicle speed                             |
| BUZZER O/P    | Engine running  | When the buzzer of the following system operates <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle distance control mode</li> <li>• DCA system</li> <li>• FCW system</li> <li>• IBA system</li> </ul>     | On   |
|               |   | When the buzzer of the following system not operates <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle distance control mode</li> <li>• DCA system</li> <li>• FCW system</li> <li>• IBA system</li> </ul> | Off  |
| THRTL SENSOR  | <b>NOTE:</b><br>The item is indicated, but not monitored                    |   | 0.0  |
| ENGINE RPM    | Engine running  |   | Equivalent to tachometer reading                           |
| WIPER SW      | Ignition switch ON  | Wiper not operating   | Off  |
|               |   | Wiper LO operation  | Low  |
|               |   | Wiper HI operation  | High   |
| YAW RATE      | <b>NOTE:</b><br>The item is indicated, but not monitored                    |   | 0.0  |
| BA WARNING    | Engine running  | IBA OFF indicator lamp ON <ul style="list-style-type: none"> <li>• When IBA system is malfunctioning</li> <li>• When IBA system is turned to OFF</li> </ul>   | On   |
|               |   | IBA OFF indicator lamp OFF <ul style="list-style-type: none"> <li>• When IBA system is normal</li> <li>• When IBA system is turned to ON</li> </ul>   | Off  |
| STP LMP DRIVE | Drive the vehicle and activate the vehicle-to-vehicle distance control mode | When ICC brake hold relay is activated  | On   |
|               |   | When ICC brake hold relay is not activated  | Off  |
| D RANGE SW    | Engine running  | When the selector lever is in "D" position or manual mode   | On   |
|               |   | When the selector lever is in any position other than "D" or manual mode  | Off  |
| NP RANGE SW   | Engine running  | When the selector lever is in "N", "P" position   | On   |
|               |   | When the selector lever is in any position other than "N", "P"  | Off  |
| PKB SW        | Ignition switch ON  | When the parking brake is applied   | On   |
|               |   | When the parking brake is released  | Off  |
| PWR SUP MONI  | Engine running  |   | Power supply voltage value of ADAS control unit            |
| VHCL SPD AT   | While driving   |   | Value of A/T vehicle speed sensor signal                   |
| THRTL OPENING | Engine running  | Depress accelerator pedal   | Displays the throttle position                             |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[DCA]

| Monitor item  | Condition   |  | Value/Status  |
|---------------|---|--|---|
| GEAR          | While driving   |  | Displays the gear position  |
| MODE SIG      | Start the engine and press MAIN switch  | When ICC system is deactivated   | Off   |
|               |   | When vehicle-to-vehicle distance control mode is activated                   | ICC   |
|               |   | When conventional (fixed speed) cruise control mode is activated             | ASCD  |
| SET DISP IND  | <ul style="list-style-type: none"> <li>• Drive the vehicle and activate the conventional (fixed speed) cruise control mode</li> <li>• Press SET/COAST switch</li> </ul> | SET switch indicator ON  | On  |
|               |   | SET switch indicator OFF   | Off   |
| DISTANCE      | Drive the vehicle and activate the vehicle-to-vehicle distance control mode   | When a vehicle ahead is detected   | Displays the distance from the preceding vehicle                    |
|               |   | When a vehicle ahead is not detected   | 0.0   |
| RELATIVE SPD  | Drive the vehicle and activate the vehicle-to-vehicle distance control mode   | When a vehicle ahead is detected   | Displays the relative speed.  |
|               |   | When a vehicle ahead is not detected   | 0.0   |
| DYNA ASIST SW | Ignition switch ON  | When dynamic driver assistance switch is pressed                             | On  |
|               |   | When dynamic driver assistance switch is not pressed                         | Off   |
| DCA ON IND    | Start the engine and press dynamic driver assistance switch (When DCA setting is ON)  | DCA system OFF (DCA system switch indicator OFF)                             | Off   |
|               |   | DCA system ON (DCA system switch indicator ON)                               | On  |
| DCA VHL AHED  | Drive the vehicle and activate the DCA system   | When a vehicle ahead is not detected (vehicle ahead detection indicator OFF) | Off   |
|               |   | When a vehicle ahead is detected (vehicle ahead detection indicator ON)      | On  |
| IBA SW        | Ignition switch ON  | When the IBA OFF switch is pressed   | On  |
|               |   | When the IBA OFF switch is not pressed                                       | Off   |
| FCW SYSTEM ON | Ignition switch ON  | When the FCW system is ON (Warning systems ON indicator ON)                  | On  |
|               |   | When the FCW system is OFF (Warning systems ON indicator OFF)                | Off   |
| APA TEMP      | Engine running  |  | Display the accelerator pedal actuator integrated motor temperature |
| APA PWR       | Ignition switch ON  |  | Power supply voltage value of accelerator pedal actuator            |
| LDW SYSTEM ON | Ignition switch ON  | When the LDW system is ON (Warning systems ON indicator ON)                  | On  |
|               |   | When the LDW system is OFF (Warning systems ON indicator OFF)                | Off   |
| LDW ON LAMP   | Ignition switch ON  | Warning systems ON indicator ON  | On  |
|               |   | Warning systems ON indicator OFF   | Off   |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[DCA]

| Monitor item       | Condition   |  | Value/Status                |
|--------------------|---|--|-----------------------------|
| LDP ON IND         | Start the engine and press dynamic driver assistance switch (When LDP system setting is ON) | LDP ON indicator lamp ON   | On                          |
|                    |   | LDP ON indicator lamp OFF  | Off                         |
| LANE DPRT W/L      | Drive the vehicle and activate the LDW system or LDP system                                 | Lane departure warning lamp ON   | On                          |
|                    |   | Lane departure warning lamp OFF  | Off                         |
| LDW BUZER OUTPUT   | Drive the vehicle and activate the LDW/LDP system or BSW/BSI system                         | When the buzzer of the following system operates<br>• LDW/LDP system<br>• BSW/BSI system         | On                          |
|                    |   | When the buzzer of the following system does not operate<br>• LDW/LDP system<br>• BSW/BSI system | Off                         |
| LDP SYSTEM ON      | Start the engine and press dynamic driver assistance switch (When LDP system setting is ON) | When the LDP system is ON  | On                          |
|                    |   | When the LDP system is OFF   | Off                         |
| READY signal       | Start the engine and press dynamic driver assistance switch (When LDP system setting is ON) | When the LDP system is ON  | On                          |
|                    |   | When the LDP system is OFF   | Off                         |
| Camera lost        | Drive the vehicle and activate the LDW system, LDP system or BSI system                     | Both side lane markers are detected  | Detect                      |
|                    |   | Deviate side lane marker is lost   | Deviate                     |
|                    |   | Both side lane markers are lost  | Both                        |
| Shift position     | <ul style="list-style-type: none"> <li>• Engine running</li> <li>• While driving</li> </ul> |  | Displays the shift position |
| Turn signal        | Turn signal lamps OFF   |  | Off                         |
|                    | Turn signal lamp LH blinking  |  | LH                          |
|                    | Turn signal lamp RH blinking  |  | RH                          |
|                    | Turn signal lamp LH and RH blinking   |  | LH&RH                       |
| SIDE G             | While driving   | Vehicle turning right  | Negative value              |
|                    |   | Vehicle turning left   | Positive value              |
| WARN REQ           | Drive the vehicle and activate the LDP system   | Lane departure warning is operating  | On                          |
|                    |   | Lane departure warning is not operating  | Off                         |
| STATUS signal      | Drive the vehicle and activate the LDP system   | When the LDP system is ON  | Stnby                       |
|                    |   | When the LDP system is operating   | Warn                        |
|                    |   | When the LDP system is canceled  | Cancel                      |
|                    |   | When the LDP system is OFF   | Off                         |
| Lane unclear       | While driving   | Lane marker is unclear   | On                          |
|                    |   | Lane marker is clear   | Off                         |
| FUNC ITEM          | Ignition switch ON  |  | FUNC3                       |
| FUNC ITEM (NV-ICC) | <b>NOTE:</b><br>The item is indicated, but not monitored                                    |  | Off                         |
| FUNC ITEM (NV-DCA) | <b>NOTE:</b><br>The item is indicated, but not monitored                                    |  | Off                         |
| DCA SELECT         | Ignition switch ON  | "Distance Control Assist" set with the navigation system is ON                                   | On                          |
|                    |   | "Distance Control Assist" set with the navigation system is OFF                                  | Off                         |



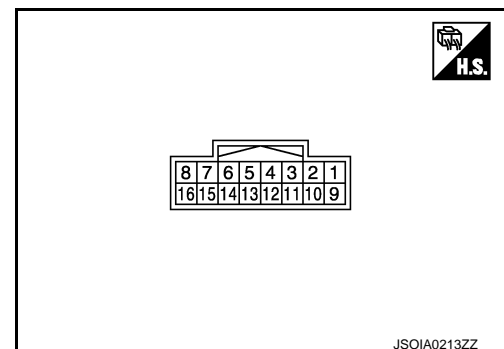
# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[DCA]

| Monitor item                             | Condition  | Value/Status   |       |
|--|--|--|-------|
| LDP SELECT                               | Ignition switch ON   | "Lane Departure Prevention" set with the navigation system is ON   | On    |
|  |  | "Lane Departure Prevention" set with the navigation system is OFF  | Off   |
| BSI SELECT                               | Ignition switch ON   | "Blind Spot Intervention" set with the navigation system is ON   | On    |
|  |  | "Blind Spot Intervention" set with the navigation system is OFF  | Off   |
| NAVI ICC SELECT                          | <b>NOTE:</b><br>The item is indicated, but not monitored                                       |  | Off   |
| NAVI DCA SELECT                          | <b>NOTE:</b><br>The item is indicated, but not monitored                                       |  | Off   |
| SYS SELECTABILITY                        | Ignition switch ON   | Items set with the navigation system can be switched normally  | On    |
|  |  | Items set with the navigation system cannot be switched normally   | Off   |
| DRIVE MODE STATS                         | Ignition switch ON   | When drive mode select switch position is STANDARD   | STD   |
|  |  | When drive mode select switch position is in SPORT   | SPORT |
|  |  | When drive mode select switch position is in ECO   | ECO   |
|  |  | When drive mode select switch position is in SNOW  | SNOW  |
|  |  | When position of drive mode select switch is in following states<br><ul style="list-style-type: none"> <li>• In the middle of SNOW-ECO</li> <li>• In the middle of ECO-STANDARD</li> <li>• In the middle of STANDARD-SPORTS</li> </ul> | Mid   |
| A signal other than those above is input | ERROR  |  |       |
| WARN SYS SW                              | Ignition switch ON   | When warning systems switch is pressed   | On    |
|  |  | When warning systems switch is not pressed   | Off   |
| BSW/BSI WARN LMP                         | Ignition switch ON   | BSW/BSI warning lamp ON  | On    |
|  |  | BSW/BSI warning lamp OFF   | Off   |
| BSI ON IND                               | Ignition switch ON   | BSI ON indicator ON  | On    |
|  |  | BSI ON indicator OFF   | Off   |
| BSW SYSTEM ON                            | Ignition switch ON   | When the BSW system is ON<br>(Warning systems ON indicator ON)   | On    |
|  |  | When the BSW system is OFF<br>(Warning systems ON indicator OFF)   | Off   |
| BSI SYSTEM ON                            | Start the engine and press dynamic driver assistance switch<br>(When BSI system setting is ON) | When the BSI system is ON  | On    |
|  |  | When the BSI system is OFF   | Off   |

TERMINAL LAYOUT  
PHYSICAL VALUES



DAS

P

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[DCA]

| Terminal No.<br>(Wire color) |        | Description                       |                  | Condition          |  | Value<br>(Approx.) |
|------------------------------|--------|-----------------------------------|------------------|--------------------|--|--------------------|
| +                            | -      | Signal name                       | Input/<br>Output |                    |  |                    |
| 1<br>(Y)                     |        | Warning systems switch            | Input            | Ignition switch ON | When warning systems switch is not pressed | 12 V               |
|                              |        |                                   |                  |                    | When warning systems switch is pressed     | 0 V                |
| 3<br>(BR)                    |        | IBA OFF switch                    | Input            | Ignition switch ON | When IBA OFF switch is not pressed         | 12 V               |
|                              |        |                                   |                  |                    | When IBA OFF switch is pressed             | 0 V                |
| 4<br>(O)                     |        | Warning systems ON indicator      | Output           | Ignition switch ON | Warning systems ON indicator ON            | 0 V                |
|                              |        |                                   |                  |                    | Warning systems ON indicator OFF           | 12 V               |
| 5<br>(SB)                    |        | ICC brake hold relay drive signal | Output           | Ignition switch ON | —  | 12 V               |
|                              |        |                                   |                  |                    | At "STOP LAMP" test of "Active test"       | 0 V                |
| 6<br>(B/R)                   | Ground | Ground                            | —                | Ignition switch ON | —  | 0 V                |
| 7<br>(L)                     |        | ITS communication-H               | —                | —                  | —  | —                  |
| 8<br>(P)                     |        | ITS communication-L               | —                | —                  | —  | —                  |
| 12<br>(W)                    |        | Warning buzzer signal             | Output           | Ignition switch ON | Warning buzzer operation                   | 0 V                |
|                              |        |                                   |                  |                    | Warning buzzer not operating               | 12 V               |
| 14<br>(L)                    |        | CAN -H                            | —                | —                  | —  | —                  |
| 15<br>(R)                    |        | CAN -L                            | —                | —                  | —  | —                  |
| 16<br>(GR)                   |        | Ignition power supply             | Input            | Ignition switch ON |  | Battery voltage    |

## Fail-safe

INFOID:000000007217977

If a malfunction occurs in each system, ADAS control unit cancels each control, sounds a beep, and turns ON the warning lamp or indicator lamp.

| System   | Buzzer            | Warning lamp/Indicator lamp | Description |
|--|-------------------|-----------------------------|-------------|
| Vehicle-to-vehicle distance control mode       | High-pitched tone | ICC system warning lamp     | Cancel      |
| Conventional (fixed speed) cruise control mode | High-pitched tone | ICC system warning lamp     | Cancel      |
| Intelligent Brake Assist (IBA)                 | High-pitched tone | IBA OFF indicator lamp      | Cancel      |
| Forward Collision Warning (FCW)                | High-pitched tone | IBA OFF indicator lamp      | Cancel      |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[DCA]

| System                          | Buzzer            | Warning lamp/Indicator lamp | Description  |
|---------------------------------|-------------------|-----------------------------|--|
| Distance Control Assist (DCA)   | High-pitched tone | ICC system warning lamp     | Cancel   |
| Lane Departure Warning (LDW)    | —                 | Lane departure warning lamp | Cancel   |
| Lane Departure Prevention (LDP) | Low-pitched tone  | Lane departure warning lamp | Cancel   |
| Blind Spot Warning (BSW)        | —                 | BSW/BSI warning lamp        | Cancel   |
| Blind Spot Intervention (BSI)   | Low-pitched tone  | BSW/BSI warning lamp        | Cancel   |
| Active trace control function   | —                 | IBA OFF indicator lamp      | <ul style="list-style-type: none"> <li>• Cancel</li> <li>• If a communication error occurs between the A/C auto amp. and CAN communication line, a mode at the instant of error occurrence is maintained until the mode is fixed to STANDARD after turning the ignition switch from OFF to ON</li> </ul> |

## DTC Inspection Priority Chart

INFOID:000000007217978

If multiple DTCs are detected simultaneously, check them one by one depending on the following DTC inspection priority chart.

| Priority | Detected items (DTC)   |
|----------|--|
| 1        | <ul style="list-style-type: none"> <li>• U1507: LOST COMM (SIDE RDR R)</li> <li>• U1508: LOST COMM (SIDE RDR L)</li> </ul>   |
| 2        | <ul style="list-style-type: none"> <li>• U1000: CAN COMM CIRCUIT</li> <li>• U1010: CONTROL UNIT (CAN)</li> </ul>   |
| 3        | <ul style="list-style-type: none"> <li>• C1B00: CAMERA UNIT MALF</li> <li>• C1F02: APA C/U MALF</li> <li>• C1A17: ICC SENSOR MALF</li> <li>• C1B53: SIDE RDR R MALF</li> <li>• C1B54: SIDE RDR L MALF</li> </ul> |

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[DCA]

| Priority | Detected items (DTC)  |
|----------|---|
| 4        | <ul style="list-style-type: none"> <li>• C1A01: POWER SUPPLY CIR</li> <li>• C1A02: POWER SUPPLY CIR 2</li> <li>• C1A04: ABS/TCS/VDC CIRC</li> <li>• C1A05: BRAKE SW/STOP L SW</li> <li>• C1A06: OPERATION SW CIRC</li> <li>• C1A12: LASER BEAM OFFCNTR</li> <li>• C1A13: STOP LAMP RLY FIX</li> <li>• C1A14: ECM CIRCUIT</li> <li>• C1A16: RADAR STAIN</li> <li>• C1A18: LASER AIMING INCOMP</li> <li>• C1A2A: ICC SEN PWR SUP CIR</li> <li>• C1A21: ICC SENSOR HIGH TEMP</li> <li>• C1A24: NP RANGE</li> <li>• C1A26: ECD MODE MALF</li> <li>• C1A27: ECD PWR SUPPLY CIR</li> <li>• C1A33: CAN TRANSMISSION ERR</li> <li>• C1A34: COMMAND ERROR</li> <li>• C1A35: APA CIR</li> <li>• C1A36: APA CAN COMM CIR</li> <li>• C1A37: APA CAN CIR 2</li> <li>• C1A38: APA CAN CIR 1</li> <li>• C1A39: STRG SEN CIR</li> <li>• C1A40: SYSTEM SW CIRC</li> <li>• C1B01: CAM AIMING INCOMP</li> <li>• C1B03: CAM ABNRML TMP DETCT</li> <li>• C1F01: APA MOTOR MALF</li> <li>• C1F05: APA PWR SUPPLY CIR</li> <li>• U0121: VDC CAN CIR 2</li> <li>• U0126: STRG SEN CAN CIR 1</li> <li>• U0235: ICC SENSOR CAN CIRC 1</li> <li>• U0401: ECM CAN CIR 1</li> <li>• U0402: TCM CAN CIR 1</li> <li>• U0415: VDC CAN CIR 1</li> <li>• U0424: HVAC CAN CIR 1</li> <li>• U0428: STRG SEN CAN CIR 2</li> <li>• U1500: CAM CAN CIR 2</li> <li>• U1501: CAM CAN CIR 1</li> <li>• U1502: ICC SEN CAN COMM CIR</li> <li>• U1503: SIDE RDR L CAN CIR 2</li> <li>• U1504: SIDE RDR L CAN CIR 1</li> <li>• U1505: SIDE RDR R CAN CIR 2</li> <li>• U1506: SIDE RDR R CAN CIR 1</li> <li>• U150B: ECM CAN CIRC 3</li> <li>• U150C: VDC CAN CIRC 3</li> <li>• U150D: TCM CAN CIRC 3</li> <li>• U150E: BCM CAN CIRC 3</li> <li>• U150F: AV CAN CIRC 3</li> <li>• U1512: HVAC CAN CIRC3</li> <li>• U1513: METER CAN CIRC 3</li> <li>• U1514: STRG SEN CAN CIRC 3</li> <li>• U1515: ICC SENSOR CAN CIRC 3</li> <li>• U1516: CAM CAN CIRC 3</li> <li>• U1517: APA CAN CIRC 3</li> <li>• U1518: SIDE RDR L CAN CIRC 3</li> <li>• U1519: SIDE RDR R CAN CIRC 3</li> </ul> |
| 5        | <ul style="list-style-type: none"> <li>• C1A03: VHCL SPEED SE CIRC</li> </ul>   |
| 6        | <ul style="list-style-type: none"> <li>• C1A15: GEAR POSITION</li> </ul>  |
| 7        | <ul style="list-style-type: none"> <li>• C1A00: CONTROL UNIT</li> </ul>   |

## DTC Index

INFOID:000000007217979

### NOTE:

- The details of time display are as per the following.

# ADAS CONTROL UNIT

[DCA]

< ECU DIAGNOSIS INFORMATION >

- CRNT: A malfunction is detected now
- PAST: A malfunction was detected in the past
- IGN counter is displayed on FFD (Freeze Frame Data).
- 0: The malfunctions that are detected now  
CAN communication system (U1000, U1010)
- 1 - 39: It increases like 0 → 1 → 2 ... 38 → 39 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 39, it is fixed to 39 until the self-diagnosis results are erased.  
Other than CAN communication system (Other than U1000, U1010)
- 1 - 49: It increases like 0 → 1 → 2 ... 38 → 49 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 49, it is fixed to 49 until the self-diagnosis results are erased.

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC     |                  | CONSULT display      | Warning lamp            |                        |                             |                      | Fail-safe              | Reference               |
|---------|------------------|----------------------|-------------------------|------------------------|-----------------------------|----------------------|------------------------|-------------------------|
| CONSULT | On board display |                      | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System                 |                         |
| C1A00   | 0                | CONTROL UNIT         | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-111</a> |
| C1A01   | 1                | POWER SUPPLY CIR     | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-112</a> |
| C1A02   | 2                | POWER SUPPLY CIR 2   | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-112</a> |
| C1A03   | 3                | VHCL SPEED SE CIRC   | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-113</a> |
| C1A04   | 4                | ABS/TCS/VDC CIRC     | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-115</a> |
| C1A05   | 5                | BRAKE SW/STOP L SW   | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-116</a> |
| C1A06   | 6                | OPERATION SW CIRC    | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">DAS-121</a> |
| C1A12   | 12               | LASER BEAM OFFCN-TR  | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">DAS-124</a> |
| C1A13   | 13               | STOP LAMP RLY FIX    | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">DAS-125</a> |
| C1A14   | 14               | ECM CIRCUIT          | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">DAS-131</a> |
| C1A15   | 15               | GEAR POSITION        | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-132</a> |
| C1A16   | 16               | RADAR STAIN          | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">DAS-134</a> |
| C1A17   | 17               | ICC SENSOR MALF      | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">DAS-135</a> |
| C1A18   | 18               | LASER AIMING INCOMP  | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">DAS-136</a> |
| C1A21   | 21               | ICC SENSOR HIGH TEMP | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">DAS-137</a> |
| C1A24   | 24               | NP RANGE             | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-138</a> |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[DCA]

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC   |                 | CONSULT display                                     | Warning lamp            |                        |                             |                      | Fail-safe              | Reference               |
|---|-----------------|---|-------------------------|------------------------|-----------------------------|----------------------|------------------------|-------------------------|
| CONSULT   | Onboard display |   | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System                 |                         |
| C1A26   | 26              | ECD MODE MALF                                       | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">DAS-140</a> |
| C1A27   | 27              | ECD PWR SUPPLY CIR                                  | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">DAS-141</a> |
| C1A33   | 33              | CAN TRANSMISSION ERR                                | ON                      |                        |                             |                      | A, B, E, H             | <a href="#">DAS-143</a> |
| C1A34   | 34              | COMMAND ERROR                                       | ON                      |                        |                             |                      | A, B, E, H             | <a href="#">DAS-144</a> |
| C1A35   | 35              | APA CIR   | ON                      |                        |                             |                      | A, E                   | <a href="#">DAS-145</a> |
| C1A36   | 36              | APA CAN COMM CIR                                    | ON                      |                        |                             |                      | A, E                   | <a href="#">DAS-146</a> |
| C1A37   | 133             | APA CAN CIR 2                                       | ON                      |                        |                             |                      | A, B, E                | <a href="#">DAS-147</a> |
| C1A38   | 132             | APA CAN CIR 1                                       | ON                      |                        |                             |                      | A, B, E                | <a href="#">DAS-148</a> |
| C1A39   | 39              | STRG SEN CIR  | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">DAS-149</a> |
| C1A40   | 40              | SYSTEM SW CIRC                                      |                         | ON                     |                             |                      | C, D                   | <a href="#">CCS-121</a> |
| C1A2A   | 80              | ICC SEN PWR SUP CIR                                 | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">DAS-142</a> |
| C1B00   | 81              | CAMERA UNIT MALF                                    |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-330</a> |
| C1B01   | 82              | CAM AIMING INCMP                                    |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-332</a> |
| C1B03   | 83              | CAM ABNRML TMP DETCT                                |                         |                        | BLINK                       | BLINK                | F, G                   | <a href="#">DAS-334</a> |
| C1B53   | 84              | SIDE RDR R MALF                                     |                         |                        |                             | ON                   | G                      | <a href="#">DAS-473</a> |
| C1B54   | 85              | SIDE RDR L MALF                                     |                         |                        |                             | ON                   | G                      | <a href="#">DAS-474</a> |
| C1F01   | 91              | APA MOTOR MALF                                      | ON                      |                        |                             |                      | A, E                   | <a href="#">DAS-150</a> |
| C1F02   | 92              | APA C/U MALF  | ON                      |                        |                             |                      | A, E                   | <a href="#">DAS-152</a> |
| C1F05   | 95              | APA PWR SUPPLY CIR                                  | ON                      |                        |                             |                      | A, E                   | <a href="#">DAS-155</a> |
| NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED | 55              | NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED | —                       | —                      | —                           | —                    | —                      | —                       |
| U0121   | 127             | VDC CAN CIR 2                                       | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-159</a> |
| U0126   | 130             | STRG SEN CAN CIR 1                                  | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">DAS-160</a> |
| U0235   | 144             | ICC SENSOR CAN CIRC 1                               | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">DAS-161</a> |
| U0401   | 120             | ECM CAN CIR 1                                       | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">DAS-162</a> |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[DCA]

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC                   |                  | CONSULT display        | Warning lamp            |                        |                             |                      | Fail-safe              | Reference               |
|-----------------------|------------------|------------------------|-------------------------|------------------------|-----------------------------|----------------------|------------------------|-------------------------|
| CONSULT               | On board display |                        | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System                 |                         |
| U0402                 | 122              | TCM CAN CIR 1          | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-163</a> |
| U0415                 | 126              | VDC CAN CIR 1          | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-164</a> |
| U0424                 | 156              | HVAC CAN CIR 1         |                         |                        |                             |                      |                        | <a href="#">BRC-118</a> |
| U0428                 | 131              | STRG SEN CAN CIR 2     | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">DAS-165</a> |
| U1000 <sup>NOTE</sup> | 100              | CAN COMM CIRCUIT       | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-166</a> |
| U1010                 | 110              | CONTROL UNIT (CAN)     | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-168</a> |
| U1500                 | 145              | CAM CAN CIR 2          |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-350</a> |
| U1501                 | 146              | CAM CAN CIR 1          |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-351</a> |
| U1502                 | 147              | ICC SEN CAN COMM CIR   | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">DAS-173</a> |
| U1503                 | 150              | SIDE RDR L CAN CIR 2   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-495</a> |
| U1504                 | 151              | SIDE RDR L CAN CIR 1   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-496</a> |
| U1505                 | 152              | SIDE RDR R CAN CIR 2   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-497</a> |
| U1506                 | 153              | SIDE RDR R CAN CIR 1   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-498</a> |
| U1507                 | 154              | LOST COMM (SIDE RDR R) |                         |                        |                             | ON                   | G                      | <a href="#">DAS-499</a> |
| U1508                 | 155              | LOST COMM (SIDE RDR L) |                         |                        |                             | ON                   | G                      | <a href="#">DAS-500</a> |
| U150B                 | 157              | ECM CAN CIRC 3         | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">DAS-169</a> |
| U150C                 | 158              | VDC CAN CIRC 3         | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-170</a> |
| U150D                 | 159              | TCM CAN CIRC 3         | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-171</a> |
| U150E                 | 160              | BCM CAN CIRC 3         | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">DAS-172</a> |
| U150F                 | 161              | AV CAN CIRC 3          |                         |                        |                             |                      |                        | <a href="#">DAS-53</a>  |
| U1512                 | 162              | HVAC CAN CIRC3         |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-352</a> |
| U1513                 | 163              | METER CAN CIRC 3       | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-174</a> |
| U1514                 | 164              | STRG SEN CAN CIRC 3    | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">DAS-175</a> |
| U1515                 | 165              | ICC SENSOR CAN CIRC 3  | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">DAS-176</a> |
| U1516                 | 166              | CAM CAN CIRC 3         |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-354</a> |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[DCA]

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC     |                 | CONSULT display       | Warning lamp            |                        |                             |                      | Fail-safe | Reference               |
|---------|-----------------|-----------------------|-------------------------|------------------------|-----------------------------|----------------------|-----------|-------------------------|
| CONSULT | Onboard display |                       | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System    |                         |
| U1517   | 167             | APA CAN CIRC 3        | ON                      |                        |                             |                      | A, B, E   | <a href="#">DAS-177</a> |
| U1518   | 168             | SIDE RDR L CAN CIRC 3 |                         |                        |                             | ON                   | G         | <a href="#">DAS-505</a> |
| U1519   | 169             | SIDE RDR R CAN CIRC 3 |                         |                        |                             | ON                   | G         | <a href="#">DAS-506</a> |

**NOTE:**

With the detection of “U1000” some systems do not perform the fail-safe operation.

A system controlling based on a signal received from the control unit performs fail-safe operation when the communication with the ADAS control unit becomes inoperable.



# ICC SENSOR

< ECU DIAGNOSIS INFORMATION >

[DCA]

## ICC SENSOR

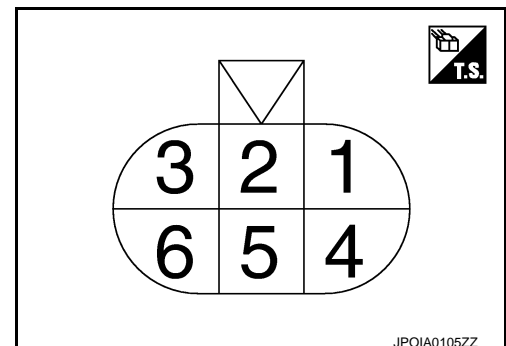
### Reference Value

INFOID:000000007217980

### VALUES ON THE DIAGNOSIS TOOL

| Monitor item     | Condition   |  | Value/Status                                     |
|------------------|---|--|--|
| VHCL SPEED SE    | While driving   |  | Value of vehicle speed signal (wheel speed)      |
| YAW RATE         | While driving   | Vehicle stopped  | 0.0  |
|                  |   | Vehicle turning right                                      | Positive value                                   |
|                  |   | Vehicle turning left                                       | Negative value                                   |
| PWR SUP MONI     | Ignition switch ON  |  | Power supply voltage value of ICC sensor         |
| DISTANCE         | Drive the vehicle and activate the vehicle-to-vehicle distance control mode | When a vehicle ahead is detected                           | Displays the distance from the preceding vehicle |
|                  |   | When a vehicle ahead is not detected                       | 0.0  |
| RELATIVE SPD     | Drive the vehicle and activate the vehicle-to-vehicle distance control mode | When a vehicle ahead is detected                           | Displays the relative speed                      |
|                  |   | When a vehicle ahead is not detected                       | 0.0  |
| LASER OFFSET     | <b>NOTE:</b><br>The item is indicated, but not used                         |  | —  |
| LASER HEIGHT     | <b>NOTE:</b><br>The item is indicated, but not used                         |  | —  |
| STEERING ANGLE   | Ignition switch ON  | When setting the steering wheel in straight-ahead position | 0.0  |
|                  |   | When turning the steering wheel 90° rightward              | +90  |
|                  |   | When turning the steering wheel 90° leftward               | -90  |
| STRG ANGLE SPEED | Ignition switch ON  | At the time of turning the steering wheel                  | Steering wheel turning speed is displayed        |
| L/R ADJUST       | Ignition switch ON  | At the completion of laser beam adjustment                 | Horizontal correction value is displayed         |
| U/D ADJUST       | Ignition switch ON  | At the completion of laser beam adjustment                 | Vertical correction value is displayed           |

### TERMINAL LAYOUT



### PHYSICAL VALUES

# ICC SENSOR

< ECU DIAGNOSIS INFORMATION >

[DCA]

| Terminal No.<br>(Wire color) |        | Description           |                  | Condition          | Value<br>(Approx.) |
|------------------------------|--------|-----------------------|------------------|--------------------|--------------------|
| +                            | -      | Signal name           | Input/<br>Output |                    |                    |
| 1<br>(LG)                    | Ground | Ignition power supply | Input            | Ignition switch ON | Battery voltage    |
| 3<br>(L)                     |        | ITS communication-H   | —                | —                  | —                  |
| 4<br>(B/Y)                   |        | Ground                | —                | Ignition switch ON | 0 V                |
| 6<br>(Y)                     |        | ITS communication-L   | —                | —                  | —                  |

## Fail-safe

INFOID:000000007217981

If a malfunction occurs in the ICC sensor, ADAS control unit cancels control, sounds a beep, and turns ON the ICC system warning lamp in the combination meter.

## DTC Inspection Priority Chart

INFOID:000000007217982

If multiple DTCs are detected simultaneously, check them one by one depending on the following DTC inspection priority chart.

| Priority | Detected items (DTC)  |
|----------|---|
| 1        | <ul style="list-style-type: none"> <li>• U1000: CAN COMM CIRCUIT</li> <li>• U1010: CONTROL UNIT (CAN)</li> </ul>  |
| 2        | <ul style="list-style-type: none"> <li>• C1A50: ADAS MALFUNCTION</li> </ul>   |
| 3        | <ul style="list-style-type: none"> <li>• C1A01: POWER SUPPLY CIR</li> <li>• C1A02: POWER SUPPLY CIR 2</li> <li>• C1A12: LASER BEAM OFFCNTR</li> <li>• C1A16: RADAR STAIN</li> <li>• C1A18: LASER AIMING INCOMP</li> <li>• C1A21: UNIT HIGH TEMP</li> <li>• C1A39: STRG SEN CIR</li> <li>• U0104: ADAS CAN CIR1</li> <li>• U0121: VDC CAN CIR2</li> <li>• U0126: STRG SEN CAN CIR1</li> <li>• U0405: ADAS CAN CIR2</li> <li>• U0415: VDC CAN CIR1</li> <li>• U0428: STRG SEN CAN CIR2</li> </ul> |
| 4        | <ul style="list-style-type: none"> <li>• C1A00: CONTROL UNIT</li> </ul>   |

## DTC Index

INFOID:000000007217983

### NOTE:

- The details of time display are as per the following.
- 0: The malfunctions that are detected now  
CAN communication system (U1000, U1010)
- 1 - 39: It increases like 0 → 1 → 2 ... 38 → 39 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 39, it is fixed to 39 until the self-diagnosis results are erased.
- Other than CAN communication system (Other than U1000, U1010)
- 1 - 49: It increases like 0 → 1 → 2 ... 38 → 49 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 49, it is fixed to 49 until the self-diagnosis results are erased.

# ICC SENSOR

< ECU DIAGNOSIS INFORMATION >

[DCA]

×: Applicable

| DTC   | CONSULT display    | ICC system warning lamp | Fail-safe                                |  |                               |                                 |                                |                                      | Reference               |
|-------|--------------------|-------------------------|--|--|-------------------------------|---------------------------------|--------------------------------|--------------------------------------|-------------------------|
|       |                    |                         | Vehicle-to-vehicle distance control mode | Conventional (fixed speed) cruise control mode | Distance Control Assist (DCA) | Forward Collision Warning (FCW) | Intelligent Brake Assist (IBA) | Brake Assist (with Preview Function) |                         |
| C1A00 | CONTROL UNIT       | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-76</a>  |
| C1A01 | POWER SUPPLY CIR   | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-78</a>  |
| C1A02 | POWER SUPPLY CIR2  | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-78</a>  |
| C1A12 | LASER BEAM OFFCNTR | ON                      | ×  |  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-91</a>  |
| C1A16 | RADAR STAIN        | ON                      | ×  |  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-101</a> |
| C1A18 | LASER AIMING INCMP | ON                      | ×  |  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-104</a> |
| C1A21 | UNIT HIGH TEMP     | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-106</a> |
| C1A39 | STRG SEN CIR       | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-119</a> |
| C1A50 | ADAS MALFUNCTION   | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-123</a> |
| U0104 | ADAS CAN CIR1      | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-127</a> |
| U0121 | VDC CAN CIR2       | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-128</a> |
| U0126 | STRG SEN CAN CIR1  | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-130</a> |
| U0405 | ADAS CAN CIR2      | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-135</a> |
| U0415 | VDC CAN CIR1       | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-136</a> |
| U0428 | STRG SEN CAN CIR2  | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-138</a> |
| U1000 | CAN COMM CIRCUIT   | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-140</a> |
| U1010 | CONTROL UNIT (CAN) | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-142</a> |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ACCELERATOR PEDAL ACTUATOR

< ECU DIAGNOSIS INFORMATION >

[DCA]

## ACCELERATOR PEDAL ACTUATOR

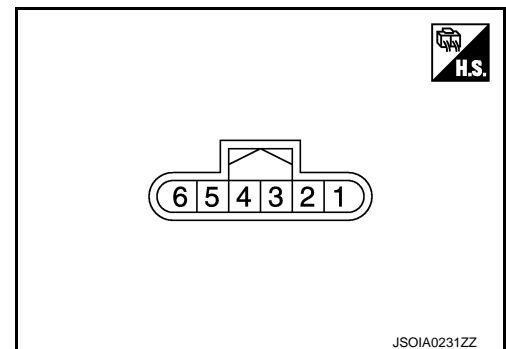
### Reference Value

INFOID:000000006886143

### VALUES ON THE DIAGNOSIS TOOL

| Monitor item  | Condition  |  | Value/Status   |
|---------------|--|--|--|
| TGT FBK FRC   | Drive the vehicle and operate the DCA system         | When the ADAS control unit is controlling the accelerator pedal actuator | It changes with the demand from the ADAS control unit                      |
| TGT MOT POSI  | <b>NOTE:</b><br>The item is indicated, but not used. |  | —  |
| ACT MOT POSI  | Engine running                                       | Depress accelerator pedal  | It changes according to the depressed amount of accelerator pedal          |
| AP OPEN       | Engine running                                       | Depress accelerator pedal  | It changes according to the depressed amount of accelerator pedal          |
| APA TEMP      | Engine running                                       |  | Display the accelerator pedal actuator integrated motor temperature        |
| APA CURRENT   | Drive the vehicle and operate the DCA system         | When the ADAS control unit is controlling the accelerator pedal actuator | Display the accelerator pedal actuator motor operation consumption current |
| APA PWR       | Ignition switch ON                                   |  | Battery voltage  |
| APA OPE STATS | Engine running                                       | When the accelerator pedal actuator control is permitted                 | On   |
|               |  | When the accelerator pedal actuator control is invalid                   | Off  |
| APA STATS     | Engine running                                       | When the accelerator pedal actuator is normal                            | Ready  |
|               |  | When the accelerator pedal actuator is temporarily malfunctioning        | TP NG  |
|               |  | When the accelerator pedal actuator is malfunctioning                    | NG   |
|               |  | During the accelerator pedal actuator operation preparations             | Init   |

### TERMINAL LAYOUT



### PHYSICAL VALUES

# ACCELERATOR PEDAL ACTUATOR

< ECU DIAGNOSIS INFORMATION >

[DCA]

| Terminal No.<br>(Wire color) |        | Description           |                  | Condition           | Value<br>(Approx.) |
|------------------------------|--------|-----------------------|------------------|---------------------|--------------------|
| +                            | -      | Signal name           | Input/<br>Output |                     |                    |
| 1<br>(O)                     | Ground | Battery power supply  | Input            | Ignition switch OFF | Battery voltage    |
| 2<br>(B)                     |        | Ground                | —                | Ignition switch ON  | 0 V                |
| 3<br>(R)                     |        | Ignition power supply | Input            | Ignition switch ON  | Battery voltage    |
| 4<br>(Y)                     |        | ITS communication-L   | —                | —                   | —                  |
| 5<br>(L)                     |        | ITS communication-H   | —                | —                   | —                  |

## DTC Inspection Priority Chart

INFOID:000000006886144

If multiple DTCs are detected simultaneously, check them one by one depending on the following DTC inspection priority chart.

| Priority | Detected items (DTC)   |
|----------|--|
| 1        | <ul style="list-style-type: none"> <li>• U1000: CAN COMM CIRCUIT</li> <li>• U1010: CONTROL UNIT (CAN)</li> </ul>   |
| 2        | <ul style="list-style-type: none"> <li>• C1F02: APA C/U MALF</li> </ul>  |
| 3        | <ul style="list-style-type: none"> <li>• C1F01: APA MOTOR MALF</li> <li>• C1F03: APA HI TEMP</li> <li>• C1F05: APA PWR SUPPLY CIR</li> <li>• C1F06: CAN CIR2</li> <li>• C1F07: CAN CIR1</li> </ul> |

## DTC Index

INFOID:000000006886145

### NOTE:

- The details of time display are as per the following.
- CRNT: A malfunction is detected now
- PAST: A malfunction was detected in the past
- IGN counter is displayed in FFD (Freeze Frame Data).
- 0: The malfunctions that are detected now
- 1 - 39: It increases like 0 → 1 → 2 ... 38 → 39 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 39, it is fixed to 39 until the self-diagnosis results are erased.

x: Applicable

| CONSULT display           | ICC system warning lamp | Fail-safe function | Reference               |
|---------------------------|-------------------------|--------------------|-------------------------|
| C1F01: APA MOTOR MALF     | ON                      | ×                  | <a href="#">DAS-150</a> |
| C1F02: APA C/U MALF       | ON                      | ×                  | <a href="#">DAS-152</a> |
| C1F03: APA HI TEMP        | —                       | —                  | <a href="#">DAS-154</a> |
| C1F05: APA PWR SUPPLY CIR | ON                      | ×                  | <a href="#">DAS-155</a> |
| C1F06: CAN CIR2           | ON                      | ×                  | <a href="#">DAS-157</a> |
| C1F07: CAN CIR1           | ON                      | ×                  | <a href="#">DAS-158</a> |
| U1000: CAN COMM CIRCUIT   | ON                      | ×                  | <a href="#">DAS-166</a> |
| U1010: CONTROL UNIT (CAN) | ON                      | ×                  | <a href="#">DAS-168</a> |


< WIRING DIAGRAM >

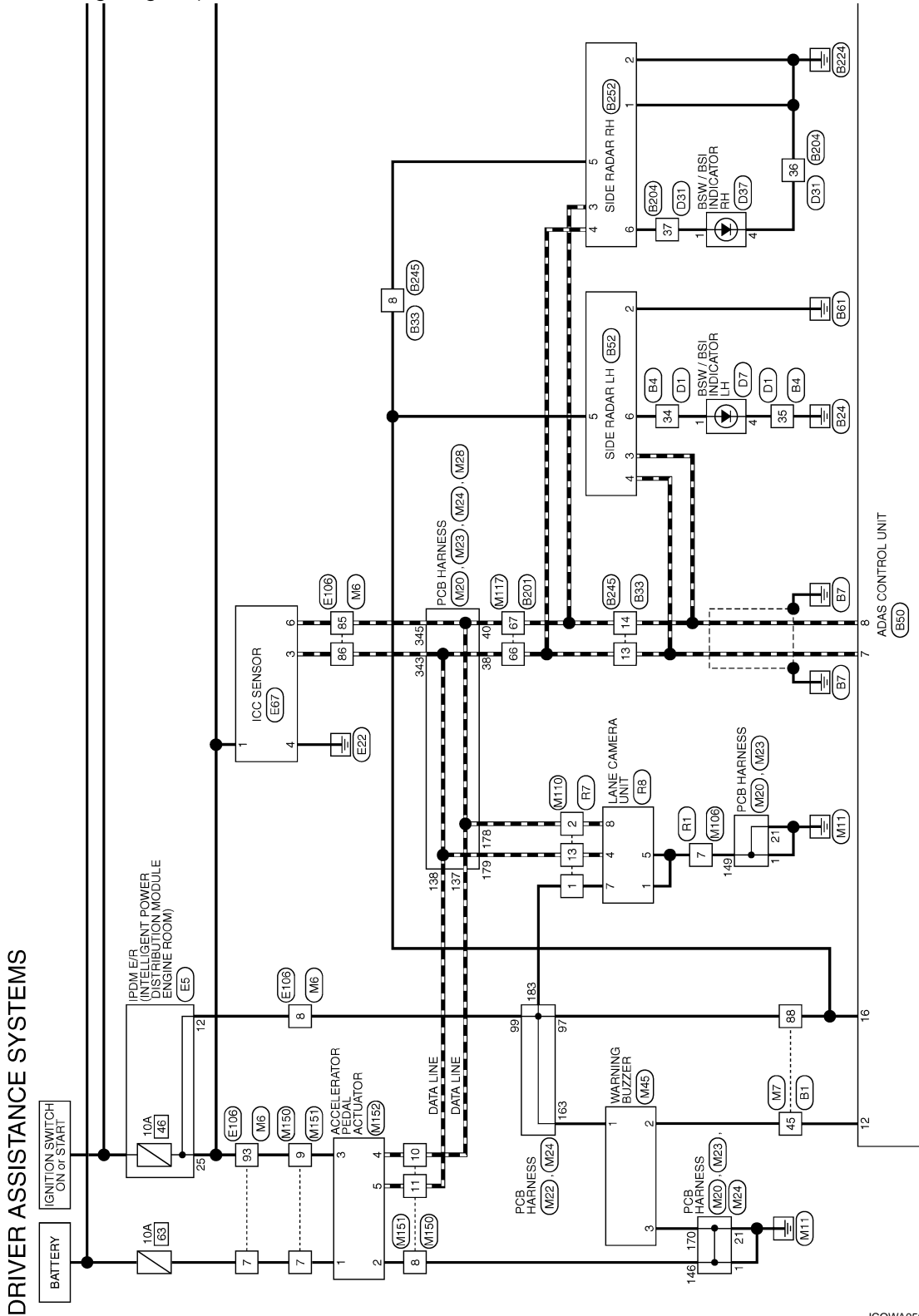
# WIRING DIAGRAM

## DRIVER ASSISTANCE SYSTEMS

### Wiring Diagram

INFOID:000000007217901

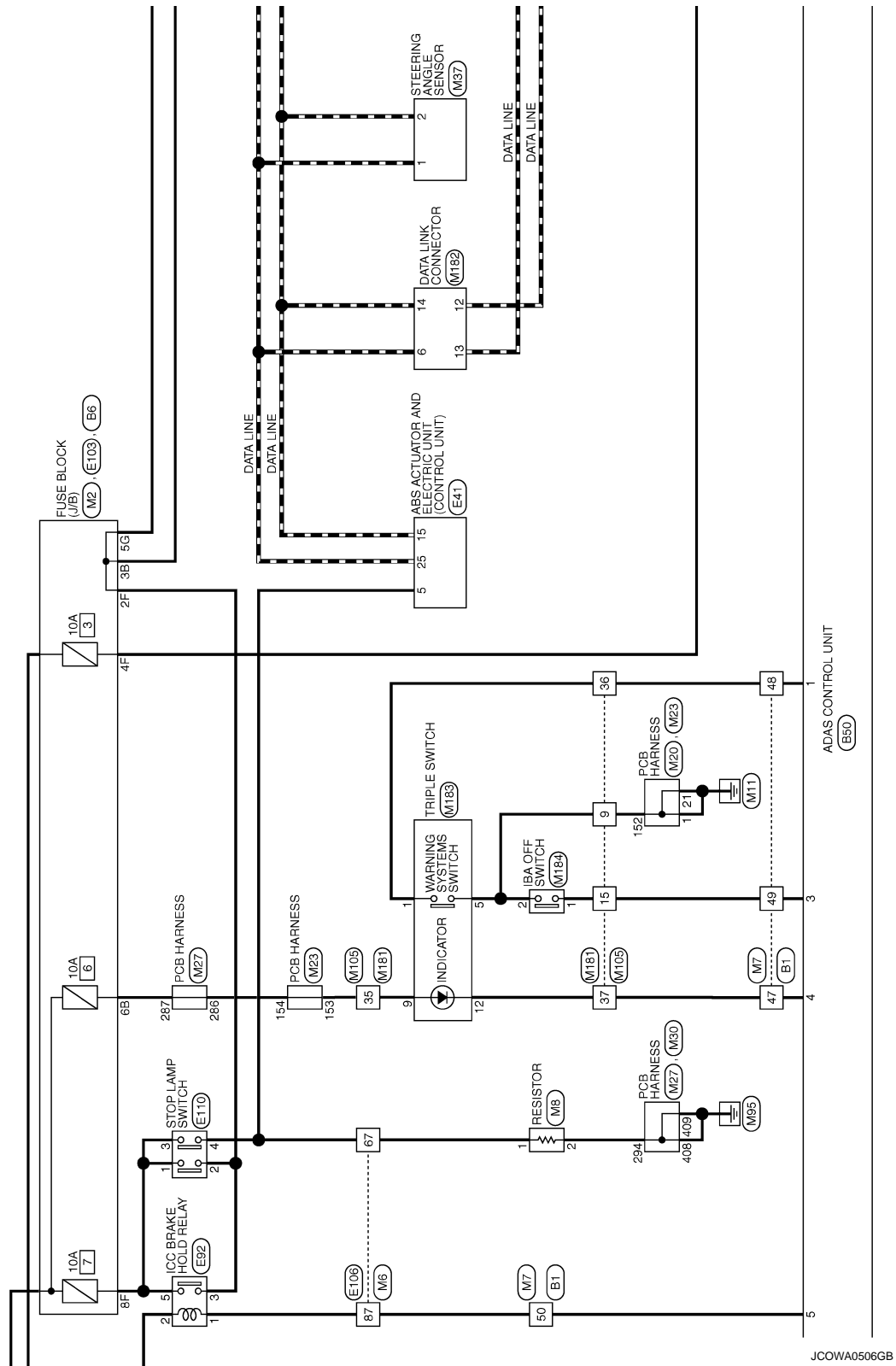
For connector terminal arrangements, harness layouts, and alphabets in a  (option abbreviation; if not described in wiring diagram), refer to [GI-12. "Connector Information"](#).



# DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[DCA]



JCOWA0506GB

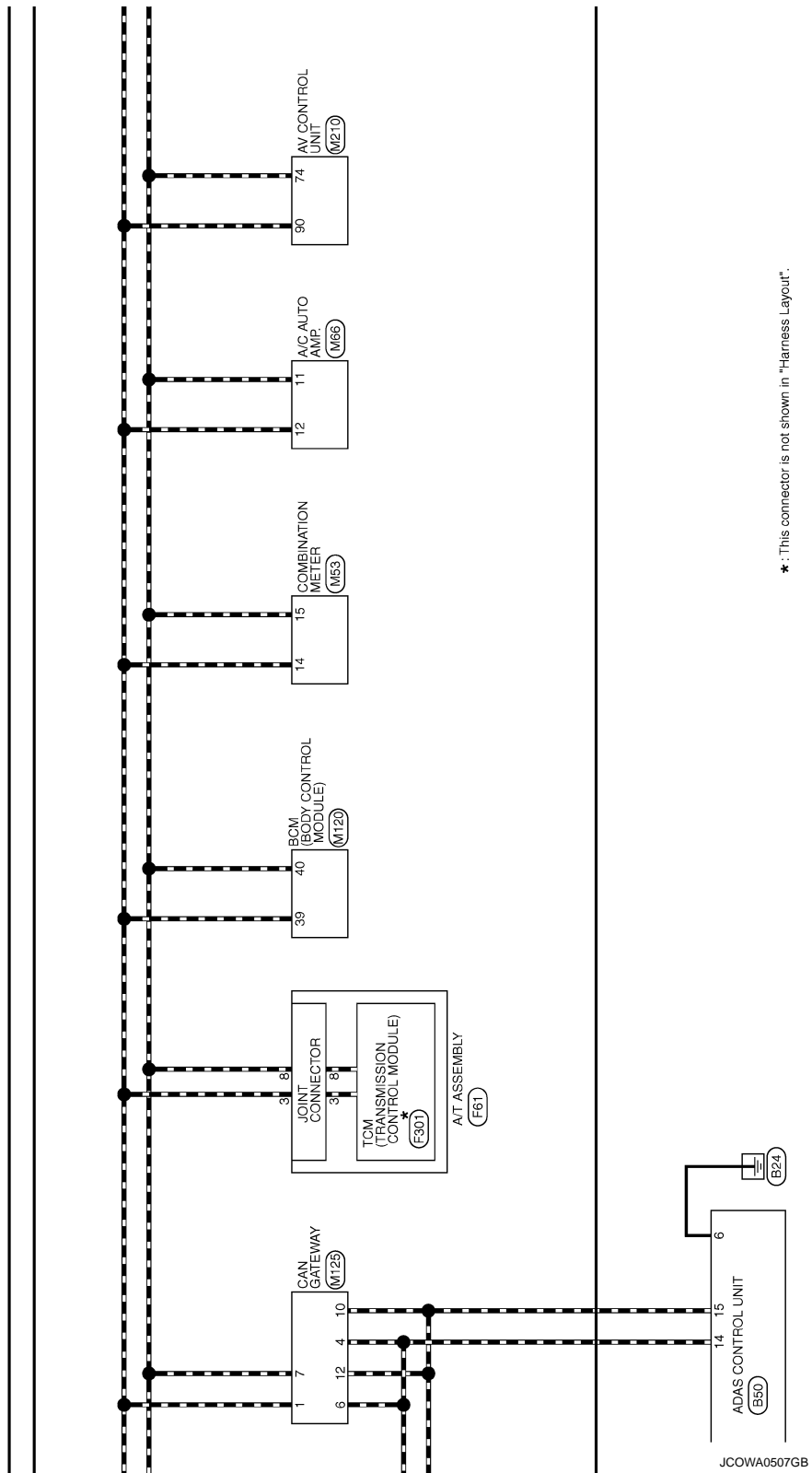
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[DCA]



\* : This connector is not shown in "Harness Layout".

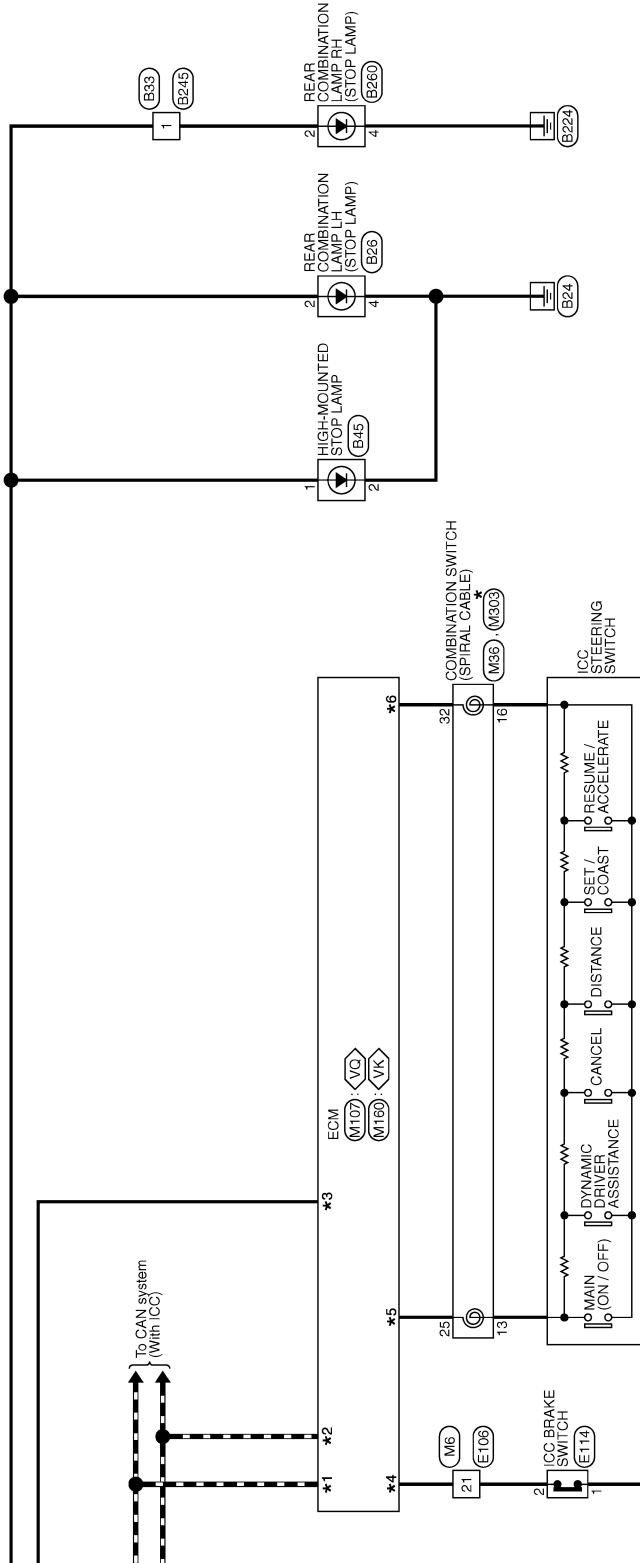


# DRIVER ASSISTANCE SYSTEMS

[DCA]

< WIRING DIAGRAM >

- ◊ : With VQ engine
- ◊ : With VK engine
- \*1 114: ◊ 126: ◊
- 146: ◊ 147: ◊
- \*2 113: ◊ 101: ◊
- 151: ◊ 128: ◊
- \*3 122: ◊ \*6 108: ◊
- 158: ◊ 130: ◊



\*: This connector is not shown in "Harness Layout".

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

JCOWA0508GB

# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[DCA]

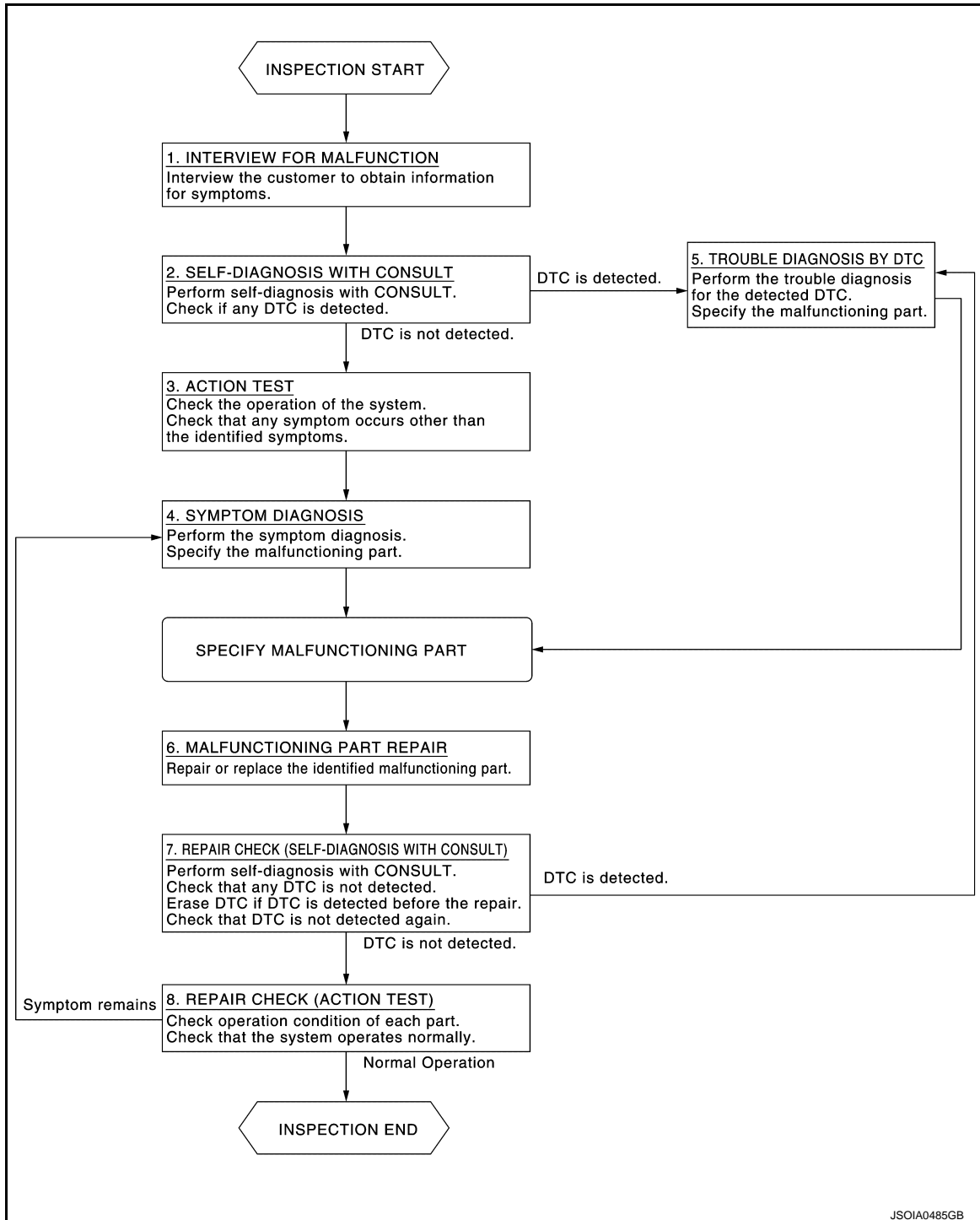
## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000006886147

#### OVERALL SEQUENCE



#### DETAILED FLOW

### 1. INTERVIEW FOR MALFUNCTION

It is also important to clarify the customer concerns before starting the inspection. Interview the customer about the concerns carefully and understand the symptoms fully.

# DIAGNOSIS AND REPAIR WORK FLOW

[DCA]

< BASIC INSPECTION >

## NOTE:

The customers are not professionals. Never assume that “maybe the customer means...” or “maybe the customer mentioned this symptom”.

>> GO TO 2.

## 2.SELF-DIAGNOSIS WITH CONSULT

1. Perform “All DTC Reading” with CONSULT.
2. Check if the DTC is detected on the self-diagnosis results of “ICC/ADAS” and/or “ACCELE PEDAL ACT”.

Is any DTC detected?

YES >> GO TO 5.

NO >> GO TO 3.

## 3.ACTION TEST

Perform DCA system action test to check the operation status. Refer to [DAS-110, "Description"](#).  
Check if any other malfunctions occur.

>> GO TO 4.

## 4.SYMPTOM DIAGNOSIS

Perform the applicable diagnosis according to the diagnosis chart by symptom. Refer to [DAS-180, "Symptom Table"](#).

>> GO TO 6.

## 5.TROUBLE DIAGNOSIS BY DTC

1. Check the DTC in the self-diagnosis results.
2. Perform trouble diagnosis for the detected DTC. Refer to [DAS-92, "DTC Index"](#) (ICC/ADAS) and/or [DAS-101, "DTC Index"](#) (ACCELE PEDAL ACT).

## NOTE:

If “DTC: U1000” is detected, first diagnose the CAN communication system or ITS communication system.

>> GO TO 6.

## 6.MALFUNCTIONING PART REPAIR

Repair or replace the identified malfunctioning parts.

>> GO TO 7.

## 7.REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT)

1. Erases self-diagnosis results.
2. Perform “All DTC Reading” again after repairing or replacing the specific items.
3. Check if any DTC is detected in self-diagnosis results of “ICC/ADAS” and “ACCELE PEDAL ACT”.

Is any DTC detected?

YES >> GO TO 5.

NO >> GO TO 8.

## 8.REPAIR CHECK (ACTION TEST)

Perform the DCA system action test. Check that the malfunction symptom is solved or no other symptoms occur.

Is there a malfunction symptom?

YES >> GO TO 4.

NO >> INSPECTION END

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## ADDITIONAL SERVICE WHEN REPLACING ICC SENSOR

< BASIC INSPECTION >

[DCA]

---

### ADDITIONAL SERVICE WHEN REPLACING ICC SENSOR

#### Description

INFOID:000000006886148

- Always perform the laser beam aiming adjustment after removing and installing or replacing the ICC sensor.  
**CAUTION:**  
**The system does not operate normally unless the laser beam aiming adjustment is performed. Always perform it.**
- Perform the DCA system action test check that the DCA system operates normally.

#### Work Procedure

INFOID:000000006886149

#### 1. LASER BEAM AIMING ADJUSTMENT

---

Adjust the laser beam aiming. Refer to [CCS-65. "Description"](#).

>> GO TO 2.

#### 2. DCA SYSTEM ACTION TEST

---

1. Perform the DCA system action test. Refer to [DAS-110. "Description"](#).
2. Check that the DCA system operates normally.

>> INSPECTION END

# ADDITIONAL SERVICE WHEN REPLACING ACCELERATOR PEDAL ASSEMBLY

< BASIC INSPECTION >

[DCA]

## ADDITIONAL SERVICE WHEN REPLACING ACCELERATOR PEDAL ASSEMBLY

### Description

INFOID:000000006886150

- Always perform accelerator pedal released position learning when replacing the accelerator pedal assembly or disconnecting the accelerator pedal position sensor connector.
- Perform the DCA system action test check that the DCA system operates normally.

### Work Procedure

INFOID:000000006886151

#### 1.ACCELERATOR PEDAL RELEASED POSITION LEARNING

Perform accelerator pedal released position learning. Refer to [EC-147, "Description"](#) (VQ37VHR) or [EC-1120, "Description"](#) (VK56VD for USA and Canada) or [EC-1685, "Description"](#) (VK56VD for Mexico).

>> GO TO 2.

#### 2.DCA SYSTEM ACTION TEST

1. Perform the DCA system action test. Refer to [DAS-110, "Description"](#).
2. Check that the DCA system operates normally.

>> INSPECTION END

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ACTION TEST

< BASIC INSPECTION >

[DCA]

## ACTION TEST

### Description

INFOID:000000006886152

Always perform the DCA system action test to check that the system operates normally after replacing the ICC sensor, replacing the accelerator pedal assembly, or repairing any DCA system malfunction.

#### **CAUTION:**

**Perform the DCA system action test after checking that the ICC system operates normally because the DCA system shares components with the ICC system.**

### Work Procedure

INFOID:000000006886153

#### **NOTE:**

When the ICC system is set, the information display changes to the ICC system display.

### 1. ICC SYSTEM ACTION TEST

Perform the ICC system action test. Refer to [CCS-70. "Description"](#).

>> GO TO 2.

### 2. CHECK DCA SYSTEM SETTING

1. Start the engine.
2. After starting the engine wait for 30 seconds or more.
3. Check that the DCA system setting can be enabled/disabled on the navigation screen.
4. Turn OFF the ignition switch and wait for 5 seconds or more.
5. Check that the previous setting is saved when the engine starts again.

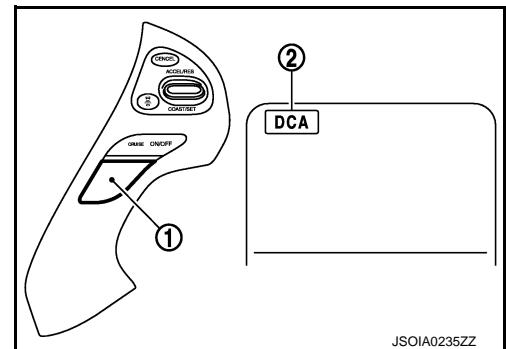
>> GO TO 3.

### 3. CHECK DRIVER ASSISTANCE SYSTEMS SWITCH

1. Start the engine.
2. After starting the engine wait for 30 seconds or more.
3. Enable the setting of the DCA system on the navigation screen.
4. Press the dynamic driver assistance switch (1).
5. Check that the DCA system switch indicator (2) on the information display illuminates.
6. Check that the DCA system switch indicator turns OFF when the system is turned OFF by pressing the dynamic driver assistance switch.
7. Check that the DCA system switch indicator turns OFF when the engine starts again.

#### **NOTE:**

The DCA system switch indicator does not illuminate even when the dynamic driver assistance switch is turned ON within approximately 5 seconds after starting the engine.



If the accelerator pedal assembly is not replaced>>INSPECTION END

If the accelerator pedal assembly is replaced>>GO TO 4.

### 4. CHECK DCA SYSTEM OPERATION

Check that the accelerator pedal actuator operates by the "Active Test" items "ACCELERATOR PEDAL ACTUATOR TEST1" and "ACCELERATOR PEDAL ACTUATOR TEST2" of "ACCELE PEDAL ACT" with CONSULT.

>> INSPECTION END

# DTC/CIRCUIT DIAGNOSIS

## C1A00 CONTROL UNIT

### DTC Logic

INFOID:000000006886154

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                | Possible causes   |
|---------------------------|------------------------|--|-------------------|
| C1A00<br>(0)              | CONTROL UNIT           | ADAS control unit internal malfunction | ADAS control unit |

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1A00" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

#### Is "C1A00" detected as the current malfunction?

- YES >> Refer to [DAS-111, "Diagnosis Procedure"](#).
- NO >> INSPECTION END

### Diagnosis Procedure

INFOID:000000006886155

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if any DTC other than "C1A00" is detected in "Self Diagnostic Result" of "ICC/ADAS".

#### Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

# C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

### DTC Logic

INFOID:000000006886156

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|---------------------------|------------------------|--|--|
| C1A01<br>(1)              | POWER SUPPLY CIR       | The battery voltage sent to ADAS control unit remains less than 7.9 V for 5 seconds  | <ul style="list-style-type: none"><li>• Connector, harness, fuse</li><li>• ADAS control unit</li></ul> |
| C1A02<br>(2)              | POWER SUPPLY CIR 2     | The battery voltage sent to ADAS control unit remains more than 19.3 V for 5 seconds |  |

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A01" or "C1A02" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A01" or "C1A02" detected as the current malfunction?

- YES >> Refer to [DAS-112, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886157

#### 1. CHECK ADAS CONTROL UNIT POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit of ADAS control unit. Refer to [DAS-178, "ADAS CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).  
NO >> Repair or replace the malfunctioning parts.



# C1A03 VEHICLE SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A03 VEHICLE SPEED SENSOR

### DTC Logic

INFOID:000000006886158

### DTC DETECTION LOGIC

| DTC<br>(On board<br>display) | Trouble diagnosis<br>name | DTC detecting condition   | Possible causes   |
|------------------------------|---------------------------|---|---|
| C1A03<br>(3)                 | VHCL SPEED SE<br>CIRC     | If the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) and the A/T vehicle speed sensor signal (output shaft revolution signal) from TCM, received by the ADAS control unit via CAN communication, are inconsistent | <ul style="list-style-type: none"><li>• Wheel speed sensor</li><li>• ABS actuator and electric unit (control unit)</li><li>• Vehicle speed sensor A/T (output speed sensor)</li><li>• TCM</li><li>• ADAS control unit</li></ul> |

#### NOTE:

If DTC "C1A03" is detected along with DTC "U1000" or "C1A04", first diagnose the DTC "U1000" or "C1A04".

- Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#) for DTC "U1000".
- Refer to [DAS-115, "DTC Logic"](#) for DTC "C1A04".

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Drive the vehicle at 30 km/h (19 MPH) or more.

**CAUTION:**

**Always drive safely.**

4. Stop the vehicle.
5. Perform "All DTC Reading" with CONSULT.
6. Check if the "C1A03" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A03" detected as the current malfunction?

- YES >> Refer to [DAS-113, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886159

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "C1A04" or "U1000" is detected other than "C1A03" in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-92, "DTC Index"](#).  
NO >> GO TO 2.

#### 2. CHECK DATA MONITOR

1. Start the engine.
2. Drive the vehicle.
3. Check that the value of "VHCL SPD AT" is almost the same as the value of "VHCL SPEED SE" in "DATA MONITOR" of "ICC/ADAS".

**CAUTION:**

**Be careful of the vehicle speed.**

Is the inspection result normal?

- YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).  
NO >> GO TO 3.

#### 3. CHECK TCM SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading".
2. Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

## C1A03 VEHICLE SPEED SENSOR

[DCA]

< DTC/CIRCUIT DIAGNOSIS >

---

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [TM-78. "DTC Index"](#).
- NO >> GO TO 4.

### 4. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

---

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51. "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

# C1A04 ABS/TCS/VDC SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A04 ABS/TCS/VDC SYSTEM

### DTC Logic

INFOID:000000006886160

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                           | Possible causes                               |
|---------------------------|------------------------|---|---|
| C1A04<br>(4)              | ABS/TCS/VDC CIRC       | If a malfunction occurs in the VDC/TCS/ABS system | ABS actuator and electric unit (control unit) |

#### NOTE:

If DTC "C1A04" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### Diagnosis Procedure

INFOID:000000006886161

#### 1. CHECK SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the "U1000" is detected other than "C1A04" in "Self Diagnostic Result" of "ICC/ADAS".

##### Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

#### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

##### Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1A05 BRAKE SW/STOP LAMP SW

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A05 BRAKE SW/STOP LAMP SW

### DTC Logic

INFOID:000000006886162

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|---------------------------|------------------------|---|---|
| C1A05<br>(5)              | BRAKE SW/STOP L SW     | A mismatch between a stop lamp switch signal and a ICC brake switch signal received from ECM and a stop lamp signal received from the ABS actuator and electric unit (control unit) continues for 10 seconds or more with vehicle speeds at approximately 40 km/h or more | <ul style="list-style-type: none"><li>• Stop lamp switch circuit</li><li>• ICC brake switch circuit</li><li>• Stop lamp switch</li><li>• ICC brake switch</li><li>• Incorrect stop lamp switch installation</li><li>• Incorrect ICC brake switch installation</li><li>• ECM</li><li>• ABS actuator and electric unit (control unit)</li></ul> |

#### NOTE:

If DTC "C1A05" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### Diagnosis Procedure

INFOID:000000007217991

#### 1. CHECK SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the "U1000" is detected other than "C1A05" in "Self Diagnostic Result" of "ICC/ADAS".

##### Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

#### 2. CHECK STOP LAMP SWITCH AND ICC BRAKE SWITCH

Check that "STOP LAMP SW" and "BRAKE SW" operate normally in "DATA MONITOR" of "ICC/ADAS".

##### Is the inspection result normal?

- YES >> GO TO 3.
- NO-1 >> When "BRAKE SW" operation is malfunctioning: GO TO 4.
- NO-2 >> When "STOP LAMP SW" operation is malfunctioning: GO TO 9.

#### 3. CHECK STOP LAMP SWITCH

Check that "STOP LAMP SW" operate normally in "DATA MONITOR" of "ABS".

##### Is the inspection result normal?

- YES >> GO TO 14.
- NO >> GO TO 9.

#### 4. CHECK ICC BRAKE SWITCH INSTALLATION

1. Turn ignition switch OFF.
2. Check ICC brake switch for correct installation. Refer to [BR-7, "Inspection and Adjustment"](#).

##### Is the inspection result normal?

- YES >> GO TO 5.
- NO >> Adjust ICC brake switch installation. Refer to [BR-7, "Inspection and Adjustment"](#).

#### 5. ICC BRAKE SWITCH INSPECTION

1. Disconnect ICC brake switch connector.
2. Check ICC brake switch. Refer to [DAS-119, "Component Inspection \(ICC Brake Switch\)"](#).

##### Is the inspection result normal?

# C1A05 BRAKE SW/STOP LAMP SW

[DCA]

## < DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 6.
- NO >> Replace ICC brake switch.

### 6.CHECK ICC BRAKE SWITCH POWER SUPPLY CIRCUIT

1. Turn the ignition switch ON.
2. Check voltage between ICC brake switch harness connector and ground.

| Terminals        |          | Voltage<br>(Approx.) |
|------------------|----------|----------------------|
| (+)              | (-)      |                      |
| ICC brake switch |          | Ground               |
| Connector        | Terminal |                      |
| E114             | 1        |                      |
|                  |          | Battery voltage      |

Is the inspection result normal?

- YES >> GO TO 7.
- NO >> Repair the harnesses or connectors.

### 7.CHECK HARNESS BETWEEN ICC BRAKE SWITCH AND ECM

1. Turn ignition switch OFF
2. Disconnect ECM connector.
3. Check for continuity between ICC brake switch harness connector and ECM harness connector.

VQ37VHR

| ICC brake switch |          | ECM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| E114             | 2        | M107      | 126      | Existed    |

VK56VD

| ICC brake switch |          | ECM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| E114             | 2        | M160      | 147      | Existed    |

4. Check for continuity between ICC brake switch harness connector and ground.

| ICC brake switch |          | Ground | Continuity  |
|------------------|----------|--------|-------------|
| Connector        | Terminal |        |             |
| E114             | 2        |        | Not existed |

Is the inspection result normal?

- YES >> GO TO 8.
- NO >> Repair the harnesses or connectors.

### 8.PERFORM SELF-DIAGNOSIS OF ECM

1. Connect all connectors again if the connectors are disconnected.
2. Turn ignition switch ON.
3. Perform "All DTC Reading".
4. Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE". Refer to [EC-117, "DTC Index"](#) (VQ37VHR) or [EC-1083, "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651, "DTC Index"](#) (VK56VD for Mexico).

Is any DTC detected?

- YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

### 9.CHECK STOP LAMP SWITCH INSTALLATION

1. Turn ignition switch OFF.
2. Check stop lamp switch for correct installation. Refer to [BR-7, "Inspection and Adjustment"](#).

Is the inspection result normal?

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1A05 BRAKE SW/STOP LAMP SW

[DCA]

## < DTC/CIRCUIT DIAGNOSIS >

YES >> GO TO 10.

NO >> Adjust stop lamp switch installation. Refer to [BR-7, "Inspection and Adjustment"](#).

### 10.STOP LAMP SWITCH INSPECTION

1. Disconnect stop lamp switch connector.
2. Check stop lamp switch. Refer to [DAS-119, "Component Inspection \(Stop Lamp Switch\)"](#).

Is the inspection result normal?

YES >> GO TO 11.

NO >> Replace stop lamp switch.

### 11.CHECK STOP LAMP SWITCH POWER SUPPLY CIRCUIT

1. Turn the ignition switch ON.
2. Check voltage between stop lamp switch harness connector and ground.

| Terminals        |          | Voltage<br>(Approx.) |
|------------------|----------|----------------------|
| (+)              | (-)      |                      |
| Stop lamp switch |          | Ground               |
| Connector        | Terminal |                      |
| E110             | 1        |                      |
|                  | 3        |                      |

Is the inspection result normal?

YES >> GO TO 12.

NO >> Repair the harnesses or connectors.

### 12.CHECK HARNESS BETWEEN STOP LAMP SWITCH AND ECM

1. Turn ignition switch OFF
2. Disconnect ECM, rear combination lamp and high-mounted stop lamp connectors.
3. Check for continuity between stop lamp switch harness connector and ECM harness connector.

VQ37VHR

| Stop lamp switch |          | ECM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| E110             | 2        | M107      | 122      | Existed    |

VK56VD

| Stop lamp switch |          | ECM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| E110             | 2        | M160      | 158      | Existed    |

4. Check for continuity between stop lamp switch harness connector and ground.

| Stop lamp switch |          | Ground | Continuity  |
|------------------|----------|--------|-------------|
| Connector        | Terminal |        |             |
| E110             | 2        |        | Not existed |

Is the inspection result normal?

YES >> GO TO 13.

NO >> Repair the harnesses or connectors.

### 13.CHECK HARNESS BETWEEN STOP LAMP SWITCH AND ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check for continuity between stop lamp switch harness connector and ABS actuator and electric unit (control unit) harness connector.

# C1A05 BRAKE SW/STOP LAMP SW

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

| Stop lamp switch |          | ABS actuator and electric unit (control unit) |          | Continuity |
|------------------|----------|---|----------|------------|
| Connector        | Terminal | Connector                                     | Terminal |            |
| E110             | 4        | E41   | 5        | Existed    |

3. Check for continuity between stop lamp switch harness connector and ground.

| Stop lamp switch |          | Ground | Continuity  |
|------------------|----------|--------|-------------|
| Connector        | Terminal |        |             |
| E110             | 4        |        | Not existed |

Is the inspection result normal?

YES >> GO TO 14.

NO >> Repair the harnesses or connectors.

## 14.PERFORM SELF-DIAGNOSIS OF ECM

1. Connect all connectors again if the connectors are disconnected.
2. Turn ignition switch ON.
3. Perform "All DTC Reading".
4. Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE". Refer to [EC-117, "DTC Index"](#) (VQ37VHR) or [EC-1083, "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651, "DTC Index"](#) (VK56VD for Mexico).

Is any DTC detected?

YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.

NO >> GO TO 15.

## 15.PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Check if any DTC is detected in "Self Diagnostic Result" of "ABS". Refer to [BRC-51, "DTC Index"](#).

Is any DTC detected?

YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.

NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

## Component Inspection (ICC Brake Switch)

INFOID:000000007217992

### 1.CHECK ICC BRAKE SWITCH

Check for continuity between ICC brake switch terminals.

| Terminal |   | Condition                     | Continuity  |
|----------|---|-------------------------------|-------------|
| 1        | 2 | When brake pedal is depressed | Not existed |
|          |   | When brake pedal is released  | Existed     |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace ICC brake switch.

## Component Inspection (Stop Lamp Switch)

INFOID:000000007217993

### 1.CHECK STOP LAMP SWITCH

Check for continuity between stop lamp switch terminals.

| Terminal |   | Condition                     | Continuity  |
|----------|---|-------------------------------|-------------|
| 1        | 2 | When brake pedal is depressed | Existed     |
|          |   | When brake pedal is released  | Not existed |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

# C1A05 BRAKE SW/STOP LAMP SW

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

| Terminal |   | Condition                     | Continuity  |
|----------|---|-------------------------------|-------------|
| 3        | 4 | When brake pedal is depressed | Existed     |
|          |   | When brake pedal is released  | Not existed |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace stop lamp switch.



C1A06 OPERATION SW

DTC Logic

INFOID:000000006886166

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|---------------------------|------------------------|---|---|
| C1A06<br>(6)              | OPERATION SW CIRC      | <ul style="list-style-type: none"> <li>Any switch of the ICC steering switch is detected as "ON" continuously for 60 seconds</li> <li>An ON/OFF state judgment of the ICC differs between ECM and ADAS control unit, and the state continues for 2 seconds or more</li> </ul> | <ul style="list-style-type: none"> <li>ICC steering switch circuit</li> <li>ICC steering switch</li> <li>ECM</li> </ul> |

**NOTE:**

If DTC "C1A06" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

**1. PERFORM DTC CONFIRMATION PROCEDURE**

- Start the engine.
- Wait for approximately 10 minutes after turning the DCA system ON.
- Perform "All DTC Reading" with CONSULT.
- Check if the "C1A06" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A06" detected as the current malfunction?

- YES >> Refer to [DAS-121, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000007218000

**1. CHECK SELF-DIAGNOSIS RESULTS**

Check if "U1000" is detected other than "C1A06" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-51, "DTC Logic"](#).
- NO >> GO TO 2.

**2. CHECK ICC STEERING SWITCH**

- Turn the ignition switch OFF.
- Disconnect the ICC steering switch connector.
- Check the ICC steering switch. Refer to [DAS-122, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Replace the ICC steering switch.

**3. CHECK HARNESS BETWEEN SPIRAL CABLE AND ECM**

- Disconnect the ECM connector.
- Check for continuity between the spiral cable harness connector and ECM harness connector.

VQ37VHR

| Spiral cable |          | ECM       |          | Continuity |
|--------------|----------|-----------|----------|------------|
| Connector    | Terminal | Connector | Terminal |            |
| M36          | 25       | M107      | 101      | Existed    |
|              | 32       |           | 108      |            |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P



< DTC/CIRCUIT DIAGNOSIS >

VK56VD

| Spiral cable |          | ECM       |          | Continuity |
|--------------|----------|-----------|----------|------------|
| Connector    | Terminal | Connector | Terminal |            |
| M36          | 25       | M160      | 128      | Existed    |
|              | 32       |           | 130      |            |

3. Check for continuity between spiral cable harness connector and ground.

| Spiral cable |          | Ground | Continuity  |
|--------------|----------|--------|-------------|
| Connector    | Terminal |        |             |
| M36          | 25       |        | Not existed |
|              | 32       |        |             |

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

## 4. CHECK SPIRAL CABLE

Check for continuity between spiral cable terminals.

| Spiral cable |    | Continuity |
|--------------|----|------------|
| Terminal     |    |            |
| 13           | 25 | Existed    |
| 16           | 32 |            |

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace the spiral cable.

## 5. PERFORM SELF-DIAGNOSIS OF ECM

1. Connect the connectors of ICC steering switch and ECM connector.
2. Turn the ignition switch ON.
3. Perform "All DTC Reading".
4. Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".

Is any DTC detected?

YES >> Perform self-diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [EC-117. "DTC Index"](#) (VQ37VHR) or [EC-1083. "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651. "DTC Index"](#) (VK56VD for Mexico).

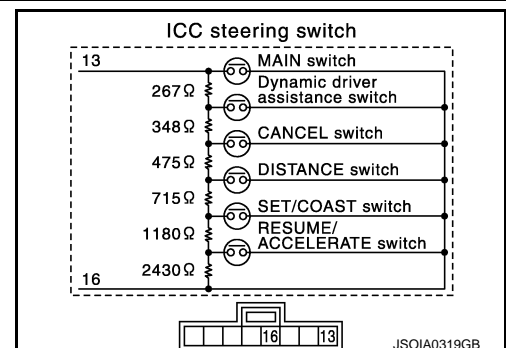
NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

## Component Inspection

INFOID:000000007218001

### 1. CHECK ICC STEERING SWITCH

Check resistance between ICC steering switch terminals.



JSOIA0319GB

# C1A06 OPERATION SW

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

| Terminal | Switch operation                               | Resistance [Ω] |
|----------|--|----------------|
| 13 16    | When pressing MAIN switch                      | Approx. 0      |
|          | When pressing dynamic driver assistance switch | Approx. 267    |
|          | When pressing CANCEL switch                    | Approx. 615    |
|          | When pressing DISTANCE switch                  | Approx. 1090   |
|          | When pressing SET/COAST switch                 | Approx. 1805   |
|          | When pressing RESUME/ACCELERATE switch         | Approx. 2985   |
|          | When all switches are not pressed              | Approx. 5415   |

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace the ICC steering switch.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1A12 LASER BEAM OFF CENTER

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A12 LASER BEAM OFF CENTER

### DTC Logic

INFOID:000000006886169

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                          | Possible causes                    |
|---------------------------|------------------------|--|------------------------------------|
| C1A12<br>(12)             | LASER BEAM OFFCNTR     | Laser beam of ICC sensor is off the aiming point | Laser beam is off the aiming point |

### Diagnosis Procedure

INFOID:000000006886170

#### 1. CHECK ICC SENSOR SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the "C1A12" is detected as the current malfunction in "Self Diagnostic Result" of "LASER".

Is "C1A12" detected?

YES >> Refer to [CCS-91, "ICC SENSOR : DTC Logic"](#).

NO >> GO TO 2.

#### 2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if the "C1A12" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A12" detected?

YES >> Replace ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

NO >> INSPECTION END

# C1A13 STOP LAMP RELAY

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A13 STOP LAMP RELAY

### DTC Logic

INFOID:000000006886171

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes   |
|---------------------------|------------------------|--|---|
| C1A13<br>(13)             | STOP LAMP RLY FIX      | <ul style="list-style-type: none"><li>Stop lamp inactive state continues for 0.3 seconds or more despite the outputting of an ICC sensor ICC brake hold relay drive signal</li><li>The stop lamp remains ON for 60 seconds or more under the following conditions:<ul style="list-style-type: none"><li>- Driving at 40 km/h or more</li><li>- No stop lamp drive signal output from ICC sensor</li><li>- No brake operation</li></ul></li></ul> | <ul style="list-style-type: none"><li>Stop lamp switch circuit</li><li>ICC brake switch circuit</li><li>ICC brake hold relay circuit</li><li>Stop lamp switch</li><li>ICC brake switch</li><li>ICC brake hold relay</li><li>Incorrect stop lamp switch installation</li><li>Incorrect ICC brake switch installation</li><li>ECM</li><li>ABS actuator and electric unit (control unit)</li></ul> |

#### NOTE:

If DTC "C1A13" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE (1)

- Start the engine.
- Perform the active test item "STOP LAMP" with CONSULT.
- Perform "All DTC Reading".
- Check if the "C1A13" is detected as the current malfunction in the "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A13" detected as the current malfunction?

- YES >> Refer to [DAS-125, "Diagnosis Procedure"](#).  
NO >> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE (2)

- Drive at the vehicle speed of 40 km/h (25 MPH) or more for approximately 20 seconds or more without the brake pedal depressed.

#### CAUTION:

**Always drive safely.**

#### NOTE:

If it is outside the above condition, repeat step 1.

- Perform "All DTC Reading".
- Check if the "C1A13" is detected as the current malfunction in the "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A13" detected as the current malfunction?

- YES >> Refer to [DAS-125, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000007218002

DAS

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A13" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK STOP LAMP SWITCH

Check that "STOP LAMP SW" operate normally in "DATA MONITOR" of "ICC/ADAS".

# C1A13 STOP LAMP RELAY

[DCA]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> GO TO 10.
- NO >> GO TO 3.

## 3.CHECK STOP LAMP SWITCH INSTALLATION

1. Turn ignition switch OFF.
2. Check stop lamp switch for correct installation. Refer to [BR-7, "Inspection and Adjustment"](#).

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Adjust stop lamp switch installation. Refer to [BR-7, "Inspection and Adjustment"](#).

## 4.CHECK STOP LAMP SWITCH

1. Disconnect stop lamp switch connector.
2. Check stop lamp switch. Refer to [DAS-119, "Component Inspection \(Stop Lamp Switch\)"](#).

Is the inspection result normal?

- YES >> GO TO 5.
- NO >> Replace stop lamp switch.

## 5.CHECK STOP LAMP FOR ILLUMINATION

1. Connect stop lamp switch connector.
2. Remove ICC brake hold relay.
3. Check that the stop lamp is illuminated by depressing the brake pedal to turn the stop lamp ON.

Is the inspection result normal?

- YES >> GO TO 6.
- NO >> Check the stop lamp circuit, and repair or replace the malfunctioning parts.

## 6.CHECK HARNESS BETWEEN STOP LAMP SWITCH AND ECM

1. Turn the ignition switch OFF.
2. Disconnect stop lamp switch, ECM, rear combination lamp, and high-mounted stop lamp connectors.
3. Check for continuity between the stop lamp switch harness connector and the ECM harness connector.

VQ37VHR

| Stop lamp switch |          | ECM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| E110             | 2        | M107      | 122      | Existed    |

VK56VD

| Stop lamp switch |          | ECM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| E110             | 2        | M160      | 158      | Existed    |

4. Check for continuity between stop lamp switch harness connector and ground.

| Stop lamp switch |          | Ground | Continuity  |
|------------------|----------|--------|-------------|
| Connector        | Terminal |        |             |
| E110             | 2        |        | Not existed |

Is the inspection result normal?

- YES >> GO TO 7.
- NO >> Repair the harnesses or connectors.

## 7.CHECK ICC BRAKE HOLD RELAY CIRCUIT

1. Connect ICC brake hold relay, ECM, rear combination lamp, and high-mounted stop lamp connectors.
2. Check that the stop lamp does not illuminate when brake pedal is not depressed.

Is the inspection result normal?

- YES >> GO TO 9.
- NO >> GO TO 8.

# C1A13 STOP LAMP RELAY

[DCA]

< DTC/CIRCUIT DIAGNOSIS >

## 8. CHECK ICC BRAKE HOLD RELAY

1. Remove ICC brake hold relay.
2. Check ICC brake hold relay. Refer to [DAS-130, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 9.  
 NO >> Replace ICC brake hold relay.

## 9. PERFORM SELF-DIAGNOSIS OF ECM

1. Connect all connectors again if the connectors are disconnected.
2. Turn ignition switch ON.
3. Perform "All DTC Reading".
4. Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE". Refer to [EC-117, "DTC Index"](#) (VQ37VHR) or [EC-1083, "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651, "DTC Index"](#) (VK56VD for Mexico).

Is any DTC detected?

- YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.  
 NO >> Replace ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

## 10. CHECK ICC BRAKE HOLD RELAY POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Remove ICC brake hold relay.
3. Check the voltage between ICC brake hold relay harness connector and ground.

| Terminal             |          | Voltage (Approx.) |
|----------------------|----------|-------------------|
| (+)                  | (-)      |                   |
| ICC brake hold relay |          | Ground            |
| Connector            | Terminal |                   |
| E92                  | 2        |                   |
|                      |          | Battery voltage   |

Is the inspection result normal?

- YES >> GO TO 11.  
 NO >> Repair or replace ICC brake hold relay power supply circuit.

## 11. CHECK HARNESS BETWEEN AND ICC BRAKE HOLD RELAY AND ADAS CONTROL UNIT

1. Disconnect ADAS control unit connectors.
2. Check for continuity between ICC brake hold relay harness connector and ADAS control unit harness connector.

| ICC brake hold relay |          | ADAS control unit |          | Continuity |
|----------------------|----------|-------------------|----------|------------|
| Connector            | Terminal | Connector         | Terminal |            |
| E92                  | 1        | B50               | 5        | Existed    |

3. Check for continuity between ADAS control unit harness connector and ground.

| ICC brake hold relay |          | Ground | Continuity  |
|----------------------|----------|--------|-------------|
| Connector            | Terminal |        |             |
| E92                  | 1        |        | Not existed |

Is the inspection result normal?

- YES >> GO TO 12.  
 NO >> Repair the harnesses or connectors.

## 12. CHECK ADAS CONTROL UNIT STANDARD VOLTAGE

1. Connect all connectors again if the connectors are disconnected.
2. Turn ignition switch ON.

## C1A13 STOP LAMP RELAY

[DCA]

### < DTC/CIRCUIT DIAGNOSIS >

3. Perform "STOP LAMP" on "Active Test" of "ICC/ADAS", and then check the voltage between ADAS control unit harness connector and ground.

| Terminal          |          | Condition                       | Voltage (Approx.) |
|-------------------|----------|---------------------------------|-------------------|
| (+)               | (-)      |                                 |                   |
| ADAS control unit |          | Active Test item<br>"STOP LAMP" | Battery voltage   |
| Connector         | Terminal |                                 |                   |
| B50               | 5        |                                 | Off               |
|                   |          | On                              | 0 V               |

Is the inspection result normal?

YES >> GO TO 13.

NO >> Replace ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

### 13. CHECK ICC BRAKE HOLD RELAY POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Check the voltage between ICC brake hold relay harness connector and ground.

| Terminal             |          | Condition | Voltage (Approx.) |
|----------------------|----------|-----------|-------------------|
| (+)                  | (-)      |           |                   |
| ICC brake hold relay |          | Ground    | Battery voltage   |
| Connector            | Terminal |           |                   |
| E92                  | 5        |           |                   |

Is the inspection result normal?

YES >> GO TO 14.

NO >> Repair or replace ICC brake hold relay power supply circuit.

### 14. CHECK HARNESS BETWEEN ICC BRAKE HOLD RELAY AND ECM

1. Disconnect ECM, rear combination lamp, and high-mounted stop lamp connectors and remove ICC brake hold relay.
2. Check for continuity between ICC brake hold relay harness connector and ECM harness connector.

VQ37VHR

| ICC brake hold relay |          | ECM       |          | Continuity |
|----------------------|----------|-----------|----------|------------|
| Connector            | Terminal | Connector | Terminal |            |
| E92                  | 3        | M107      | 122      | Existed    |

VK56VD

| ICC brake hold relay |          | ECM       |          | Continuity |
|----------------------|----------|-----------|----------|------------|
| Connector            | Terminal | Connector | Terminal |            |
| E92                  | 3        | M160      | 158      | Existed    |

3. Check for continuity between ICC brake hold relay harness connector and ground.

| ICC brake hold relay |          | Ground | Continuity  |
|----------------------|----------|--------|-------------|
| Connector            | Terminal |        |             |
| E92                  | 3        |        | Not existed |

Is the inspection result normal?

YES >> GO TO 15.

NO >> Repair the harnesses or connectors.

### 15. CHECK ICC BRAKE HOLD RELAY



# C1A13 STOP LAMP RELAY

[DCA]

## < DTC/CIRCUIT DIAGNOSIS >

1. Remove ICC brake hold relay.
2. Check ICC brake hold relay. Refer to [DAS-130, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 16.  
NO >> Replace ICC brake hold relay.

### 16.CHECK STOP LAMP SWITCH

Check that "STOP LAMP SW" operate normally in "DATA MONITOR" of "ABS".

Is the inspection result normal?

- YES >> GO TO 21.  
NO >> GO TO 17.

### 17.CHECK STOP LAMP SWITCH INSTALLATION

1. Turn ignition switch OFF.
2. Check stop lamp switch for correct installation. Refer to [BR-7, "Inspection and Adjustment"](#).

Is the inspection result normal?

- YES >> GO TO 18.  
NO >> Adjust stop lamp switch installation. Refer to [BR-7, "Inspection and Adjustment"](#).

### 18.CHECK STOP LAMP SWITCH

1. Disconnect stop lamp switch connector.
2. Check stop lamp switch. Refer to [DAS-119, "Component Inspection \(Stop Lamp Switch\)"](#).

Is the inspection result normal?

- YES >> GO TO 19.  
NO >> Replace stop lamp switch.

### 19.CHECK STOP LAMP SWITCH POWER SUPPLY CIRCUIT

1. Connect stop lamp switch connector.
2. Check the voltage between stop lamp switch harness connector and ground.

| Terminal         |          | Voltage<br>(Approx.) |
|------------------|----------|----------------------|
| (+)              | (-)      |                      |
| Stop lamp switch |          | Ground               |
| Connector        | Terminal |                      |
| E110             | 3        |                      |
|                  |          | Battery<br>voltage   |

Is the inspection result normal?

- YES >> GO TO 20.  
NO >> Repair or replace stop lamp switch power supply circuit.

### 20.CHECK HARNESS BETWEEN STOP LAMP SWITCH AND ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Turn the ignition switch OFF.
2. Disconnect stop lamp switch, ABS actuator and electric unit (control unit) connectors.
3. Check for continuity between the stop lamp switch harness connector and the ABS actuator and electric unit (control unit) harness connector.

| Stop lamp switch |          | ABS actuator and electric unit (control unit) |          | Continuity |
|------------------|----------|---|----------|------------|
| Connector        | Terminal | Connector                                     | Terminal |            |
| E110             | 4        | E41   | 5        | Existed    |

4. Check for continuity between stop lamp switch harness connector and ground.

# C1A13 STOP LAMP RELAY

[DCA]

< DTC/CIRCUIT DIAGNOSIS >

| Stop lamp switch |          | Ground | Continuity  |
|------------------|----------|--------|-------------|
| Connector        | Terminal |        |             |
| E110             | 4        |        | Not existed |

Is the inspection result normal?

- YES >> GO TO 21.
- NO >> Repair the harnesses or connectors.

## 21.PERFORM SELF-DIAGNOSIS OF ECM

1. Connect all connectors again if the connectors are disconnected.
2. Turn ignition switch ON.
3. Perform "All DTC Reading".
4. Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE". Refer to [EC-117, "DTC Index"](#) (VQ37VHR) or [EC-1083, "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651, "DTC Index"](#) (VK56VD for Mexico).

Is any DTC detected?

- YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.
- NO >> GO TO 22.

## 22.PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Connect all connectors again if the connectors are disconnected.
2. Turn ignition switch ON.
3. Perform "All DTC Reading".
4. Check if any DTC is detected in "Self Diagnostic Result" of "ABS". Refer to [BRC-51, "DTC Index"](#).

Is any DTC detected?

- YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.
- NO >> Replace ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

## Component Inspection

INFOID:000000007218003

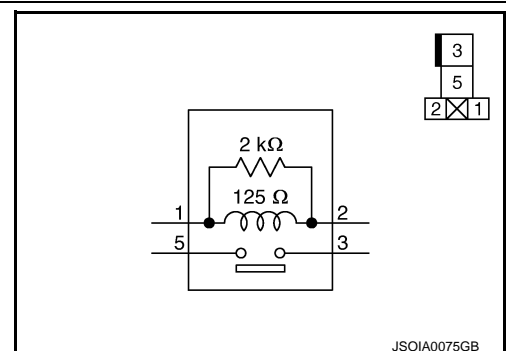
### 1.CHECK ICC BRAKE HOLD RELAY

Apply battery voltage to ICC brake hold relay terminals 1 and 2, and then check for continuity under the following conditions.

| Terminal | Condition | Continuity                              |             |
|----------|-----------|---|-------------|
| 3        | 5         | When the battery voltage is applied     | Existed     |
|          |           | When the battery voltage is not applied | Not existed |

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace ICC brake hold relay.



C1A14 ECM

DTC Logic

INFOID:000000006886174

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes   |
|---------------------------|------------------------|--------------------------|---|
| C1A14<br>(14)             | ECM CIRCUIT            | If ECM is malfunctioning | <ul style="list-style-type: none"> <li>• Accelerator pedal position sensor</li> <li>• ECM</li> <li>• ADAS control unit</li> </ul> |

**NOTE:**

If DTC "C1A14" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

**1. PERFORM DTC CONFIRMATION PROCEDURE**

1. Start the engine.
2. Operate the ICC system and drive.  
**CAUTION:**  
**Always drive safely.**
3. Stop the vehicle.
4. Perform "All DTC Reading" with CONSULT.
5. Check if the "C1A14" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A14" detected as the current malfunction?

- YES >> Refer to [DAS-131, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006886175

**1. CHECK SELF-DIAGNOSIS RESULTS**

Check if "U1000" is detected other than "C1A14" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

**2. PERFORM SELF-DIAGNOSIS OF ECM**

Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [EC-117, "DTC Index"](#) (VQ37VHR) or [EC-1083, "DTC Index"](#) or (VK56VD for USA and Canada) or [EC-1651, "DTC Index"](#) (VK56VD for Mexico).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P



# C1A15 GEAR POSITION

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A15 GEAR POSITION

### Description

INFOID:000000006886176

ADAS control unit judges the gear position based on the following signals.

- Current gear position signal transmitted from TCM via CAN communication.
- Value of gear ratio calculated from input speed signal transmitted from TCM via CAN communication.
- Value of gear ratio calculated from the vehicle speed signal transmitted from ABS actuator and electric unit (control unit) via CAN communication.

### DTC Logic

INFOID:000000006886177

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes   |
|---------------------------|------------------------|--|---|
| C1A15<br>(15)             | GEAR POSITION          | A mismatch between an current gear position signal transmitted from TCM via CAN communication and a gear position calculated by the ADAS control unit continues for approximately 11 minutes or more | <ul style="list-style-type: none"><li>• Input speed sensor</li><li>• Vehicle speed sensor A/T (output speed sensor)</li><li>• TCM</li></ul> |

#### NOTE:

If DTC "C1A15" is detected along with DTC "U1000", "C1A03", or "C1A04", first diagnose the DTC "U1000", "C1A03", or "C1A04".

- Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#) for DTC "U1000".
- Refer to [DAS-113, "DTC Logic"](#) for DTC "C1A03".
- Refer to [DAS-115, "DTC Logic"](#) for DTC "C1A04".

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Drive the vehicle at 10 km/h (6 MPH) or faster for approximately 15 minutes or more.

#### CAUTION:

**Always drive safely.**

4. Stop the vehicle.
5. Perform "All DTC Reading" with CONSULT.
6. Check if "C1A15" is detected as the current malfunction in the "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A15" detected as the current malfunction?

YES >> Refer to [DAS-132, "Diagnosis Procedure"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886178

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "C1A03", "C1A04", or "U1000" is detected other than "C1A15" in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-92, "DTC Index"](#).

NO >> GO TO 2.

#### 2. CHECK VEHICLE SPEED SIGNAL

Check that "VHCL SPEED SE" operates normally in "DATA MONITOR" of "ICC/ADAS".

#### CAUTION:

**Be careful of the vehicle speed.**

Is the inspection result normal?

# C1A15 GEAR POSITION

[DCA]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 3.
- NO >> GO TO 7.

## 3.CHECK GEAR POSITION

Check that "GEAR" operates normally in "DATA MONITOR" of "ICC/ADAS".

### CAUTION:

**Be careful of the vehicle speed.**

Is the inspection result normal?

- YES >> GO TO 5.
- NO >> GO TO 4.

## 4.CHECK GEAR POSITION SIGNAL

Check that "GEAR" operates normally in "DATA MONITOR" of "TRANSMISSION".

Is the inspection result normal?

- YES >> GO TO 5.
- NO >> GO TO 6.

## 5.CHECK INPUT SPEED SENSOR SIGNAL

Check that "INPUT SPEED" operates normally in "DATA MONITOR" of "TRANSMISSION".

Is the inspection result normal?

- YES >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).
- NO >> GO TO 6.

## 6.CHECK TCM SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading".
2. Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [TM-78. "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

## 7.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading".
2. Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51. "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## C1A16 RADAR STAIN

### DTC Logic

INFOID:000000006886179

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                       | Possible causes  |
|---------------------------|------------------------|---|--|
| C1A16<br>(16)             | RADAR STAIN            | If any stain occurs to ICC sensor body window | <ul style="list-style-type: none"> <li>Stain or foreign materials is deposited</li> <li>Cracks or scratches exist</li> </ul> |

**NOTE:**

DTC "C1A16" may be detected under the following conditions. (Explain to the customer about the difference between the contamination detection function and the indication when the malfunction is detected and tell them "This is not malfunction".)

- When contamination or foreign materials adhere to the ICC sensor body window
- When driving while it is snowing or when frost forms on the ICC sensor body window
- When ICC sensor body window is temporarily fogged

### Diagnosis Procedure

INFOID:000000006886180

#### 1. CHECK ICC SENSOR SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the "C1A16" is detected as the current malfunction in "Self Diagnostic Result" of "LASER".

Is "C1A16" detected?

- YES >> Refer to [CCS-101, "ICC SENSOR : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

1. Erase All self-diagnosis results with CONSULT.
2. Perform "All DTC Reading"
3. Check if the "C1A16" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A16" detected?

- YES >> Replace ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).  
 NO >> INSPECTION END

# C1A17 ICC SENSOR

[DCA]

< DTC/CIRCUIT DIAGNOSIS >

## C1A17 ICC SENSOR

### DTC Logic

INFOID:000000006886181

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition         | Possible causes |
|---------------------------|------------------------|---------------------------------|-----------------|
| C1A17<br>(17)             | ICC SENSOR MALF        | If ICC sensor is malfunctioning | ICC sensor      |

#### NOTE:

If DTC "C1A17" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### Diagnosis Procedure

INFOID:000000006886182

#### 1. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading" with CONSULT.
2. Check if "U1000" is detected other than "C1A17" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

NO >> GO TO 2.

#### 2. CHECK ICC SENSOR SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "LASER".

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-98, "DTC Index"](#).

NO >> Replace ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1A18 LASER AIMING INCOMP

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A18 LASER AIMING INCOMP

### DTC Logic

INFOID:000000006886183

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                         | Possible causes  |
|---------------------------|------------------------|---|--|
| C1A18<br>(18)             | LASER AIMING INCOMP    | Laser beam aiming of ICC sensor is not adjusted | <ul style="list-style-type: none"><li>• No laser beam aiming adjustment is performed</li><li>• Laser beam aiming adjustment has been interrupted</li></ul> |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A18" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A18" detected as the current malfunction?

- YES >> Refer to [DAS-136, "Diagnosis Procedure"](#).  
NO >> INSPECTION END

### Diagnosis Procedure

INFOID:000000006886184

#### 1.AJUST LASER BEAM AIMING

Check if the "C1A18" is detected in "Self Diagnostic Result" of "LASER".

Is "C1A18" detected?

- YES >> Refer to [CCS-104, "ICC SENSOR : DTC Logic"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



# C1A21 UNIT HIGH TEMP

[DCA]

< DTC/CIRCUIT DIAGNOSIS >

## C1A21 UNIT HIGH TEMP

### DTC Logic

INFOID:000000006886185

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                        | Possible causes                                |
|---------------------------|------------------------|--|--|
| C1A21<br>(21)             | ICC SENSOR HIGH TEMP   | ICC sensor judges high temperature abnormality | Temperature around the ICC sensor becomes high |

### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the ignition switch OFF.
2. Wait for 10 minutes or more to cool the ICC sensor.
3. Start the engine.
4. Turn the DCA system ON.
5. Perform "All DTC Reading" with CONSULT.
6. Check if the "C1A21" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A21" detected as the current malfunction?

- YES >> Refer to [DAS-137, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886186

### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "C1A21" is detected in "Self Diagnostic Result" of "LASER".

Is "C1A21" detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-98, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## C1A24 NP RANGE

### DTC Logic

INFOID:000000006886187

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|---------------------------|------------------------|--|--|
| C1A24<br>(24)             | NP RANGE               | A mismatch between a shift position signal transmitted from TCM via CAN communication and an current gear position signal continues for 60 seconds or more | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Transmission range switch</li> </ul> |

**NOTE:**

If DTC "C1A24" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. CHECK DTC REPRODUCE (1)

1. Start the engine.
2. Turn the DCA system ON.
3. Wait for approximately 5 minutes or more after shifting the selector lever to "P" position.
4. Perform "All DTC Reading" with CONSULT.
5. Check if the "C1A24" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A24" detected as the current malfunction?

- YES >> Refer to [DAS-138, "Diagnosis Procedure"](#).  
 NO >> GO TO 2.

#### 2. CHECK DTC REPRODUCE (2)

1. Wait for approximately 5 minutes or more after shifting the selector lever to "N" position.
2. Perform "All DTC Reading".
3. Check if the "C1A24" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A24" detected as the current malfunction?

- YES >> Refer to [DAS-138, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886188

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A24" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
 Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK NP POSITION SWITCH SIGNAL

Check that "NP RANGE SW" operates normally in "DATA MONITOR" of "ICC/ADAS".

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

#### 3. CHECK TCM DATA MONITOR

Check that "SLCT LVR POSI" operates normally in "DATA MONITOR" of "TRANSMISSION".

Is the inspection result normal?

- YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).  
 NO >> GO TO 4.

## C1A24 NP RANGE

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

### 4.PERFORM TCM SELF-DIAGNOSIS

1. Perform "All DTC Reading".
2. Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

#### Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [TM-78, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1A26 ECD MODE MALFUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A26 ECD MODE MALFUNCTION

### DTC Logic

INFOID:000000006886189

### DTC DETECTION LOGIC

| DTC<br>(On board<br>display) | Trouble diagnosis name | DTC detecting condition                         | Possible cause                                |
|------------------------------|------------------------|---|---|
| C1A26<br>(26)                | ECD MODE MALF          | If an abnormal condition occurs with ECD system | ABS actuator and electric unit (control unit) |

#### NOTE:

If DTC "C1A26" is detected along with DTC "U1000", "U0415" or "U0121" first diagnose the DTC "U1000", "U0415", or "U0121".

- DTC "U1000": Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).
- DTC "U0415": Refer to [DAS-164, "DTC Logic"](#).
- DTC "U0121": Refer to [DAS-159, "DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Wait for approximately 1 minute after turning the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A26" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A26" detected as the current malfunction?

- YES >> Refer to [DAS-140, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886190

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000", "U0415", or "U0121" is detected other than "C1A26" in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-92, "DTC Index"](#).  
NO >> GO TO 2.

#### 2. PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).  
NO >> Replace ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

# C1A27 ECD POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A27 ECD POWER SUPPLY CIRCUIT

### DTC Logic

INFOID:000000006886191

### DTC DETECTION LOGIC

| DTC<br>(On board<br>display) | Trouble diagnosis name | DTC detecting condition                            | Possible cause   |
|------------------------------|------------------------|--|--|
| C1A27<br>(27)                | ECD PWR SUPPLY CIR     | ECD system power supply voltage is excessively low | <ul style="list-style-type: none"><li>• ABS actuator and electric unit (control unit) power supply circuit</li><li>• ABS actuator and electric unit (control unit)</li></ul> |

#### NOTE:

If DTC "C1A27" is detected along with DTC "U1000", "U0415", or "U0121" first diagnose the DTC "U1000", "U0415", or "U0121".

- DTC "U1000": Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).
- DTC "U0415": Refer to [DAS-164, "DTC Logic"](#).
- DTC "U0121": Refer to [DAS-159, "DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Wait for approximately 1 minute after turning the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A27" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A27" detected as the current malfunction?

- YES >> Refer to [DAS-141, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886192

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000", "U0415" or "U0121" is detected other than "C1A27" in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-92, "DTC Index"](#).  
NO >> GO TO 2.

#### 2. CHECK POWER SUPPLY CIRCUIT OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Check power supply circuit of ABS actuator and electric unit (control unit). Refer to [BRC-119, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Perform self-diagnosis of ABS actuator and electric unit (control unit). Refer to [BRC-51, "DTC Index"](#).  
NO >> Repair the harnesses or connectors.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1A2A ICC SENSOR POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A2A ICC SENSOR POWER SUPPLY CIRCUIT

### DTC Logic

INFOID:000000006886193

### DTC DETECTION LOGIC

| DTC<br>(On board<br>display) | Trouble diagnosis name | DTC detecting condition                        | Possible cause  |
|------------------------------|------------------------|--|---|
| C1A2A<br>(80)                | ICC SEN PWR SUP CIR    | ICC sensor power supply voltage is malfunction | <ul style="list-style-type: none"><li>• Harness, connector, fuse</li><li>• ICC sensor</li></ul> |

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A2A" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A2A" detected as the current malfunction?

- YES >> Refer to [DAS-142, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886194

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A2A" in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK ICC SENSOR SELF-DIAGNOSIS

Check if any DTC is detected in "Self Diagnostic Result" of "LASER".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-98, "DTC Index"](#).  
NO >> Replace ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

# C1A33 CAN TRANSMISSION ERROR

[DCA]

< DTC/CIRCUIT DIAGNOSIS >

## C1A33 CAN TRANSMISSION ERROR

### DTC Logic

INFOID:000000006886195

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name  | DTC detecting condition  | Possible causes   |
|---------------------------|-------------------------|--|-------------------|
| C1A33<br>(33)             | CAN TRANSMISSION<br>ERR | If an error occurs in the CAN communication signal that ADAS control unit transmits to ECM | ADAS control unit |

#### NOTE:

If DTC "C1A33" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A33" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A33" detected as the current malfunction?

- YES >> Refer to [DAS-143, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886196

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A33" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1A34 COMMAND ERROR

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A34 COMMAND ERROR

### DTC Logic

INFOID:000000006886197

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes   |
|---------------------------|------------------------|--|-------------------|
| C1A34<br>(34)             | COMMAND ERROR          | If an error occurs in the command signal that ADAS control unit transmits to ECM via CAN communication | ADAS control unit |

#### NOTE:

If DTC "C1A34" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Operate the ICC system and drive.  
**CAUTION:**  
**Always drive safely.**
3. Stop the vehicle.
4. Perform "All DTC Reading" with CONSULT.
5. Check if the "C1A34" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A34" detected as the current malfunction?

YES >> Refer to [DAS-144, "Diagnosis Procedure"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886198

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A34" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



# C1A35 ACCELERATOR PEDAL ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A35 ACCELERATOR PEDAL ACTUATOR

### DTC Logic

INFOID:000000006886199

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                             | Possible causes            |
|---------------------------|------------------------|---|----------------------------|
| C1A35<br>(35)             | APA CIR                | If the accelerator pedal actuator is malfunctioning | Accelerator pedal actuator |

#### NOTE:

If DTC "C1A35" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### Diagnosis Procedure

INFOID:000000006886200

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A35" is detected as the current malfunction in self-diagnosis results of "ICC/ADAS".

Is "C1A35" detected as the current malfunction?

- YES >> GO TO 2.  
NO >> INSPECTION END

#### 2. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A35" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 3.

#### 3. CHECK ACCELERATOR PEDAL ACTUATOR SELF-DIAGNOSIS RESULTS

Check if the DTC is detected in "Self Diagnostic Result" of "ACCELE PEDAL ACT".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-101, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1A36 ACCELERATOR PEDAL ACTUATOR CAN COMM

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A36 ACCELERATOR PEDAL ACTUATOR CAN COMM

### DTC Logic

INFOID:000000006886201

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes   |
|---------------------------|------------------------|--|---|
| C1A36<br>(36)             | APA CAN COMM CIR       | If an error occurs in the signal that the accelerator pedal actuator transmits via ITS communication | <ul style="list-style-type: none"><li>• ADAS control unit</li><li>• Accelerator pedal actuator</li><li>• ITS communication system</li></ul> |

#### NOTE:

If DTC "C1A36" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A36" is detected as the current malfunction in self-diagnosis results of "ICC/ADAS".

Is "C1A36" detected as the current malfunction?

- YES >> Refer to [DAS-146, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886202

#### 1. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A36" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK ACCELERATOR PEDAL ACTUATOR SELF-DIAGNOSIS RESULTS

Check if the DTC is detected in "Self Diagnostic Result" of "ACCELE PEDAL ACT".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-101, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

# C1A37 ACCELERATOR PEDAL ACTUATOR CAN 2

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A37 ACCELERATOR PEDAL ACTUATOR CAN 2

### DTC Logic

INFOID:000000006886203

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes                        |
|---------------------------|------------------------|---|--|
| C1A37<br>(133)            | APA CAN CIR2           | If ADAS control unit detects an error signal that is received from accelerator pedal actuator via ITS communication | Accelerator pedal actuator malfunction |

#### NOTE:

If DTC "C1A37" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A37" is detected as the current malfunction in self-diagnosis results of "ICC/ADAS".

Is "C1A37" detected as the current malfunction?

- YES >> Refer to [DAS-147, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886204

#### 1. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A37" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. REPLACE ACCELERATOR PEDAL ASSEMBLY

1. Turn the ignition switch OFF.
2. Replace the accelerator pedal assembly.
3. Turn the ignition switch ON.
4. Erases All self-diagnosis results.
5. Perform "All DTC Reading" again.
6. Check if the DTC "C1A37" is detected in self-diagnosis results of "ICC/ADAS".

Is "C1A37" detected?

- YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).  
NO >> INSPECTION END

DAS

# C1A38 ACCELERATOR PEDAL ACTUATOR CAN 1

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A38 ACCELERATOR PEDAL ACTUATOR CAN 1

### DTC Logic

INFOID:000000006886205

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes                        |
|---------------------------|------------------------|---|--|
| C1A38<br>(132)            | APA CAN CIR1           | If ADAS control unit detects an error signal that is received from accelerator pedal actuator via ITS communication | Accelerator pedal actuator malfunction |

#### NOTE:

If DTC "C1A38" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A38" is detected as the current malfunction in self-diagnosis results of "ICC/ADAS".

Is "C1A38" detected as the current malfunction?

- YES >> Refer to [DAS-148, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886206

#### 1. CHECK CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A38" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. REPLACE ACCELERATOR PEDAL ASSEMBLY

1. Turn the ignition switch OFF.
2. Replace the accelerator pedal assembly.
3. Erases All self-diagnosis results.
4. Perform "All DTC Reading" again.
5. Check if the "C1A38" is detected in self-diagnosis results of "ICC/ADAS".

Is "C1A38" detected?

- YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).  
NO >> INSPECTION END

# C1A39 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1A39 STEERING ANGLE SENSOR

### DTC Logic

INFOID:000000006886207

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                     | Possible causes       |
|---------------------------|------------------------|---|-----------------------|
| C1A39<br>(39)             | STRG SEN CIR           | If the steering angle sensor is malfunction | Steering angle sensor |

#### NOTE:

If DTC "C1A39" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A39" is detected as the current malfunction in self-diagnosis results of "ICC/ADAS".

Is "C1A39" detected as the current malfunction?

- YES >> Refer to [DAS-149, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886208

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A39" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1F01 ACCELERATOR PEDAL ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1F01 ACCELERATOR PEDAL ACTUATOR ADAS CONTROL UNIT

ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886209

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                                   | Possible causes   |
|---------------------------|------------------------|---|---|
| C1F01<br>(91)             | APA MOTOR MALF         | If the accelerator pedal actuator motor error is detected | Accelerator pedal actuator integrated motor malfunction |

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the ignition switch OFF.
2. Turn the ignition switch ON.
3. Slowly depress the accelerator pedal completely, and then release it.
4. Repeat step 3 several times.
5. Perform "All DTC Reading" with CONSULT.
6. Check if the DTC "C1F01" is detected as the current malfunction on the self-diagnosis results of "ICC/ADAS".

Is "C1F01" detected as the current malfunction?

- YES >> Refer to [DAS-150, "ADAS CONTROL UNIT : Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886210

#### 1. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1F01" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK ACCELERATOR PEDAL ACTUATOR SELF-DIAGNOSIS RESULTS

Check if "C1F01" is detected in "Self Diagnostic Result" of "ACCELE PEDAL ACT".

Is "C1F01" detected?

- YES >> Refer to [DAS-101, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

## ACCELERATOR PEDAL ACTUATOR

ACCELERATOR PEDAL ACTUATOR : DTC Logic

INFOID:000000006886211

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition                                   | Possible causes   |
|-------|------------------------|---|---|
| C1F01 | APA MOTOR MALF         | If the accelerator pedal actuator motor error is detected | Accelerator pedal actuator integrated motor malfunction |

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the ignition switch OFF.
2. Turn the ignition switch ON.
3. Slowly depress the accelerator pedal completely, and then release it.

# C1F01 ACCELERATOR PEDAL ACTUATOR

[DCA]

< DTC/CIRCUIT DIAGNOSIS >

4. Repeat step 3 several times.
5. Perform "All DTC Reading" with CONSULT.
6. Check if the DTC "C1F01" is detected as the current malfunction on the self-diagnosis results of "ICC/ADAS" or "ACCELE PEDAL ACT".

Is "C1F01" detected as the current malfunction?

YES >> Refer to [DAS-151, "ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

## ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure

INFOID:000000006886212

### 1. REPLACE ACCELERATOR PEDAL ASSEMBLY

Perform DTC confirmation procedure. If "C1F01" is detected, replace the accelerator pedal assembly. Refer to [DAS-196, "Exploded View"](#).

>> INSPECTION END

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1F02 ACCELERATOR PEDAL ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1F02 ACCELERATOR PEDAL ACTUATOR ADAS CONTROL UNIT

ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886213

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes  |
|---------------------------|------------------------|---|--|
| C1F02<br>(92)             | APA C/U MALF           | If the accelerator pedal actuator integrated control unit error is detected | Accelerator pedal actuator integrated control unit malfunction |

### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1F02" is detected as the current malfunction on the self-diagnosis results of "ICC/ADAS".

Is "C1F02" detected as the current malfunction?

- YES >> Refer to [DAS-152, "ADAS CONTROL UNIT : Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886214

### 1. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1F02" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

### 2. CHECK ACCELERATOR PEDAL ACTUATOR SELF-DIAGNOSIS RESULTS

Check if "C1F02" is detected in "Self Diagnostic Result" of "ACCELE PEDAL ACT".

Is "C1F02" detected?

- YES >> Refer to [DAS-101, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

## ACCELERATOR PEDAL ACTUATOR

ACCELERATOR PEDAL ACTUATOR : DTC Logic

INFOID:000000006886215

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes  |
|-------|------------------------|---|--|
| C1F02 | APA C/U MALF           | If the accelerator pedal actuator integrated control unit error is detected | Accelerator pedal actuator integrated control unit malfunction |

### ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure

INFOID:000000006886216

### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1F02" is detected as the current malfunction on the self-diagnosis results of "ACCELE PEDAL ACT" or "ICC/ADAS".

Is "C1F02" detected as the current malfunction?



# C1F02 ACCELERATOR PEDAL ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

YES >> Replace the accelerator pedal assembly. Refer to [DAS-196. "Exploded View"](#).  
NO >> INSPECTION END

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1F03 ACCELERATOR PEDAL ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1F03 ACCELERATOR PEDAL ACTUATOR

### DTC Logic

INFOID:000000006886217

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|-------|------------------------|---|---|
| C1F03 | APA HI TEMP            | <ul style="list-style-type: none"><li>The temperature of the motor integrated in the accelerator pedal actuator remains 100°C (212°F) or more for 0.4 seconds or more.</li><li>The temperature of the motor drive circuit integrated in the accelerator pedal actuator remains 120°C (248°F) or more for 0.4 seconds or more.</li></ul> | Accelerator pedal actuator integrated motor malfunction |

#### NOTE:

When the accelerator pedal actuator operates excessively, "C1F03" may be detected temporarily.

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

- Turn the ignition switch OFF.
- Wait for 10 minutes or more and cool the accelerator pedal actuator integrated motor.
- Drive the vehicle with DCA system ON and operate the system.  
**CAUTION:**  
**Always drive safely.**
- Stop the vehicle.
- Perform "All DTC Reading" with CONSULT.
- Check if the DTC "C1F03" is detected as the current malfunction in self-diagnosis results of "ACCELERATOR PEDAL ACT".

Is "C1F03" detected as the current malfunction?

- YES >> Refer to [DAS-154, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886218

#### 1. REPLACE ACCELERATOR PEDAL ASSEMBLY

Perform DTC confirmation procedure. If "C1F03" is detected, replace the accelerator pedal assembly. Refer to [DAS-196, "Exploded View"](#).

>> INSPECTION END

# C1F05 ACCELERATOR PEDAL ACTUATOR POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1F05 ACCELERATOR PEDAL ACTUATOR POWER SUPPLY CIRCUIT ADAS CONTROL UNIT

ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886219

### DTC DETECTION LOGIC

| DTC<br>(On board<br>display) | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|------------------------------|------------------------|--|--|
| C1F05<br>(95)                | APA PWR SUPPLY CIR     | The battery voltage sent to accelerator pedal actuator remains less than 7.9 V or more than 19.3 V for 5 seconds | <ul style="list-style-type: none"><li>• Harness, connector, or fuse</li><li>• Accelerator pedal actuator</li></ul> |

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1F05" is detected as the current malfunction on the self-diagnosis results of "ICC/ADAS".

Is "C1F05" detected as the current malfunction?

YES >> Refer to [DAS-155, "ADAS CONTROL UNIT : Diagnosis Procedure"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886220

#### 1. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1F05" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

NO >> GO TO 2.

#### 2. CHECK ACCELERATOR PEDAL ACTUATOR SELF-DIAGNOSIS RESULTS

Check if "C1F05" is detected in "Self Diagnostic Result" of "ACCELE PEDAL ACT".

Is "C1F05" detected?

YES >> Refer to [DAS-166, "ACCELERATOR PEDAL ACTUATOR : DTC Logic"](#).

NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

## ACCELERATOR PEDAL ACTUATOR

ACCELERATOR PEDAL ACTUATOR : DTC Logic

INFOID:000000006886221

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|-------|------------------------|--|--|
| C1F05 | APA PWR SUPPLY CIR     | The battery voltage sent to accelerator pedal actuator remains less than 7.9 V or more than 19.3 V for 5 seconds | <ul style="list-style-type: none"><li>• Harness, connector, or fuse</li><li>• Accelerator pedal actuator</li></ul> |

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.

# C1F05 ACCELERATOR PEDAL ACTUATOR POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

4. Check if the "C1F05" is detected as the current malfunction on the self-diagnosis results of "ACCELERATOR PEDAL ACT".

Is "C1F05" detected as the current malfunction?

YES >> Refer to [DAS-167, "ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

## ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure

INFOID:000000006886222

### 1. CHECK POWER SUPPLY CIRCUIT

Check the accelerator pedal actuator power supply circuit. Refer to [DAS-178, "ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the accelerator pedal assembly. Refer to [DAS-196, "Exploded View"](#).

NO >> Repair or replace the malfunctioning parts.

# C1F06 CAN CIRCUIT2

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1F06 CAN CIRCUIT2

### DTC Logic

INFOID:000000006886223

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|-------|------------------------|---|-------------------|
| C1F06 | CAN CIR 2              | If accelerator pedal actuator detects an error signal that is received from ADAS control unit via ITS communication | ADAS control unit |

#### NOTE:

If DTC "C1F06" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ACCELERATOR PEDAL ACTUATOR : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1F06" is detected as the current malfunction in "Self Diagnostic Result" of "ACCELE PEDAL ACT".

Is "C1F06" detected as the current malfunction?

- YES >> Refer to [DAS-157, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886224

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1F06" in "Self Diagnostic Result" of "ACCELE PEDAL ACT".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-166, "ACCELERATOR PEDAL ACTUATOR : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. REPLACE ADAS CONTROL UNIT

1. Turn the ignition switch OFF.
2. Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).
3. Erases All self-diagnosis results.
4. Perform "All DTC Reading" again.
5. Check if the "C1F06" is detected in self-diagnosis results of "ACCELE PEDAL ACT".

Is "C1F06" detected?

- YES >> Replace the accelerator pedal assembly. Refer to [DAS-196, "Exploded View"](#).  
NO >> INSPECTION END

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1F07 CAN CIRCUIT1

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## C1F07 CAN CIRCUIT1

### DTC Logic

INFOID:000000006886225

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|-------|------------------------|---|-------------------|
| C1F07 | CAN CIR 1              | If accelerator pedal actuator detects an error signal that is received from ADAS control unit via ITS communication | ADAS control unit |

#### NOTE:

If DTC "C1F07" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ACCELERATOR PEDAL ACTUATOR : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1F07" is detected as the current malfunction in "Self Diagnostic Result" of "ACCELE PEDAL ACT".

Is "C1F07" detected as the current malfunction?

- YES >> Refer to [DAS-157, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886226

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1F07" in "Self Diagnostic Result" of "ACCELE PEDAL ACT".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-166, "ACCELERATOR PEDAL ACTUATOR : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. REPLACE ADAS CONTROL UNIT

1. Turn the ignition switch OFF.
2. Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).
3. Erases All self-diagnosis results.
4. Perform "All DTC Reading" again.
5. Check if the "C1F07" is detected in self-diagnosis results of "ACCELE PEDAL ACT".

Is "C1F07" detected?

- YES >> Replace the accelerator pedal assembly. Refer to [DAS-196, "Exploded View"](#).  
NO >> INSPECTION END

U0121 VDC CAN 2

DTC Logic

INFOID:000000006886227

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes                               |
|---------------------------|------------------------|--|---|
| U0121<br>(127)            | VDC CAN CIR2           | If ADAS control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication | ABS actuator and electric unit (control unit) |

**NOTE:**

If DTC "U0121" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

**1. PERFORM DTC CONFIRMATION PROCEDURE**

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0121" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0121" detected as the current malfunction?

- YES >> Refer to [DAS-159, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006886228

**1. CHECK SELF-DIAGNOSIS RESULTS**

Check if "U1000" is detected other than "U0121" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

**2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS**

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

## U0126 STRG SEN CAN 1

### DTC Logic

INFOID:000000006886229

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes       |
|---------------------------|------------------------|--|-----------------------|
| U0126<br>(130)            | STRG SEN CAN CIR1      | If ADAS control unit detects an error signal that is received from steering angle sensor via CAN communication | Steering angle sensor |

**NOTE:**

If DTC "U0126" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0126" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0126" detected as the current malfunction?

- YES >> Refer to [DAS-160, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886230

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0126" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



# U0235 ICC SENSOR CAN 1

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## U0235 ICC SENSOR CAN 1

### DTC Logic

INFOID:000000006886231

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U0235<br>(144)            | ICC SENSOR CAN<br>CIR1 | If ADAS control unit detects an error signal that is received from ICC sensor via ITS communication | ICC sensor      |

#### NOTE:

If DTC "U0235" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0235" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0235" detected as the current malfunction?

- YES >> Refer to [DAS-161, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886232

#### 1. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0235" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-161, "DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK ICC SENSOR SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "LASER".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-98, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## U0401 ECM CAN 1

### DTC Logic

INFOID:000000006886233

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes |
|---------------------------|------------------------|--|-----------------|
| U0401<br>(120)            | ECM CAN CIR1           | If ADAS control unit detects an error signal that is received from ECM via CAN communication | ECM             |

**NOTE:**

If DTC "U0401" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0401" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0401" detected as the current malfunction?

- YES >> Refer to [DAS-162, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886234

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK ECM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [EC-117, "DTC Index"](#) (VQ37VHR) or [EC-1083, "DTC Index"](#) or (VK56VD for USA and Canada) or [EC-1651, "DTC Index"](#) (VK56VD for Mexico).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

U0402 TCM CAN 1

DTC Logic

INFOID:000000006886235

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes |
|---------------------------|------------------------|--|-----------------|
| U0402<br>(122)            | TCM CAN CIRC1          | If ADAS control unit detects an error signal that is received from TCM via CAN communication | TCM             |

**NOTE:**

If DTC "U0402" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

**1**.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0402" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0402" detected as the current malfunction?

- YES >> Refer to [DAS-163, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006886236

**1**.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0402" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

**2**.CHECK TCM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [TM-78, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

## U0415 VDC CAN 1

### DTC Logic

INFOID:000000006886237

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes                               |
|---------------------------|------------------------|--|---|
| U0415<br>(126)            | VDC CAN CIR1           | If ADAS control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication | ABS actuator and electric unit (control unit) |

**NOTE:**

If DTC "U0415" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

#### DTC CONFIRMATION PROCEDURE

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0415" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0415" detected as the current malfunction?

- YES >> Refer to [DAS-164, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

#### Diagnosis Procedure

INFOID:000000006886238

##### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0415" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

##### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

U0428 STRG SEN CAN 2

DTC Logic

INFOID:000000006886239

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes       |
|---------------------------|------------------------|--|-----------------------|
| U0428<br>(131)            | STRG SEN CAN CIR2      | If ADAS control unit detects an error signal that is received from steering angle sensor via CAN communication | Steering angle sensor |

**NOTE:**

If DTC "U0428" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

**1**.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0428" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0428" detected as the current malfunction?

- YES >> Refer to [DAS-165, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006886240

**1**.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0428" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

**2**.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



# U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## U1000 CAN COMM CIRCUIT ADAS CONTROL UNIT

### ADAS CONTROL UNIT : Description

INFOID:000000006886241

#### CAN COMMUNICATION

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control units, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads the required data only.

CAN communication signal chart. Refer to [LAN-35. "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

#### ITS COMMUNICATION

- ITS communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speed by connecting control units with 2 communication lines.
- ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

### ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886242

#### DTC DETECTION LOGIC

| DTC<br>(On board<br>display) | Trouble diagnosis name | DTC detecting condition  | Possible causes   |
|------------------------------|------------------------|--|---|
| U1000<br>(100)               | CAN COMM CIRCUIT       | If ADAS control unit is not transmitting or receiving CAN communication signal or ITS communication signal for 2 seconds or more | <ul style="list-style-type: none"><li>• CAN communication system</li><li>• ITS communication system</li></ul> |

#### NOTE:

If "U1000" is detected, first diagnose the CAN communication system.

### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886243

#### 1. PERFORM THE SELF-DIAGNOSIS

1. Turn the ignition switch ON.
2. Turn the DCA system ON, and then wait for 30 seconds or more.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1000" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected as the current malfunction?

YES >> Refer to [LAN-25. "Trouble Diagnosis Flow Chart"](#).

NO >> Refer to [GI-44. "Intermittent Incident"](#).

## ACCELERATOR PEDAL ACTUATOR

### ACCELERATOR PEDAL ACTUATOR : Description

INFOID:000000006886244

#### ITS COMMUNICATION

- ITS communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speed by connecting control units with 2 communication lines.
- ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

### ACCELERATOR PEDAL ACTUATOR : DTC Logic

INFOID:000000006886245

#### DTC DETECTION LOGIC

# U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes          |
|-------|------------------------|---|--------------------------|
| U1000 | CAN COMM CIRCUIT       | If accelerator pedal actuator is not transmitting or receiving ITS communication signal for 2 seconds or more | ITS communication system |

## ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure

INFOID:000000006886246

### 1. PERFORM THE SELF-DIAGNOSIS

1. Turn the ignition switch ON.
2. Turn the DCA system ON, and then wait for 2 seconds or more.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1000" is detected as the current malfunction in "Self Diagnostic Result" of "ACCELERATOR PEDAL ACT".

Is "U1000" detected as the current malfunction?

- YES >> Refer to [LAN-25. "Trouble Diagnosis Flow Chart"](#).  
NO >> Refer to [GI-44. "Intermittent Incident"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## U1010 CONTROL UNIT (CAN)

### ADAS CONTROL UNIT

#### ADAS CONTROL UNIT : Description

INFOID:000000006886247

CAN controller controls the communication of CAN communication signal and ITS communication signal, and the error detection.

#### ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886248

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes   |
|---------------------------|------------------------|--|-------------------|
| U1010<br>(110)            | CONTROL UNIT (CAN)     | If ADAS control unit detects malfunction by CAN controller initial diagnosis | ADAS control unit |

#### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886249

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the DCA system ON.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "U1010" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1010" detected as the current malfunction?

YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

NO >> INSPECTION END

### ACCELERATOR PEDAL ACTUATOR

#### ACCELERATOR PEDAL ACTUATOR : Description

INFOID:000000006886250

CAN controller controls the communication of ITS communication signal and the error detection.

#### ACCELERATOR PEDAL ACTUATOR : DTC Logic

INFOID:000000006886251

#### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes            |
|-------|------------------------|---|----------------------------|
| U1010 | CONTROL UNIT (CAN)     | If accelerator pedal actuator detects malfunction by CAN controller initial diagnosis | Accelerator pedal actuator |

#### ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure

INFOID:000000006886252

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the DCA system ON.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "U1010" is detected as the current malfunction in "Self Diagnostic Result" of "ACCELERATOR PEDAL ACT".

Is "U1010" detected as the current malfunction?

YES >> Replace the accelerator pedal actuator. Refer to [DAS-196, "Exploded View"](#).

NO >> INSPECTION END



U150B ECM CAN 3

DTC Logic

INFOID:000000006886253

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U150B<br>(157)            | ECM CAN CIRC 3         | ADAS control unit detects an error signal that is received from ECM via CAN communication | ECM             |

**NOTE:**

If DTC "U150B" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U150B" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U150B" detected as the current malfunction?

- YES >> Refer to [DAS-169, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006886254

1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U150B" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

2. CHECK ECM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [EC-117, "DTC Index"](#) (VQ37VHR) or [EC-1083, "DTC Index"](#) or (VK56VD for USA and Canada) or [EC-1651, "DTC Index"](#) (VK56VD for Mexico).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

DAS

## U150C VDC CAN 3

### DTC Logic

INFOID:000000006886255

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes                               |
|---------------------------|------------------------|---|---|
| U150C<br>(158)            | VDC CAN CIRC 3         | ADAS control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication | ABS actuator and electric unit (control unit) |

**NOTE:**

If DTC "U150C" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U150C" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U150C" detected as the current malfunction?

- YES >> Refer to [DAS-170, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886256

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U150C" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

# U150D TCM CAN 3

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## U150D TCM CAN 3

### DTC Logic

INFOID:000000006886257

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U150D<br>(159)            | TCM CAN CIRC 3         | ADAS control unit detects an error signal that is received from TCM via CAN communication | TCM             |

#### NOTE:

If DTC "U150D" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U150D" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U150D" detected as the current malfunction?

- YES >> Refer to [DAS-171, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886258

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U150D" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK TCM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [TM-78, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## U150E BCM CAN 3

### DTC Logic

INFOID:000000006886259

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U150E<br>(160)            | BCM CAN CIRC 3         | ADAS control unit detects an error signal that is received from BCM via CAN communication | BCM             |

**NOTE:**

If DTC "U150E" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166. "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U150E" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U150E" detected as the current malfunction?

- YES >> Refer to [DAS-172. "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44. "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886260

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U150E" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
 Refer to [DAS-166. "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK BCM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "BCM".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BCS-57. "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

# U1502 ICC SENSOR CAN COMM CIRC

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## U1502 ICC SENSOR CAN COMM CIRC

### DTC Logic

INFOID:000000006886261

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name  | DTC detecting condition  | Possible causes |
|---------------------------|-------------------------|--|-----------------|
| U1502<br>(147)            | ICC SEN CAN COMM<br>CIR | ADAS control unit detects an error signal that is received from ICC sensor via ITS communication | ICC sensor      |

#### NOTE:

If DTC "U1502" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1502" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1502" detected as the current malfunction?

- YES >> Refer to [DAS-173, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886262

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1502" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK ICC SENSOR SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "LASER".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-98, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# U1513 METER CAN 3

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## U1513 METER CAN 3

### DTC Logic

INFOID:000000006886263

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|---------------------------|------------------------|---|-------------------|
| U1513<br>(163)            | METER CAN CIRC 3       | ADAS control unit detects an error signal that is received from combination meter via CAN communication | Combination meter |

#### NOTE:

If DTC "U1513" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1513" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1513" detected as the current malfunction?

- YES >> Refer to [DAS-174, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886264

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1513" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK COMBINATION METER SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "METER/M&A".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [MWI-44, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

## U1514 STRG SEN CAN 3

### DTC Logic

INFOID:000000006886265

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes       |
|---------------------------|------------------------|---|-----------------------|
| U1514<br>(164)            | STRG SEN CAN CIRC 3    | ADAS control unit detects an error signal that is received from steering angle sensor via CAN communication | Steering angle sensor |

**NOTE:**

If DTC "U1514" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1514" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1514" detected as the current malfunction?

- YES >> Refer to [DAS-175, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886265

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1514" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



## U1515 ICC SENSOR CAN 3

### DTC Logic

INFOID:000000006886267

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name   | DTC detecting condition  | Possible causes |
|---------------------------|--------------------------|--|-----------------|
| U1515<br>(165)            | ICC SENSOR CAN<br>CIRC 3 | ADAS control unit detects an error signal that is received from ICC sensor via ITS communication | ICC sensor      |

**NOTE:**

If DTC "U1515" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

#### DTC CONFIRMATION PROCEDURE

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1515" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1515" detected as the current malfunction?

- YES >> Refer to [DAS-176, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

#### Diagnosis Procedure

INFOID:000000006886268

##### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1515" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

##### 2. CHECK ICC SENSOR SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "LASER".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-98, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



# U1517 ACCELERATOR PEDAL ACTUATOR CAN 3

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## U1517 ACCELERATOR PEDAL ACTUATOR CAN 3

### DTC Logic

INFOID:000000006886269

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes            |
|---------------------------|------------------------|--|----------------------------|
| U1517<br>(167)            | APA CAN CIRC 3         | ADAS control unit detects an error signal that is received from accelerator pedal actuator via ITS communication | Accelerator pedal actuator |

#### NOTE:

If DTC "U1517" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1517" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1517" detected as the current malfunction?

- YES >> Refer to [DAS-177, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886270

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1517" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-51, "DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK ACCELERATOR PEDAL ACTUATOR SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ACCELE PEDAL ACT".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-101, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

DAS

# POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DCA]

## POWER SUPPLY AND GROUND CIRCUIT ADAS CONTROL UNIT

### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886271

#### 1.CHECK FUSES

Check if any of the following fuses are blown:

| Signal name           | Fuse No. |
|-----------------------|----------|
| Ignition power supply | 46       |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

#### 2.CHECK ADAS CONTROL UNIT POWER SUPPLY CIRCUIT

Check voltage between ADAS control unit harness connector and ground.

| Terminal          |          | Condition       | Voltage (Approx.) |
|-------------------|----------|-----------------|-------------------|
| (+)               | (-)      |                 |                   |
| ADAS control unit |          | Ignition switch | 0 V               |
| Connector         | Terminal |                 |                   |
| B50               | 16       | OFF             |                   |
|                   |          | ON              |                   |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the ADAS control unit power supply circuit.

#### 3.CHECK ADAS CONTROL UNIT GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the ADAS control unit connector.
3. Check for continuity between ADAS control unit harness connector and ground.

| ADAS control unit |          | Ground | Continuity |
|-------------------|----------|--------|------------|
| Connector         | Terminal |        |            |
| B50               | 6        |        | Existed    |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair the ADAS control unit ground circuit.

## ACCELERATOR PEDAL ACTUATOR

### ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure

INFOID:000000006886272

#### 1.CHECK FUSES

Check if any of the following fuses are blown:

| Signal name           | Fuse No. |
|-----------------------|----------|
| Battery power supply  | 63       |
| Ignition power supply | 46       |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

# POWER SUPPLY AND GROUND CIRCUIT

[DCA]

< DTC/CIRCUIT DIAGNOSIS >

## 2. CHECK ACCELERATOR PEDAL ACTUATOR POWER SUPPLY CIRCUIT

Check voltage between accelerator pedal actuator harness connector and ground.

| Terminal                   |          | Condition          | Voltage<br>(Approx.) |
|----------------------------|----------|--------------------|----------------------|
| (+)                        | (-)      |                    |                      |
| Accelerator pedal actuator |          | Ignition<br>switch | Battery volt-<br>age |
| Connector                  | Terminal |                    |                      |
| M152                       | 1        |                    |                      |
|                            | 3        |                    |                      |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the accelerator pedal actuator power supply circuit.

## 3. CHECK ACCELERATOR PEDAL ACTUATOR GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the accelerator pedal actuator connector.
3. Check for continuity between accelerator pedal actuator harness connector and ground.

| Accelerator pedal actuator |          | Ground | Continuity |
|----------------------------|----------|--------|------------|
| Connector                  | Terminal |        |            |
| M152                       | 2        |        | Existed    |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair the accelerator pedal actuator ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DISTANCE CONTROL ASSIST SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[DCA]

## SYMPTOM DIAGNOSIS

### DISTANCE CONTROL ASSIST SYSTEM SYMPTOMS

#### Symptom Table

INFOID:000000006886273

|                           | Symptoms   | Reference page   |
|---------------------------|--|--|
| Operation                 | Switch does not turn ON  | Refer to <a href="#">DAS-181, "Description"</a> .  |
|                           | Switch does not turn OFF   |  |
|                           | DCA system setting cannot be turned ON on the navigation screen      | Refer to <a href="#">DAS-183, "Description"</a> .  |
|                           | DCA system setting cannot be turned OFF on the navigation screen     |  |
|                           | DCA system not activated (switch is ON)                              | Refer to <a href="#">DAS-184, "Description"</a> .  |
| Display/Chime             | Information display is not illuminated (vehicle ahead indicator)     | Refer to <a href="#">MWI-30, "On Board Diagnosis Function"</a> .   |
|                           | Chime does not sound   | Refer to <a href="#">DAS-186, "Description"</a> .  |
| Control                   | No force generated for putting back the accelerator pedal            | Refer to <a href="#">DAS-188, "Description"</a> .  |
| Detection of lead vehicle | Frequently cannot detect the vehicle ahead                           | Refer to <a href="#">DAS-189, "Description"</a> .  |
|                           | Detection zone is short  |  |
|                           | System misidentifies a vehicle even though there is no vehicle ahead | <ul style="list-style-type: none"> <li>• Adjust laser beam aiming: Refer to <a href="#">CCS-65, "Description"</a>.</li> <li>• Perform action test. Refer to <a href="#">DAS-110, "Description"</a>.</li> </ul> |
|                           | System misidentifies a vehicle in the next lane                      |  |
|                           | System does not detect the vehicle ahead at all                      | Refer to <a href="#">DAS-191, "Description"</a> .  |

# SWITCH DOES NOT TURN ON / SWITCH DOES NOT TURN OFF

< SYMPTOM DIAGNOSIS >

[DCA]

## SWITCH DOES NOT TURN ON / SWITCH DOES NOT TURN OFF

### Description

INFOID:000000006886274

The switch does not turn ON

- When the DCA system setting is ON, the DCA system switch indicator does not illuminate even if the dynamic driver assistance switch is depressed.

The switch does not turn OFF

- The DCA system switch indicator does not turn off even if the dynamic driver assistance switch is pressed when the DCA system switch indicator illuminates.

#### NOTE:

The system cannot be operated when setting conventional (fixed speed) cruise control mode.

### Diagnosis Procedure

INFOID:000000006886275

#### 1. CHECK DCA SYSTEM SETTING

1. Start the engine.
2. After starting the engine wait for 5 seconds or more.
3. Check that DCA system setting on the navigation screen is ON.

Is DCA system setting ON?

- YES >> GO TO 2.  
NO >> Enable the DCA system setting.

#### 2. DYNAMIC DRIVER ASSISTANCE SWITCH INSPECTION

1. Start the engine.
2. Check that "DYNA ASIST SW" operates normally in "DATA MONITOR" of "ICC/ADAS" with CONSULT.

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> GO TO 5.

#### 3. CHECK DCA SYSTEM SWITCH INDICATOR CIRCUIT

1. Start the engine.
2. Select the active test item "DCA INDICATOR" of "ICC/ADAS" with CONSULT.
3. Check if the DCA system switch indicator illuminates when the test item is operated.

Is the inspection result normal?

- YES >> GO TO 6.  
NO >> GO TO 4.

#### 4. PERFORM THE SELF-DIAGNOSIS OF COMBINATION METER

1. Perform "All DTC Reading" with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "METER/M&A". Refer to [MWI-44, "DTC Index"](#).

Is any DTC detected?

- YES >> GO TO 7.  
NO >> GO TO 6.

#### 5. CHECK STEERING SWITCH CIRCUIT

Check the steering switch circuit. Refer to [DAS-121, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 6.  
NO >> GO TO 7.

#### 6. PERFORM THE SELF-DIAGNOSIS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "ICC/ADAS". Refer to [DAS-92, "DTC Index"](#).

Is any DTC detected?

- YES >> GO TO 7.

## SWITCH DOES NOT TURN ON / SWITCH DOES NOT TURN OFF

< SYMPTOM DIAGNOSIS >

[DCA]

---

NO >> GO TO 8.

### 7.REPAIR OR REPLACE MALFUNCTIONING PARTS.

---

Repair or replace malfunctioning parts.

>> GO TO 8.

### 8.CHECK DCA SYSTEM

---

1. Erase "self-diagnosis result", and then perform "All DTC Reading" again after performing the action test.  
(Refer to [DAS-110. "Description"](#) for action test.)
2. Check that the DCA system is normal.

>> INSPECTION END

# DCA SYSTEM SETTINGS CANNOT BE TURNED ON/OFF ON THE NAVIGATION SCREEN

< SYMPTOM DIAGNOSIS >

[DCA]

## DCA SYSTEM SETTINGS CANNOT BE TURNED ON/OFF ON THE NAVIGATION SCREEN

### Description

INFOID:000000006886276

- DCA system setting is not selectable on the navigation screen.

#### NOTE:

When the ignition switch is in ACC position, DCA system settings cannot be changed.

- "Distance Control Assist" is not indicated on the navigation screen.
- The switching between ON and OFF cannot be performed by operating the navigation system.
- The item of "Distance Control Assist" on the navigation screen is not active.
- After turning ON the ignition switch or starting the engine, DCA settings of the navigation system cannot be selected for several tens of seconds under the following conditions:
  - After replacing AV control unit.
  - After erasing connection history of the navigation system.
  - After erasing self-diagnosis results of AV control unit.
- The DCA system setting differs from the one set at the previous driving.

#### NOTE:

Turn OFF the ignition switch and wait for 5 seconds or more.

### Diagnosis Procedure

INFOID:000000006886277

#### 1. CHECK DCA SYSTEM SETTING

1. Start the engine.
2. Check that the DCA system settings is selectable on the navigation screen.

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

#### 2. PERFORM THE SELF-DIAGNOSIS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "ICC/ADAS", "MULTI AV" and "METER/M&A". Refer to the following.
  - ICC/ADAS: [DAS-92. "DTC Index"](#)
  - MULTI AV: [AV-168. "DTC Index"](#)
  - METER/M&A: [MWI-44. "DTC Index"](#)

Is any DTC detected?

YES >> Repair or replace malfunctioning parts.

NO >> INSPECTION END

#### 3. CHECK DATA MONITOR OF ADAS CONTROL UNIT

Check that "DCA SELECT" operates normally in "DATA MONITOR" of "ICC/ADAS" with CONSULT.

Is the inspection result normal?

YES >> Refer to [AV-141. "On Board Diagnosis Function"](#).

NO >> GO TO 4.

#### 4. CHECK MULTIFUNCTION SWITCH

Operate the multifunction switch to check that the audio, navigation system, and air conditioner operate properly.

Is the inspection result normal?

YES >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

# DCA SYSTEM NOT ACTIVATED (SWITCH IS ON)

< SYMPTOM DIAGNOSIS >

[DCA]

## DCA SYSTEM NOT ACTIVATED (SWITCH IS ON)

### Description

INFOID:000000006886278

The dynamic driver assistance switch can be turned ON/OFF, but the DCA system does not operate.

#### NOTE:

Never start the operation under the following conditions.

- No operation condition
- When the brake pedal depressed
- When the ICC system is set
- When the system judges that the vehicle comes to a standstill by the system control
- When the vehicle ahead is not detected
- Operation cancellation condition
- When the dynamic driver assistance switch is turned to OFF
- When the system malfunction occurs
- When ABS or VDC (including the TCS) operates
- When the VDC is turned OFF
- When driving into a strong light (i.e., sunlight)
- When the ICC sensor body window is dirty and the measurement of the distance between the vehicles becomes difficult
- When ABS warning lamp is ON
- When drive mode select switch is in SNOW position

### Diagnosis Procedure

INFOID:000000006886279

#### 1. CHECK CAUSE OF AUTOMATIC CANCELLATION

Check if there is any cancellation cause in the "CAUSE OF AUTO-CANCEL" on "WORK SUPPORT" of "ICC/ADAS" with CONSULT.

##### Is it displayed?

Not displayed>>GO TO 2.

"OPE SW VOLT CIRC">>Refer to [DAS-121, "DTC Logic"](#).

"VHCL SPD UNMATCH">>Refer to [DAS-113, "DTC Logic"](#).

"IGN LOW VOLT">>Refer to [DAS-112, "DTC Logic"](#).

"CAN COMM ERROR">>Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic"](#).

"ICC SENSOR CAN COMM ERR">>Refer to [DAS-161, "DTC Logic"](#).

"ABS/TCS/VDC CIRC">>Refer to [DAS-115, "DTC Logic"](#).

"APA HI TEMP">>Refer to [DAS-154, "DTC Logic"](#).

"ECD CIRCUIT">>Refer to [DAS-140, "DTC Logic"](#).

#### 2. PERFORM ALL OF THE SELF-DIAGNOSIS

1. Perform "All DTC Reading".
2. Check if any DTC is detected in self-diagnosis results of "ICC/ADAS". Refer to [DAS-92, "DTC Index"](#).

##### Is any DTC detected?

YES >> GO TO 3.

NO >> GO TO 4.

#### 3. REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace malfunctioning parts identified by the self-diagnosis result.

>> GO TO 6.

#### 4. CHECK EACH SWITCH AND VEHICLE SPEED SIGNAL

1. Start the engine.
2. Check that the following items operate normally in "DATA MONITOR" of "ICC/ADAS".
  - "VHCL SPEED SE"
  - "BRAKE SW"
  - "DYNA ASIST SW"

##### Is there a malfunctioning item?

All items are normal>>GO TO 5.



## DCA SYSTEM NOT ACTIVATED (SWITCH IS ON)

< SYMPTOM DIAGNOSIS >

[DCA]

"VHCL SPEED SE">>Refer to [DAS-113, "DTC Logic"](#).

"BRAKE SW">>Refer to [DAS-116, "DTC Logic"](#).

"DYNA ASIST SW">>Refer to [DAS-121, "DTC Logic"](#).

### 5.REPLACE ADAS CONTROL UNIT

Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

>> GO TO 6.

### 6.CHECK DCA SYSTEM

1. Erase "self-diagnosis result", and then perform "All DTC Reading" again after performing the action test. (Refer to [DAS-110, "Description"](#) for action test.)
2. Check that the DCA system is normal.

>> INSPECTION END

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# CHIME DOES NOT SOUND

< SYMPTOM DIAGNOSIS >

[DCA]

## CHIME DOES NOT SOUND

### Description

INFOID:000000006886280

The warning chime may not sound in some cases when there is a short distance between vehicles. Some examples are:

- When the vehicles are traveling at the same speed and the distance between vehicles is not changing
- When the vehicle ahead is traveling faster and the distance between vehicles is increasing
- When a vehicle cuts in near own vehicle
- The warning chime will not sound when own vehicle approaches vehicles that are parked or moving slowly.
- The warning chime does not sound when the system does not detect any vehicle ahead. (Diagnose the conditions under which the system is detecting the vehicle ahead and when the system is malfunctioning. If there is any malfunction in detecting the vehicle ahead, check the system following the [DAS-189, "Description".](#))

### Diagnosis Procedure

INFOID:000000006886281

#### 1.PERFORM ACTIVE TEST

Check if the warning chime sounds on the active test item "ICC BUZZER" of "ICC/ADAS" with CONSULT.

Does the warning chime sound?

- YES >> GO TO 2.
- NO >> GO TO 3.

#### 2.CHECK THE MALFUNCTION SYMPTOM DURING WARNING CHIME OPERATION

Understand the vehicle ahead detection condition when the malfunction occurred. If the warning chime should have sounded, replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation".](#)

>> GO TO 9.

#### 3.PERFORM THE SELF-DIAGNOSIS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the "U1000" is detected in self-diagnosis results of "ICC/ADAS".

Is "U1000" detected?

- YES >> GO TO 4.
- NO >> GO TO 5.

#### 4.CAN COMMUNICATIONS INSPECTION

Check the CAN communication and repair or replace malfunctioning parts. Refer to [DAS-166, "ADAS CONTROL UNIT : DTC Logic".](#)

>> GO TO 9.

#### 5.PERFORM THE SELF-DIAGNOSIS OF COMBINATION METER

1. Perform "All DTC Reading" with CONSULT.
2. Check if any DTC is detected in self-diagnosis results of "METER/M&A".

Is any DTC detected?

- YES >> Repair or replace malfunctioning parts. Refer to [MWI-44, "DTC Index".](#)
- NO >> GO TO 6.

#### 6.CHECK ICC WARNING CHIME CIRCUIT

Check meter buzzer. Refer to [WCS-36, "Component Function Check".](#)

Is the inspection result normal?

- YES >> GO TO 8.
- NO >> GO TO 7.

#### 7.REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace malfunctioning parts.

# CHIME DOES NOT SOUND

< SYMPTOM DIAGNOSIS >

[DCA]

>> GO TO 9.

## 8. REPLACE ADAS CONTROL UNIT

Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

>> GO TO 9.

## 9. CHECK DCA SYSTEM

1. Erase "self-diagnosis result", and then perform "All DTC Reading" again after performing the action test. (Refer to [DAS-110. "Description"](#) for action test.)
2. Check if the DCA system is normal.

>> INSPECTION END

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# NO FORCE GENERATED FOR PUTTING BACK THE ACCELERATOR PEDAL

< SYMPTOM DIAGNOSIS >

[DCA]

## NO FORCE GENERATED FOR PUTTING BACK THE ACCELERATOR PEDAL

### Description

INFOID:000000006886282

The dynamic driver assistance switch can be turned ON/OFF but the actuation force of accelerator pedal is not generated.

#### NOTE:

- When the vehicle ahead detection indicator does not illuminate, the control and warning with the system are not performed.
- The actuation force of accelerator pedal may not be generated sufficiently depending on depressing method or depressing amount of accelerator pedal.

### Diagnosis Procedure

INFOID:000000006886283

#### 1. PERFORM THE SELF-DIAGNOSIS

1. Perform "All DTC Reading" with CONSULT.
2. Check if any DTC is detected in self-diagnosis results of "ICC/ADAS" or "ACCELE PEDAL ACT".

##### Is any DTC detected?

- YES >> GO TO 2.  
NO >> GO TO 3.

#### 2. REPAIR OR REPLACE THE MALFUNCTIONING PARTS

Repair or replace malfunctioning parts. Refer to [DAS-92. "DTC Index"](#) (ICC/ADAS) or [DAS-101. "DTC Index"](#) (ACCELE PEDAL ACT).

>> GO TO 5.

#### 3. PERFORM ACTIVE TEST

Check if the accelerator pedal actuator operates by the active test items "ACCELERATOR PEDAL ACTUATOR TEST1" and "ACCELERATOR PEDAL ACTUATOR TEST2" of "ACCELE PEDAL ACT" with CONSULT.

##### Does it operate?

- YES >> GO TO 4.  
NO >> Replace the accelerator pedal assembly.

#### 4. CHECK VEHICLE AHEAD DETECTION PERFORMANCE

Understand the vehicle ahead detection condition when the malfunction occurred. If the detecting function is malfunctioning, check according to [DAS-189. "Description"](#).

>> INSPECTION END

#### 5. CHECK DCA SYSTEM

1. Erase "self-diagnosis result", and then perform "All DTC Reading" again after performing the action test. (Refer to [DAS-110. "Description"](#) for action test.)
2. Check if the DCA system is normal.

>> INSPECTION END

# FREQUENTLY CANNOT DETECT THE VEHICLE AHEAD / DETECTION ZONE IS SHORT

< SYMPTOM DIAGNOSIS >

[DCA]

## FREQUENTLY CANNOT DETECT THE VEHICLE AHEAD / DETECTION ZONE IS SHORT

### Description

INFOID:000000006886284

Symptom check: Detection function may become unstable under the following conditions.

- When the reflector of vehicle ahead is broken or dirty.
- When the vehicle is driving on a curve such as S-curve where the curvature changes.
- When the vehicle is driving on up-and-down road or passing the peak or foot of slope or passing the break of the inclination of hill.

### Diagnosis Procedure

INFOID:000000006886285

#### 1.VISUAL CHECK (1)

Check ICC sensor body window for contamination and foreign materials.

##### Do foreign materials adhere?

- YES >> GO TO 2.
- NO >> GO TO 3.

#### 2.WIPE OUT DIRT AND FOREIGN OBJECTS

Wipe out the contamination and/or foreign materials from the ICC sensor body window.

>> GO TO 7.

#### 3.VISUAL CHECK (2)

Check ICC sensor body window for cracks and/or scratches.

##### Are there cracks?

- YES >> GO TO 5.
- NO >> GO TO 4.

#### 4.LASER BEAM AIMING ADJUSTMENT

1. Adjust the laser beam aiming. Refer to [CCS-65. "Description"](#).
2. Perform action test. Refer to [DAS-110. "Description"](#).
3. Check that the vehicle ahead detection performance improves.

##### Does it improve?

- YES >> INSPECTION END
- NO >> GO TO 5.

#### 5.REPLACE ICC SENSOR

1. Replace the ICC sensor. Refer to [DAS-195. "Removal and Installation"](#).
2. Adjust the laser beam aiming. Refer to [CCS-65. "Description"](#).
3. Perform action test. Refer to [DAS-110. "Description"](#).
4. Check that the vehicle ahead detection performance improves.

##### Does it improve?

- YES >> INSPECTION END
- NO >> GO TO 6.

#### 6.REPLACE ADAS CONTROL UNIT

Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

>> GO TO 7.

#### 7.CHECK DCA SYSTEM

1. Erase "self-diagnosis result", and then perform "All DTC Reading" again after performing the action test. (Refer to [DAS-110. "Description"](#) for action test.)
2. Check that the DCA system is normal.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

**FREQUENTLY CANNOT DETECT THE VEHICLE AHEAD / DETECTION ZONE IS SHORT**

< SYMPTOM DIAGNOSIS >

[DCA]

---

>> INSPECTION END

# THE SYSTEM DOES NOT DETECT THE VEHICLE AHEAD AT ALL

< SYMPTOM DIAGNOSIS >

[DCA]

## THE SYSTEM DOES NOT DETECT THE VEHICLE AHEAD AT ALL

### Description

INFOID:000000006886286

When DCA system is active, the DCA system does not perform any control even through there is a vehicle ahead.

### Diagnosis Procedure

INFOID:000000006886287

#### 1. CHECK INFORMATION DISPLAY

1. Start the self-diagnosis mode of combination meter. Refer to [MWI-30, "On Board Diagnosis Function"](#).
2. Check that the segment of information display is displayed normally.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the combination meter.

#### 2. VISUAL CHECK (1)

Check ICC sensor body window for contamination and/or foreign materials.

Do foreign materials adhere?

- YES >> GO TO 3.  
NO >> GO TO 4.

#### 3. WIPE OUT DIRT AND FOREIGN MATERIALS

Wipe out the contamination and/or foreign materials from the ICC sensor body window.

>> GO TO 8.

#### 4. VISUAL CHECK (2)

Check ICC sensor body window for cracks and/or scratches.

Are there cracks?

- YES >> GO TO 6.  
NO >> GO TO 5.

#### 5. LASER BEAM AIMING ADJUSTMENT

1. Adjust the laser beam aiming. Refer to [CCS-65, "Description"](#).
2. Perform action test. Refer to [DAS-110, "Description"](#).
3. Check that the vehicle ahead detection performance improves.

Does it improve?

- YES >> INSPECTION END  
NO >> GO TO 6.

#### 6. REPLACE ICC SENSOR

1. Replace the ICC sensor. Refer to [DAS-195, "Removal and Installation"](#).
2. Adjust the laser beam aiming. Refer to [CCS-65, "Description"](#).
3. Perform action test. Refer to [DAS-110, "Description"](#).
4. Check that the vehicle ahead detection performance improves.

Does it improve?

- YES >> INSPECTION END  
NO >> GO TO 7.

#### 7. REPLACE ADAS CONTROL UNIT

Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

>> GO TO 8.

#### 8. CHECK DCA SYSTEM

## THE SYSTEM DOES NOT DETECT THE VEHICLE AHEAD AT ALL

< SYMPTOM DIAGNOSIS >

[DCA]

1. Erase “self-diagnosis result”, and then perform “All DTC Reading” again after performing the action test.  
(Refer to [DAS-110, "Description"](#) for action test.)
2. Check that the DCA system is normal.

>> INSPECTION END



# NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[DCA]

## NORMAL OPERATING CONDITION

### Description

INFOID:000000006886288

#### PRECAUTIONS FOR DISTANCE CONTROL ASSIST (DCA) SYSTEM

- If the vehicle ahead comes to a stop, the vehicle decelerates to a standstill within the limitations of the system. The system will cancel once it judges that the vehicle has come to a standstill with a warning chime. To prevent the vehicle from moving, the driver must depress the brake pedal.
- The DCA system will not apply brake control while the driver is depressing the accelerator pedal.
- This system is only an aid to assist the driver and is not a collision warning or avoidance device. It is the driver's responsibility to stay alert, drive safely and be in control of the vehicle at all times.
- This system will not adapt automatically to road conditions. Do not use the system on roads with sharp curves, or on icy roads, in heavy rain or in fog.
- The distance sensor will not detect under most conditions.
  - Stationary and slow moving vehicles
  - Pedestrians or objects in the roadway
  - Oncoming vehicles in the same lane
  - Motorcycles traveling offset in the travel lane
- As there is a performance limit to the distance control function, never rely solely on the DCA system. This system does not correct careless, inattentive or absent-minded driving, or overcome poor visibility in rain, fog, or other bad weather. Decelerate the vehicle speed by depressing the brake pedal, depending on the distance to the vehicle ahead and the surrounding circumstances in order to maintain a safe distance between vehicles.
- The system may not detect the vehicle in front of own vehicle in certain road or weather conditions. To avoid accidents, never use the DCA system under the following conditions.
  - On roads with sharp curves
  - On slippery road surfaces such as on ice or snow, etc.
  - During bad weather (rain, fog, snow, etc.)
  - When strong light (for example, at sunrise or sunset) is directly shining on the front of the vehicle
  - When rain, snow or dirt adhere to the system sensor
  - On steep downhill roads (frequent braking may result in overheating the brakes)
  - On repeated uphill and downhill roads
- Do not use the DCA system if own vehicle are towing a trailer. The system may not detect a vehicle ahead.
- In some road or traffic conditions, a vehicle or object can unexpectedly come into the sensor detection zone and cause automatic braking. Driver may need to control the distance from other vehicles using the accelerator pedal. Always stay alert and avoid using the DCA system when it is not recommended in this section.
- The following are some conditions in which the sensor cannot detect the signals.
  - When the reflector of the vehicle ahead is positioned high on the vehicle (trailer, etc.)
  - When the reflector on the vehicle ahead is missing, damaged or covered
  - When the reflector of the vehicle ahead is covered with dirt, snow and road spray
  - When the snow or road spray from traveling vehicles reduces the sensor's visibility
  - When dense exhaust or other smoke (black smoke) from vehicles reduces the sensor's visibility
  - When excessively heavy baggage is loaded in the rear seat or the luggage room of own vehicle
- The DCA system is designed to automatically check the sensor's operation. When the sensor is covered with dirt or is obstructed, the system will automatically be canceled. If the sensor is covered with ice, a transparent or translucent vinyl bag, etc., the DCA system may not detect them. In these instances, the DCA system may not be able to decelerate the vehicle properly. Be sure to check and clean the sensor regularly.
- The DCA system is designed to help assist the driver to maintain a following distance from the vehicle ahead. The system will decelerate as necessary and if the vehicle ahead comes to a stop, the vehicle decelerates to standstill. However, the DCA system can only apply up to 25% of the vehicles total braking power. If a vehicle moves into the traveling lane ahead or if a vehicle traveling ahead rapidly decelerates, the distance between vehicles may become closer because the DCA system cannot decelerate the vehicle quickly enough. If this occurs, the DCA system will sound a warning chime and blink the system display to notify the driver to take necessary action.
- The DCA system does not control vehicle speed or warn when driver approach stationary and slow moving vehicles. Driver must pay attention to vehicle operation to maintain proper distance from vehicles ahead.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

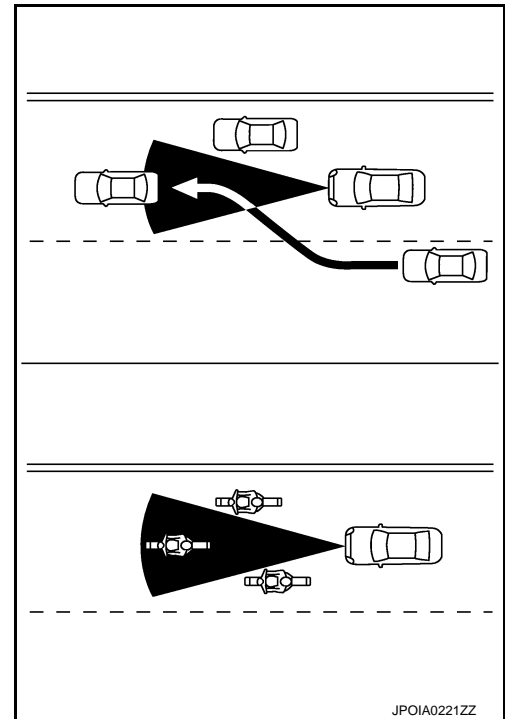
DAS

## NORMAL OPERATING CONDITION

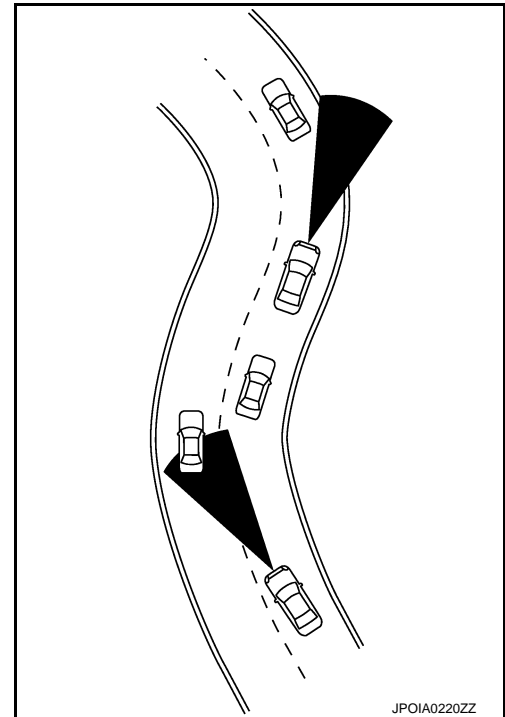
[DCA]

### < SYMPTOM DIAGNOSIS >

- The detection zone of the sensor is limited. A vehicle ahead must be in the detection zone for the system to operate.
- A vehicle ahead may move outside of the detection zone due to its position within the same lane of travel. Motorcycles may not be detected in the same lane ahead if they are traveling offset from the center line of the lane. A vehicle that is entering the lane ahead may not be detected until the vehicle has completely moved into the lane. If this occurs, the system may warn driver by blinking the system indicator and sounding the chime. The driver may have to manually control the proper distance away from vehicle traveling ahead.



- When driving on some roads, such as winding, hilly, curved, narrow roads, or roads which are under construction, the sensor may detect vehicles in a different lane, or may temporarily not detect a vehicle traveling ahead. This may cause the system to work inappropriately. The detection of vehicles may also be affected by vehicle operation (steering maneuver or traveling position in the lane, etc.) or vehicle condition. If this occurs, the system may warn driver by blinking the system indicator and sounding the chime unexpectedly. The driver will have to manually control the proper distance away from the vehicle traveling ahead.



- The approach warning chime may sound and the system display may blink when the sensor detects some reflectors which are fitted on vehicles in other lanes or on the side of the road. This may cause the DCA system to operate inappropriately. The sensor may detect these reflectors when the vehicle is driven on winding roads, hilly roads or when entering or exiting a curve. The sensor may also detect reflectors on narrow roads or in road construction zones. In these cases driver will have to manually control the proper distance ahead of own vehicle. Also, the sensor sensitivity can be affected by vehicle operation (steering maneuver or driving position in the lane) or traffic or vehicle condition (for example, if a vehicle is being driven with some damage).
- The DCA system automatically decelerates own vehicle to help assist the driver to maintain a following distance from the vehicle ahead. Manually brake when deceleration is required to maintain a safe distance upon sudden braking by the vehicle ahead or when a vehicle suddenly appears in front of own vehicle. Always stay alert when using the DCA system.
- When the vehicle ahead detection indicator lamp is not illuminated, system will not control or warn the driver.
- Never place a foot under the brake pedal. A foot may be caught when the system controls the brake.
- Depending on the position of the accelerator pedal, the system may not be able to assist the driver to release the accelerator pedal appropriately.
- If the vehicle ahead comes to a standstill, the vehicle decelerates to a standstill within the limitations of the system. The system will release brake control with a warning chime once it judges the vehicle is at a standstill. To prevent the vehicle from moving, the driver must depress the brake pedal. [The system will resume control automatically once the system reaches 5 km/h (3 MPH)].

# ICC SENSOR

< REMOVAL AND INSTALLATION >

[DCA]

## REMOVAL AND INSTALLATION

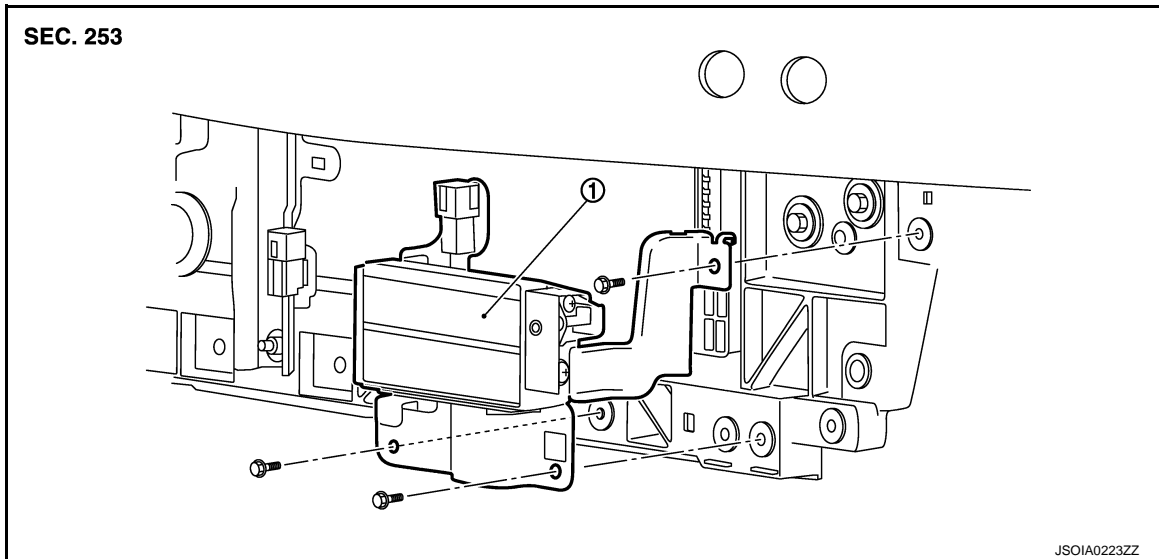
### ICC SENSOR

Exploded View

INFOID:000000007218055

**CAUTION:**

Always perform the laser beam aiming adjustment and check the operation after the replacement, removal and installation of ICC sensor.



1. ICC sensor

### Removal and Installation

INFOID:000000007218056

#### REMOVAL

1. Remove engine under cover. Refer to [EXT-28. "ENGINE UNDER COVER : Removal and Installation"](#).
2. Remove bolts of the left fender protector (front) front side. Refer to [EXT-24. "FENDER PROTECTOR : Removal and Installation"](#).
3. Remove bolts of condenser side seal lower (LH) lower side to obtain space for work. Refer to [DLK-137. "Removal and Installation"](#).
4. Disconnect ICC sensor connector.
5. Remove mounting bolts from ICC sensor.
6. Remove ICC sensor.

#### INSTALLATION

Install in the reverse order of removal.

**CAUTION:**

Always perform the laser beam aiming adjustment and check the operation after the replacement, removal, and installation of ICC sensor. Refer to [CCS-64. "Description"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ACCELERATOR PEDAL ASSEMBLY

< REMOVAL AND INSTALLATION >

[DCA]

## ACCELERATOR PEDAL ASSEMBLY

---

Exploded View

INFOID:000000006886291

Refer to [ACC-4, "MODELS WITH DISTANCE CONTROL ASSIST SYSTEM : Exploded View"](#).

**CAUTION:**

Always perform accelerator pedal released position learning after replacement, removal, or installation of accelerator pedal assembly, and then check the DCA system operation. Refer to [DAS-109, "Description"](#).

# DYNAMIC DRIVER ASSISTANCE SWITCH

< REMOVAL AND INSTALLATION >

[DCA]

## DYNAMIC DRIVER ASSISTANCE SWITCH

### Exploded View

INFOID:000000006886292

Dynamic driver assistance switch is integrated in the ICC steering switch. Refer to [ST-31, "Exploded View"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## PRECAUTION

### PRECAUTIONS

#### Precaution for FCW System Service

INFOID:000000006886293

**CAUTION:**

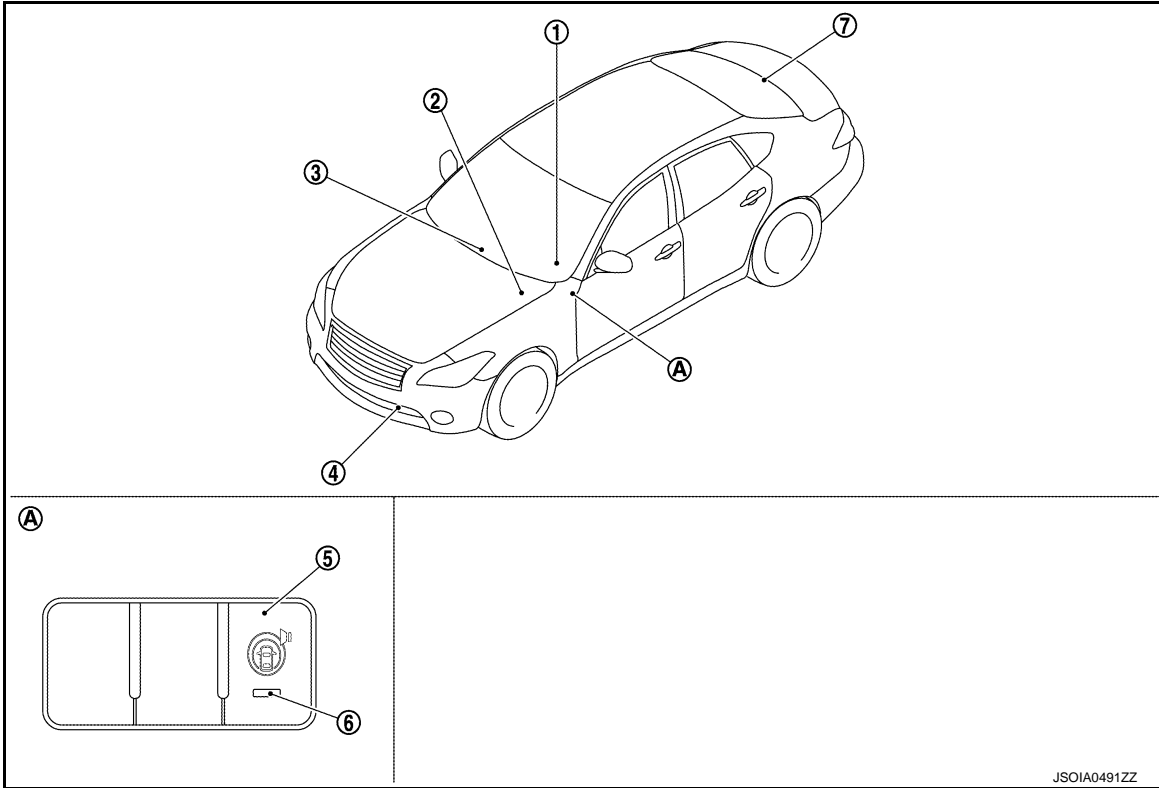
- Never look straight into the laser beam discharger when adjusting laser beam aiming.
- Turn the warning systems switch OFF in conditions similar to driving, such as free rollers or a chassis dynamometer.
- Never use the ICC sensor removed from vehicle. Never disassemble or remodel.
- Erase DTC when replacing parts of ICC system, then check the operation of ICC system after adjusting laser beam aiming if necessary.
- Never change FCW initial state ON ⇒ OFF without the consent of the customer.

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000007218371



- 1. Information display, IBA OFF indicator lamp, buzzer (On the combination meter)
- 2. ABS actuator and electric unit (control unit) Refer to [BRC-9, "Component Parts Location"](#)
- 3. AV control unit Refer to [AV-127, "Component Parts Location"](#)
- 4. ICC sensor Refer to [CCS-9, "Component Parts Location"](#)
- 5. Warning systems switch
- 6. Warning systems ON indicator
- 7. ADAS control unit Refer to [DAS-14, "Component Parts Location"](#)
- A. Instrument lower panel LH

Component Description

INFOID:000000007218372

| Component                                     | Description   |
|---|---|
| ADAS control unit                             | <ul style="list-style-type: none"> <li>• ADAS control unit turns ON warning systems ON indicator</li> <li>• ADAS control unit transmits a buzzer output signal to combination meter via CAN communication</li> </ul>  |
| ICC sensor                                    | <ul style="list-style-type: none"> <li>• ICC sensor detects light reflected from a vehicle ahead by irradiating laser forward and calculates a distance from the vehicle ahead and a relative speed, based on the detected signal</li> <li>• ICC sensor transmits the presence/absence of a vehicle ahead and a distance from the vehicle ahead to the ADAS control unit via ITS communication</li> </ul> |
| ABS actuator and electric unit (control unit) | ABS actuator and electric unit (control unit) transmits the vehicle speed signal (wheel speed) to ADAS control unit via CAN communication   |

DAS

P

# COMPONENT PARTS

< SYSTEM DESCRIPTION >

[FCW]

| Component   | Description  |
|---|--|
| Warning systems switch  | Inputs the warning systems switch signal to ADAS control unit  |
| Warning systems ON indicator<br>(On the warning systems switch) | Turns warning systems ON indicator ON/OFF according to the signals from the ADAS control unit  |
| Combination meter   | Performs the following operations using the signals received from the ADAS control unit via the CAN communication <ul style="list-style-type: none"><li>• Blinks the vehicle ahead detection indicator according to a meter display signal</li><li>• Illuminates the IBA OFF indicator lamp using the IBA OFF indicator lamp signal</li><li>• Operates the buzzer (ICC warning chime) using the buzzer output signal</li></ul> |
| AV control unit   | AV control unit transmits the system selection signal to the ADAS control unit via CAN communication   |

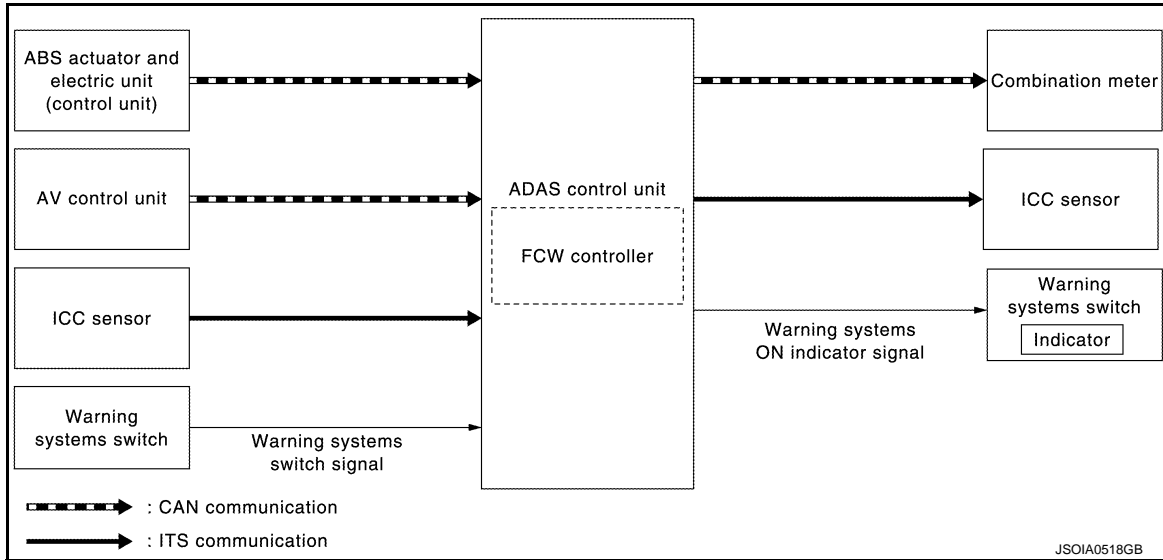


SYSTEM

System Description

INFOID:000000007218373

SYSTEM DIAGRAM



ADAS CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

| Transmit unit                                 | Signal name                   |                            | Description  |
|---|-------------------------------|----------------------------|--|
| ABS actuator and electric unit (control unit) | CAN communication             | Vehicle speed signal (ABS) | Receives wheel speeds of four wheels   |
| AV control unit                               | CAN communication             | System selection signal    | Receives a selection state of each item in "Driver Assistance" selected with the navigation system             |
| ICC sensor                                    | ITS communication             | ICC sensor signal          | Receives detection results, such as the presence or absence of a leading vehicle and distance from the vehicle |
| Warning systems switch                        | Warning systems switch signal |                            | Receives an ON/OFF state of the warning systems switch   |

Output Signal Item

| Reception unit               | Signal name                         |  | Description   |
|------------------------------|-------------------------------------|--|---|
| Combination meter            | CAN communication                   | Meter display signal                     | Transmits a signal to display a state of the system on the information display  |
|                              |                                     | Vehicle ahead detection indicator signal |   |
|                              |                                     | IBA OFF indicator lamp signal            | <ul style="list-style-type: none"> <li>Transmits a signal to turn ON the IBA OFF indicator lamp</li> <li>Transmits an ON/OFF state of the intelligent brake assist</li> </ul> |
| Warning systems ON indicator | Warning systems ON indicator signal | Buzzer output signal                     | Transmits a buzzer output signal to activate the buzzer   |
|                              |                                     | Warning systems ON indicator             | Turns ON the warning systems ON indicator   |
| ICC sensor                   | ITS communication                   | Vehicle speed signal                     | Transmits a vehicle speed calculated by the ADAS control unit   |

DESCRIPTION

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# SYSTEM

[FCW]

## < SYSTEM DESCRIPTION >

- The Forward Collision Warning (FCW) system will warn the driver by a warning lamp (vehicle ahead detection indicator) and chime when own vehicle is getting close to the vehicle ahead in the traveling lane.
- The FCW system will function when own vehicle is driven at speeds of approximately 15 km/h (10 MPH) and above.

**NOTE:**

The FCW system shares the diagnosis function with ICC system.

### FUNCTION DESCRIPTION

The distance from the vehicle ahead and a relative speed are calculated by using the ICC sensor and an ICC sensor signal is transmitted to the ADAS control unit via ITS communication. When judging the necessity of warning according to the received ICC sensor signal, the ADAS control unit transmits a buzzer output signal and meter display signal to the combination meter via CAN communication.


#### FCW Operating Condition

- Warning systems ON indicator: ON
- Vehicle speed: Approximately 15 km/h (10 MPH) and above.

**NOTE:**

When the FCW system setting on the navigation screen is ON.

#### Fail-safe Indication

| Vehicle condition   | Indication on the combination meter  |
|---|--|
| <ul style="list-style-type: none"> <li>• When the FCW system malfunctions</li> <li>• When the sensor window is dirty</li> <li>• When driving into a strong light (i.e. sunlight)</li> </ul> <p><b>NOTE:</b><br/>Check that the IBA system is not OFF. The indicator lamp is shared with IBA system.</p> |  <p>JPOIA0179ZZ</p> |

### Fail-safe (ADAS Control Unit)

INFOID:000000006886297

If a malfunction occurs in each system, ADAS control unit cancels each control, sounds a beep, and turns ON the warning lamp or indicator lamp.

| System   | Buzzer            | Warning lamp/Indicator lamp | Description |
|--|-------------------|-----------------------------|-------------|
| Vehicle-to-vehicle distance control mode       | High-pitched tone | ICC system warning lamp     | Cancel      |
| Conventional (fixed speed) cruise control mode | High-pitched tone | ICC system warning lamp     | Cancel      |
| Intelligent Brake Assist (IBA)                 | High-pitched tone | IBA OFF indicator lamp      | Cancel      |
| Forward Collision Warning (FCW)                | High-pitched tone | IBA OFF indicator lamp      | Cancel      |
| Distance Control Assist (DCA)                  | High-pitched tone | ICC system warning lamp     | Cancel      |
| Lane Departure Warning (LDW)                   | —                 | Lane departure warning lamp | Cancel      |
| Lane Departure Prevention (LDP)                | Low-pitched tone  | Lane departure warning lamp | Cancel      |
| Blind Spot Warning (BSW)                       | —                 | BSW/BSI warning lamp        | Cancel      |

# SYSTEM

< SYSTEM DESCRIPTION >

[FCW]

| System                        | Buzzer           | Warning lamp/Indicator lamp | Description   |
|-------------------------------|------------------|-----------------------------|---|
| Blind Spot Intervention (BSI) | Low-pitched tone | BSW/BSI warning lamp        | Cancel  |
| Active trace control function | —                | IBA OFF indicator lamp      | <ul style="list-style-type: none"><li>• Cancel</li><li>• If a communication error occurs between the A/C auto amp. and CAN communication line, a mode at the instant of error occurrence is maintained until the mode is fixed to STANDARD after turning the ignition switch from OFF to ON</li></ul> |

## Fail-safe (ICC Sensor)

INFOID:000000006886298

If a malfunction occurs in the system, ADAS control unit cancels control, sounds a beep, and turns ON the ICC system warning lamp in the combination meter.

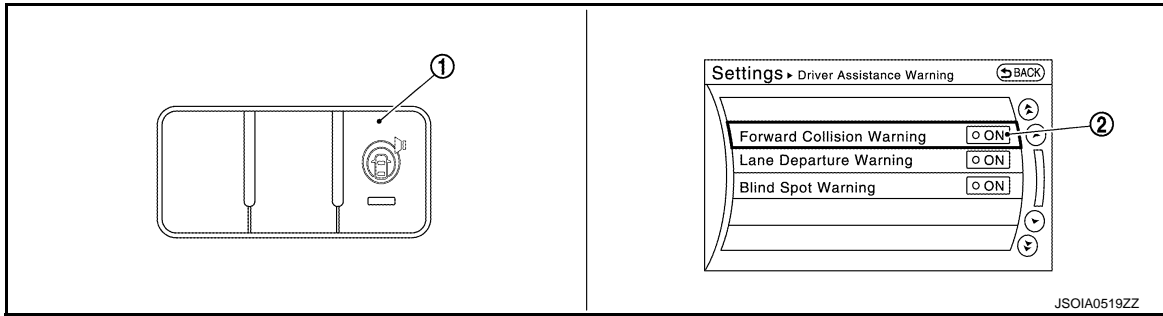
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## OPERATION

### Switch Name and Function

INFOID:000000007218374



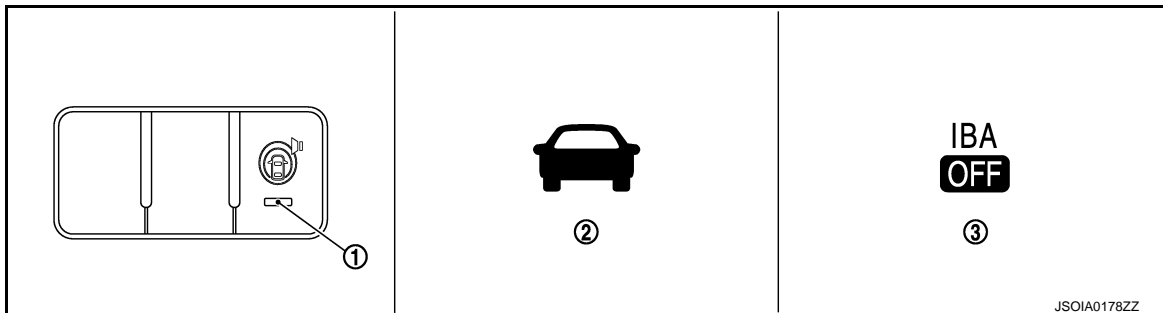
JSOIA0519ZZ

| No. | Switch name  | Description   |
|-----|--|---|
| 1   | Warning systems switch   | Turns FCW system ON/OFF<br>(When the setting of FCW system on the navigation system setting screen is ON) |
| 2   | FCW system setting screen<br>(Navigation system settings screen) | The setting of FCW system can be switched between ON and OFF  |

### Menu Displayed by Pressing Each Switch

INFOID:000000007218375

### DISPLAY AND WARNING LAMP



JSOIA0178ZZ

| No. | Display item                      | Description  |
|-----|-----------------------------------|--|
| 1   | Warning systems ON indicator      | <ul style="list-style-type: none"> <li>Indicates that the FCW system, LDW system, and/or BSW system is ON.</li> <li>Blinks when the setting of LDW, FCW, and BSW are "OFF" and the warning systems switch is pressed.</li> </ul>   |
| 2   | Vehicle ahead detection indicator | Vehicle ahead detection indicator blinks when the FCW system is activated  |
| 3   | IBA OFF indicator lamp            | IBA OFF indicator lamp turns ON when: <ul style="list-style-type: none"> <li>FCW system has a malfunction</li> <li>ICC sensor window is too dirty to detect a vehicle ahead</li> <li>Subjected to a strong light (e.g. sunlight)</li> </ul> <b>NOTE:</b><br>Shared with IBA system |

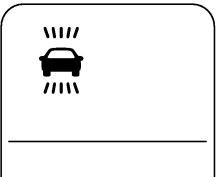
### SYSTEM CONTROL CONDITION DISPLAY

| Condition     | Warning systems ON indicator | Vehicle ahead detection indicator<br>(In the combination meter) | Buzzer |
|---------------|------------------------------|---|--------|
| Set condition | ON                           | OFF   | —      |

# OPERATION

[FCW]

< SYSTEM DESCRIPTION >

| Condition  | Warning systems ON indicator | Vehicle ahead detection indicator (In the combination meter)  | Buzzer |
|--|------------------------------|---|--------|
| When the warning systems switch is turned ON with settings of FCW system, LDW system and BSW system OFF                      | Blink                        | OFF   | —      |
| When own vehicle comes closer to the vehicle ahead and it is judged that the distance between the vehicles is not sufficient | ON                           |  <p style="text-align: right; font-size: small;">JSOIA0134ZZ</p> | Beep   |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## HANDLING PRECAUTION

### Precautions for Forward Collision Warning

INFOID:000000006886301

#### FORWARD COLLISION WARNING (FCW)

- FCW system is intended to warn the driver before a collision but will not avoid a collision. It is the driver's responsibility to stay alert, drive safely and be in control of the vehicle at all times.
- As there is a performance limit, the FCW system may not provide a warning in certain conditions.
- The FCW system will not detect the following objects.
  - Pedestrians, animals, or obstacles in the roadway.
  - Oncoming vehicles in the same lane
- FCW system will not detect under the following conditions.
  - When the sensor gets dirty, it is impossible to detect the distance from the vehicle ahead.
  - When driving into a strong light (i.e. sunlight)
- The sensor generally detects signals returned from the reflectors on a vehicle ahead. Therefore, the FCW system may not warn properly under the following conditions:
  - When the reflectors of the vehicle ahead are positioned high or close to each other (including a small vehicle such as motorcycles).
  - When the sensor gets dirty or it is impossible to detect the distance to the vehicle ahead.
  - When the reflectors on the vehicle ahead is missing, damaged or covered.
  - When the reflector of the vehicle ahead is covered with dirt, snow or road spray.
  - When visibility is low (such as rain, fog, snow, etc.).
  - When snow or road spray from traveling vehicles are splashed.
  - When dense exhaust or other smoke (black smoke) from vehicles reduces the visibility of the sensor.
  - When excessively heavy baggage is loaded in the rear seat or the trunk room of own vehicle.
  - When abruptly accelerating or decelerating.
  - On steep downhill or roads with sharp curves.
  - When there is a highly reflective object near the vehicle ahead.  
i.e.) very close to other vehicle, signboard, etc.
  - When own vehicle are towing a trailer.
- Depending on certain road conditions (curved, beginning of a curve), vehicle conditions (steering position, vehicle position), or preceding vehicle's conditions (position in lane, etc.), the FCW system may not function properly. The FCW system may detect highly reflective objects such as reflectors, signs, white markers, and other stationary objects on the road or near the traveling lane, and provide unnecessary warning.
- The FCW system may not function in offset conditions.
- The FCW system may not function when the distance to the vehicle ahead is extremely close.
- The FCW system is designed to automatically check the sensor's functionality. If the sensor is covered with ice, a transparent or translucent plastic bag, etc., the system may not detect them. In these instances the FCW system may not be able to warn properly. Be sure to check and clean the sensor regularly.
- Excessive noise will interfere with the warning chime sound, and the chime may not be heard.
- A sudden appearance of the vehicle in front (i.e.: when a vehicle abruptly cuts in) may not be detected and the system may not warn soon enough.
- The FCW system will be canceled automatically with a chime sound and the IBA OFF indicator light will illuminate under the following conditions:
  - When the sensor window is dirty
  - When the FCW system malfunctions

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[FCW]

## DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

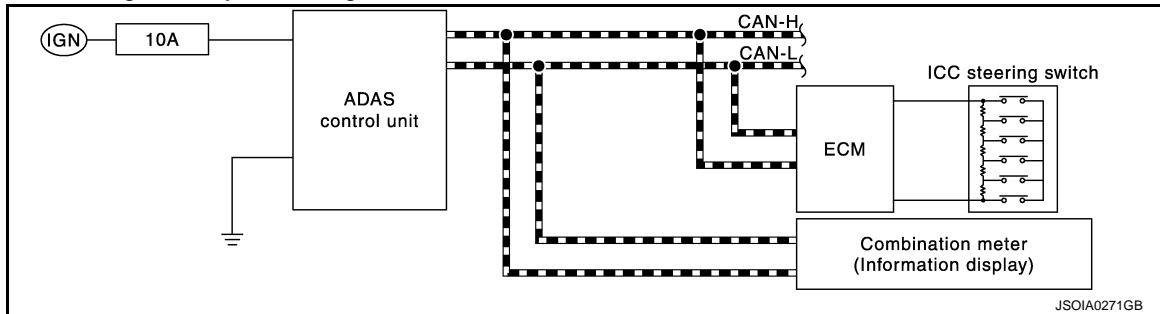
### On Board Diagnosis Function

INFOID:000000007218065

#### DESCRIPTION

The DTC is displayed on the information display by operating the ICC steering switch.

#### On Board Self-diagnosis System Diagram



#### METHOD OF STARTING

##### CAUTION:

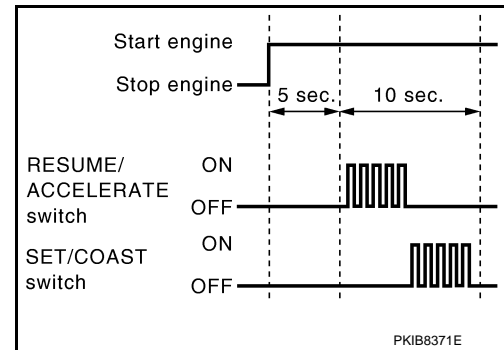
##### Start condition of on board self-diagnosis

- ICC system OFF
- DCA system OFF
- Vehicle speed 0 km/h (0 MPH)

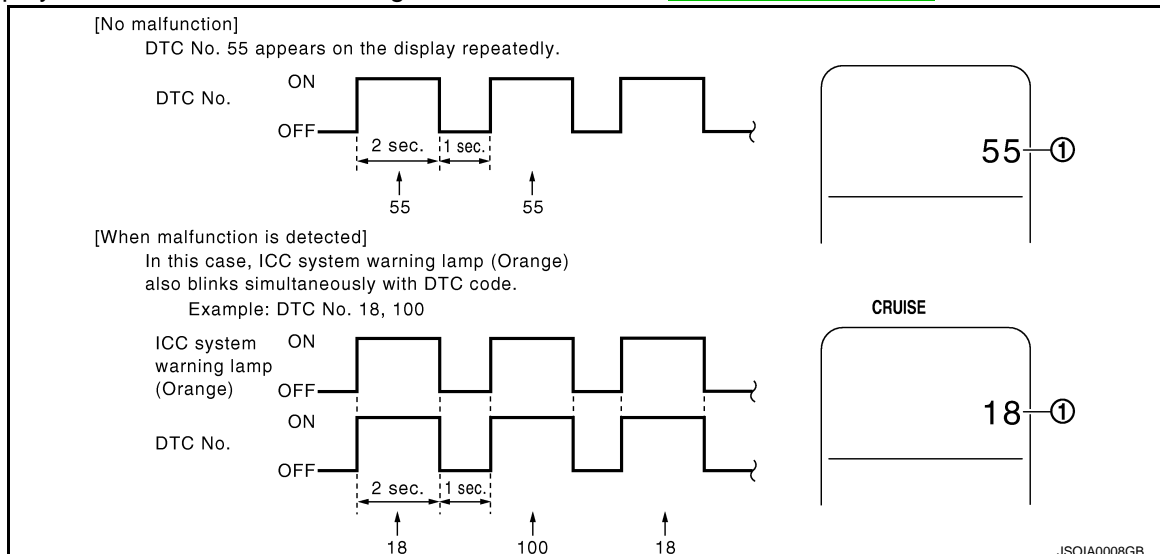
1. Turn the ignition switch OFF.
2. Start the engine.
3. Wait for 5 seconds after starting the engine. Push up the RESUME/ACCELERATE switch 5 times and push down the SET/COAST switch 5 times within 10 seconds.

##### NOTE:

If the above operation cannot be performed within 10 seconds after waiting for 5 seconds after starting the engine, repeat the procedure from step 1.



4. The DTC is displayed on the set vehicle speed indicator (1) on the ICC system display on the information display when the on board self-diagnosis starts. Refer to [DAS-40, "DTC Index"](#).



##### NOTE:

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

[FCW]

## < SYSTEM DESCRIPTION >

- It displays for up to 5 minutes and then stops.
- If multiple malfunctions exist, up to 6 DTCs can be stored in memory at the most, and the most recent one is displayed first.

## WHEN THE ON BOARD SELF-DIAGNOSIS DOES NOT START

If the on board self-diagnosis does not start, check the following items.

| Assumed abnormal part                                   |                               | Inspection item   |
|---|-------------------------------|---|
| Information display                                     | Combination meter malfunction | Check that the self-diagnosis function of the combination meter operates. Refer to <a href="#">MWI-30, "On Board Diagnosis Function"</a> .  |
| ICC steering switch malfunction                         |                               | Perform the inspection for DTC "C1A06". Refer to <a href="#">CCS-88, "DTC Logic"</a> .  |
| Harness malfunction between ICC steering switch and ECM |                               |   |
| ECM malfunction   |                               |   |
| ADAS control unit malfunction                           |                               | <ul style="list-style-type: none"> <li>• Check power supply and ground circuit of ADAS control unit. Refer to <a href="#">DAS-54, "Diagnosis Procedure"</a>.</li> <li>• Perform SELF-DIAGNOSIS for "ICC/ADAS" with CONSULT, and then check the malfunctioning parts. Refer to <a href="#">DAS-40, "DTC Index"</a>.</li> </ul> |

## HOW TO ERASE ON BOARD SELF-DIAGNOSIS

1. Turn the ignition switch OFF.
2. Start the engine, and then start the on board self-diagnosis.
3. Press the CANCEL switch 5 times, and then press the DISTANCE switch 5 times under the condition that the on board self-diagnosis starts.

### NOTE:

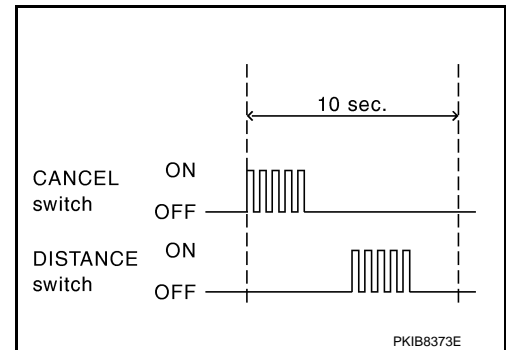
- Complete the operation within 10 seconds after pressing the CANCEL switch first.
- If the operation is not completed within 10 seconds, repeat the procedure from step 1.

4. DTC 55 is displayed after erasing.

### NOTE:

DTCs for existing malfunction can not be erased.

5. Turn ignition switch OFF, and finish the diagnosis.



## CONSULT Function (ICC/ADAS)

INFOID:000000007218066

## APPLICATION ITEMS

CONSULT performs the following functions via CAN communication using ADAS control unit.

| Diagnosis mode           | Description  |
|--------------------------|--|
| Work Support             | Displays causes of automatic system cancellation occurred during system control                                |
| Self Diagnostic Result   | Displays the name of a malfunctioning system stored in the ADAS control unit                                   |
| Data Monitor             | Displays ADAS control unit input/output data in real time  |
| Active Test              | Enables an operational check of a load by transmitting a driving signal from the ADAS control unit to the load |
| Ecu Identification       | Displays ADAS control unit part number   |
| CAN Diag Support Monitor | Displays a reception/transmission state of CAN communication and ITS communication                             |

## WORK SUPPORT



# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[FCW]

| Work support items     | Description   |
|------------------------|---|
| CAUSE OF AUTO-CANCEL 1 | Displays causes of automatic system cancellation occurred during control of the following systems <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle control mode</li> <li>• Conventional (fixed speed) control mode</li> <li>• Distance Control Assist (DCA)</li> </ul> |
| CAUSE OF AUTO-CANCEL 2 | Displays causes of automatic system cancellation occurred during control of the following systems <ul style="list-style-type: none"> <li>• Lane Departure Prevention (LDP)</li> <li>• Blind Spot Intervention (BSI)</li> </ul>  |

**NOTE:**

- Causes of the maximum five cancellations (system cancel) are displayed.
- The displayed cancellation causes display the number of the ignition switch ON/OFF up to 254. It is fixed to 254 if it is over 254. It returns to 0 when the same cancellation cause is detected again.

Display Items for The Cause of Automatic Cancellation 1

| Cause of cancellation | Vehicle-to-vehicle distance control mode | Conventional (fixed speed) cruise control mode | Distance Control Assist | Description  |
|-----------------------|--|--|-------------------------|--|
| OPERATING WIPER       | ×  |  |                         | The wiper operates at HI (it includes when the wiper is operated at HI with the wiper switch AUTO position)  |
| OPERATING ABS         | ×  |  | ×                       | ABS function was operated  |
| OPERATING TCS         | ×  | ×  | ×                       | TCS function was operated  |
| OPERATING VDC         | ×  | ×  | ×                       | VDC function was operated  |
| ECM CIRCUIT           | ×  | ×  |                         | ECM did not permit ICC operation   |
| OPE SW VOLT CIRC      | ×  | ×  | ×                       | The ICC steering switch input voltage is not within standard range   |
| LASER SUNBEAM         | ×  |  | ×                       | Intense light such as sunlight entered ICC sensor light sensing part   |
| LASER TEMP            | ×  |  | ×                       | Temperature around ICC sensor became low   |
| SNOW MODE SW          | ×  |  | ×                       | Shifting of the drive mode selector to SNOW position   |
| OP SW DOUBLE TOUCH    | ×  | ×  |                         | ICC steering switches were pressed at the same time  |
| VHCL SPD DOWN         | ×  | ×  | ×                       | Vehicle speed lower than the speed as follows <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle distance control mode is 24 km/h (15 MPH)</li> <li>• Conventional (fixed speed) cruise control mode is 32 km/h (20 MPH)</li> </ul> |
| WHL SPD ELEC NOISE    | ×  | ×  | ×                       | Wheel speed sensor signal caught electromagnetic noise   |
| VDC/TCS OFF SW        | ×  |  | ×                       | VDC OFF switch was pressed   |
| VHCL SPD UNMATCH      | ×  | ×  | ×                       | Wheel speed became different from A/T vehicle speed  |
| TIRE SLIP             | ×  | ×  |                         | Wheel slipped  |
| IGN LOW VOLT          | ×  | ×  | ×                       | Decrease in ADAS control unit IGN voltage  |
| PARKING BRAKE ON      | ×  | ×  |                         | The parking brake is operating   |

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

[FCW]

## < SYSTEM DESCRIPTION >

|                         |   |   |   |   |
|-------------------------|---|---|---|---|
| WHEEL SPD UNMATCH       | × | × | × | The wheel speeds of 4 wheels are out of the specified values  |
| INCHING LOST            | × |   |   | A vehicle ahead is not detected during the following driving when the vehicle speed is approximately 24 km/h (15 MPH) or less |
| CAN COMM ERROR          | × | × | × | ADAS control unit received an abnormal signal with CAN communication  |
| ABS/TCS/VDC CIRC        | × | × | × | An abnormal condition occurs in VDC/TCS/ABS system  |
| ECD CIRCUIT             | × | × | × | An abnormal condition occurs in ECD system  |
| ASCD VHCL SPD DTAC      |   | × |   | Vehicle speed is detached from set vehicle speed  |
| ASCD DOUBLE COMD        |   | × |   | Cancel switch and operation switch are detected simultaneously  |
| APA HI TEMP             |   |   | × | The accelerator pedal actuator integrated motor temperature is high   |
| ICC SENSOR CAN COMM ERR | × |   | × | Communication error between ADAS control unit and the ICC sensor  |
| ABS WARNING LAMP        | × |   | × | ABS warning lamp ON   |
| NO RECORD               | × | × | × | —   |

## Display Items for The Cause of Automatic Cancellation 2

| Cause of cancellation   | Lane departure prevention | Blind spot intervention | Description  |
|-------------------------|---------------------------|-------------------------|--|
| OPE VDC/TCS/ABS 1       | ×                         |                         | The activation of VDC, TCS, or ABS during LDP system control                                 |
| Vehicle dynamics        | ×                         |                         | Vehicle behavior exceeds specified value   |
| Steering speed          | ×                         |                         | Steering speed was more than the specified value in evasive direction                        |
| End by yaw angle        | ×                         |                         | Yaw angle was the end of LDP control   |
| Departure yaw large     | ×                         |                         | Detected more than the specified value of yaw angle in departure direction                   |
| ICC WARNING             | ×                         |                         | Target approach warning of ICC system, IBA system, or FCW system was activated               |
| CURVATURE               | ×                         |                         | Road curve was more than the specified value   |
| Steering angle large    | ×                         |                         | Steering angle was more than the specified value   |
| Brake is operated       | ×                         |                         | Brake pedal was operated   |
| IGN LOW VOLT            | ×                         |                         | Decrease in ADAS control unit IGN voltage  |
| Lateral offset          | ×                         |                         | Distance of vehicle and lane was detached in lateral direction more than the specified value |
| Lane marker lost        | ×                         |                         | Lane camera unit lost the trace of lane marker   |
| Lane marker unclear     | ×                         |                         | Detected lane marker was unclear   |
| Yaw acceleration        | ×                         |                         | Detected yawing speed was more than the specified value                                      |
| Deceleration large      | ×                         |                         | Deceleration in a longitudinal direction was more than the specified value                   |
| Accel is operated       | ×                         |                         | Accelerator pedal was depressed  |
| Departure steering      | ×                         |                         | Steering wheel was steered more than the specified value in departure direction              |
| Evasive steering        | ×                         |                         | Steering wheel was steered more than the specified value in the evasive direction            |
| R range                 | ×                         |                         | Selector lever was operated to R range   |
| Parking brake drift     | ×                         |                         | Rear wheels lock was detected  |
| Not operating condition | ×                         |                         | Did not meet the operating condition (vehicle speed, turn signal operation, etc.)            |
| SNOW MODE SW            | ×                         |                         | Shifting of the drive mode selector to SNOW position   |

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[FCW]

| Cause of cancellation        | Lane departure prevention | Blind spot intervention | Description  |
|------------------------------|---------------------------|-------------------------|--|
| VDC OFF SW                   | ×                         |                         | VDC OFF switch was pressed   |
| OPE VDC/ABS 2                | ×                         |                         | The activation of VDC or ABS during a standby time of LDP system control                     |
| BSI WARNING                  | ×                         |                         | Blind Spot Intervention system was activated   |
| BSI) OPE VDC/TCS/ABS 1       |                           | ×                       | The activation of VDC, TCS, or ABS during Blind Spot Intervention system control             |
| BSI) Vehicle dynamics        |                           | ×                       | Vehicle behavior exceeds specified value   |
| BSI) Steering speed          |                           | ×                       | Steering speed was more than the specified value in evasive direction                        |
| BSI) End by yaw angle        |                           | ×                       | Yaw angle was the end of Blind Spot Intervention control                                     |
| BSI) Departure yaw large     |                           | ×                       | Detected more than the specified value of yaw angle in departure direction                   |
| BSI) ICC WARNING             |                           | ×                       | Target approach warning of ICC system, IBA system or FCW system was activated                |
| BSI) CURVATURE               |                           | ×                       | Road curve was more than the specified value   |
| BSI) Steering angle large    |                           | ×                       | Steering angle was more than the specified value   |
| BSI) Brake is operated       |                           | ×                       | Brake pedal was operated   |
| BSI) IGN LOW VOLT            |                           | ×                       | Decrease in ADAS control unit IGN voltage  |
| BSI) Lateral offset          |                           | ×                       | Distance of vehicle and lane was detached in lateral direction more than the specified       |
| BSI) Lane marker lost        |                           | ×                       | Lane camera unit lost the trace of lane marker   |
| BSI) Lane marker unclear     |                           | ×                       | Detected lane marker was unclear   |
| BSI) Yaw acceleration        |                           | ×                       | Detected yawing speed was more than the specified value                                      |
| BSI) Deceleration large      |                           | ×                       | Deceleration in a longitudinal direction was more than the specified value                   |
| BSI) Accel is operated       |                           | ×                       | Accelerator pedal was depressed  |
| BSI) Departure steering      |                           | ×                       | Steering wheel was steered more than the specified value in departure direction              |
| BSI) Evasive steering        |                           | ×                       | Steering wheel was steered more than the specified value in the evasive direction            |
| BSI) R range                 |                           | ×                       | Selector lever was operated to R range   |
| BSI) Parking brake drift     |                           | ×                       | Rear wheels lock was detected  |
| BSI) SNOW MODE SW            |                           | ×                       | Shifting of the drive mode selector to SNOW position   |
| BSI) VDC OFF SW              |                           | ×                       | VDC OFF switch was pressed   |
| BSI) OPE VDC/ABS 2           |                           | ×                       | The activation of VDC or ABS during a standby time of Blind Spot Intervention system control |
| BSI) Not operating condition |                           | ×                       | Did not meet the operating condition (vehicle speed, turn signal operation, etc.)            |
| Side Radar Lost              |                           | ×                       | Unrecognized side radar LH or RH by the ADAS control unit                                    |
| NO RECORD                    | ×                         | ×                       | —  |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## SELF DIAGNOSTIC RESULT

Refer to [DAS-40. "DTC Index"](#).

## DATA MONITOR

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[FCW]

| Monitored item<br>[Unit]         | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description  |
|----------------------------------|------------------|-------------------|-----------------------|-----------------------|--|
| MAIN SW<br>[On/Off]              | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| SET/COAST SW<br>[On/Off]         | ×                | ×                 |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| CANCEL SW<br>[On/Off]            | ×                | ×                 |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| RESUME/ACC SW<br>[On/Off]        | ×                | ×                 |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| DISTANCE SW<br>[On/Off]          | ×                |                   |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| CRUISE OPE<br>[On/Off]           | ×                | ×                 |                       |                       | Indicates whether controlling or not (ON means "controlling")  |
| BRAKE SW<br>[On/Off]             | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status as judged from ICC brake switch signal (ECM transmits ICC brake switch signal through CAN communication)   |
| STOP LAMP SW<br>[On/Off]         | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status as judged from stop lamp switch signal (ECM transmits stop lamp switch signal through CAN communication)   |
| IDLE SW<br>[On/Off]              | ×                |                   |                       |                       | Indicates [On/Off] status of idle switch read from ADAS control unit through CAN communication (ECM transmits On/Off status through CAN communication)   |
| SET DISTANCE<br>[Short/Mid/Long] | ×                | ×                 |                       |                       | Indicates set distance memorized in ADAS control unit  |
| CRUISE LAMP<br>[On/Off]          | ×                | ×                 |                       |                       | Indicates [On/Off] status of MAIN switch indicator output  |
| OWN VHCL<br>[On/Off]             | ×                |                   |                       |                       | Indicates [On/Off] status of own vehicle indicator output  |
| VHCL AHEAD<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of vehicle ahead detection indicator output  |
| ICC WARNING<br>[On/Off]          | ×                |                   |                       |                       | Indicates [On/Off] status of ICC system warning lamp output  |
| VHCL SPEED SE<br>[km/h] or [mph] | ×                | ×                 | ×                     | ×                     | Indicates vehicle speed calculated from ADAS control unit through CAN communication [ABS actuator and electric unit (control unit) transmits vehicle speed signal (wheel speed) through CAN communication] |
| SET VHCL SPD<br>[km/h] or [mph]  | ×                | ×                 |                       |                       | Indicates set vehicle speed memorized in ADAS control unit   |
| BUZZER O/P<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of ICC warning chime output  |
| THRTL SENSOR<br>[deg]            | ×                | ×                 |                       |                       | <b>NOTE:</b><br>The item is displayed, but it is not monitored   |
| ENGINE RPM<br>[rpm]              | ×                |                   |                       |                       | Indicates engine speed read from ADAS control unit through CAN communication (ECM transmits engine speed signal through CAN communication)   |
| WIPER SW<br>[OFF/LOW/HIGH]       | ×                |                   |                       |                       | Indicates wiper [OFF/LOW/HIGH] status (BCM transmits front wiper request signal through CAN communication)   |
| YAW RATE<br>[deg/s]              | ×                |                   |                       |                       | <b>NOTE:</b><br>The item is displayed, but it is not monitored   |
| BA WARNING<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of IBA OFF indicator lamp output   |
| STP LMP DRIVE<br>[On/Off]        | ×                | ×                 |                       |                       | Indicates [On/Off] status of ICC brake hold relay drive output   |
| D RANGE SW<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of "D" or "M" positions read from ADAS control unit through CAN communication; ON when position "D" or "M" (TCM transmits shift position signal through CAN communication).      |

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[FCW]

| Monitored item<br>[Unit]          | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description  |
|-----------------------------------|------------------|-------------------|-----------------------|-----------------------|--|
| NP RANGE SW<br>[On/Off]           | ×                |                   |                       |                       | Indicates shift position signal read from ADAS control unit through CAN communication (TCM transmits shift position signal through CAN communication)  |
| PKB SW<br>[On/Off]                | ×                |                   |                       |                       | Parking brake switch status [On/Off] judged from the parking brake switch signal that ADAS control unit readout via CAN communication is displayed (combination meter transmits the parking brake switch signal via CAN communication) |
| PWR SUP MONI<br>[V]               | ×                | ×                 |                       |                       | Indicates IGN voltage input by ADAS control unit   |
| VHCL SPD AT<br>[km/h] or [mph]    | ×                |                   |                       |                       | Indicates vehicle speed calculated from A/T vehicle speed sensor read from ADAS control unit through CAN communication (TCM transmits A/T vehicle speed sensor signal through CAN communication)                                       |
| THRTL OPENING<br>[%]              | ×                | ×                 |                       |                       | Indicates throttle position read from ADAS control unit through CAN communication (ECM transmits accelerator pedal position signal through CAN communication).   |
| GEAR<br>[1, 2, 3, 4, 5, 6, 7]     | ×                |                   |                       |                       | Indicates A/T gear position read from ADAS control unit through CAN communication (TCM transmits current gear position signal through CAN communication)   |
| MODE SIG<br>[OFF, ICC, ASCD]      | ×                |                   |                       |                       | Indicates the active mode from ICC or ASCD [conventional (fixed speed) cruise control mode]  |
| SET DISP IND<br>[On/Off]          | ×                |                   |                       |                       | Indicates [On/Off] status of SET switch indicator output   |
| DISTANCE<br>[m]                   | ×                |                   |                       |                       | Indicates the distance from the vehicle ahead  |
| RELATIVE SPD<br>[m/s]             | ×                |                   |                       |                       | Indicates the relative speed of the vehicle ahead  |
| DYNA ASIST SW<br>[On/Off]         | ×                | ×                 |                       | ×                     | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| DCA ON IND<br>[On/Off]            | ×                |                   |                       |                       | The status [ON/OFF] of DCA system switch indicator output is displayed   |
| DCA VHL AHED<br>[On/Off]          | ×                |                   |                       |                       | The status [ON/OFF] of vehicle ahead detection indicator output in DCA system is displayed   |
| IBA SW<br>[On/Off]                | ×                | ×                 |                       |                       | Indicates [On/Off] status of IBA OFF switch  |
| FCW SYSTEM ON<br>[On/Off]         | ×                | ×                 |                       |                       | Indicates [On/Off] status of FCW system  |
| APA TEMP<br>[°C]                  | ×                |                   |                       |                       | Accelerator pedal actuator integrated motor temperature that the ADAS control unit readout via ITS communication is displayed (Accelerator pedal actuator transmits the integrated motor temperature via ITS communication)            |
| APA PWR<br>[V]                    | ×                |                   |                       |                       | Accelerator pedal actuator power supply voltage that the ADAS control unit readout via ITS communication is displayed (Accelerator pedal actuator transmits the power supply voltage via ITS communication)                            |
| LDW SYSTEM ON<br>[On/Off]         |                  |                   | ×                     |                       | Indicates [On/Off] status of LDW system  |
| LDW ON LAMP<br>[On/Off]           |                  |                   | ×                     |                       | Indicates [On/Off] status of warning systems ON indicator output   |
| LDP ON IND<br>[On/Off]            |                  |                   | ×                     |                       | Indicates [On/Off] status of LDP ON indicator lamp (Green) output  |
| LANE DPRT W/L<br>[On/Off]         |                  |                   | ×                     |                       | Indicates [On/Off] status of lane departure warning lamp (Yellow) output   |
| LDW BUZER OUT-<br>PUT<br>[On/Off] |                  |                   | ×                     |                       | Indicates [On/Off] status of warning buzzer output   |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

[FCW]

< SYSTEM DESCRIPTION >

| Monitored item<br>[Unit]                      | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description   |
|---|------------------|-------------------|-----------------------|-----------------------|---|
| LDP SYSTEM ON<br>[On/Off]                     |                  |                   | ×                     |                       | Indicates [On/Off] status of LDP system   |
| WARN REQ<br>[On/Off]                          |                  |                   | ×                     |                       | Indicates an ADAS control unit judged warning state (ON/OFF) of LDP system  |
| READY signal<br>[On/Off]                      |                  |                   | ×                     |                       | Indicates LDP system settings   |
| Camera lost<br>[Detect/Deviate/Both]          |                  |                   | ×                     | ×                     | Indicates a lane marker detection state judged from a lane marker detection signal read by the ADAS control unit via ITS communication<br>(Lane camera unit transmits a lane marker signal via ITS communication)   |
| Shift position<br>[Off, P, R, N, D, M/T1 - 7] |                  |                   | ×                     | ×                     | Indicates shift position read from ADAS control unit through CAN communication<br>(TCM transmits shift position signal through CAN communication)   |
| Turn signal<br>[OFF/LH/RH/LH&RH]              |                  |                   | ×                     | ×                     | Indicates turn signal operation status read from ADAS control unit through CAN communication (BCM transmits turn indicator signal through CAN communication)  |
| SIDE G<br>[G]                                 |                  |                   | ×                     | ×                     | Indicates lateral G acting on the vehicle. This lateral G is judged from a side G sensor signal read by ADAS control unit via CAN communication<br>(The ABS actuator and electric unit (control unit) transmits a side G sensor signal via CAN communication) |
| STATUS signal<br>[Stnby/Warn/Cancel/Off]      |                  |                   | ×                     |                       | Indicates a control state of LDP system   |
| Lane unclear<br>[On/Off]                      |                  |                   | ×                     | ×                     | Indicates an ON/OFF state of the lane marker. The ON/OFF state is judged from a detected lane condition signal read by the ADAS control unit via ITS communication<br>(The lane camera unit transmits a detected lane condition signal via ITS communication) |
| FUNC ITEM<br>[FUNC3]                          | ×                | ×                 | ×                     | ×                     | Indicates systems which can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system<br>FUNC3: Distance Control Assist (DCA), Lane Departure Prevention (LDP) and Blind Spot Intervention (BSI)             |
| FUNC ITEM (NV-ICC)<br>[Off]                   | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| FUNC ITEM (NV-DCA)<br>[Off]                   | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| DCA SELECT<br>[On/Off]                        | ×                | ×                 | ×                     | ×                     | Indicates an ON/OFF state of the DCA system. The DCA system can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system  |
| LDP SELECT<br>[On/Off]                        | ×                | ×                 | ×                     | ×                     | Indicates an ON/OFF state of LDP system. LDP system can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system  |
| BSI SELECT<br>[On/Off]                        | ×                | ×                 | ×                     | ×                     | Indicates an ON/OFF state of BSI system. BSI system can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system.   |
| NAVI ICC SELECT<br>[Off]                      | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| NAVI DCA SELECT<br>[Off]                      | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| SYS SELECTABILITY<br>[On/Off]                 | ×                | ×                 | ×                     | ×                     | Indicates the availability of ON/OFF switching for "Driver Assistance" items received from the AV control unit via CAN communication  |

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[FCW]

| Monitored item<br>[Unit]                               | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description  |
|--|------------------|-------------------|-----------------------|-----------------------|--|
| DRIVE MODE STATS<br>[STD/SPORT/ECO/<br>SNOW/MID/ERROR] | ×                | ×                 | ×                     | ×                     | Indicates a drive mode selector select position judged from a drive mode select switch position signal read by the ADAS control unit via CAN communication (The A/C auto amp. transmits a switch position signal of the drive mode select switch signal via CAN communication) |
| WARN SYS SW<br>[On/Off]                                | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status of warning systems switch  |
| BSW/BSI WARN LMP<br>[On/Off]                           |                  |                   |                       | ×                     | Indicates [On/Off] status of BSW/BSI warning lamp output   |
| BSI ON IND<br>[On/Off]                                 |                  |                   |                       | ×                     | Indicates [On/Off] status of BSI ON indicator output   |
| BSW SYSTEM ON<br>[On/Off]                              |                  |                   |                       | ×                     | Indicates [On/Off] status of BSW system  |
| BSI SYSTEM ON<br>[On/Off]                              |                  |                   |                       | ×                     | Indicates [On/Off] status of BSI system  |

## ACTIVE TEST

### CAUTION:

- **Never perform “Active Test” while driving the vehicle.**
- **The “Active Test” cannot be performed when the following systems warning lamp is illuminated.**
  - **ICC system warning lamp**
  - **Lane departure warning lamp**
  - **BSW/BSI warning lamp**
  - **IBA OFF indicator lamp (IBA system ON)**
- **Shift the selector lever to “P” position, and then perform the test.**

| Test item            | Description   |
|----------------------|---|
| METER LAMP           | The ICC system warning lamp, MAIN switch indicator and IBA OFF indicator lamp can be illuminated by ON/OFF operations as necessary  |
| STOP LAMP            | The ICC brake hold relay can be operated by ON/OFF operations as necessary, and the stop lamp can be illuminated  |
| ICC BUZZER           | Sounds a buzzer used for following systems by arbitrarily operating ON/OFF <ul style="list-style-type: none"> <li>• Intelligent Cruise Control (ICC)</li> <li>• Distance Control Assist (DCA)</li> <li>• Forward Collision Warning (FCW)</li> <li>• Intelligent Brake Assist (IBA)</li> </ul> |
| BRAKE ACTUATOR       | Activates the brake by an arbitrary operation   |
| Active Pedal         | The accelerator pedal actuator can be operated as necessary   |
| DCA INDICATOR        | The DCA system switch indicator can be illuminated by ON/OFF operations as necessary  |
| LDP BUZZER           | Sounds a buzzer used for following systems by arbitrarily operating ON/OFF <ul style="list-style-type: none"> <li>• Lane Departure Warning (LDW)</li> <li>• Lane Departure Prevention (LDP)</li> <li>• Blind Spot Warning (BSW)</li> <li>• Blind Spot Intervention (BSI)</li> </ul>           |
| WARNING SYSTEM IND   | The warning systems ON indicator (on warning systems switch) can be illuminated by ON/OFF operations as necessary   |
| LDP ON IND           | The LDP ON indicator lamp can be illuminated by ON/OFF operations as necessary  |
| LANE DEPARTURE W/L   | The Lane departure warning lamp can be illuminated by ON/OFF operations as necessary  |
| BSW/BSI WARNING LAMP | The BSW/BSI warning lamp can be illuminated by ON/OFF operations as necessary   |
| BSI ON INDICATOR     | The BSI ON indicator can be illuminated by ON/OFF operations as necessary   |

## METER LAMP

### NOTE:

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[FCW]

The test can be performed only when the engine is running.

| Test item  | Operation | Description   | <ul style="list-style-type: none"> <li>• MAIN switch indicator</li> <li>• ICC system warning lamp</li> <li>• IBA OFF indicator lamp</li> </ul> |
|------------|-----------|---|--|
| METER LAMP | Off       | Stops sending the following signals to exit from the test <ul style="list-style-type: none"> <li>• Meter display signal</li> <li>• ICC warning lamp signal</li> <li>• IBA OFF indicator lamp signal</li> </ul>                      | OFF  |
|            | On        | Transmits the following signals to the combination meter via CAN communication <ul style="list-style-type: none"> <li>• Meter display signal</li> <li>• ICC warning lamp signal</li> <li>• IBA OFF indicator lamp signal</li> </ul> | ON   |

## STOP LAMP

| Test item | Operation | Description  | Stop lamp |
|-----------|-----------|--|-----------|
| STOP LAMP | Off       | Stops transmitting the ICC brake hold relay drive signal below to end the test | OFF       |
|           | On        | Transmits the ICC brake hold relay drive signal                                | ON        |

## ICC BUZZER

| Test item  | Operation  | Description  | ICC warning chime operation sound |
|------------|------------|--|-----------------------------------|
| ICC BUZZER | MODE1      | Transmits the buzzer output signals to the combination meter via CAN communication | Intermittent beep sound           |
|            | Test start | Starts the tests of "MODE1"  | —                                 |
|            | Reset      | Stops transmitting the buzzer output signal below to end the test                  | —                                 |
|            | End        | Returns to the "SELECT TEST ITEM" screen   | —                                 |

## BRAKE ACTUATOR

### NOTE:

The test can be performed only when the engine is running.

| Test item      | Operation  | Description  | "PRESS SENS" value |
|----------------|------------|--|--------------------|
| BRAKE ACTUATOR | MODE1      | Transmits the brake fluid pressure control signal to the ABS actuator and electric unit (control unit) via CAN communication | 10 bar             |
|                | MODE2      |  | 20 bar             |
|                | MODE3      |  | 30 bar             |
|                | Test start | Starts the tests of "MODE1", "MODE2" and "MODE3"   | —                  |
|                | Reset      | Stops transmitting the brake fluid pressure control signal below to end the test   | —                  |
|                | End        | Returns to the "SELECT TEST ITEM" screen   | —                  |

### NOTE:

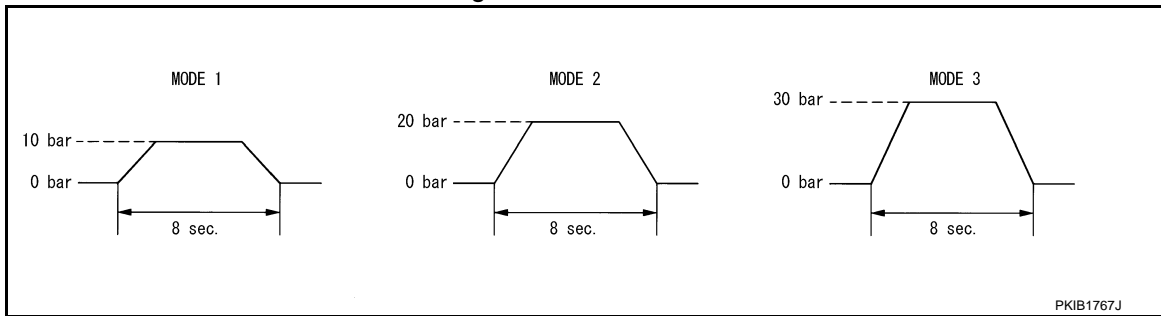


# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

[FCW]

## < SYSTEM DESCRIPTION >

The test is finished in 10 seconds after starting



Active Pedal

**CAUTION:**

- Shift the selector lever to “P” position, and then perform the test.
- Never depress the accelerator pedal excessively. (The engine speed may rise unexpectedly when finishing the test.)

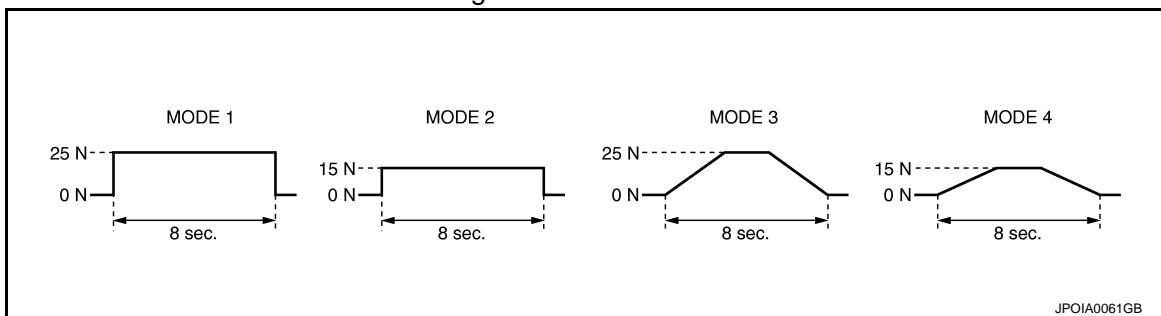
**NOTE:**

- Depress the accelerator pedal to check when performing the test.
- The test can be performed only when the engine is running.

| Test item    | Operation   | Description   | Accelerator pedal operation                 |
|--------------|---|---|---|
| Active Pedal | MODE1   | Transmit the accelerator pedal feedback force control signal to the accelerator pedal actuator via ITS communication. | Constant with a force of 25 N for 8 seconds |
|              | MODE2   |   | Constant with a force of 15 N for 8 seconds |
|              | MODE3   |   | Change up to a force of 25 N for 8 seconds  |
|              | MODE4   |   | Change up to a force of 15 N for 8 seconds  |
|              | Test start  | Starts the tests of “MODE1”, “MODE2”, “MODE3” and “MODE4”   | —   |
| Reset        | Stops transmitting the accelerator pedal feedback force control signal below to end the test. | —   |   |
| End          | Returns to the “SELECT TEST ITEM” screen  | —   |   |

**NOTE:**

The test is finished in 10 seconds after starting



DCA INDICATOR

**NOTE:**

The test can be performed only when the engine is running.

| Test item     | Operation | Description   | DCA system switch indicator |
|---------------|-----------|---|-----------------------------|
| DCA INDICATOR | Off       | Stops transmitting the DCA system switch indicator signal below to end the test                 | —                           |
|               | On        | Transmits the DCA system switch indicator signal to the combination meter via CAN communication | ON                          |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[FCW]

## LDP BUZZER

| Test item  | Operation | Description  | Warning buzzer |
|------------|-----------|--|----------------|
| LDP BUZZER | Off       | Stops transmitting the warning buzzer signal below to end the test | —              |
|            | On        | Transmits the warning buzzer signal to the warning buzzer          | ON             |

## WARNING SYSTEM IND

| Test item          | Operation | Description  | Warning systems ON indicator |
|--------------------|-----------|--|------------------------------|
| WARNING SYSTEM IND | Off       | Stops transmitting the warning systems ON indicator signal below to end the test       | —                            |
|                    | On        | Transmits the warning systems ON indicator signal to the warning systems ON indicator. | ON                           |

## LDP ON IND

| Test item  | Operation | Description   | LDP ON indicator lamp (Green) |
|------------|-----------|---|-------------------------------|
| LDP ON IND | Off       | Stops transmitting the LDP ON indicator lamp signal below to end the test                 | —                             |
|            | On        | Transmits the LDP ON indicator lamp signal to the combination meter via CAN communication | ON                            |

## LANE DEPARTURE W/L

| Test item          | Operation | Description   | Lane departure warning lamp (Yellow) |
|--------------------|-----------|---|--------------------------------------|
| LANE DEPARTURE W/L | Off       | Stops transmitting the lane departure warning lamp signal below to end the test                 | —                                    |
|                    | On        | Transmits the lane departure warning lamp signal to the combination meter via CAN communication | ON                                   |

## BSW/BSI WARNING LAMP

| Test item            | Operation | Description  | BSW/BSI warning lamp (Yellow) |
|----------------------|-----------|--|-------------------------------|
| BSW/BSI WARNING LAMP | Off       | Stops transmitting the BSW/BSI warning lamp signal below to end the test                 | —                             |
|                      | On        | Transmits the BSW/BSI warning lamp signal to the combination meter via CAN communication | ON                            |

## BSI ON INDICATOR

| Test item        | Operation | Description  | BSI ON indicator lamp (Green) |
|------------------|-----------|--|-------------------------------|
| BSI ON INDICATOR | Off       | Stops transmitting the BSI ON indicator signal below to end the test                 | —                             |
|                  | On        | Transmits the BSI ON indicator signal to the combination meter via CAN communication | ON                            |

# DIAGNOSIS SYSTEM (ICC SENSOR)

[FCW]

< SYSTEM DESCRIPTION >

## DIAGNOSIS SYSTEM (ICC SENSOR)

### CONSULT Function (LASER)

INFOID:000000007218067

#### APPLICATION ITEMS

CONSULT performs the following functions via CAN communication with ADAS control unit and the communication with ICC sensor.

| Diagnosis mode           | Description   |
|--------------------------|---|
| Work Support             | It can monitor the adjustment direction indication in order to perform the laser beam aiming operation smoothly |
| Self Diagnostic Result   | Displays malfunctioning system memorized in ICC sensor  |
| Data Monitor             | Displays real-time input/output data of ICC sensor  |
| Ecu Identification       | Displays ICC sensor part number   |
| CAN Diag Support Monitor | The results of transmit/receive diagnosis of ITS communication can be read                                      |

#### WORK SUPPORT

| Work support items | Description  |
|--------------------|--|
| LASER BEAM ADJUST  | Outputs laser beam, calculates dislocation of the beam, and indicates adjustment direction |

#### Laser Beam Adjust

Refer to [CCS-65. "Description"](#).

#### SELF DIAGNOSTIC RESULT

Refer to [DAS-233. "DTC Index"](#).

#### DATA MONITOR

| Monitored item<br>[Unit]         | Description  |
|----------------------------------|--|
| VHCL SPEED SE<br>[km/h] or [mph] | Vehicle speed judged from a vehicle speed signal read by the ICC sensor via ITS communication is displayed [ADAS control unit receives a vehicle speed signal from ABS actuator and electric unit (control unit) via CAN communication and transmits the calculated vehicle speed to ICC sensor via ITS communication] |
| YAW RATE<br>[deg/s]              | Yaw rate judged from a yaw rate signal read by ICC sensor via ITS communication is displayed [ADAS control unit receives a yaw rate signal from ABS actuator and electric unit (control unit) via CAN communication and transmits the calculated yaw rate to ICC sensor via ITS communication]                         |
| PWR SUP MONI<br>[V]              | Indicates IGN voltage input by ICC sensor  |
| DISTANCE<br>[m]                  | Indicates the distance from the vehicle ahead  |
| RELATIVE SPD<br>[m/s]            | Indicates the relative speed of the vehicle ahead  |
| LASER OFFSET<br>[m]              | <b>NOTE:</b><br>The item is indicated, but not used  |
| LASER HEIGHT<br>[m]              | <b>NOTE:</b><br>The item is indicated, but not used  |
| STEERING ANGLE<br>[deg]          | The steering angle is displayed  |
| STRG ANGLE SPEED<br>[deg/s]      | The steering angle speed is displayed  |
| L/R ADJUST                       | The horizontal correction value of the laser beam is displayed   |
| U/D ADJUST                       | The vertical correction value of the laser beam is displayed   |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[FCW]

## ECU DIAGNOSIS INFORMATION

### ADAS CONTROL UNIT

Reference Value

INFOID:000000007218070

#### VALUES ON THE DIAGNOSIS TOOL

| Monitor item  | Condition  |  | Value/Status |
|---------------|--|--|--------------|
| MAIN SW       | Ignition switch ON   | When MAIN switch is pressed  | On           |
|               |  | When MAIN switch is not pressed  | Off          |
| SET/COAST SW  | Ignition switch ON   | When SET/COAST switch is pressed   | On           |
|               |  | When SET/COAST switch is not pressed   | Off          |
| CANCEL SW     | Ignition switch ON   | When CANCEL switch is pressed  | On           |
|               |  | When CANCEL switch is not pressed  | Off          |
| RESUME/ACC SW | Ignition switch ON   | When RESUME/ACCELERATE switch is pressed                                     | On           |
|               |  | When RESUME/ACCELERATE switch is not pressed                                 | Off          |
| DISTANCE SW   | Ignition switch ON   | When DISTANCE switch is pressed  | On           |
|               |  | When DISTANCE switch is not pressed  | Off          |
| CRUISE OPE    | Drive the vehicle and activate the vehicle-to-vehicle distance control mode  | When ICC system is controlling   | On           |
|               |  | When ICC system is not controlling   | Off          |
| BRAKE SW      | Ignition switch ON   | When brake pedal is depressed  | Off          |
|               |  | When brake pedal is not depressed  | On           |
| STOP LAMP SW  | Ignition switch ON   | When brake pedal is depressed  | On           |
|               |  | When brake pedal is not depressed  | Off          |
| IDLE SW       | Engine running   | Idling   | On           |
|               |  | Except idling (depress accelerator pedal)                                    | Off          |
| SET DISTANCE  | <ul style="list-style-type: none"> <li>Start the engine and turn the ICC system ON</li> <li>Press the DISTANCE switch to change the vehicle-to-vehicle distance setting</li> </ul> | When set to "long"   | Long         |
|               |  | When set to "middle"   | Mid          |
|               |  | When set to "short"  | Short        |
| CRUISE LAMP   | Start the engine and press MAIN switch   | ICC system ON (MAIN switch indicator ON)                                     | On           |
|               |  | ICC system OFF (MAIN switch indicator OFF)                                   | Off          |
| OWN VHCL      | Start the engine and press MAIN switch   | ICC system ON (Own vehicle indicator ON)                                     | On           |
|               |  | ICC system OFF (Own vehicle indicator OFF)                                   | Off          |
| VHCL AHEAD    | Drive the vehicle and activate the vehicle-to-vehicle distance control mode  | When a vehicle ahead is detected (vehicle ahead detection indicator ON)      | On           |
|               |  | When a vehicle ahead is not detected (vehicle ahead detection indicator OFF) | Off          |
| ICC WARNING   | Start the engine and press MAIN switch   | When ICC system is malfunctioning (ICC system warning lamp ON)               | On           |
|               |  | When ICC system is normal (ICC system warning lamp OFF)                      | Off          |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[FCW]

| Monitor item  | Condition   |  | Value/Status   |
|---------------|---|--|--|
| VHCL SPEED SE | While driving   |  | Displays the vehicle speed calculated by ADAS control unit |
| SET VHCL SPD  | While driving   | When vehicle speed is set  | Displays the set vehicle speed                             |
| BUZZER O/P    | Engine running  | When the buzzer of the following system operates<br><ul style="list-style-type: none"> <li>• Vehicle-to-vehicle distance control mode</li> <li>• DCA system</li> <li>• FCW system</li> <li>• IBA system</li> </ul>     | On   |
|               |   | When the buzzer of the following system not operates<br><ul style="list-style-type: none"> <li>• Vehicle-to-vehicle distance control mode</li> <li>• DCA system</li> <li>• FCW system</li> <li>• IBA system</li> </ul> | Off  |
| THRTL SENSOR  | <b>NOTE:</b><br>The item is indicated, but not monitored                    |  | 0.0  |
| ENGINE RPM    | Engine running  |  | Equivalent to tachometer reading                           |
| WIPER SW      | Ignition switch ON  | Wiper not operating  | Off  |
|               |   | Wiper LO operation   | Low  |
|               |   | Wiper HI operation   | High   |
| YAW RATE      | <b>NOTE:</b><br>The item is indicated, but not monitored                    |  | 0.0  |
| BA WARNING    | Engine running  | IBA OFF indicator lamp ON<br><ul style="list-style-type: none"> <li>• When IBA system is malfunctioning</li> <li>• When IBA system is turned to OFF</li> </ul>   | On   |
|               |   | IBA OFF indicator lamp OFF<br><ul style="list-style-type: none"> <li>• When IBA system is normal</li> <li>• When IBA system is turned to ON</li> </ul>   | Off  |
| STP LMP DRIVE | Drive the vehicle and activate the vehicle-to-vehicle distance control mode | When ICC brake hold relay is activated   | On   |
|               |   | When ICC brake hold relay is not activated   | Off  |
| D RANGE SW    | Engine running  | When the selector lever is in "D" position or manual mode  | On   |
|               |   | When the selector lever is in any position other than "D" or manual mode   | Off  |
| NP RANGE SW   | Engine running  | When the selector lever is in "N", "P" position  | On   |
|               |   | When the selector lever is in any position other than "N", "P"   | Off  |
| PKB SW        | Ignition switch ON  | When the parking brake is applied  | On   |
|               |   | When the parking brake is released   | Off  |
| PWR SUP MONI  | Engine running  |  | Power supply voltage value of ADAS control unit            |
| VHCL SPD AT   | While driving   |  | Value of A/T vehicle speed sensor signal                   |
| THRTL OPENING | Engine running  | Depress accelerator pedal  | Displays the throttle position                             |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[FCW]

| Monitor item  | Condition   |  | Value/Status  |
|---------------|---|--|---|
| GEAR          | While driving   |  | Displays the gear position  |
| MODE SIG      | Start the engine and press MAIN switch  | When ICC system is deactivated   | Off   |
|               |   | When vehicle-to-vehicle distance control mode is activated                   | ICC   |
|               |   | When conventional (fixed speed) cruise control mode is activated             | ASCD  |
| SET DISP IND  | <ul style="list-style-type: none"> <li>• Drive the vehicle and activate the conventional (fixed speed) cruise control mode</li> <li>• Press SET/COAST switch</li> </ul> | SET switch indicator ON  | On  |
|               |   | SET switch indicator OFF   | Off   |
| DISTANCE      | Drive the vehicle and activate the vehicle-to-vehicle distance control mode   | When a vehicle ahead is detected   | Displays the distance from the preceding vehicle                    |
|               |   | When a vehicle ahead is not detected   | 0.0   |
| RELATIVE SPD  | Drive the vehicle and activate the vehicle-to-vehicle distance control mode   | When a vehicle ahead is detected   | Displays the relative speed.  |
|               |   | When a vehicle ahead is not detected   | 0.0   |
| DYNA ASIST SW | Ignition switch ON  | When dynamic driver assistance switch is pressed                             | On  |
|               |   | When dynamic driver assistance switch is not pressed                         | Off   |
| DCA ON IND    | Start the engine and press dynamic driver assistance switch (When DCA setting is ON)  | DCA system OFF (DCA system switch indicator OFF)                             | Off   |
|               |   | DCA system ON (DCA system switch indicator ON)                               | On  |
| DCA VHL AHED  | Drive the vehicle and activate the DCA system   | When a vehicle ahead is not detected (vehicle ahead detection indicator OFF) | Off   |
|               |   | When a vehicle ahead is detected (vehicle ahead detection indicator ON)      | On  |
| IBA SW        | Ignition switch ON  | When the IBA OFF switch is pressed   | On  |
|               |   | When the IBA OFF switch is not pressed                                       | Off   |
| FCW SYSTEM ON | Ignition switch ON  | When the FCW system is ON (Warning systems ON indicator ON)                  | On  |
|               |   | When the FCW system is OFF (Warning systems ON indicator OFF)                | Off   |
| APA TEMP      | Engine running  |  | Display the accelerator pedal actuator integrated motor temperature |
| APA PWR       | Ignition switch ON  |  | Power supply voltage value of accelerator pedal actuator            |
| LDW SYSTEM ON | Ignition switch ON  | When the LDW system is ON (Warning systems ON indicator ON)                  | On  |
|               |   | When the LDW system is OFF (Warning systems ON indicator OFF)                | Off   |
| LDW ON LAMP   | Ignition switch ON  | Warning systems ON indicator ON  | On  |
|               |   | Warning systems ON indicator OFF   | Off   |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[FCW]

| Monitor item       | Condition   |  | Value/Status                |
|--------------------|---|--|-----------------------------|
| LDP ON IND         | Start the engine and press dynamic driver assistance switch (When LDP system setting is ON) | LDP ON indicator lamp ON   | On                          |
|                    |   | LDP ON indicator lamp OFF  | Off                         |
| LANE DPRT W/L      | Drive the vehicle and activate the LDW system or LDP system                                 | Lane departure warning lamp ON   | On                          |
|                    |   | Lane departure warning lamp OFF  | Off                         |
| LDW BUZER OUTPUT   | Drive the vehicle and activate the LDW/LDP system or BSW/BSI system                         | When the buzzer of the following system operates<br>• LDW/LDP system<br>• BSW/BSI system         | On                          |
|                    |   | When the buzzer of the following system does not operate<br>• LDW/LDP system<br>• BSW/BSI system | Off                         |
| LDP SYSTEM ON      | Start the engine and press dynamic driver assistance switch (When LDP system setting is ON) | When the LDP system is ON  | On                          |
|                    |   | When the LDP system is OFF   | Off                         |
| READY signal       | Start the engine and press dynamic driver assistance switch (When LDP system setting is ON) | When the LDP system is ON  | On                          |
|                    |   | When the LDP system is OFF   | Off                         |
| Camera lost        | Drive the vehicle and activate the LDW system, LDP system or BSI system                     | Both side lane markers are detected  | Detect                      |
|                    |   | Deviated side lane marker is lost  | Deviated                    |
|                    |   | Both side lane markers are lost  | Both                        |
| Shift position     | <ul style="list-style-type: none"> <li>• Engine running</li> <li>• While driving</li> </ul> |  | Displays the shift position |
| Turn signal        | Turn signal lamps OFF   |  | Off                         |
|                    | Turn signal lamp LH blinking  |  | LH                          |
|                    | Turn signal lamp RH blinking  |  | RH                          |
|                    | Turn signal lamp LH and RH blinking   |  | LH&RH                       |
| SIDE G             | While driving   | Vehicle turning right  | Negative value              |
|                    |   | Vehicle turning left   | Positive value              |
| WARN REQ           | Drive the vehicle and activate the LDP system   | Lane departure warning is operating  | On                          |
|                    |   | Lane departure warning is not operating  | Off                         |
| STATUS signal      | Drive the vehicle and activate the LDP system   | When the LDP system is ON  | Stnby                       |
|                    |   | When the LDP system is operating   | Warn                        |
|                    |   | When the LDP system is canceled  | Cancl                       |
|                    |   | When the LDP system is OFF   | Off                         |
| Lane unclear       | While driving   | Lane marker is unclear   | On                          |
|                    |   | Lane marker is clear   | Off                         |
| FUNC ITEM          | Ignition switch ON  |  | FUNC3                       |
| FUNC ITEM (NV-ICC) | <b>NOTE:</b><br>The item is indicated, but not monitored                                    |  | Off                         |
| FUNC ITEM (NV-DCA) | <b>NOTE:</b><br>The item is indicated, but not monitored                                    |  | Off                         |
| DCA SELECT         | Ignition switch ON  | "Distance Control Assist" set with the navigation system is ON                                   | On                          |
|                    |   | "Distance Control Assist" set with the navigation system is OFF                                  | Off                         |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N

DAS

P

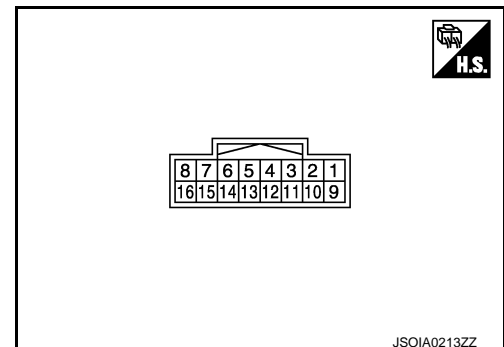
# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[FCW]

| Monitor item      | Condition  |  | Value/Status |
|-------------------|--|--|--------------|
| LDP SELECT        | Ignition switch ON   | "Lane Departure Prevention" set with the navigation system is ON   | On           |
|                   |  | "Lane Departure Prevention" set with the navigation system is OFF  | Off          |
| BSI SELECT        | Ignition switch ON   | "Blind Spot Intervention" set with the navigation system is ON   | On           |
|                   |  | "Blind Spot Intervention" set with the navigation system is OFF  | Off          |
| NAVI ICC SELECT   | <b>NOTE:</b><br>The item is indicated, but not monitored                                       |  | Off          |
| NAVI DCA SELECT   | <b>NOTE:</b><br>The item is indicated, but not monitored                                       |  | Off          |
| SYS SELECTABILITY | Ignition switch ON   | Items set with the navigation system can be switched normally  | On           |
|                   |  | Items set with the navigation system cannot be switched normally   | Off          |
| DRIVE MODE STATS  | Ignition switch ON   | When drive mode select switch position is STANDARD   | STD          |
|                   |  | When drive mode select switch position is in SPORT   | SPORT        |
|                   |  | When drive mode select switch position is in ECO   | ECO          |
|                   |  | When drive mode select switch position is in SNOW  | SNOW         |
|                   |  | When position of drive mode select switch is in following states<br><ul style="list-style-type: none"> <li>• In the middle of SNOW-ECO</li> <li>• In the middle of ECO-STANDARD</li> <li>• In the middle of STANDARD-SPORTS</li> </ul> | Mid          |
|                   |  | A signal other than those above is input   | ERROR        |
| WARN SYS SW       | Ignition switch ON   | When warning systems switch is pressed   | On           |
|                   |  | When warning systems switch is not pressed   | Off          |
| BSW/BSI WARN LMP  | Ignition switch ON   | BSW/BSI warning lamp ON  | On           |
|                   |  | BSW/BSI warning lamp OFF   | Off          |
| BSI ON IND        | Ignition switch ON   | BSI ON indicator ON  | On           |
|                   |  | BSI ON indicator OFF   | Off          |
| BSW SYSTEM ON     | Ignition switch ON   | When the BSW system is ON<br>(Warning systems ON indicator ON)   | On           |
|                   |  | When the BSW system is OFF<br>(Warning systems ON indicator OFF)   | Off          |
| BSI SYSTEM ON     | Start the engine and press dynamic driver assistance switch<br>(When BSI system setting is ON) | When the BSI system is ON  | On           |
|                   |  | When the BSI system is OFF   | Off          |

TERMINAL LAYOUT  
PHYSICAL VALUES





# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[FCW]

| Terminal No.<br>(Wire color) |                              | Description                       |                    | Condition          |  | Value<br>(Approx.) |
|------------------------------|------------------------------|-----------------------------------|--------------------|--------------------|--|--------------------|
| +                            | -                            | Signal name                       | Input/<br>Output   |                    |  |                    |
| 1<br>(Y)                     | Ground                       | Warning systems switch            | Input              | Ignition switch ON | When warning systems switch is not pressed | 12 V               |
|                              |                              |                                   |                    |                    | When warning systems switch is pressed     | 0 V                |
| 3<br>(BR)                    |                              | IBA OFF switch                    | Input              | Ignition switch ON | When IBA OFF switch is not pressed         | 12 V               |
|                              |                              |                                   |                    |                    | When IBA OFF switch is pressed             | 0 V                |
| 4<br>(O)                     |                              | Warning systems ON indicator      | Output             | Ignition switch ON | Warning systems ON indicator ON            | 0 V                |
|                              |                              |                                   |                    |                    | Warning systems ON indicator OFF           | 12 V               |
| 5<br>(SB)                    |                              | ICC brake hold relay drive signal | Output             | Ignition switch ON | —  | 12 V               |
|                              |                              |                                   |                    |                    | At "STOP LAMP" test of "Active test"       | 0 V                |
| 6<br>(B/R)                   |                              | Ground                            | —                  | Ignition switch ON | —  | 0 V                |
| 7<br>(L)                     |                              | ITS communication-H               | —                  | —                  | —  | —                  |
| 8<br>(P)                     |                              | ITS communication-L               | —                  | —                  | —  | —                  |
| 12<br>(W)                    |                              | Warning buzzer signal             | Output             | Ignition switch ON | Warning buzzer operation                   | 0 V                |
|                              | Warning buzzer not operating |                                   |                    |                    | 12 V                                       |                    |
| 14<br>(L)                    | CAN -H                       | —                                 | —                  | —                  | —  |                    |
| 15<br>(R)                    | CAN -L                       | —                                 | —                  | —                  | —  |                    |
| 16<br>(GR)                   | Ignition power supply        | Input                             | Ignition switch ON |                    | Battery voltage                            |                    |

## Fail-safe

INFOID:000000007218071

If a malfunction occurs in each system, ADAS control unit cancels each control, sounds a beep, and turns ON the warning lamp or indicator lamp.

| System   | Buzzer            | Warning lamp/Indicator lamp | Description |
|--|-------------------|-----------------------------|-------------|
| Vehicle-to-vehicle distance control mode       | High-pitched tone | ICC system warning lamp     | Cancel      |
| Conventional (fixed speed) cruise control mode | High-pitched tone | ICC system warning lamp     | Cancel      |
| Intelligent Brake Assist (IBA)                 | High-pitched tone | IBA OFF indicator lamp      | Cancel      |
| Forward Collision Warning (FCW)                | High-pitched tone | IBA OFF indicator lamp      | Cancel      |

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[FCW]

| System                          | Buzzer            | Warning lamp/Indicator lamp | Description  |
|---------------------------------|-------------------|-----------------------------|--|
| Distance Control Assist (DCA)   | High-pitched tone | ICC system warning lamp     | Cancel   |
| Lane Departure Warning (LDW)    | —                 | Lane departure warning lamp | Cancel   |
| Lane Departure Prevention (LDP) | Low-pitched tone  | Lane departure warning lamp | Cancel   |
| Blind Spot Warning (BSW)        | —                 | BSW/BSI warning lamp        | Cancel   |
| Blind Spot Intervention (BSI)   | Low-pitched tone  | BSW/BSI warning lamp        | Cancel   |
| Active trace control function   | —                 | IBA OFF indicator lamp      | <ul style="list-style-type: none"> <li>• Cancel</li> <li>• If a communication error occurs between the A/C auto amp. and CAN communication line, a mode at the instant of error occurrence is maintained until the mode is fixed to STANDARD after turning the ignition switch from OFF to ON</li> </ul> |

## DTC Inspection Priority Chart

INFOID:000000007218072

If multiple DTCs are detected simultaneously, check them one by one depending on the following DTC inspection priority chart.

| Priority | Detected items (DTC)   |
|----------|--|
| 1        | <ul style="list-style-type: none"> <li>• U1507: LOST COMM (SIDE RDR R)</li> <li>• U1508: LOST COMM (SIDE RDR L)</li> </ul>   |
| 2        | <ul style="list-style-type: none"> <li>• U1000: CAN COMM CIRCUIT</li> <li>• U1010: CONTROL UNIT (CAN)</li> </ul>   |
| 3        | <ul style="list-style-type: none"> <li>• C1B00: CAMERA UNIT MALF</li> <li>• C1F02: APA C/U MALF</li> <li>• C1A17: ICC SENSOR MALF</li> <li>• C1B53: SIDE RDR R MALF</li> <li>• C1B54: SIDE RDR L MALF</li> </ul> |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[FCW]

| Priority | Detected items (DTC)  |   |   |
|----------|---|---|---|
| 4        | <ul style="list-style-type: none"> <li>• C1A01: POWER SUPPLY CIR</li> <li>• C1A02: POWER SUPPLY CIR 2</li> <li>• C1A04: ABS/TCS/VDC CIRC</li> <li>• C1A05: BRAKE SW/STOP L SW</li> <li>• C1A06: OPERATION SW CIRC</li> <li>• C1A12: LASER BEAM OFFCNTR</li> <li>• C1A13: STOP LAMP RLY FIX</li> <li>• C1A14: ECM CIRCUIT</li> <li>• C1A16: RADAR STAIN</li> <li>• C1A18: LASER AIMING INCOMP</li> <li>• C1A2A: ICC SEN PWR SUP CIR</li> <li>• C1A21: ICC SENSOR HIGH TEMP</li> <li>• C1A24: NP RANGE</li> <li>• C1A26: ECD MODE MALF</li> <li>• C1A27: ECD PWR SUPPLY CIR</li> <li>• C1A33: CAN TRANSMISSION ERR</li> <li>• C1A34: COMMAND ERROR</li> <li>• C1A35: APA CIR</li> <li>• C1A36: APA CAN COMM CIR</li> <li>• C1A37: APA CAN CIR 2</li> <li>• C1A38: APA CAN CIR 1</li> <li>• C1A39: STRG SEN CIR</li> <li>• C1A40: SYSTEM SW CIRC</li> <li>• C1B01: CAM AIMING INCOMP</li> <li>• C1B03: CAM ABNRML TMP DETCT</li> <li>• C1F01: APA MOTOR MALF</li> <li>• C1F05: APA PWR SUPPLY CIR</li> <li>• U0121: VDC CAN CIR 2</li> <li>• U0126: STRG SEN CAN CIR 1</li> <li>• U0235: ICC SENSOR CAN CIRC 1</li> <li>• U0401: ECM CAN CIR 1</li> <li>• U0402: TCM CAN CIR 1</li> <li>• U0415: VDC CAN CIR 1</li> <li>• U0424: HVAC CAN CIR 1</li> <li>• U0428: STRG SEN CAN CIR 2</li> <li>• U1500: CAM CAN CIR 2</li> <li>• U1501: CAM CAN CIR 1</li> <li>• U1502: ICC SEN CAN COMM CIR</li> <li>• U1503: SIDE RDR L CAN CIR 2</li> <li>• U1504: SIDE RDR L CAN CIR 1</li> <li>• U1505: SIDE RDR R CAN CIR 2</li> <li>• U1506: SIDE RDR R CAN CIR 1</li> <li>• U150B: ECM CAN CIRC 3</li> <li>• U150C: VDC CAN CIRC 3</li> <li>• U150D: TCM CAN CIRC 3</li> <li>• U150E: BCM CAN CIRC 3</li> <li>• U150F: AV CAN CIRC 3</li> <li>• U1512: HVAC CAN CIRC3</li> <li>• U1513: METER CAN CIRC 3</li> <li>• U1514: STRG SEN CAN CIRC 3</li> <li>• U1515: ICC SENSOR CAN CIRC 3</li> <li>• U1516: CAM CAN CIRC 3</li> <li>• U1517: APA CAN CIRC 3</li> <li>• U1518: SIDE RDR L CAN CIRC 3</li> <li>• U1519: SIDE RDR R CAN CIRC 3</li> </ul> | <p>A</p> <p>B</p> <p>C</p> <p>D</p> <p>E</p> <p>F</p> <p>G</p> <p>H</p> <p>I</p> <p>J</p> <p>K</p> <p>L</p> <p>M</p> <p>N</p> |   |
|          | 5   | <ul style="list-style-type: none"> <li>• C1A03: VHCL SPEED SE CIRC</li> </ul>   | P |
|          | 6   | <ul style="list-style-type: none"> <li>• C1A15: GEAR POSITION</li> </ul>  |   |
|          | 7   | <ul style="list-style-type: none"> <li>• C1A00: CONTROL UNIT</li> </ul>   |   |

DAS

## DTC Index

INFOID:000000007218073

**NOTE:**

- The details of time display are as per the following.

# ADAS CONTROL UNIT

[FCW]

## < ECU DIAGNOSIS INFORMATION >

- CRNT: A malfunction is detected now
- PAST: A malfunction was detected in the past
- IGN counter is displayed on FFD (Freeze Frame Data).
- 0: The malfunctions that are detected now  
CAN communication system (U1000, U1010)
- 1 - 39: It increases like 0 → 1 → 2 ... 38 → 39 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 39, it is fixed to 39 until the self-diagnosis results are erased.  
Other than CAN communication system (Other than U1000, U1010)
- 1 - 49: It increases like 0 → 1 → 2 ... 38 → 49 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 49, it is fixed to 49 until the self-diagnosis results are erased.

### Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC     |                 | CONSULT display      | Warning lamp            |                        |                             |                      | Fail-safe              | Reference               |
|---------|-----------------|----------------------|-------------------------|------------------------|-----------------------------|----------------------|------------------------|-------------------------|
| CONSULT | Onboard display |                      | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System                 |                         |
| C1A00   | 0               | CONTROL UNIT         | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-49</a>  |
| C1A01   | 1               | POWER SUPPLY CIR     | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-50</a>  |
| C1A02   | 2               | POWER SUPPLY CIR 2   | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-50</a>  |
| C1A03   | 3               | VHCL SPEED SE CIRC   | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">CCS-80</a>  |
| C1A04   | 4               | ABS/TCS/VDC CIRC     | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">CCS-82</a>  |
| C1A05   | 5               | BRAKE SW/STOP L SW   | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">CCS-83</a>  |
| C1A06   | 6               | OPERATION SW CIRC    | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">CCS-88</a>  |
| C1A12   | 12              | LASER BEAM OFFCN-TR  | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">CCS-91</a>  |
| C1A13   | 13              | STOP LAMP RLY FIX    | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-92</a>  |
| C1A14   | 14              | ECM CIRCUIT          | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">CCS-98</a>  |
| C1A15   | 15              | GEAR POSITION        | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">CCS-99</a>  |
| C1A16   | 16              | RADAR STAIN          | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">CCS-101</a> |
| C1A17   | 17              | ICC SENSOR MALF      | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-103</a> |
| C1A18   | 18              | LASER AIMING INCOMP  | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">CCS-104</a> |
| C1A21   | 21              | ICC SENSOR HIGH TEMP | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-106</a> |
| C1A24   | 24              | NP RANGE             | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">CCS-108</a> |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[FCW]

- Systems for fail-safe
- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC   |                  | CONSULT display                                     | Warning lamp            |                        |                             |                      | Fail-safe              | Reference               |
|---|------------------|---|-------------------------|------------------------|-----------------------------|----------------------|------------------------|-------------------------|
| CONSULT   | On board display |   | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System                 |                         |
| C1A26   | 26               | ECD MODE MALF                                       | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-110</a> |
| C1A27   | 27               | ECD PWR SUPPLY CIR                                  | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-111</a> |
| C1A33   | 33               | CAN TRANSMISSION ERR                                | ON                      |                        |                             |                      | A, B, E, H             | <a href="#">CCS-113</a> |
| C1A34   | 34               | COMMAND ERROR                                       | ON                      |                        |                             |                      | A, B, E, H             | <a href="#">CCS-114</a> |
| C1A35   | 35               | APA CIR   | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-115</a> |
| C1A36   | 36               | APA CAN COMM CIR                                    | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-116</a> |
| C1A37   | 133              | APA CAN CIR 2                                       | ON                      |                        |                             |                      | A, B, E                | <a href="#">CCS-117</a> |
| C1A38   | 132              | APA CAN CIR 1                                       | ON                      |                        |                             |                      | A, B, E                | <a href="#">CCS-118</a> |
| C1A39   | 39               | STRG SEN CIR  | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">CCS-119</a> |
| C1A40   | 40               | SYSTEM SW CIRC                                      |                         | ON                     |                             |                      | C, D                   | <a href="#">CCS-121</a> |
| C1A2A   | 80               | ICC SEN PWR SUP CIR                                 | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">CCS-112</a> |
| C1B00   | 81               | CAMERA UNIT MALF                                    |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-330</a> |
| C1B01   | 82               | CAM AIMING INCOMP                                   |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-332</a> |
| C1B03   | 83               | CAM ABNRML TMP DETCT                                |                         |                        | BLINK                       | BLINK                | F, G                   | <a href="#">DAS-334</a> |
| C1B53   | 84               | SIDE RDR R MALF                                     |                         |                        |                             | ON                   | G                      | <a href="#">DAS-473</a> |
| C1B54   | 85               | SIDE RDR L MALF                                     |                         |                        |                             | ON                   | G                      | <a href="#">DAS-474</a> |
| C1F01   | 91               | APA MOTOR MALF                                      | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-124</a> |
| C1F02   | 92               | APA C/U MALF  | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-125</a> |
| C1F05   | 95               | APA PWR SUPPLY CIR                                  | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-126</a> |
| NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED | 55               | NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED | —                       | —                      | —                           | —                    | —                      | —                       |
| U0121   | 127              | VDC CAN CIR 2                                       | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">CCS-128</a> |
| U0126   | 130              | STRG SEN CAN CIR 1                                  | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">CCS-130</a> |
| U0235   | 144              | ICC SENSOR CAN CIRC 1                               | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-132</a> |
| U0401   | 120              | ECM CAN CIR 1                                       | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">CCS-133</a> |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[FCW]

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC                   |                 | CONSULT display        | Warning lamp            |                        |                             |                      | Fail-safe              | Reference               |
|-----------------------|-----------------|------------------------|-------------------------|------------------------|-----------------------------|----------------------|------------------------|-------------------------|
| CONSULT               | Onboard display |                        | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System                 |                         |
| U0402                 | 122             | TCM CAN CIR 1          | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">CCS-134</a> |
| U0415                 | 126             | VDC CAN CIR 1          | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">CCS-136</a> |
| U0424                 | 156             | HVAC CAN CIR 1         |                         |                        |                             |                      |                        | <a href="#">BRC-118</a> |
| U0428                 | 131             | STRG SEN CAN CIR 2     | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">CCS-138</a> |
| U1000 <sup>NOTE</sup> | 100             | CAN COMM CIRCUIT       | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-51</a>  |
| U1010                 | 110             | CONTROL UNIT (CAN)     | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-52</a>  |
| U1500                 | 145             | CAM CAN CIR 2          |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-350</a> |
| U1501                 | 146             | CAM CAN CIR 1          |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-351</a> |
| U1502                 | 147             | ICC SEN CAN COMM CIR   | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-147</a> |
| U1503                 | 150             | SIDE RDR L CAN CIR 2   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-495</a> |
| U1504                 | 151             | SIDE RDR L CAN CIR 1   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-496</a> |
| U1505                 | 152             | SIDE RDR R CAN CIR 2   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-497</a> |
| U1506                 | 153             | SIDE RDR R CAN CIR 1   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-498</a> |
| U1507                 | 154             | LOST COMM (SIDE RDR R) |                         |                        |                             | ON                   | G                      | <a href="#">DAS-499</a> |
| U1508                 | 155             | LOST COMM (SIDE RDR L) |                         |                        |                             | ON                   | G                      | <a href="#">DAS-500</a> |
| U150B                 | 157             | ECM CAN CIRC 3         | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">CCS-143</a> |
| U150C                 | 158             | VDC CAN CIRC 3         | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">CCS-144</a> |
| U150D                 | 159             | TCM CAN CIRC 3         | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">CCS-145</a> |
| U150E                 | 160             | BCM CAN CIRC 3         | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">CCS-146</a> |
| U150F                 | 161             | AV CAN CIRC 3          |                         |                        |                             |                      |                        | <a href="#">DAS-53</a>  |
| U1512                 | 162             | HVAC CAN CIRC3         |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-352</a> |
| U1513                 | 163             | METER CAN CIRC 3       | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">CCS-148</a> |
| U1514                 | 164             | STRG SEN CAN CIRC 3    | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">CCS-149</a> |
| U1515                 | 165             | ICC SENSOR CAN CIRC 3  | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-150</a> |
| U1516                 | 166             | CAM CAN CIRC 3         |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-354</a> |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[FCW]

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC     |                  | CONSULT display       | Warning lamp            |                        |                             |                      | Fail-safe | Reference               |
|---------|------------------|-----------------------|-------------------------|------------------------|-----------------------------|----------------------|-----------|-------------------------|
| CONSULT | On board display |                       | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System    |                         |
| U1517   | 167              | APA CAN CIRC 3        | ON                      |                        |                             |                      | A, B, E   | <a href="#">CCS-151</a> |
| U1518   | 168              | SIDE RDR L CAN CIRC 3 |                         |                        |                             | ON                   | G         | <a href="#">DAS-505</a> |
| U1519   | 169              | SIDE RDR R CAN CIRC 3 |                         |                        |                             | ON                   | G         | <a href="#">DAS-506</a> |

**NOTE:**

With the detection of “U1000” some systems do not perform the fail-safe operation.

A system controlling based on a signal received from the control unit performs fail-safe operation when the communication with the ADAS control unit becomes inoperable.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ICC SENSOR

< ECU DIAGNOSIS INFORMATION >

[FCW]

## ICC SENSOR

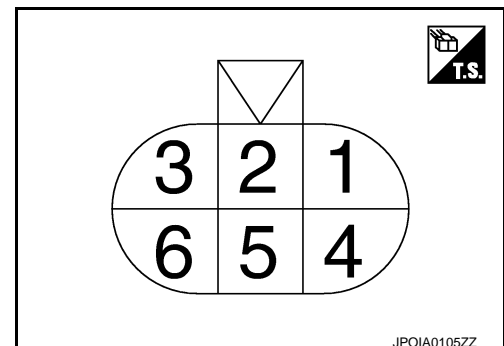
### Reference Value

INFOID:000000007218074

### VALUES ON THE DIAGNOSIS TOOL

| Monitor item     | Condition   |  | Value/Status                                     |
|------------------|---|--|--|
| VHCL SPEED SE    | While driving   |  | Value of vehicle speed signal (wheel speed)      |
| YAW RATE         | While driving   | Vehicle stopped  | 0.0  |
|                  |   | Vehicle turning right                                      | Positive value                                   |
|                  |   | Vehicle turning left                                       | Negative value                                   |
| PWR SUP MONI     | Ignition switch ON  |  | Power supply voltage value of ICC sensor         |
| DISTANCE         | Drive the vehicle and activate the vehicle-to-vehicle distance control mode | When a vehicle ahead is detected                           | Displays the distance from the preceding vehicle |
|                  |   | When a vehicle ahead is not detected                       | 0.0  |
| RELATIVE SPD     | Drive the vehicle and activate the vehicle-to-vehicle distance control mode | When a vehicle ahead is detected                           | Displays the relative speed                      |
|                  |   | When a vehicle ahead is not detected                       | 0.0  |
| LASER OFFSET     | <b>NOTE:</b><br>The item is indicated, but not used                         |  | —  |
| LASER HEIGHT     | <b>NOTE:</b><br>The item is indicated, but not used                         |  | —  |
| STEERING ANGLE   | Ignition switch ON  | When setting the steering wheel in straight-ahead position | 0.0  |
|                  |   | When turning the steering wheel 90° rightward              | +90  |
|                  |   | When turning the steering wheel 90° leftward               | -90  |
| STRG ANGLE SPEED | Ignition switch ON  | At the time of turning the steering wheel                  | Steering wheel turning speed is displayed        |
| L/R ADJUST       | Ignition switch ON  | At the completion of laser beam adjustment                 | Horizontal correction value is displayed         |
| U/D ADJUST       | Ignition switch ON  | At the completion of laser beam adjustment                 | Vertical correction value is displayed           |

### TERMINAL LAYOUT



### PHYSICAL VALUES



# ICC SENSOR

< ECU DIAGNOSIS INFORMATION >

[FCW]

| Terminal No.<br>(Wire color) |        | Description           |                  | Condition          | Value<br>(Approx.) |
|------------------------------|--------|-----------------------|------------------|--------------------|--------------------|
| +                            | -      | Signal name           | Input/<br>Output |                    |                    |
| 1<br>(LG)                    | Ground | Ignition power supply | Input            | Ignition switch ON | Battery voltage    |
| 3<br>(L)                     |        | ITS communication-H   | —                | —                  | —                  |
| 4<br>(B/Y)                   |        | Ground                | —                | Ignition switch ON | 0 V                |
| 6<br>(Y)                     |        | ITS communication-L   | —                | —                  | —                  |

## Fail-safe

INFOID:000000007218075

If a malfunction occurs in the ICC sensor, ADAS control unit cancels control, sounds a beep, and turns ON the ICC system warning lamp in the combination meter.

## DTC Inspection Priority Chart

INFOID:000000007218076

If multiple DTCs are detected simultaneously, check them one by one depending on the following DTC inspection priority chart.

| Priority | Detected items (DTC)  |
|----------|---|
| 1        | <ul style="list-style-type: none"> <li>U1000: CAN COMM CIRCUIT</li> <li>U1010: CONTROL UNIT (CAN)</li> </ul>  |
| 2        | <ul style="list-style-type: none"> <li>C1A50: ADAS MALFUNCTION</li> </ul>   |
| 3        | <ul style="list-style-type: none"> <li>C1A01: POWER SUPPLY CIR</li> <li>C1A02: POWER SUPPLY CIR 2</li> <li>C1A12: LASER BEAM OFFCNTR</li> <li>C1A16: RADAR STAIN</li> <li>C1A18: LASER AIMING INCOMP</li> <li>C1A21: UNIT HIGH TEMP</li> <li>C1A39: STRG SEN CIR</li> <li>U0104: ADAS CAN CIR1</li> <li>U0121: VDC CAN CIR2</li> <li>U0126: STRG SEN CAN CIR1</li> <li>U0405: ADAS CAN CIR2</li> <li>U0415: VDC CAN CIR1</li> <li>U0428: STRG SEN CAN CIR2</li> </ul> |
| 4        | <ul style="list-style-type: none"> <li>C1A00: CONTROL UNIT</li> </ul>   |

## DTC Index

INFOID:000000007218077

### NOTE:

- The details of time display are as per the following.
- 0: The malfunctions that are detected now  
CAN communication system (U1000, U1010)
- 1 - 39: It increases like 0 → 1 → 2 ... 38 → 39 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 39, it is fixed to 39 until the self-diagnosis results are erased.
- Other than CAN communication system (Other than U1000, U1010)
- 1 - 49: It increases like 0 → 1 → 2 ... 38 → 49 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 49, it is fixed to 49 until the self-diagnosis results are erased.

DAS

# ICC SENSOR

< ECU DIAGNOSIS INFORMATION >

[FCW]

×: Applicable


| DTC   | CONSULT display     | ICC system warning lamp | Fail-safe                                |  |                               |                                 |                                |                                      | Reference               |
|-------|---------------------|-------------------------|--|--|-------------------------------|---------------------------------|--------------------------------|--------------------------------------|-------------------------|
|       |                     |                         | Vehicle-to-vehicle distance control mode | Conventional (fixed speed) cruise control mode | Distance Control Assist (DCA) | Forward Collision Warning (FCW) | Intelligent Brake Assist (IBA) | Brake Assist (with Preview Function) |                         |
| C1A00 | CONTROL UNIT        | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-76</a>  |
| C1A01 | POWER SUPPLY CIR    | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-78</a>  |
| C1A02 | POWER SUPPLY CIR2   | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-78</a>  |
| C1A12 | LASER BEAM OFFCNTR  | ON                      | ×  |  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-91</a>  |
| C1A16 | RADAR STAIN         | ON                      | ×  |  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-101</a> |
| C1A18 | LASER AIMING INCOMP | ON                      | ×  |  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-104</a> |
| C1A21 | UNIT HIGH TEMP      | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-106</a> |
| C1A39 | STRG SEN CIR        | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-119</a> |
| C1A50 | ADAS MALFUNCTION    | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-123</a> |
| U0104 | ADAS CAN CIR1       | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-127</a> |
| U0121 | VDC CAN CIR2        | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-128</a> |
| U0126 | STRG SEN CAN CIR1   | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-130</a> |
| U0405 | ADAS CAN CIR2       | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-135</a> |
| U0415 | VDC CAN CIR1        | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-136</a> |
| U0428 | STRG SEN CAN CIR2   | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-138</a> |
| U1000 | CAN COMM CIRCUIT    | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-140</a> |
| U1010 | CONTROL UNIT (CAN)  | ON                      | ×  | ×  | ×                             | ×                               | ×                              | ×                                    | <a href="#">CCS-142</a> |

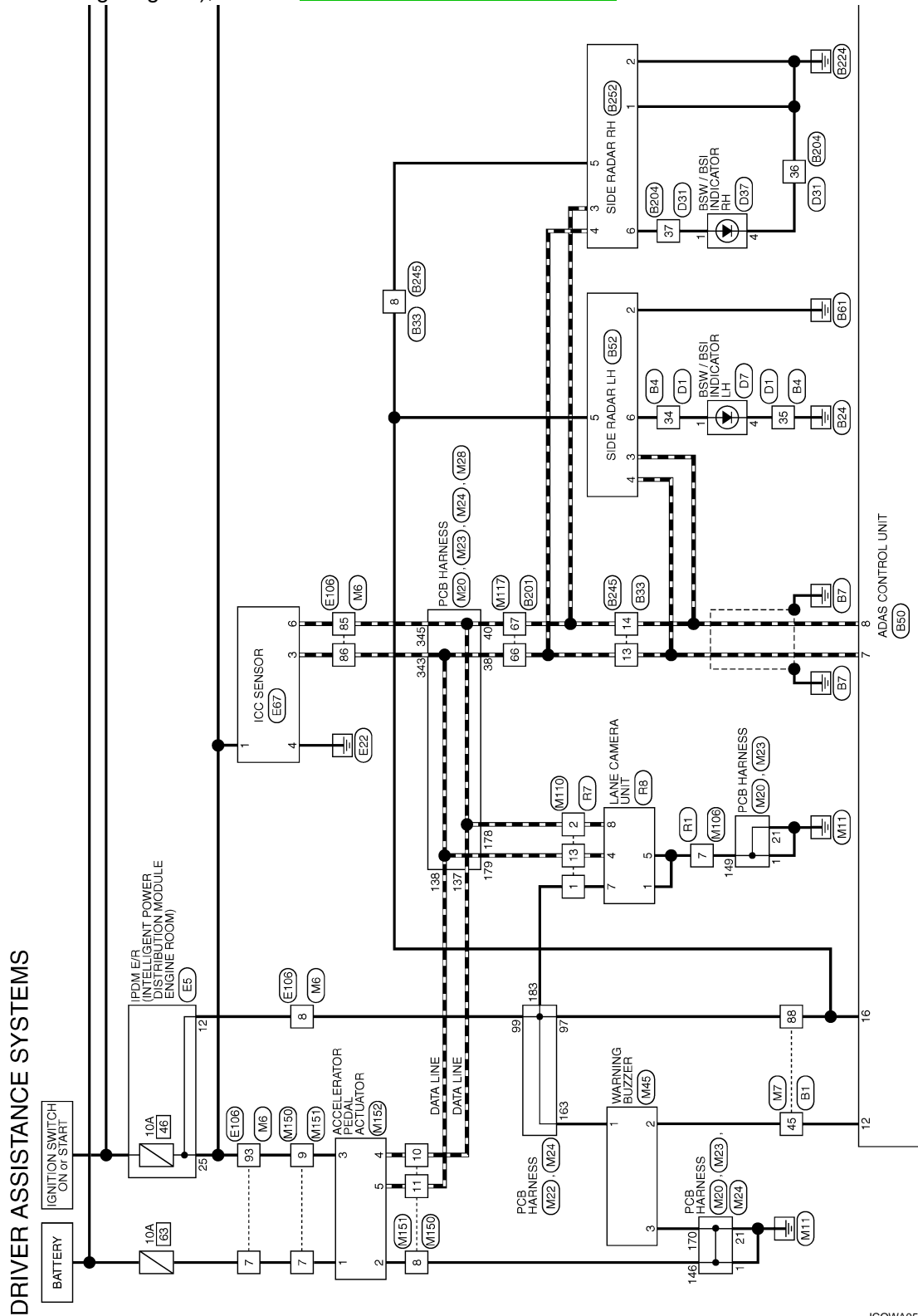
WIRING DIAGRAM

DRIVER ASSISTANCE SYSTEMS

Wiring Diagram

INFOID:000000007218080

For connector terminal arrangements, harness layouts, and alphabets in a  (option abbreviation; if not described in wiring diagram), refer to [GI-12. "Connector Information"](#).



2010/12/14

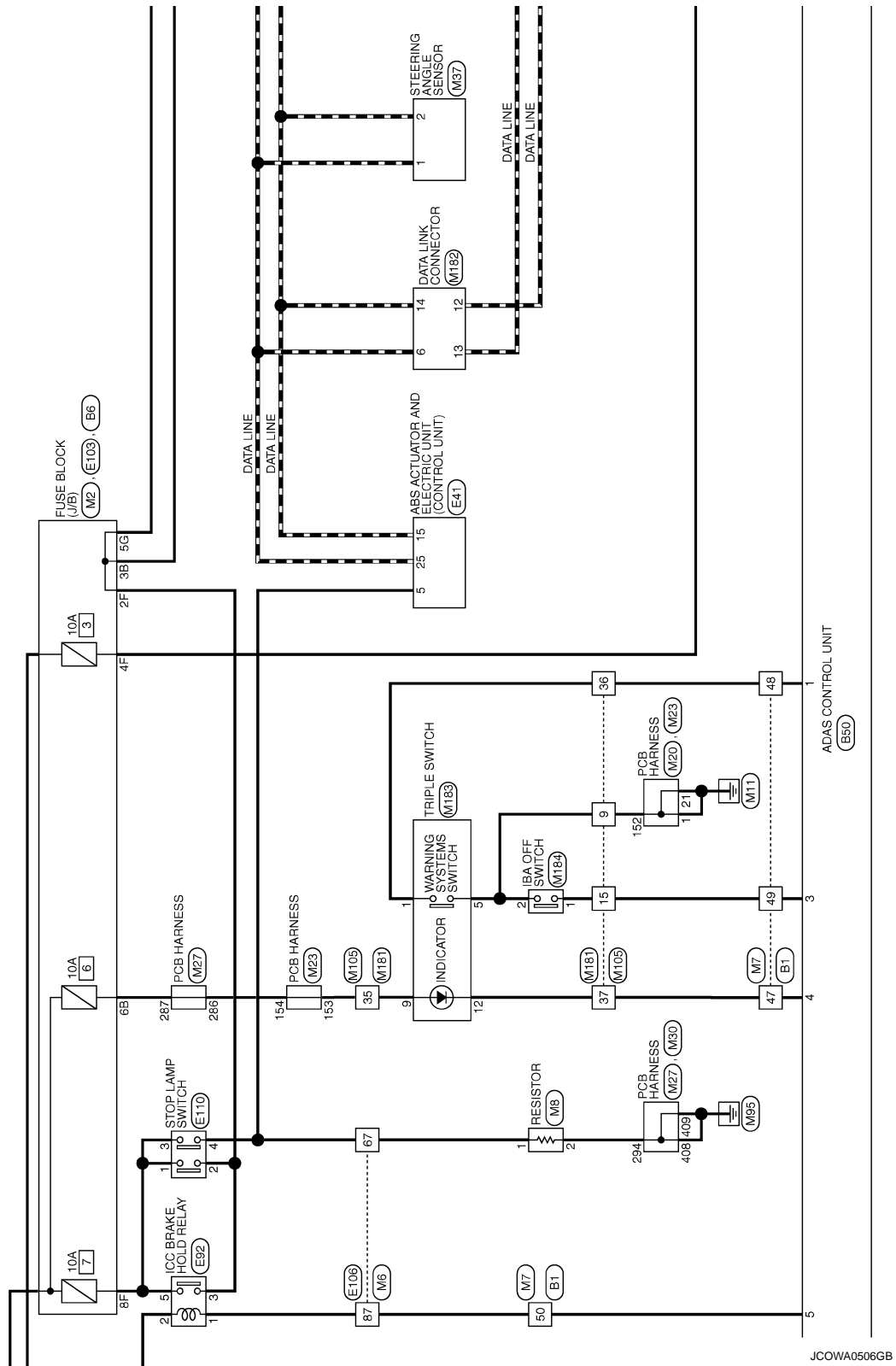
JCOWA0505GB

DAS

# DRIVER ASSISTANCE SYSTEMS

[FCW]

< WIRING DIAGRAM >

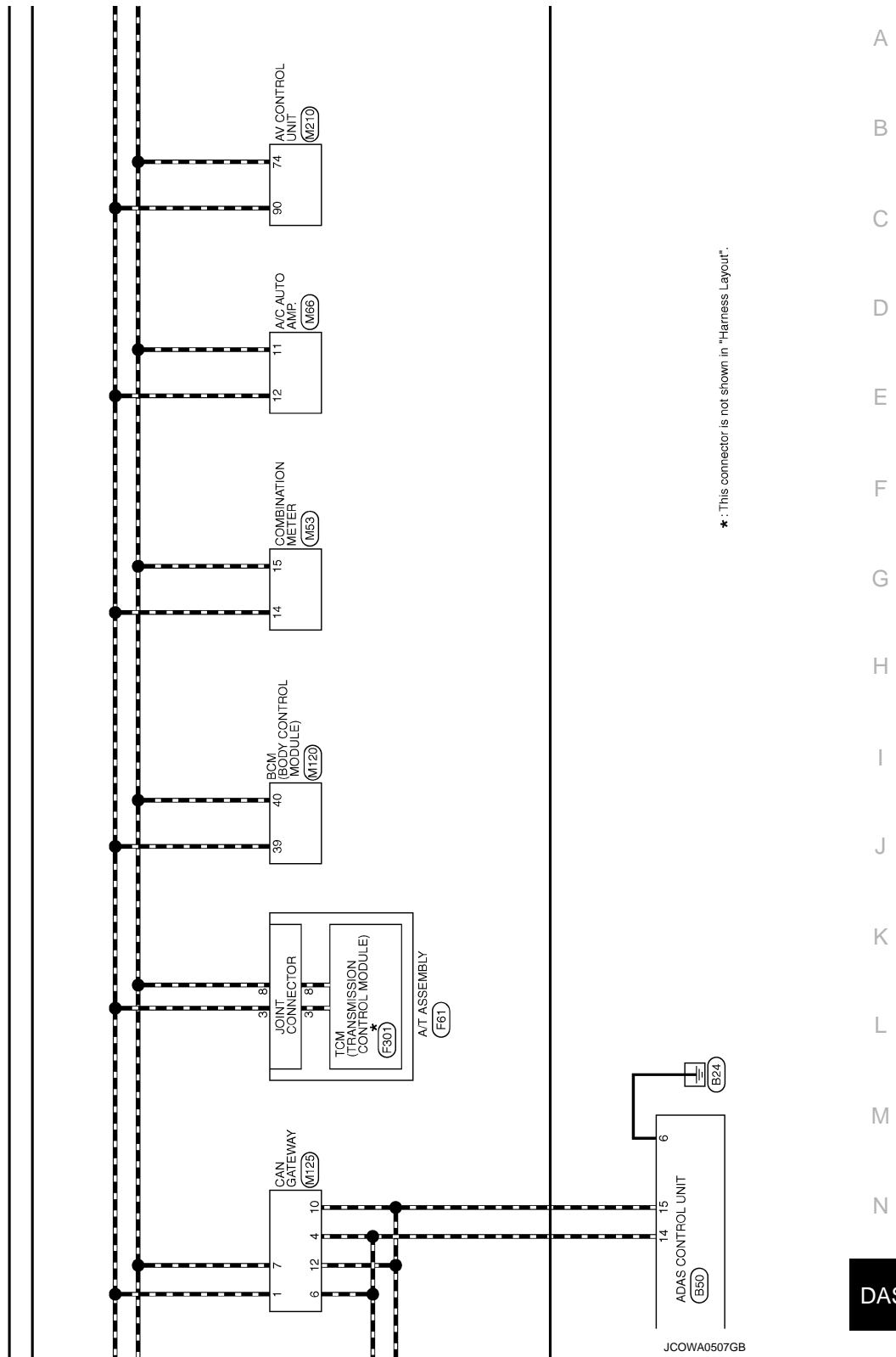


JCOWA0506GB

# DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[FCW]



\*: This connector is not shown in "Harness Layout".

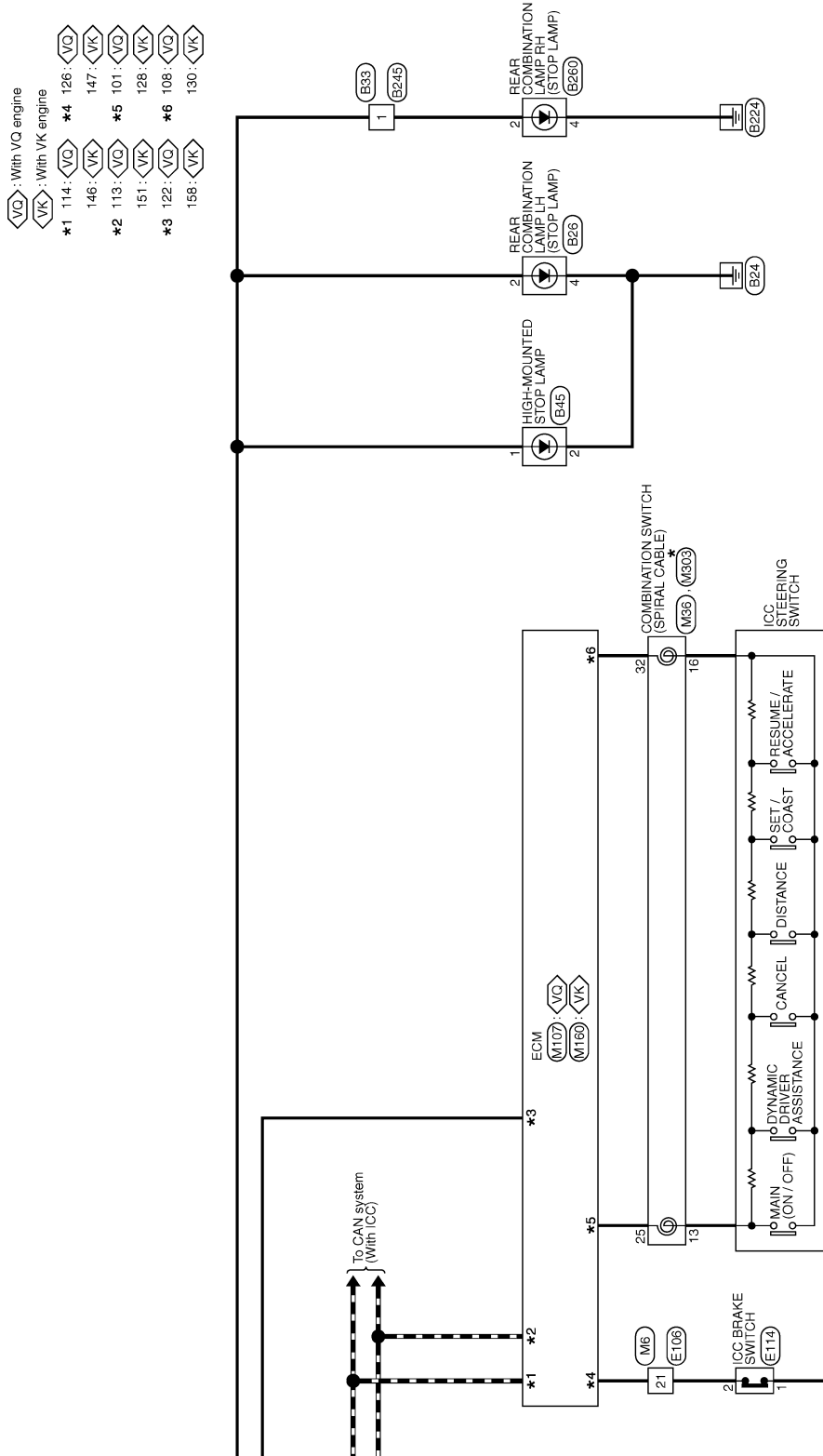
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DRIVER ASSISTANCE SYSTEMS

[FCW]

< WIRING DIAGRAM >



\*: This connector is not shown in "Harness Layout".

JCOWA0508GB

# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[FCW]

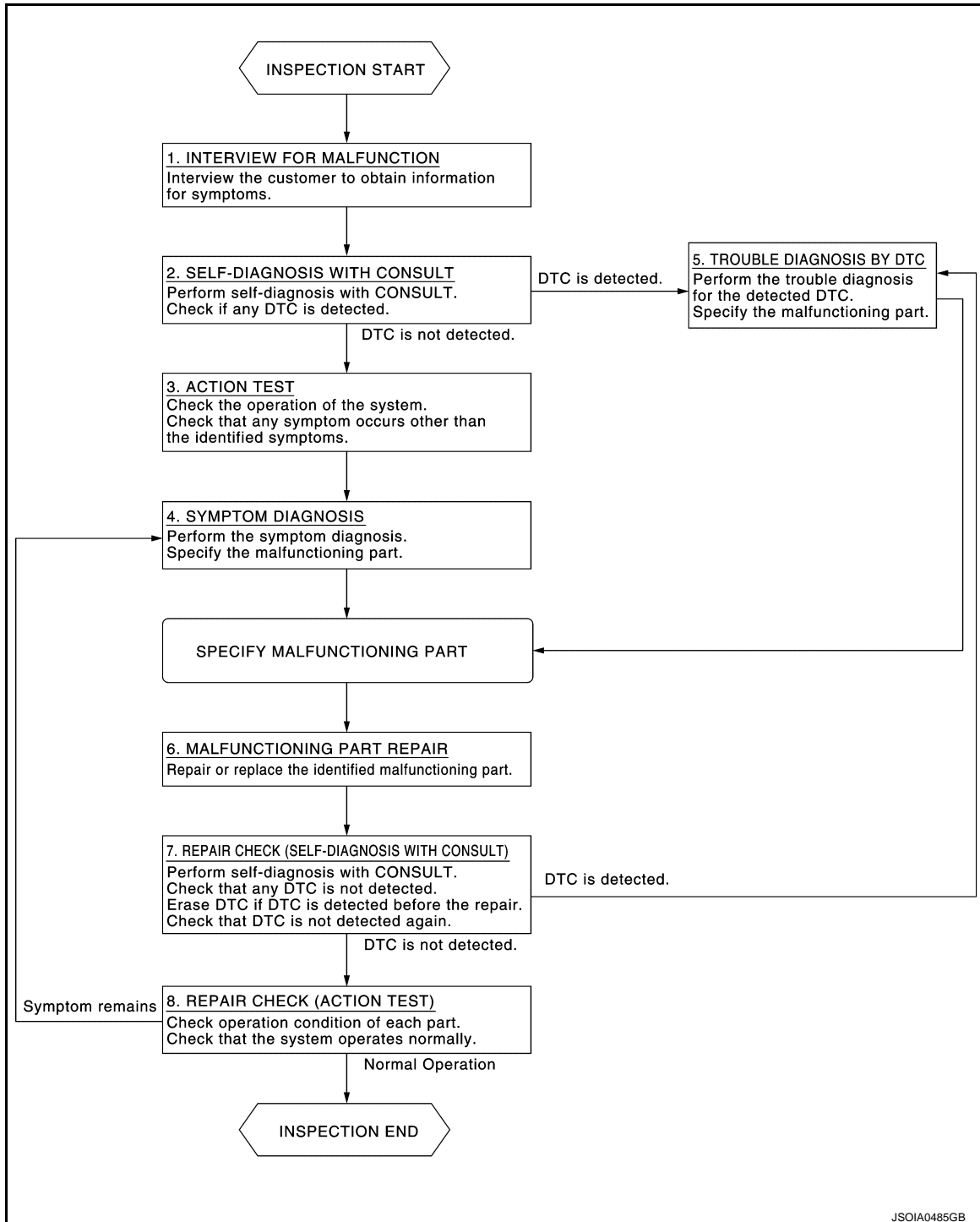
## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000006886314

#### OVERALL SEQUENCE



#### DETAILED FLOW

##### NOTE:

The FCW system shares component parts with the ICC system. If the FCW system has a malfunction perform diagnosis for the ICC system.

#### 1. INTERVIEW FOR MALFUNCTION

# DIAGNOSIS AND REPAIR WORK FLOW

[FCW]

< BASIC INSPECTION >

It is also important to clarify the customer concerns before starting the inspection. Interview the customer about the concerns carefully and understand the symptoms fully.

**NOTE:**

The customers are not professionals. Never assume that “maybe the customer means...” or “maybe the customer mentioned this symptom”.

>> GO TO 2.

## 2. SELF-DIAGNOSIS WITH CONSULT

---

1. Perform “All DTC Reading” with CONSULT.
2. Check if the DTC is detected on the self-diagnosis results of “ICC/ADAS”.

Is any DTC detected?

- YES >> GO TO 5.  
NO >> GO TO 3.

## 3. ACTION TEST

---

Perform the ICC system action test to check the operation status. Refer to [CCS-70, "Description"](#).

>> GO TO 4.

## 4. SYMPTOM DIAGNOSIS

---

Perform the applicable diagnosis according to the diagnosis chart by symptom. Refer to [DAS-241, "Symptom Table"](#).

>> GO TO 6.

## 5. TROUBLE DIAGNOSIS BY DTC

---

1. Check the DTC in the self-diagnosis results.
2. Perform trouble diagnosis for the detected DTC. Refer to [DAS-227, "DTC Index"](#).

>> GO TO 6.

## 6. MALFUNCTIONING PART REPAIR

---

Repair or replace the identified malfunctioning parts.

>> GO TO 7.

## 7. REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT)

---

1. Erases self-diagnosis results.
2. Perform “All DTC Reading” again after repairing or replacing the specific items.
3. Check if the DTC is detected on the self-diagnosis results of “ICC/ADAS”.

Is any DTC detected?

- YES >> GO TO 5.  
NO >> GO TO 8.

## 8. REPAIR CHECK (ACTION TEST)

---

Perform the ICC system action test. Check that the malfunction symptom is solved or no other symptoms occur.

Is there any malfunction symptom?

- YES >> GO TO 4.  
NO >> INSPECTION END



# FORWARD COLLISION WARNING SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[FCW]

## SYMPTOM DIAGNOSIS

### FORWARD COLLISION WARNING SYSTEM SYMPTOMS

#### Symptom Table

INFOID:000000007218379

**NOTE:**

Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

| Symptoms  |  | Reference page                                  |
|-----------|--|---|
| Operation | FCW system is not activated                                      | Refer to <a href="#">DAS-242, "Description"</a> |
|           | FCW system setting cannot be turned ON on the navigation screen  | Refer to <a href="#">DAS-243, "Description"</a> |
|           | FCW system setting cannot be turned OFF on the navigation screen |   |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# FCW SYSTEM IS NOT ACTIVATED

< SYMPTOM DIAGNOSIS >

[FCW]

---

## FCW SYSTEM IS NOT ACTIVATED

### Description

INFOID:000000007218380

FCW system does not operate by pressing the warning systems switch.

**NOTE:**

Warning systems switch is shared with LDW system and BSW system.

### Diagnosis Procedure

INFOID:000000007218381

#### 1. PERFORM THE SELF-DIAGNOSIS

---

1. Perform "All DTC Reading" with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "ICC/ADAS". Refer to [DAS-227, "DTC Index"](#).

Is any DTC detected?

- YES >> GO TO 3.
- NO >> GO TO 2.

#### 2. CHECK WARNING SYSTEMS SWITCH CIRCUIT

---

Check warning systems switch circuit. Refer to [DAS-357, "Component Function Check"](#).

**NOTE:**

Warning systems switch is shared with LDW system and BSW system.

Is the inspection result normal?

- YES >> Replace the ADAS control unit.
- NO >> GO TO 3.

#### 3. REPAIR OR REPLACE THE SPECIFIC ITEMS

---

Repair or replace malfunctioning items.

>> INSPECTION END

# FCW SYSTEM SETTINGS CANNOT BE TURNED ON/OFF ON THE NAVIGATION SCREEN

< SYMPTOM DIAGNOSIS >

[FCW]

## FCW SYSTEM SETTINGS CANNOT BE TURNED ON/OFF ON THE NAVIGATION SCREEN

### Description

INFOID:000000007218382

- FCW system setting is not selectable on the navigation screen.

#### NOTE:

- When the ignition switch is in ACC position, FCW system settings cannot be changed.
- "Forward Collision Warning" is not indicated on the navigation screen.
- The switching between ON and OFF cannot be performed by operating the navigation system.
- The item of "Forward Collision Warning" on the navigation screen is not active.
- After turning ON the ignition switch or starting the engine, FCW settings of the navigation system cannot be selected for several tens of seconds under the following conditions:
  - After replacing AV control unit.
  - After erasing connection history of the navigation system.
  - After erasing self-diagnosis results of AV control unit.
- The FCW system setting differs from the one set at the previous driving.

#### NOTE:

- Turn OFF the ignition switch and wait for 5 seconds or more.

### Diagnosis Procedure

INFOID:000000007218383

#### 1.CHECK FCW SYSTEM SETTING

1. Start the engine.
2. Check that the FCW system settings is selectable on the navigation screen.

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

#### 2.PERFORM THE SELF-DIAGNOSIS

1. Perform self-diagnosis with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "ICC/ADAS", "MULTI AV" and "METER/M&A". Refer to the following.
  - ICC/ADAS: [DAS-227. "DTC Index"](#)
  - MULTI AV: [AV-168. "DTC Index"](#)
  - METER/M&A: [MWI-44. "DTC Index"](#)

Is any DTC detected?

YES >> Repair or replace malfunctioning parts.

NO >> INSPECTION END

#### 3.CHECK DATA MONITOR OF ADAS CONTROL UNIT

Check that "DCA SELECT" operates normally in "DATA MONITOR" of "ICC/ADAS" with CONSULT.

Is the inspection result normal?

YES >> Refer to [AV-141. "On Board Diagnosis Function"](#).

NO >> GO TO 4.

#### 4.CHECK MULTIFUNCTION SWITCH

Operate the multifunction switch to check that the audio, navigation system, and air conditioner operate properly.

Is the inspection result normal?

YES >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

## NORMAL OPERATING CONDITION

### Description

INFOID:000000006886318

#### FORWARD COLLISION WARNING (FCW)

- FCW system is intended to warn the driver before a collision but will not avoid a collision. It is the driver's responsibility to stay alert, drive safely and be in control of the vehicle at all times.
- As there is a performance limit, the FCW system may not provide a warning in certain conditions.
- The FCW system will not detect the following objects.
  - Pedestrians, animals, or obstacles in the roadway.
  - Oncoming vehicles in the same lane
- FCW system will not detect under the following conditions.
  - When the sensor gets dirty, it is impossible to detect the distance from the vehicle ahead.
  - When driving into a strong light (i.e. sunlight)
- The sensor generally detects signals returned from the reflectors on a vehicle ahead. Therefore, the FCW system may not warn properly under the following conditions:
  - When the reflectors of the vehicle ahead are positioned high or close to each other (including a small vehicle such as motorcycles).
  - When the sensor gets dirty or it is impossible to detect the distance to the vehicle ahead.
  - When the reflectors on the vehicle ahead is missing, damaged or covered.
  - When the reflector of the vehicle ahead is covered with dirt, snow or road spray.
  - When visibility is low (such as rain, fog, snow, etc.).
  - When snow or road spray from traveling vehicles are splashed.
  - When dense exhaust or other smoke (black smoke) from vehicles reduces the visibility of the sensor.
  - When excessively heavy baggage is loaded in the rear seat or the trunk room of own vehicle.
  - When abruptly accelerating or decelerating.
  - On steep downhill or roads with sharp curves.
  - When there is a highly reflective object near the vehicle ahead.  
i.e.) very close to other vehicle, signboard, etc.
  - When own vehicle are towing a trailer.
- Depending on certain road conditions (curved, beginning of a curve), vehicle conditions (steering position, vehicle position), or preceding vehicle's conditions (position in lane, etc.), the FCW system may not function properly. The FCW system may detect highly reflective objects such as reflectors, signs, white markers, and other stationary objects on the road or near the traveling lane, and provide unnecessary warning.
- The FCW system may not function in offset conditions.
- The FCW system may not function when the distance to the vehicle ahead is extremely close.
- The FCW system is designed to automatically check the sensor's functionality. If the sensor is covered with ice, a transparent or translucent plastic bag, etc., the system may not detect them. In these instances the FCW system may not be able to warn properly. Be sure to check and clean the sensor regularly.
- Excessive noise will interfere with the warning chime sound, and the chime may not be heard.
- A sudden appearance of the vehicle in front (i.e.: when a vehicle abruptly cuts in) may not be detected and the system may not warn soon enough.
- The FCW system will be canceled automatically with a chime sound and the IBA OFF indicator light will illuminate under the following conditions:
  - When the sensor window is dirty
  - When the FCW system malfunctions

# WARNING SYSTEMS SWITCH

< REMOVAL AND INSTALLATION >

[FCW]

## REMOVAL AND INSTALLATION

### WARNING SYSTEMS SWITCH

#### Removal and Installation

INFOID:000000007218429

#### REMOVAL

1. Remove the instrument lower panel LH. Refer to [IP-13. "Removal and Installation"](#).
2. Remove warning systems switch from instrument lower panel LH.

#### NOTE:

Warning systems switch and VDC OFF switch are integrated.

#### INSTALLATION

Install in the reverse order of removal.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# PRECAUTION

## PRECAUTIONS

### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000006886320

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

**WARNING:**

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

**WARNING:**

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

### Precautions For Harness Repair

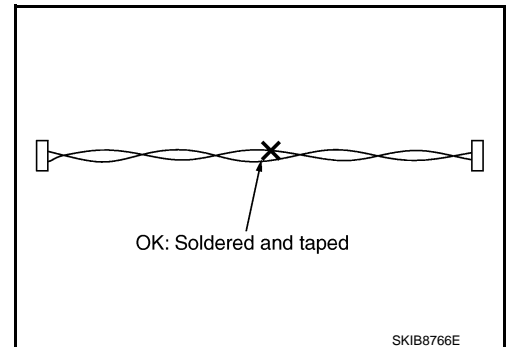
INFOID:000000006886321

ITS communication uses a twisted pair line. Be careful when repairing it.

- Solder the repaired area and wrap tape around the soldered area.

**NOTE:**

A fray of twisted lines must be within 110 mm (4.33 in).



# PRECAUTIONS

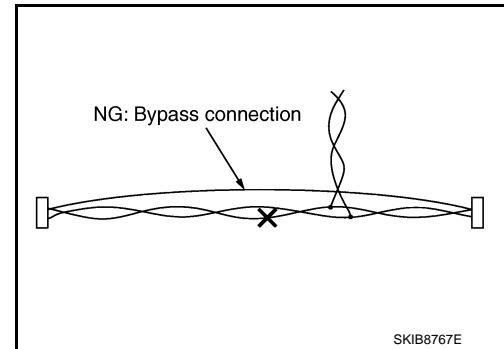
< PRECAUTION >

[LDW & LDP]

- Bypass connection is never allowed at the repaired area.

**NOTE:**

Bypass connection may cause ITS communication error. The spliced wire becomes separated and the characteristics of twisted line are lost.



A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

## Precaution for LDW/LDP System Service

INFOID:000000006886322

**WARNING:**

Be careful of traffic conditions and safety around the vehicle when performing road test.

**CAUTION:**

- Never use the LDP system when driving with free rollers or a chassis dynamometer.
- Never perform the active test while driving.
- Never disassemble and remodel the lane camera unit.
- Do not use the lane camera unit that is removed from the vehicle.
- Never change LDW initial state ON ⇒ OFF without the consent of the customer.

DAS

# COMPONENT PARTS

< SYSTEM DESCRIPTION >

[LDW & LDP]

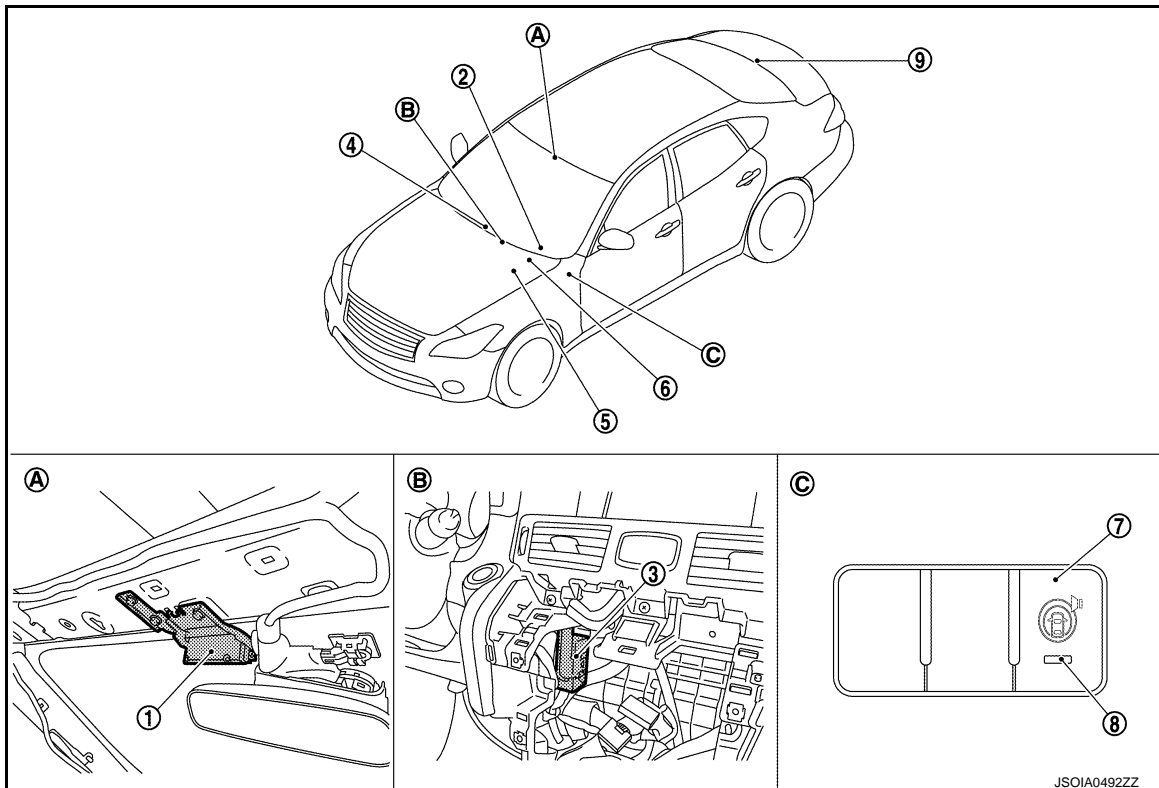
## SYSTEM DESCRIPTION

### COMPONENT PARTS

#### LANE DEPARTURE WARNING (LDW) SYSTEM

#### LANE DEPARTURE WARNING (LDW) SYSTEM : Component Parts Location

INFOID:000000007218388



- |   |  |  |
|---|--|--|
| 1. Lane camera unit   | 2. Lane departure warning lamp (Yellow)<br>(On the combination meter)  | 3. Warning buzzer  |
| 4. AV control unit<br>Refer to <a href="#">AV-127, "Component Parts Location"</a> | 5. ABS actuator and electric unit (control unit)<br>Refer to <a href="#">BRC-9, "Component Parts Location"</a> | 6. BCM<br>Refer to <a href="#">BCS-4, "BODY CONTROL SYSTEM : Component Parts Location"</a> |
| 7. Warning systems switch   | 8. Warning systems ON indicator  | 9. ADAS control unit<br>Refer to <a href="#">DAS-14, "Component Parts Location"</a>        |
| A. Front of the map lamp  | B. Center of the instrument panel  | C. Instrument lower panel LH   |

#### LANE DEPARTURE WARNING (LDW) SYSTEM : Component Description INFOID:000000007218389

| Component         | Description  |
|-------------------|--|
| ADAS control unit | <ul style="list-style-type: none"> <li>Judges the lane departure depending on the lane detection result and each signals</li> <li>Controls the warning buzzer and the warning systems ON indicator</li> <li>Transmits lane departure warning lamp signal to combination meter via CAN communication</li> </ul> |
| Lane camera unit  | <ul style="list-style-type: none"> <li>Detects the lane marker in travel lane</li> <li>Transmits the detected lane condition signal to ADAS control unit via ITS communication</li> </ul>  |
| AV control unit   | Transmits the system selection signal to ADAS control unit via CAN communication   |



# COMPONENT PARTS

< SYSTEM DESCRIPTION >

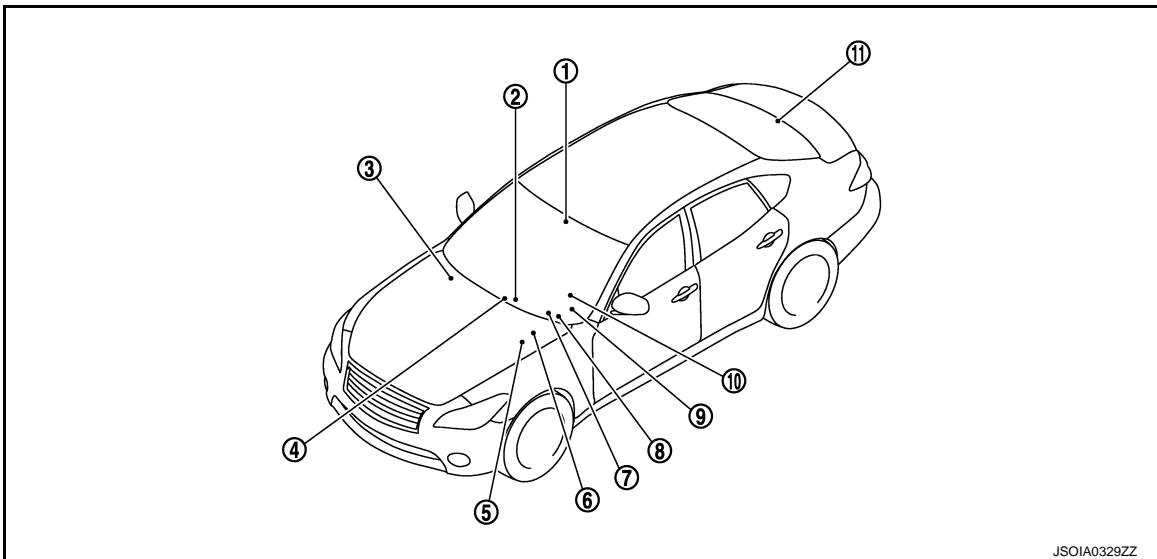
[LDW & LDP]

| Component  | Description   |
|--|---|
| ABS actuator and electric unit (control unit)                | Transmits the vehicle speed signal (wheel speed) to ADAS control unit via CAN communication                                       |
| Warning systems switch                                       | Inputs the warning systems switch signal to ADAS control unit   |
| Warning systems ON indicator (On the warning systems switch) | Turns on the warning systems ON indicator, according to a warning systems ON indicator signal received from the ADAS control unit |
| Warning buzzer   | Activates the warning buzzer, according to a warning buzzer signal received from the ADAS control unit                            |
| Combination meter  | Turns the lane departure warning lamp ON/OFF according to the signals from ADAS control unit via CAN communication                |
| BCM  | Transmits the turn indicator signal to ADAS control unit via CAN communication  |

## LANE DEPARTURE PREVENTION (LDP) SYSTEM

### LANE DEPARTURE PREVENTION (LDP) SYSTEM : Component Parts Location

INFOID:000000006886325



1. Lane camera unit  
Refer to [DAS-248, "LANE DEPARTURE WARNING \(LDW\) SYSTEM : Component Parts Location"](#)
2. Warning buzzer  
Refer to [DAS-248, "LANE DEPARTURE WARNING \(LDW\) SYSTEM : Component Parts Location"](#)
3. ECM  
Refer to the following
  - VQ37VHR: [EC-38, "ENGINE CONTROL SYSTEM : Component Parts Location"](#)
  - VK56VD (USA and Canada): [EC-990, "ENGINE CONTROL SYSTEM : Component Parts Location"](#)
  - VK56VD (Mexico): [EC-1564, "ENGINE CONTROL SYSTEM : Component Parts Location"](#)
4. AV control unit  
Refer to [AV-127, "Component Parts Location"](#)
5. ABS actuator and electric unit (control unit)  
Refer to [BRC-9, "Component Parts Location"](#)
6. TCM  
Refer to [TM-10, "A/T CONTROL SYSTEM : Component Parts Location"](#)
7. BCM  
Refer to [BCS-4, "BODY CONTROL SYSTEM : Component Parts Location"](#)
8.
  - Lane departure warning lamp (Yellow)
  - LDP ON indicator lamp (Green) (On the combination meter)
9. Steering angle sensor  
Refer to [BRC-9, "Component Parts Location"](#)
10. Dynamic driver assistance switch
11. ADAS control unit  
Refer to [DAS-14, "Component Parts Location"](#)

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N

DAS

P

# COMPONENT PARTS

< SYSTEM DESCRIPTION >

[LDW & LDP]

## LANE DEPARTURE PREVENTION (LDP) SYSTEM : Component Description

INFOID:000000006886326

| Component   | Description  |
|---|--|
| ADAS control unit   | <ul style="list-style-type: none"> <li>• Judges lane departure based on each signal and calculates yaw moment necessary to generate force which returns the vehicle to the lane</li> <li>• Outputs the warning buzzer signal to the warning buzzer</li> <li>• Transmits a target yaw moment signal to the ABS actuator and electric unit (control unit) via CAN communication</li> <li>• Transmits the lane departure warning lamp signal and LDP ON indicator lamp signal to combination meter via CAN communication</li> </ul> |
| Lane camera unit  | <ul style="list-style-type: none"> <li>• Detects the lane marker in travel lane</li> <li>• Transmits the detected lane condition signal to ADAS control unit via ITS communication</li> </ul>  |
| ABS actuator and electric unit (control unit)                 | <ul style="list-style-type: none"> <li>• Transmits the vehicle speed signal (wheel speed) to ADAS control unit via CAN communication</li> <li>• Transmits the yaw rate signal and side G sensor signal to ADAS control unit via CAN communication</li> <li>• Receives a target yaw moment signal from the ADAS control unit via CAN communication and controls brake pressure of four wheels, respectively</li> </ul>  |
| Warning buzzer  | Activates the warning buzzer, according to a warning buzzer signal received from the ADAS control unit   |
| Dynamic driver assistance switch (On the ICC steering switch) | ECM receives an ICC steering switch (dynamic driver assistance switch) signal and transmits the signal to ADAS control unit via CAN communication  |
| Combination meter   | Turns on the following indicator/warning lamp, according to a signal received for the ADAS control unit via CAN communication <ul style="list-style-type: none"> <li>• LDP ON indicator lamp (Green)</li> <li>• Lane departure warning lamp (Yellow)</li> </ul>  |
| BCM   | Transmits the turn indicator signal to ADAS control unit via CAN communication   |
| ECM   | Transmits the accelerator pedal position signal, engine speed signal and ICC steering switch signal (dynamic driver assistance switch signal) to ADAS control unit via CAN communication   |
| Steering angle sensor   | Transmits the steering angle sensor signal to ADAS control unit via CAN communication  |
| TCM   | Transmits the output shaft revolution signal, input speed signal, current gear position signal and shift position signal to ADAS control unit via CAN communication  |
| AV control unit   | Transmits the system selection signal to ADAS control unit via CAN communication   |

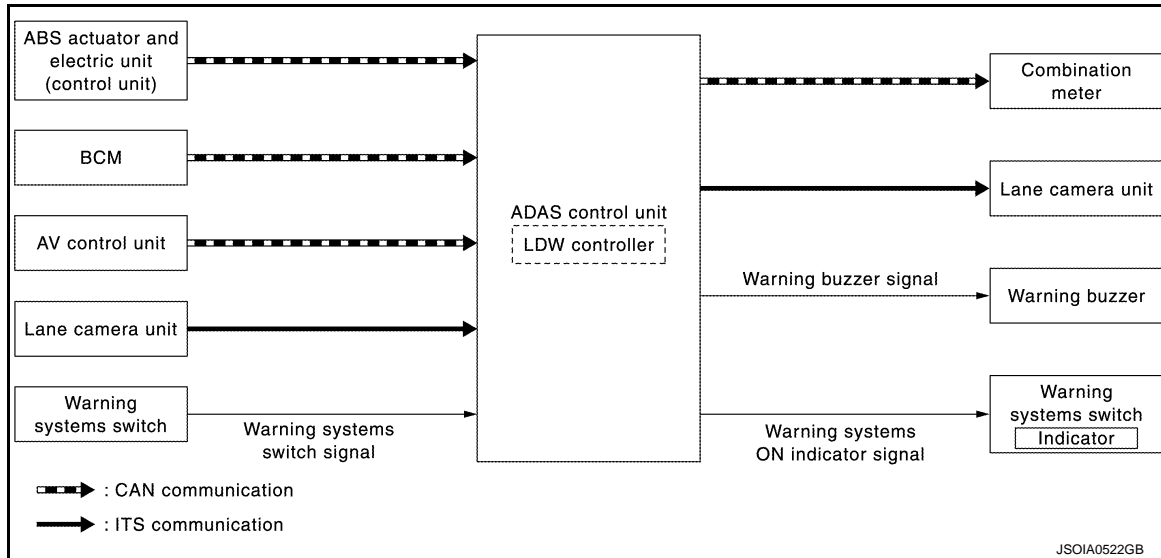
SYSTEM

LANE DEPARTURE WARNING (LDW) SYSTEM

LANE DEPARTURE WARNING (LDW) SYSTEM : System Description

INFOID:000000007218390

SYSTEM DIAGRAM



ADAS CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

| Transmit unit                                 | Signal name                   |                                | Description  |
|---|-------------------------------|--------------------------------|--|
| ABS actuator and electric unit (control unit) | CAN communication             | Vehicle speed signal (ABS)     | Receives wheel speeds of four wheels   |
| BCM   | CAN communication             | Turn indicator signal          | Receives an operational state of the turn signal lamp and the hazard lamp                          |
| AV control unit                               | CAN communication             | System selection signal        | Receives a selection state of each item in "Driver Assistance" selected with the navigation system |
| Lane camera unit                              | ITS communication             | Detected lane condition signal | Receives detection results of lane marker  |
| Warning systems switch                        | Warning systems switch signal |                                | Receives an ON/OFF state of the warning systems switch   |

Output Signal Item

| Reception unit               | Signal name                         |                                    | Description   |
|------------------------------|-------------------------------------|------------------------------------|---|
| Combination meter            | CAN communication                   | Lane departure warning lamp signal | Transmits a lane departure warning lamp signal to turn ON the lane departure warning lamp |
| Lane camera unit             | ITS communication                   | Vehicle speed signal               | Transmits a vehicle speed calculated by the ADAS control unit                             |
|                              |                                     | Turn indicator signal              | Transmits a turn indicator signal received from BCM                                       |
| Warning buzzer               | Warning buzzer signal               |                                    | Activates the warning buzzer  |
| Warning systems ON indicator | Warning systems ON indicator signal |                                    | Turns ON the warning systems ON indicator   |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N

DAS

P

# SYSTEM

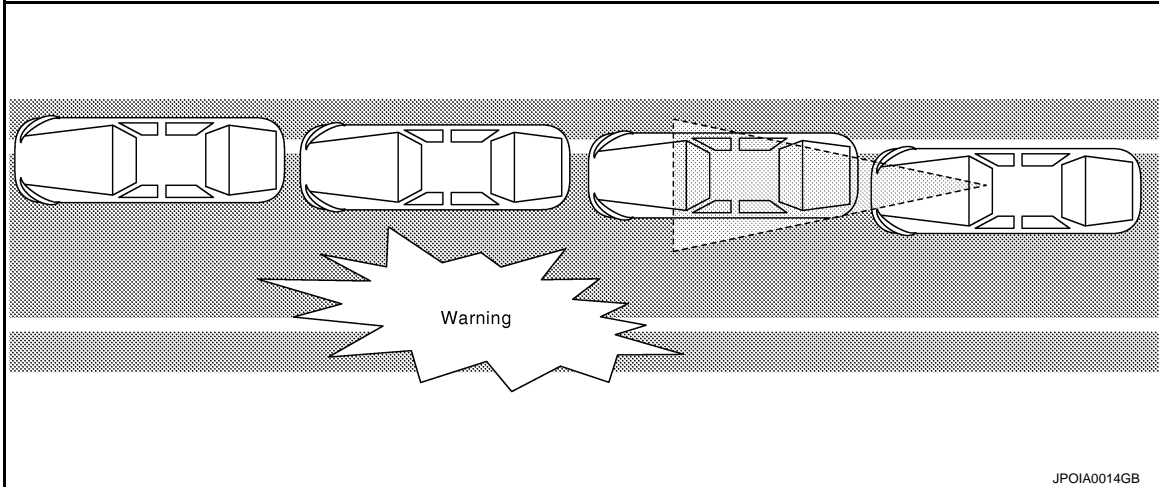
[LDW & LDP]

## < SYSTEM DESCRIPTION >

### FUNCTION DESCRIPTION

- Lane Departure Warning (LDW) system provides a lane departure warning function when the vehicle is driven at speeds of approximately 70 km/h (45 MPH) or more.
- When the vehicle approaches either the left or the right side of the traveling lane, a warning will sound and the lane departure warning lamp (yellow) on the combination meter will blink to alert the driver.
- The warning does not occur during turn signal operation (Lane change side).
- The warning function will stop when the vehicle returns inside of the lane markers.

### EXAMPLE



When the vehicle approaches the right lane marker, the driver is alerted by the buzzer and the blinking of lane departure warning lamp (yellow).

### OPERATION DESCRIPTION

- When the system is turned ON by operating the warning systems switch, ADAS control unit turns ON the warning systems ON indicator.
- Lane camera unit monitors lane markers of the traveling lane. It transmits the detected lane condition signal to ADAS control unit via ITS communication.
- When judging from a lane marker detection signal that the vehicle is approaching the lane marker, the ADAS control unit controls the following item to alert the driver.
  - Activates warning buzzer
  - ADAS control unit transmits a lane departure warning lamp signal to combination meter via CAN communication and turns ON/OFF the lane departure warning lamp (yellow).

### OPERATING CONDITION

- Warning systems ON indicator: ON
- Vehicle speed: approximately 70 km/h (45 MPH) or more
- Turn indicator signal: After 2 seconds or more from turned OFF

#### NOTE:





- When the LDW system setting on the navigation screen is ON.
- After the operating conditions of warning are satisfied, the warning continues until the vehicle speed reaches approximately 60 km/h (40 MPH)
- LDP ON indicator lamp is OFF
- The LDW system may not function properly, depending on the situation. Refer to [DAS-263. "Precautions for Lane Departure Warning/Lane Departure Prevention"](#)

Bulb Check Action and Fail-safe Indication

# SYSTEM

< SYSTEM DESCRIPTION >

[LDW & LDP]

| Vehicle condition/ Driver's operation  | Warning systems ON indicator | Indication on the combination meter  |
|--|------------------------------|--|
| Ignition switch<br>OFF ⇒ ON<br>(Bulb check)  | Approx. 5 sec.<br>ON         | OFF →  →  → OFF<br>(Yellow) ON      (Green) ON<br><small>JPOIA0017GB</small> |
| When DTC is detected<br>(Except "C1B01" and "C1B03")   | ON                           | OFF → <br>(Yellow) ON<br><small>JPOIA0019GB</small>   |
| Camera aiming is not completed<br>(“C1B01”is detected)<br><b>NOTE:</b><br>This is detected while driving the vehicle and the indication remains ON until the ignition switch is turned OFF | ON                           |  |
| Temporary disabled status at high temperature<br>(“C1B03”is detected)  | ON                           | OFF → <br>(Yellow) Blink<br><small>JPOIA0020GB</small>  |
| When the warning systems system switch is pressed<br>(When the settings of LDW system, FCW system, and BSW system on the navigation screen are “OFF”)                                      | Blink                        | —  |

## LANE DEPARTURE WARNING (LDW) SYSTEM : Fail-safe (ADAS Control Unit)

INFOID:000000007218391

If a malfunction occurs in each system, ADAS control unit cancels each control, sounds a beep, and turns ON the warning lamp or indicator lamp.

| System   | Buzzer            | Warning lamp/Indicator lamp | Description |
|--|-------------------|-----------------------------|-------------|
| Vehicle-to-vehicle distance control mode       | High-pitched tone | ICC system warning lamp     | Cancel      |
| Conventional (fixed speed) cruise control mode | High-pitched tone | ICC system warning lamp     | Cancel      |
| Intelligent Brake Assist (IBA)                 | High-pitched tone | IBA OFF indicator lamp      | Cancel      |
| Forward Collision Warning (FCW)                | High-pitched tone | IBA OFF indicator lamp      | Cancel      |
| Distance Control Assist (DCA)                  | High-pitched tone | ICC system warning lamp     | Cancel      |
| Lane Departure Warning (LDW)                   | —                 | Lane departure warning lamp | Cancel      |
| Lane Departure Prevention (LDP)                | Low-pitched tone  | Lane departure warning lamp | Cancel      |
| Blind Spot Warning (BSW)                       | —                 | BSW/BSI warning lamp        | Cancel      |

DAS

# SYSTEM

< SYSTEM DESCRIPTION >

[LDW & LDP]

| System                        | Buzzer           | Warning lamp/Indicator lamp | Description   |
|-------------------------------|------------------|-----------------------------|---|
| Blind Spot Intervention (BSI) | Low-pitched tone | BSW/BSI warning lamp        | Cancel  |
| Active trace control function | —                | IBA OFF indicator lamp      | <ul style="list-style-type: none"><li>• Cancel</li><li>• If a communication error occurs between the A/C auto amp. and CAN communication line, a mode at the instant of error occurrence is maintained until the mode is fixed to STANDARD after turning the ignition switch from OFF to ON</li></ul> |

## LANE DEPARTURE WARNING (LDW) SYSTEM : Fail-safe (Lane Camera Unit)

INFOID:000000007218392

### FAIL-SAFE CONTROL BY DTC

If a malfunction occurs in the lane camera unit, ADAS control unit cancels control, and turns ON the lane departure warning lamp in the combination meter.

### TEMPORARY DISABLED STATUS AT HIGH TEMPERATURE

- If the vehicle is parked in direct sunlight under high temperature conditions, the system may be deactivated automatically. And the lane departure warning lamp (yellow) in the combination meter will blink.
- When interior temperature is reduced, the system will resume operation automatically and the lane departure warning lamp (yellow) in the combination meter will stop blinking.

## LANE DEPARTURE PREVENTION (LDP) SYSTEM

# SYSTEM

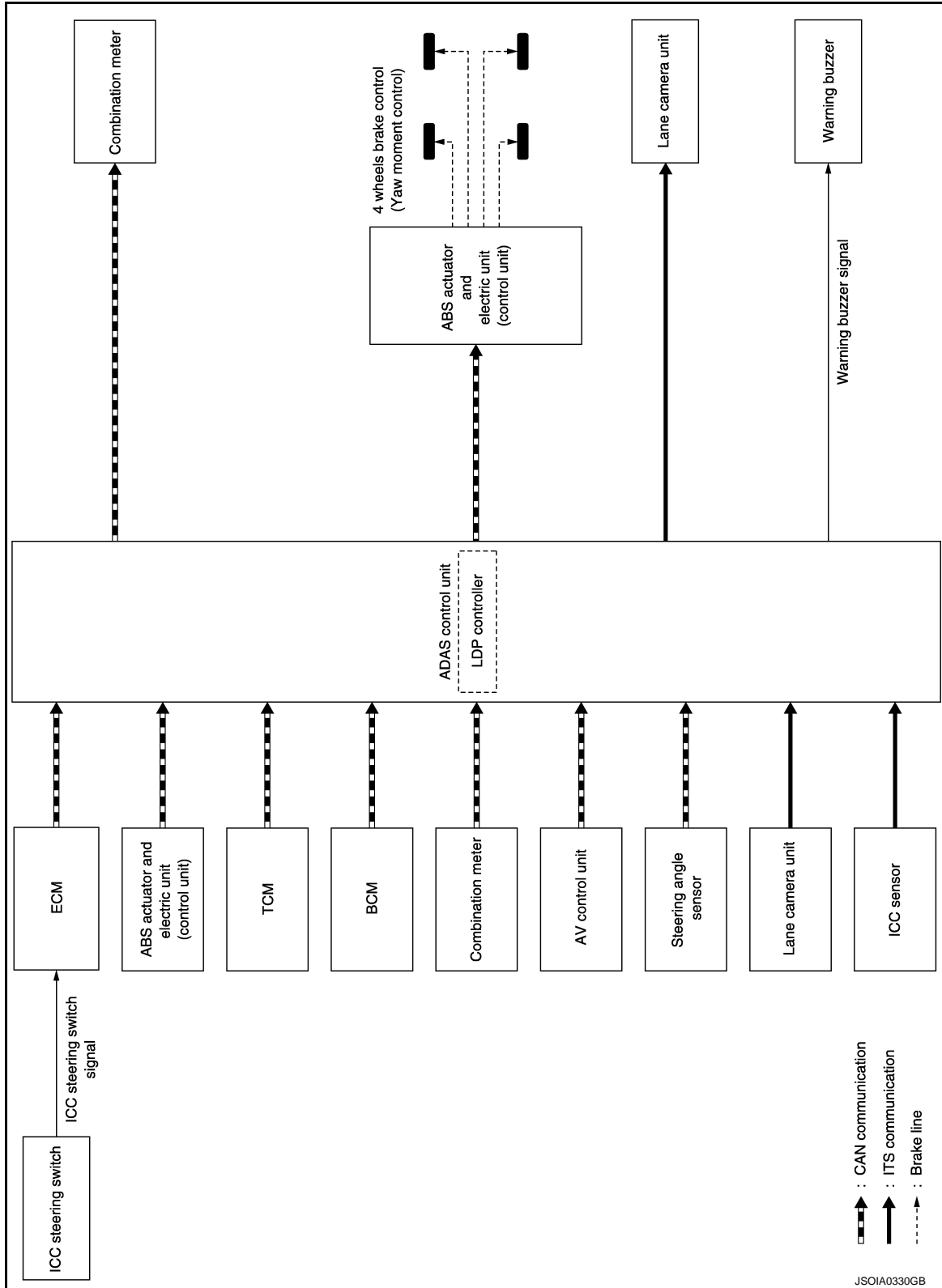
< SYSTEM DESCRIPTION >

[LDW & LDP]

## LANE DEPARTURE PREVENTION (LDP) SYSTEM : System Description

INFOID:000000006886330

### SYSTEM DIAGRAM



A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

### ADAS CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

# SYSTEM

< SYSTEM DESCRIPTION >

[LDW & LDP]

| Transmit unit                                 | Signal name                              |  | Description  |   |
|---|--|--|--|---|
| ECM   | CAN communication                        | Accelerator pedal position signal        | Receives accelerator pedal position (angle)  |   |
|   |  | ICC steering switch signal               | Dynamic driver assistance switch signal  | Receives the operational state of the ICC steering switch |
|   |  | Engine speed signal                      |  | Receives engine speed                                     |
|   |  | Snow mode switch signal                  |  | Receives an operational state of the snow mode            |
| TCM   | CAN communication                        | Input speed signal                       | Receives the number of revolutions of input shaft  |   |
|   |  | Current gear position signal             | Receives a current gear position   |   |
|   |  | Shift position signal                    | Receives a selector lever position   |   |
|   |  | Output shaft revolution signal           | Receives the number of revolutions of output shaft   |   |
| ABS actuator and electric unit (control unit) | CAN communication                        | ABS malfunction signal                   | Receives a malfunction state of ABS  |   |
|   |  | ABS operation signal                     | Receives an operational state of ABS   |   |
|   |  | TCS malfunction signal                   | Receives a malfunction state of TCS  |   |
|   |  | TCS operation signal                     | Receives an operational state of TCS   |   |
|   |  | VDC OFF switch signal                    | Receives an ON/OFF state of VDC  |   |
|   |  | VDC malfunction signal                   | Receives a malfunction state of VDC  |   |
|   |  | VDC operation signal                     | Receives an operational state of VDC   |   |
|   |  | Vehicle speed signal (ABS)               | Receives wheel speeds of four wheels   |   |
|   |  | Yaw rate signal                          | Receives yaw rate acting on the vehicle  |   |
| Side G sensor signal                          | Receives lateral G acting on the vehicle |  |  |   |
| Combination meter                             | CAN communication                        | Parking brake switch signal              | Receives an operational state of the parking brake   |   |
| BCM   | CAN communication                        | Turn indicator signal                    | Receives an operational state of the turn signal lamp and the hazard lamp                                      |   |
| Steering angle sensor                         | CAN communication                        | Steering angle sensor malfunction signal | Receives a malfunction state of steering angle sensor  |   |
|   |  | Steering angle sensor signal             | Receives the number of revolutions, turning direction of the steering wheel                                    |   |
|   |  | Steering angle speed signal              | Receives the turning angle speed of the steering wheel   |   |
| AV control unit                               | CAN communication                        | System selection signal                  | Receives a selection state of each item in "Driver Assistance" selected with the navigation system             |   |
| ICC sensor                                    | ITS communication                        | ICC sensor signal                        | Receives detection results, such as the presence or absence of a leading vehicle and distance from the vehicle |   |
| Lane camera unit                              | ITS communication                        | Detected lane condition signal           | Receives detection results of lane marker  |   |

## Output Signal Item

| Reception unit                                | Signal name       |                                    | Description  |
|---|-------------------|------------------------------------|--|
| ABS actuator and electric unit (control unit) | CAN communication | Target yaw moment signal           | Transmits a target yaw moment signal to generate yaw moment to the vehicle                 |
| Combination meter                             | CAN communication | LDP ON indicator lamp signal       | Transmits an LDP ON indicator lamp signal to turn ON the LDP ON indicator lamp             |
|   |                   | Lane departure warning lamp signal | Transmits an lane departure warning lamp signal to turn ON the lane departure warning lamp |



# SYSTEM

< SYSTEM DESCRIPTION >

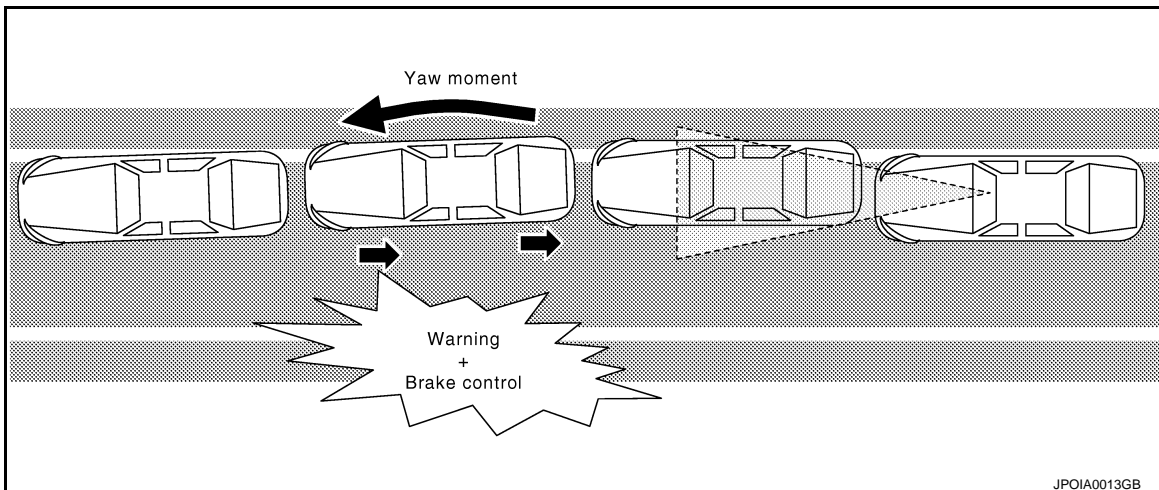
[LDW & LDP]

| Reception unit   | Signal name           |                       | Description   |
|------------------|-----------------------|-----------------------|---|
| Lane camera unit | ITS communication     | Vehicle speed signal  | Transmits a vehicle speed calculated by the ADAS control unit |
|                  |                       | Turn indicator signal | Transmits a turn indicator signal received from BCM           |
| Warning buzzer   | Warning buzzer signal |                       | Activates the warning buzzer                                  |

## FUNCTION DESCRIPTION

- Lane Departure Prevention (LDP) system provides a lane departure warning and brake control assistance when the vehicle is driven at speeds of approximately 70 km/h (45 MPH) or more.
- When the vehicle approaches either the left or the right side of the traveling lane, a warning sounds and the lane departure warning lamp (yellow) on the combination meter blinks to alert the driver. Then, the LDP system automatically applies the brakes for a short period of time to help assist the driver to return the vehicle to the center of the traveling lane.
- Warning and brake control are not performed during turn signal operation (lane change side).
- The warning and assist functions stop when the vehicle returns to a position inside of the lane marker.

## EXAMPLE



When the vehicle approaches the right lane marker, the driver is alerted by the buzzer and the blinking of lane departure warning lamp (yellow). Simultaneously, the left brake is controlled independently to generate force which returns the vehicle to the lane.

## OPERATION DESCRIPTION

- When the system is turned ON by dynamic driver assistance switch, ADAS control unit transmits LDP ON indicator signal to combination meter via CAN communication.
- Lane camera unit monitors lane markers of the traveling lane. It transmits the detected lane condition signal to ADAS control unit via ITS communication.
- When judging from a lane marker detection signal that the vehicle is approaching the lane marker, ADAS control unit controls the following items.
  - Activates warning buzzer.
  - Transmits a lane departure warning lamp signal to combination meter via CAN communication.
  - Calculates necessary yaw moment to transmit a target yaw moment signal to ABS actuator and electric unit (control unit) via CAN communication.
- When receiving the target yaw moment signal, ABS actuator and electric unit (control unit) controls brake pressure of four wheels, respectively.
- When receiving the signal from ADAS control unit, combination meter turns ON/OFF the lane departure warning lamp (yellow) and the LDP ON indicator lamp (green).

## OPERATING CONDITION

- LDP ON indicator lamp: ON
- Vehicle speed: approximately 70 km/h (45 MPH) or more
- Turn indicator signal: After 2 seconds or more from turned OFF

## NOTE:

- When the LDP system setting on the navigation screen is ON.

# SYSTEM

## < SYSTEM DESCRIPTION >

[LDW & LDP]

- After the operating conditions are satisfied, the control continues until the vehicle speed reaches approximately 60 km/h (40 MPH).
- The LDP system may not function properly, depending on the situation. Refer to [DAS-263. "Precautions for Lane Departure Warning/Lane Departure Prevention"](#).

### Bulb Check Action and Fail-safe Indication

| Vehicle condition/ Driver's operation   | Indication on the combination meter | Buzzer |
|---|-------------------------------------|--------|
| Ignition switch<br>OFF ⇒ ON<br>(Bulb check)   |                                     | —      |
| When DTC is detected<br>(Except "C1B01" and "C1B03")  |                                     | Beep   |
| Camera aiming is not completed<br>("C1B01" is detected)<br><b>NOTE:</b><br>This is detected while driving the vehicle and the indication remains ON until the ignition switch is turned OFF |                                     |        |
| Temporary disabled status at high temperature<br>("C1B03" is detected)  |                                     | Beep   |
| When the dynamic driver assistance system switch is pressed<br>(When the settings of LDP system, DCA system, and BSI system on the navigation screen are "OFF")                             |                                     | —      |

## LANE DEPARTURE PREVENTION (LDP) SYSTEM : Fail-safe (ADAS Control Unit)

INFOID:000000006886331

If a malfunction occurs in each system, ADAS control unit cancels each control, sounds a beep, and turns ON the warning lamp or indicator lamp.

| System   | Buzzer            | Warning lamp/Indicator lamp | Description |
|--|-------------------|-----------------------------|-------------|
| Vehicle-to-vehicle distance control mode       | High-pitched tone | ICC system warning lamp     | Cancel      |
| Conventional (fixed speed) cruise control mode | High-pitched tone | ICC system warning lamp     | Cancel      |
| Intelligent Brake Assist (IBA)                 | High-pitched tone | IBA OFF indicator lamp      | Cancel      |
| Forward Collision Warning (FCW)                | High-pitched tone | IBA OFF indicator lamp      | Cancel      |

# SYSTEM

< SYSTEM DESCRIPTION >

[LDW & LDP]

| System                          | Buzzer            | Warning lamp/Indicator lamp | Description  |
|---------------------------------|-------------------|-----------------------------|--|
| Distance Control Assist (DCA)   | High-pitched tone | ICC system warning lamp     | Cancel   |
| Lane Departure Warning (LDW)    | —                 | Lane departure warning lamp | Cancel   |
| Lane Departure Prevention (LDP) | Low-pitched tone  | Lane departure warning lamp | Cancel   |
| Blind Spot Warning (BSW)        | —                 | BSW/BSI warning lamp        | Cancel   |
| Blind Spot Intervention (BSI)   | Low-pitched tone  | BSW/BSI warning lamp        | Cancel   |
| Active trace control function   | —                 | IBA OFF indicator lamp      | <ul style="list-style-type: none"> <li>• Cancel</li> <li>• If a communication error occurs between the A/C auto amp. and CAN communication line, a mode at the instant of error occurrence is maintained until the mode is fixed to STANDARD after turning the ignition switch from OFF to ON</li> </ul> |

## LANE DEPARTURE PREVENTION (LDP) SYSTEM : Fail-safe (Lane Camera Unit)

INFOID:000000006886332

### FAIL-SAFE CONTROL BY DTC

If a malfunction occurs in the lane camera unit, ADAS control unit cancels control, sounds a beep, and turns ON the lane departure warning lamp in the combination meter.

### TEMPORARY DISABLED STATUS AT HIGH TEMPERATURE

- If the vehicle is parked in direct sunlight under high temperature conditions, the system may be deactivated automatically. And the buzzer sounds and lane departure warning lamp (yellow) in the combination meter will blink.
- When interior temperature is reduced, the system will resume when dynamic driver assistance switch is turned OFF and turned ON and the lane departure warning lamp (yellow) in the combination meter will stop blinking.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

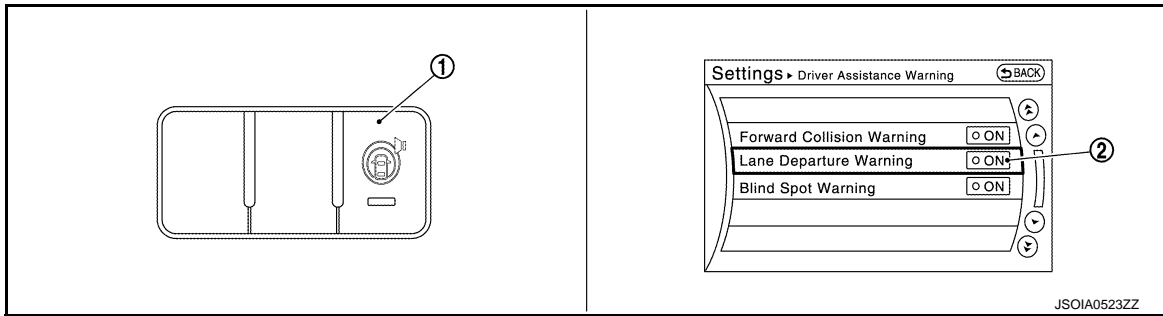
DAS

OPERATION

LANE DEPARTURE WARNING (LDW) SYSTEM

LANE DEPARTURE WARNING (LDW) SYSTEM : Switch Name and Function

INFOID:000000007218393

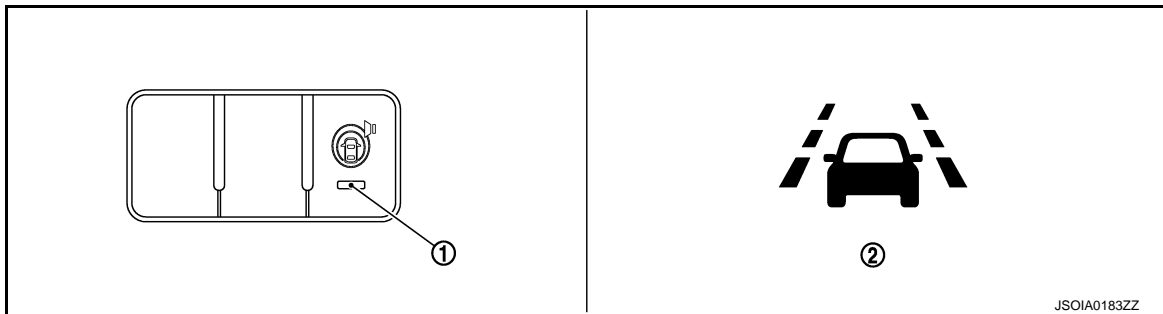


| No. | Switch name   | Description   |
|-----|---|---|
| 1   | Warning systems switch  | Turns LDW system ON/OFF<br>(When the setting of LDW system on the navigation system setting screen is ON) |
| 2   | LDW system settings screen<br>(Navigation system settings screen) | The setting of LDW system can be switched between ON and OFF  |

LANE DEPARTURE WARNING (LDW) SYSTEM : Menu Displayed by Pressing Each Switch

INFOID:000000007218394

INDICATOR LAMP AND WARNING LAMP



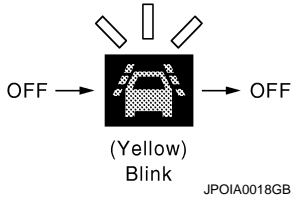
| No. | Display item                 | Description   |
|-----|------------------------------|---|
| 1   | Warning systems ON indicator | <ul style="list-style-type: none"> <li>Indicates that the LDW, FCW, and/or BSW system is ON</li> <li>Blinks when the setting of LDW, FCW, and BSW are "OFF" and the warning systems switch is pressed</li> </ul>    |
| 2   | Lane departure warning lamp  | <ul style="list-style-type: none"> <li>Blinks when LDW system is activated</li> <li>Turns ON when LDW system has a malfunction</li> <li>Blinks when the temperature of the lane camera unit becomes high</li> </ul> |

DISPLAY AND WARNING

# OPERATION

< SYSTEM DESCRIPTION >

[LDW & LDP]

| Vehicle condition/ Driver's operation |   | Action   | Warning systems ON indicator | Indication on the combination meter   | Buzzer                 |
|---------------------------------------|---|--|------------------------------|---|------------------------|
| Less than Approx. 60 km/h (40 MPH)    | Close to lane marker  | No action  | ON                           | OFF   | —                      |
| Approx. 70 km/h (45 MPH) or more      | Close to lane marker  | Warning <ul style="list-style-type: none"> <li>• Buzzer sounds</li> <li>• Warning lamp blinks</li> </ul> | ON                           |  | Short continuous beeps |
|                                       | <ul style="list-style-type: none"> <li>• Close to lane marker</li> <li>• Turn signal ON (Deviate side)</li> </ul> | No action  | ON                           | OFF   | —                      |

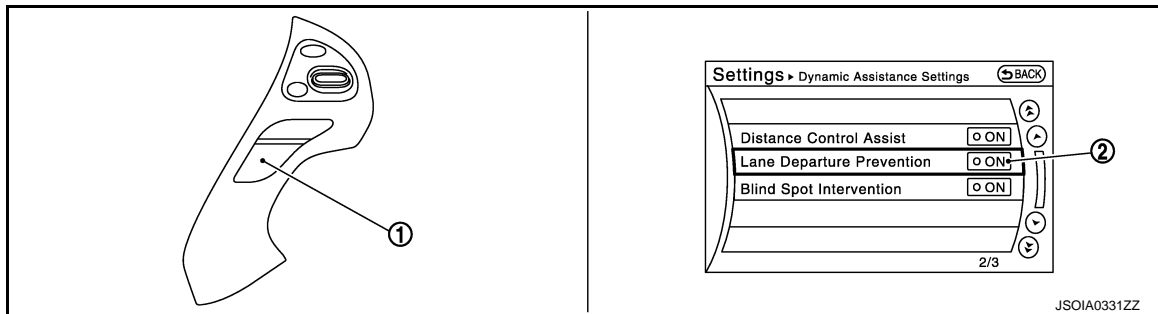
**NOTE:**

After the operating conditions of warning are satisfied, the warning continues until the vehicle speed reaches approximately 60 km/h (40 MPH). Refer to [DAS-251. "LANE DEPARTURE WARNING \(LDW\) SYSTEM : System Description"](#).

## LANE DEPARTURE PREVENTION (LDP) SYSTEM

### LANE DEPARTURE PREVENTION (LDP) SYSTEM : Switch Name and Function

INFOID:000000006886335

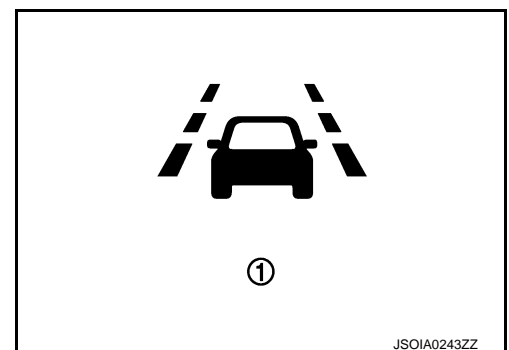


| No. | Switch name   | Description   |
|-----|---|---|
| 1   | Dynamic driver assistance switch                                  | Turns LDP system ON/OFF<br>(When the setting of LDP system on the navigation system setting screen is ON) |
| 2   | LDP system settings screen<br>(Navigation system settings screen) | The setting of LDP system can be switched between ON and OFF  |

### LANE DEPARTURE PREVENTION (LDP) SYSTEM : Menu Displayed by Pressing Each Switch

INFOID:000000006886336

#### INDICATOR LAMP AND WARNING LAMP



A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS


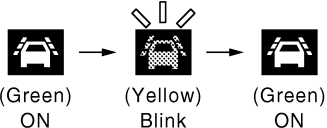

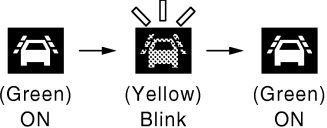
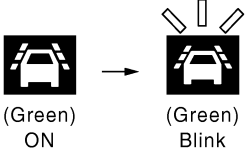
# OPERATION

< SYSTEM DESCRIPTION >

[LDW & LDP]

| No. | Display item                         | Description  |
|-----|--------------------------------------|--|
| 1   | LDP ON indicator (green)             | <ul style="list-style-type: none"> <li>Indicates that the LDP system is ON</li> <li>Blinks when dynamic driver assistance switch is pressed (When the setting of LDP, DCA, and BSI systems are "OFF")</li> </ul>         |
|     | Lane departure warning lamp (yellow) | <ul style="list-style-type: none"> <li>Blinks when the warning of LDP system occurs</li> <li>Turns ON when LDP system has a malfunction</li> <li>Blinks when the temperature of lane camera unit becomes high</li> </ul> |

## DISPLAY AND WARNING

| Vehicle condition/ Driver's operation | Action  | Indication on the combination meter   | Buzzer   |                        |
|---------------------------------------|---|---|--|------------------------|
| Less than Approx. 60 km/h (40 MPH)    | Close to lane marker  | <br>(Green) ON<br><small>JPOIA0021GB</small>   | —  |                        |
| Approx. 70 km/h (45 MPH) or more      | Close to lane marker  | <br>(Green) ON → (Yellow) Blink → (Green) ON<br><small>JPOIA0022GB</small>  | Short continuous beeps   |                        |
|                                       | <ul style="list-style-type: none"> <li>Close to lane marker</li> <li>Turn signal ON (Deviate side)</li> </ul>   | <br>(Green) ON<br><small>JPOIA0021GB</small>   | —  |                        |
|                                       | Close to lane with soft braking   | Warning <ul style="list-style-type: none"> <li>Buzzer sounds</li> <li>Warning lamp blinks</li> </ul>  | <br>(Green) ON → (Yellow) Blink → (Green) ON<br><small>JPOIA0022GB</small> | Short continuous beeps |
|                                       | <ul style="list-style-type: none"> <li>VDC OFF Switch OFF ⇒ ON (VDC system ON ⇒ OFF)</li> <li>Shifting drive mode select switch to SNOW position</li> </ul> | Cancellation <ul style="list-style-type: none"> <li>Buzzer sounds</li> <li>Indicator lamp blinks</li> </ul> <b>NOTE:</b><br>When dynamic driver assistance switch is ON ⇒ OFF, indicator lamp is turned OFF | <br>(Green) ON → (Green) Blink<br><small>JPOIA0023GB</small>               | Beep                   |

**NOTE:**

After the operating conditions are satisfied, the control continues until the vehicle speed reaches approximately 60 km/h (40 MPH). Refer to [DAS-255, "LANE DEPARTURE PREVENTION \(LDP\) SYSTEM : System Description"](#).

# HANDLING PRECAUTION

< SYSTEM DESCRIPTION >

[LDW & LDP]

## HANDLING PRECAUTION

### Precautions for Lane Departure Warning/Lane Departure Prevention

INFOID:000000006886337

#### LANE CAMERA UNIT HANDLING

To keep the LDW/LDP system operating properly, be sure to observe the following items:

To keep the proper operation of the LDW/LDP systems and prevent a system malfunction, be sure to observe the following:

- Always keep the windshield clean.
- Do not attach a sticker (including transparent material) or install an accessory near the lane camera unit.
- Do not place reflective materials, such as white paper or a mirror, on the instrument panel. The reflection of sunlight may adversely affect the lane camera unit capability of detecting the lane markers.
- Do not strike or damage the areas around the lane camera unit.
- Do not touch the camera lens.
- Do not remove the screw located on the lane camera unit.

#### LANE DEPARTURE WARNING (LDW)

- LDW system is only a warning device to inform the driver of a potential unintended lane departure. It will not steer the vehicle or prevent loss of control. It is the driver's responsibility to stay alert, drive safely, keep the vehicle in the traveling lane, and be in control of the vehicle at all times.
- LDW system will not operate at speeds below approximately 70 km/h (45 MPH) or if it cannot detect lane markers.
- Excessive noise will interfere with the warning chime sound, and the chime may not be heard.
- LDW system may not function properly under the following conditions:
  - On roads where there are multiple parallel lane markers; lane markers that are faded or not painted clearly; yellow painted lane markers; non-standard lane markers; or lane markers covered with water, dirt or snow, etc.
  - On roads where the discontinued lane markers are still detectable.
  - On roads where there are sharp curves.
  - On roads where there are sharply contrasting objects, such as shadows, snow, water, wheel ruts, seams or lines remaining after road repairs. (The LDW system could detect these items as lane markers.)
  - On roads where the traveling lane merges or separates.
  - When the vehicle's traveling direction does not align with the lane marker.
  - When traveling close to other vehicle in front of the vehicle, which obstructs the lane camera unit detection range.
  - When rain, snow or dirt adheres to the windshield in front of the lane camera unit.
  - When the headlights are not bright due to dirt on the lens or if the aiming is not adjusted properly.
  - When strong light enters the lane camera unit. (For example, the light directly shines on the front of the vehicle at sunrise or sunset.)
  - When a sudden change in brightness occurs. (For example, when the vehicle enters or exits a tunnel or under a bridge.)

#### LANE DEPARTURE PREVENTION (LDP)

- LDP system will not steer the vehicle or prevent loss of control. It is the driver's responsibility to stay alert, drive safely, keep the vehicle in the traveling lane, and be in control of vehicle at all times.
- LDP system is primarily intended for use on well-developed freeways or highways. It may not detect the lane markers in certain roads, weather or driving conditions.
- Using the LDP system under some conditions of road, lane marker or weather, or when driver change lanes without using the turn signal could lead to an unexpected system operation. In such conditions, driver needs to correct the vehicle's direction with driver's steering operation to avoid accidents.
- When the LDP system is operating, avoid excessive or sudden steering maneuvers. Otherwise, driver could lose control of the vehicle.
- The LDP system will not operate at speeds below approximately 70 km/h (45 MPH) or if it cannot detect lane markers.
- The LDP system may not function properly under the following conditions, and do not use the LDP system:
  - During bad weather (rain, fog, snow, wind, etc.).
  - When driving on slippery roads, such as on ice or snow, etc.
  - When driving on winding or uneven roads.
  - When there is a lane closure due to road repairs.
  - When driving in a makeshift lane.
  - When driving on roads where the lane width is too narrow.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## HANDLING PRECAUTION

[LDW & LDP]

### < SYSTEM DESCRIPTION >

- When driving with a tire that is not within normal tire conditions (for example, tire wear, low tire pressure, installation of spare tire, tire chains, non-standard wheels).
- When the vehicle is equipped with non-original brake parts or suspension parts.
- Excessive noise will interfere with the warning chime sound, and the chime may not be heard.
- The functions of the LDP system (warning and brake control assist) may or may not operate properly under the following conditions:
  - On roads where there are multiple parallel lane markers; lane markers that are faded or not painted clearly; yellow painted lane markers; non-standard lane markers or lane markers covered with water, dirt or snow, etc.
  - On roads where discontinued lane markers are still detectable.
  - On roads where there are sharp curves.
  - On roads where there are sharply contrasting objects, such as shadows, snow, water, wheel ruts, seams or lines remaining after road repairs (The LDP system could detect these items as lane markers.).
  - On roads where the traveling lane merges or separates.
  - When the vehicle's traveling direction does not align with the lane marker.
  - When traveling close to other vehicle in front of the vehicle, which obstructs the lane camera unit detection range.
  - When rain, snow or dirt adheres to the windshield in front of the lane camera unit.
  - When the headlights are not bright due to dirt on the lens or if the aiming is not adjusted properly.
  - When strong light enters the lane camera unit (For example, the light directly shines on the front of the vehicle at sunrise or sunset.)
  - When a sudden change in brightness occurs (For example, when the vehicle enters or exits a tunnel or under a bridge.)
- While the LDP system is operating, driver may hear a sound of brake operation. This is normal and indicates that the LDP system is operating properly.



# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[LDW & LDP]

## DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

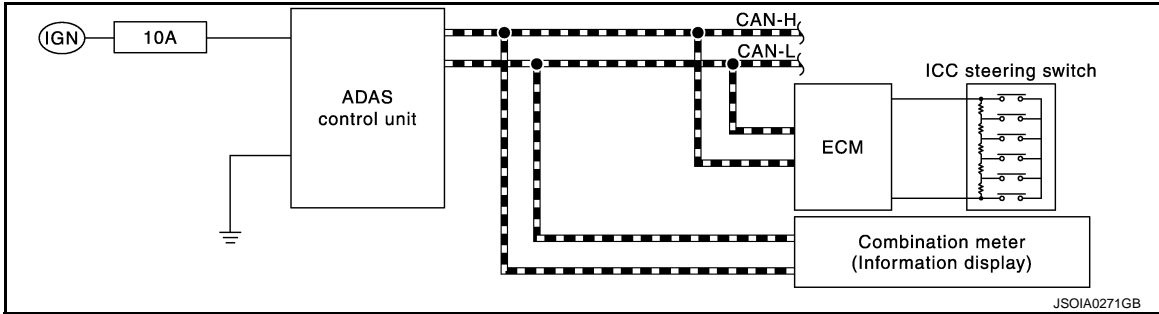
### On Board Diagnosis Function

INFOID:000000007218939

#### DESCRIPTION

The DTC is displayed on the information display by operating the ICC steering switch.

#### On Board Self-diagnosis System Diagram



#### METHOD OF STARTING

##### CAUTION:

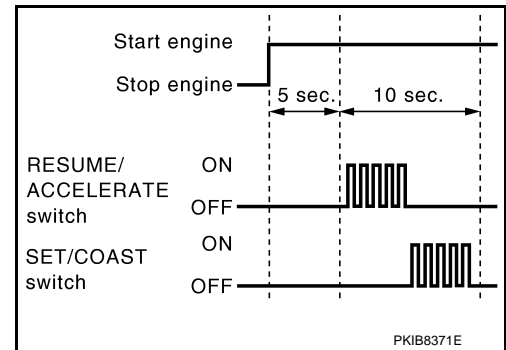
##### Start condition of on board self-diagnosis

- ICC system OFF
- DCA system OFF
- Vehicle speed 0 km/h (0 MPH)

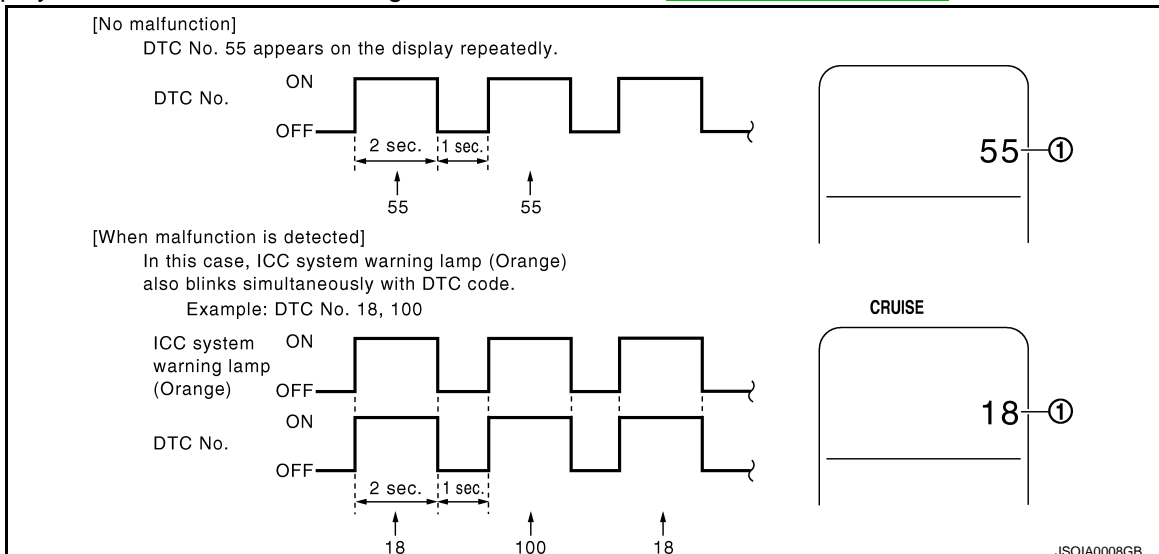
1. Turn the ignition switch OFF.
2. Start the engine.
3. Wait for 5 seconds after starting the engine. Push up the RESUME/ACCELERATE switch 5 times and push down the SET/COAST switch 5 times within 10 seconds.

##### NOTE:

If the above operation cannot be performed within 10 seconds after waiting for 5 seconds after starting the engine, repeat the procedure from step 1.



4. The DTC is displayed on the set vehicle speed indicator (1) on the ICC system display on the information display when the on board self-diagnosis starts. Refer to [DAS-286, "DTC Index"](#).



##### NOTE:

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

[LDW & LDP]

## < SYSTEM DESCRIPTION >

- It displays for up to 5 minutes and then stops.
- If multiple malfunctions exist, up to 6 DTCs can be stored in memory at the most, and the most recent one is displayed first.

## WHEN THE ON BOARD SELF-DIAGNOSIS DOES NOT START

If the on board self-diagnosis does not start, check the following items.

| Assumed abnormal part                                   |                               | Inspection item  |
|---|-------------------------------|--|
| Information display                                     | Combination meter malfunction | Check that the self-diagnosis function of the combination meter operates. Refer to <a href="#">MWI-30, "On Board Diagnosis Function"</a> .   |
| ICC steering switch malfunction                         |                               | Perform the inspection for DTC "C1A06". Refer to <a href="#">CCS-88, "DTC Logic"</a> .   |
| Harness malfunction between ICC steering switch and ECM |                               |  |
| ECM malfunction   |                               |  |
| ADAS control unit malfunction                           |                               | <ul style="list-style-type: none"> <li>• Check power supply and ground circuit of ADAS control unit. Refer to <a href="#">DAS-54, "Diagnosis Procedure"</a>.</li> <li>• Perform SELF-DIAGNOSIS for "ICC/ADAS" with CONSULT, and then check the malfunctioning parts. Refer to <a href="#">DAS-286, "DTC Index"</a>.</li> </ul> |

## HOW TO ERASE ON BOARD SELF-DIAGNOSIS

1. Turn the ignition switch OFF.
2. Start the engine, and then start the on board self-diagnosis.
3. Press the CANCEL switch 5 times, and then press the DISTANCE switch 5 times under the condition that the on board self-diagnosis starts.

### NOTE:

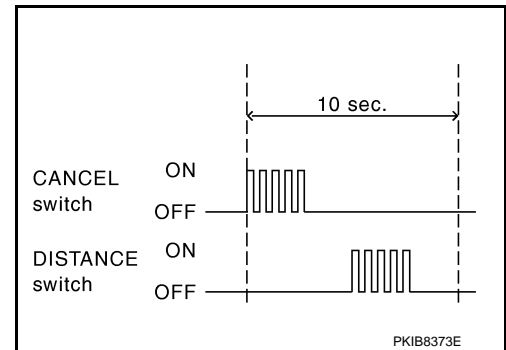
- Complete the operation within 10 seconds after pressing the CANCEL switch first.
- If the operation is not completed within 10 seconds, repeat the procedure from step 1.

4. DTC 55 is displayed after erasing.

### NOTE:

DTCs for existing malfunction can not be erased.

5. Turn ignition switch OFF, and finish the diagnosis.



## CONSULT Function (ICC/ADAS)

INFOID:000000007218940

## APPLICATION ITEMS

CONSULT performs the following functions via CAN communication using ADAS control unit.

| Diagnosis mode           | Description  |
|--------------------------|--|
| Work Support             | Displays causes of automatic system cancellation occurred during system control                                |
| Self Diagnostic Result   | Displays the name of a malfunctioning system stored in the ADAS control unit                                   |
| Data Monitor             | Displays ADAS control unit input/output data in real time  |
| Active Test              | Enables an operational check of a load by transmitting a driving signal from the ADAS control unit to the load |
| Ecu Identification       | Displays ADAS control unit part number   |
| CAN Diag Support Monitor | Displays a reception/transmission state of CAN communication and ITS communication                             |

## WORK SUPPORT

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[LDW & LDP]

| Work support items     | Description   |
|------------------------|---|
| CAUSE OF AUTO-CANCEL 1 | Displays causes of automatic system cancellation occurred during control of the following systems <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle control mode</li> <li>• Conventional (fixed speed) control mode</li> <li>• Distance Control Assist (DCA)</li> </ul> |
| CAUSE OF AUTO-CANCEL 2 | Displays causes of automatic system cancellation occurred during control of the following systems <ul style="list-style-type: none"> <li>• Lane Departure Prevention (LDP)</li> <li>• Blind Spot Intervention (BSI)</li> </ul>  |

**NOTE:**

- Causes of the maximum five cancellations (system cancel) are displayed.
- The displayed cancellation causes display the number of the ignition switch ON/OFF up to 254. It is fixed to 254 if it is over 254. It returns to 0 when the same cancellation cause is detected again.

Display Items for The Cause of Automatic Cancellation 1

| Cause of cancellation | Vehicle-to-vehicle distance control mode | Conventional (fixed speed) cruise control mode | Distance Control Assist | Description  |
|-----------------------|--|--|-------------------------|--|
| OPERATING WIPER       | ×  |  |                         | The wiper operates at HI (it includes when the wiper is operated at HI with the wiper switch AUTO position)  |
| OPERATING ABS         | ×  |  | ×                       | ABS function was operated  |
| OPERATING TCS         | ×  | ×  | ×                       | TCS function was operated  |
| OPERATING VDC         | ×  | ×  | ×                       | VDC function was operated  |
| ECM CIRCUIT           | ×  | ×  |                         | ECM did not permit ICC operation   |
| OPE SW VOLT CIRC      | ×  | ×  | ×                       | The ICC steering switch input voltage is not within standard range   |
| LASER SUNBEAM         | ×  |  | ×                       | Intense light such as sunlight entered ICC sensor light sensing part   |
| LASER TEMP            | ×  |  | ×                       | Temperature around ICC sensor became low   |
| SNOW MODE SW          | ×  |  | ×                       | Shifting of the drive mode selector to SNOW position   |
| OP SW DOUBLE TOUCH    | ×  | ×  |                         | ICC steering switches were pressed at the same time  |
| VHCL SPD DOWN         | ×  | ×  | ×                       | Vehicle speed lower than the speed as follows <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle distance control mode is 24 km/h (15 MPH)</li> <li>• Conventional (fixed speed) cruise control mode is 32 km/h (20 MPH)</li> </ul> |
| WHL SPD ELEC NOISE    | ×  | ×  | ×                       | Wheel speed sensor signal caught electromagnetic noise   |
| VDC/TCS OFF SW        | ×  |  | ×                       | VDC OFF switch was pressed   |
| VHCL SPD UNMATCH      | ×  | ×  | ×                       | Wheel speed became different from A/T vehicle speed  |
| TIRE SLIP             | ×  | ×  |                         | Wheel slipped  |
| IGN LOW VOLT          | ×  | ×  | ×                       | Decrease in ADAS control unit IGN voltage  |
| PARKING BRAKE ON      | ×  | ×  |                         | The parking brake is operating   |

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[LDW & LDP]

|                         |   |   |   |   |
|-------------------------|---|---|---|---|
| WHEEL SPD UNMATCH       | × | × | × | The wheel speeds of 4 wheels are out of the specified values  |
| INCHING LOST            | × |   |   | A vehicle ahead is not detected during the following driving when the vehicle speed is approximately 24 km/h (15 MPH) or less |
| CAN COMM ERROR          | × | × | × | ADAS control unit received an abnormal signal with CAN communication  |
| ABS/TCS/VDC CIRC        | × | × | × | An abnormal condition occurs in VDC/TCS/ABS system  |
| ECD CIRCUIT             | × | × | × | An abnormal condition occurs in ECD system  |
| ASCD VHCL SPD DTAC      |   | × |   | Vehicle speed is detached from set vehicle speed  |
| ASCD DOUBLE COMD        |   | × |   | Cancel switch and operation switch are detected simultaneously  |
| APA HI TEMP             |   |   | × | The accelerator pedal actuator integrated motor temperature is high   |
| ICC SENSOR CAN COMM ERR | × |   | × | Communication error between ADAS control unit and the ICC sensor  |
| ABS WARNING LAMP        | × |   | × | ABS warning lamp ON   |
| NO RECORD               | × | × | × | —   |

## Display Items for The Cause of Automatic Cancellation 2

| Cause of cancellation   | Lane departure prevention | Blind spot intervention | Description  |
|-------------------------|---------------------------|-------------------------|--|
| OPE VDC/TCS/ABS 1       | ×                         |                         | The activation of VDC, TCS, or ABS during LDP system control                                 |
| Vehicle dynamics        | ×                         |                         | Vehicle behavior exceeds specified value   |
| Steering speed          | ×                         |                         | Steering speed was more than the specified value in evasive direction                        |
| End by yaw angle        | ×                         |                         | Yaw angle was the end of LDP control   |
| Departure yaw large     | ×                         |                         | Detected more than the specified value of yaw angle in departure direction                   |
| ICC WARNING             | ×                         |                         | Target approach warning of ICC system, IBA system, or FCW system was activated               |
| CURVATURE               | ×                         |                         | Road curve was more than the specified value   |
| Steering angle large    | ×                         |                         | Steering angle was more than the specified value   |
| Brake is operated       | ×                         |                         | Brake pedal was operated   |
| IGN LOW VOLT            | ×                         |                         | Decrease in ADAS control unit IGN voltage  |
| Lateral offset          | ×                         |                         | Distance of vehicle and lane was detached in lateral direction more than the specified value |
| Lane marker lost        | ×                         |                         | Lane camera unit lost the trace of lane marker   |
| Lane marker unclear     | ×                         |                         | Detected lane marker was unclear   |
| Yaw acceleration        | ×                         |                         | Detected yawing speed was more than the specified value                                      |
| Deceleration large      | ×                         |                         | Deceleration in a longitudinal direction was more than the specified value                   |
| Accel is operated       | ×                         |                         | Accelerator pedal was depressed  |
| Departure steering      | ×                         |                         | Steering wheel was steered more than the specified value in departure direction              |
| Evasive steering        | ×                         |                         | Steering wheel was steered more than the specified value in the evasive direction            |
| R range                 | ×                         |                         | Selector lever was operated to R range   |
| Parking brake drift     | ×                         |                         | Rear wheels lock was detected  |
| Not operating condition | ×                         |                         | Did not meet the operating condition (vehicle speed, turn signal operation, etc.)            |
| SNOW MODE SW            | ×                         |                         | Shifting of the drive mode selector to SNOW position   |

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[LDW & LDP]

| Cause of cancellation        | Lane departure prevention | Blind spot intervention | Description  |
|------------------------------|---------------------------|-------------------------|--|
| VDC OFF SW                   | ×                         |                         | VDC OFF switch was pressed   |
| OPE VDC/ABS 2                | ×                         |                         | The activation of VDC or ABS during a standby time of LDP system control                     |
| BSI WARNING                  | ×                         |                         | Blind Spot Intervention system was activated   |
| BSI) OPE VDC/TCS/ABS 1       |                           | ×                       | The activation of VDC, TCS, or ABS during Blind Spot Intervention system control             |
| BSI) Vehicle dynamics        |                           | ×                       | Vehicle behavior exceeds specified value   |
| BSI) Steering speed          |                           | ×                       | Steering speed was more than the specified value in evasive direction                        |
| BSI) End by yaw angle        |                           | ×                       | Yaw angle was the end of Blind Spot Intervention control                                     |
| BSI) Departure yaw large     |                           | ×                       | Detected more than the specified value of yaw angle in departure direction                   |
| BSI) ICC WARNING             |                           | ×                       | Target approach warning of ICC system, IBA system or FCW system was activated                |
| BSI) CURVATURE               |                           | ×                       | Road curve was more than the specified value   |
| BSI) Steering angle large    |                           | ×                       | Steering angle was more than the specified value   |
| BSI) Brake is operated       |                           | ×                       | Brake pedal was operated   |
| BSI) IGN LOW VOLT            |                           | ×                       | Decrease in ADAS control unit IGN voltage  |
| BSI) Lateral offset          |                           | ×                       | Distance of vehicle and lane was detached in lateral direction more than the specified       |
| BSI) Lane marker lost        |                           | ×                       | Lane camera unit lost the trace of lane marker   |
| BSI) Lane marker unclear     |                           | ×                       | Detected lane marker was unclear   |
| BSI) Yaw acceleration        |                           | ×                       | Detected yawing speed was more than the specified value                                      |
| BSI) Deceleration large      |                           | ×                       | Deceleration in a longitudinal direction was more than the specified value                   |
| BSI) Accel is operated       |                           | ×                       | Accelerator pedal was depressed  |
| BSI) Departure steering      |                           | ×                       | Steering wheel was steered more than the specified value in departure direction              |
| BSI) Evasive steering        |                           | ×                       | Steering wheel was steered more than the specified value in the evasive direction            |
| BSI) R range                 |                           | ×                       | Selector lever was operated to R range   |
| BSI) Parking brake drift     |                           | ×                       | Rear wheels lock was detected  |
| BSI) SNOW MODE SW            |                           | ×                       | Shifting of the drive mode selector to SNOW position   |
| BSI) VDC OFF SW              |                           | ×                       | VDC OFF switch was pressed   |
| BSI) OPE VDC/ABS 2           |                           | ×                       | The activation of VDC or ABS during a standby time of Blind Spot Intervention system control |
| BSI) Not operating condition |                           | ×                       | Did not meet the operating condition (vehicle speed, turn signal operation, etc.)            |
| Side Radar Lost              |                           | ×                       | Unrecognized side radar LH or RH by the ADAS control unit                                    |
| NO RECORD                    | ×                         | ×                       | —  |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## SELF DIAGNOSTIC RESULT

Refer to [DAS-286. "DTC Index"](#).

## DATA MONITOR

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[LDW & LDP]

| Monitored item<br>[Unit]         | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description  |
|----------------------------------|------------------|-------------------|-----------------------|-----------------------|--|
| MAIN SW<br>[On/Off]              | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| SET/COAST SW<br>[On/Off]         | ×                | ×                 |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| CANCEL SW<br>[On/Off]            | ×                | ×                 |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| RESUME/ACC SW<br>[On/Off]        | ×                | ×                 |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| DISTANCE SW<br>[On/Off]          | ×                |                   |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| CRUISE OPE<br>[On/Off]           | ×                | ×                 |                       |                       | Indicates whether controlling or not (ON means "controlling")  |
| BRAKE SW<br>[On/Off]             | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status as judged from ICC brake switch signal (ECM transmits ICC brake switch signal through CAN communication)   |
| STOP LAMP SW<br>[On/Off]         | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status as judged from stop lamp switch signal (ECM transmits stop lamp switch signal through CAN communication)   |
| IDLE SW<br>[On/Off]              | ×                |                   |                       |                       | Indicates [On/Off] status of idle switch read from ADAS control unit through CAN communication (ECM transmits On/Off status through CAN communication)   |
| SET DISTANCE<br>[Short/Mid/Long] | ×                | ×                 |                       |                       | Indicates set distance memorized in ADAS control unit  |
| CRUISE LAMP<br>[On/Off]          | ×                | ×                 |                       |                       | Indicates [On/Off] status of MAIN switch indicator output  |
| OWN VHCL<br>[On/Off]             | ×                |                   |                       |                       | Indicates [On/Off] status of own vehicle indicator output  |
| VHCL AHEAD<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of vehicle ahead detection indicator output  |
| ICC WARNING<br>[On/Off]          | ×                |                   |                       |                       | Indicates [On/Off] status of ICC system warning lamp output  |
| VHCL SPEED SE<br>[km/h] or [mph] | ×                | ×                 | ×                     | ×                     | Indicates vehicle speed calculated from ADAS control unit through CAN communication [ABS actuator and electric unit (control unit) transmits vehicle speed signal (wheel speed) through CAN communication] |
| SET VHCL SPD<br>[km/h] or [mph]  | ×                | ×                 |                       |                       | Indicates set vehicle speed memorized in ADAS control unit   |
| BUZZER O/P<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of ICC warning chime output  |
| THRTL SENSOR<br>[deg]            | ×                | ×                 |                       |                       | <b>NOTE:</b><br>The item is displayed, but it is not monitored   |
| ENGINE RPM<br>[rpm]              | ×                |                   |                       |                       | Indicates engine speed read from ADAS control unit through CAN communication (ECM transmits engine speed signal through CAN communication)   |
| WIPER SW<br>[OFF/LOW/HIGH]       | ×                |                   |                       |                       | Indicates wiper [OFF/LOW/HIGH] status (BCM transmits front wiper request signal through CAN communication)   |
| YAW RATE<br>[deg/s]              | ×                |                   |                       |                       | <b>NOTE:</b><br>The item is displayed, but it is not monitored   |
| BA WARNING<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of IBA OFF indicator lamp output   |
| STP LMP DRIVE<br>[On/Off]        | ×                | ×                 |                       |                       | Indicates [On/Off] status of ICC brake hold relay drive output   |
| D RANGE SW<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of "D" or "M" positions read from ADAS control unit through CAN communication; ON when position "D" or "M" (TCM transmits shift position signal through CAN communication).      |

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[LDW & LDP]

| Monitored item<br>[Unit]          | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description  |
|-----------------------------------|------------------|-------------------|-----------------------|-----------------------|--|
| NP RANGE SW<br>[On/Off]           | ×                |                   |                       |                       | Indicates shift position signal read from ADAS control unit through CAN communication (TCM transmits shift position signal through CAN communication)  |
| PKB SW<br>[On/Off]                | ×                |                   |                       |                       | Parking brake switch status [On/Off] judged from the parking brake switch signal that ADAS control unit readout via CAN communication is displayed (combination meter transmits the parking brake switch signal via CAN communication) |
| PWR SUP MONI<br>[V]               | ×                | ×                 |                       |                       | Indicates IGN voltage input by ADAS control unit   |
| VHCL SPD AT<br>[km/h] or [mph]    | ×                |                   |                       |                       | Indicates vehicle speed calculated from A/T vehicle speed sensor read from ADAS control unit through CAN communication (TCM transmits A/T vehicle speed sensor signal through CAN communication)                                       |
| THRTL OPENING<br>[%]              | ×                | ×                 |                       |                       | Indicates throttle position read from ADAS control unit through CAN communication (ECM transmits accelerator pedal position signal through CAN communication).   |
| GEAR<br>[1, 2, 3, 4, 5, 6, 7]     | ×                |                   |                       |                       | Indicates A/T gear position read from ADAS control unit through CAN communication (TCM transmits current gear position signal through CAN communication)   |
| MODE SIG<br>[OFF, ICC, ASCD]      | ×                |                   |                       |                       | Indicates the active mode from ICC or ASCD [conventional (fixed speed) cruise control mode]  |
| SET DISP IND<br>[On/Off]          | ×                |                   |                       |                       | Indicates [On/Off] status of SET switch indicator output   |
| DISTANCE<br>[m]                   | ×                |                   |                       |                       | Indicates the distance from the vehicle ahead  |
| RELATIVE SPD<br>[m/s]             | ×                |                   |                       |                       | Indicates the relative speed of the vehicle ahead  |
| DYNA ASIST SW<br>[On/Off]         | ×                | ×                 |                       | ×                     | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| DCA ON IND<br>[On/Off]            | ×                |                   |                       |                       | The status [ON/OFF] of DCA system switch indicator output is displayed   |
| DCA VHL AHED<br>[On/Off]          | ×                |                   |                       |                       | The status [ON/OFF] of vehicle ahead detection indicator output in DCA system is displayed   |
| IBA SW<br>[On/Off]                | ×                | ×                 |                       |                       | Indicates [On/Off] status of IBA OFF switch  |
| FCW SYSTEM ON<br>[On/Off]         | ×                | ×                 |                       |                       | Indicates [On/Off] status of FCW system  |
| APA TEMP<br>[°C]                  | ×                |                   |                       |                       | Accelerator pedal actuator integrated motor temperature that the ADAS control unit readout via ITS communication is displayed (Accelerator pedal actuator transmits the integrated motor temperature via ITS communication)            |
| APA PWR<br>[V]                    | ×                |                   |                       |                       | Accelerator pedal actuator power supply voltage that the ADAS control unit readout via ITS communication is displayed (Accelerator pedal actuator transmits the power supply voltage via ITS communication)                            |
| LDW SYSTEM ON<br>[On/Off]         |                  |                   | ×                     |                       | Indicates [On/Off] status of LDW system  |
| LDW ON LAMP<br>[On/Off]           |                  |                   | ×                     |                       | Indicates [On/Off] status of warning systems ON indicator output   |
| LDP ON IND<br>[On/Off]            |                  |                   | ×                     |                       | Indicates [On/Off] status of LDP ON indicator lamp (Green) output  |
| LANE DPRT W/L<br>[On/Off]         |                  |                   | ×                     |                       | Indicates [On/Off] status of lane departure warning lamp (Yellow) output   |
| LDW BUZER OUT-<br>PUT<br>[On/Off] |                  |                   | ×                     |                       | Indicates [On/Off] status of warning buzzer output   |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[LDW & LDP]

| Monitored item<br>[Unit]                      | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description   |
|---|------------------|-------------------|-----------------------|-----------------------|---|
| LDP SYSTEM ON<br>[On/Off]                     |                  |                   | ×                     |                       | Indicates [On/Off] status of LDP system   |
| WARN REQ<br>[On/Off]                          |                  |                   | ×                     |                       | Indicates an ADAS control unit judged warning state (ON/OFF) of LDP system  |
| READY signal<br>[On/Off]                      |                  |                   | ×                     |                       | Indicates LDP system settings   |
| Camera lost<br>[Detect/Deviate/Both]          |                  |                   | ×                     | ×                     | Indicates a lane marker detection state judged from a lane marker detection signal read by the ADAS control unit via ITS communication<br>(Lane camera unit transmits a lane marker signal via ITS communication)   |
| Shift position<br>[Off, P, R, N, D, M/T1 - 7] |                  |                   | ×                     | ×                     | Indicates shift position read from ADAS control unit through CAN communication<br>(TCM transmits shift position signal through CAN communication)   |
| Turn signal<br>[OFF/LH/RH/LH&RH]              |                  |                   | ×                     | ×                     | Indicates turn signal operation status read from ADAS control unit through CAN communication (BCM transmits turn indicator signal through CAN communication)  |
| SIDE G<br>[G]                                 |                  |                   | ×                     | ×                     | Indicates lateral G acting on the vehicle. This lateral G is judged from a side G sensor signal read by ADAS control unit via CAN communication<br>(The ABS actuator and electric unit (control unit) transmits a side G sensor signal via CAN communication) |
| STATUS signal<br>[Stnby/Warn/Cancl/Off]       |                  |                   | ×                     |                       | Indicates a control state of LDP system   |
| Lane unclear<br>[On/Off]                      |                  |                   | ×                     | ×                     | Indicates an ON/OFF state of the lane marker. The ON/OFF state is judged from a detected lane condition signal read by the ADAS control unit via ITS communication<br>(The lane camera unit transmits a detected lane condition signal via ITS communication) |
| FUNC ITEM<br>[FUNC3]                          | ×                | ×                 | ×                     | ×                     | Indicates systems which can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system<br>FUNC3: Distance Control Assist (DCA), Lane Departure Prevention (LDP) and Blind Spot Intervention (BSI)             |
| FUNC ITEM (NV-ICC)<br>[Off]                   | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| FUNC ITEM (NV-DCA)<br>[Off]                   | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| DCA SELECT<br>[On/Off]                        | ×                | ×                 | ×                     | ×                     | Indicates an ON/OFF state of the DCA system. The DCA system can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system  |
| LDP SELECT<br>[On/Off]                        | ×                | ×                 | ×                     | ×                     | Indicates an ON/OFF state of LDP system. LDP system can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system  |
| BSI SELECT<br>[On/Off]                        | ×                | ×                 | ×                     | ×                     | Indicates an ON/OFF state of BSI system. BSI system can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system.   |
| NAVI ICC SELECT<br>[Off]                      | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| NAVI DCA SELECT<br>[Off]                      | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| SYS SELECTABILITY<br>[On/Off]                 | ×                | ×                 | ×                     | ×                     | Indicates the availability of ON/OFF switching for "Driver Assistance" items received from the AV control unit via CAN communication  |



# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[LDW & LDP]

| Monitored item<br>[Unit]                               | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description  |
|--|------------------|-------------------|-----------------------|-----------------------|--|
| DRIVE MODE STATS<br>[STD/SPORT/ECO/<br>SNOW/MID/ERROR] | ×                | ×                 | ×                     | ×                     | Indicates a drive mode selector select position judged from a drive mode select switch position signal read by the ADAS control unit via CAN communication (The A/C auto amp. transmits a switch position signal of the drive mode select switch signal via CAN communication) |
| WARN SYS SW<br>[On/Off]                                | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status of warning systems switch  |
| BSW/BSI WARN LMP<br>[On/Off]                           |                  |                   |                       | ×                     | Indicates [On/Off] status of BSW/BSI warning lamp output   |
| BSI ON IND<br>[On/Off]                                 |                  |                   |                       | ×                     | Indicates [On/Off] status of BSI ON indicator output   |
| BSW SYSTEM ON<br>[On/Off]                              |                  |                   |                       | ×                     | Indicates [On/Off] status of BSW system  |
| BSI SYSTEM ON<br>[On/Off]                              |                  |                   |                       | ×                     | Indicates [On/Off] status of BSI system  |

## ACTIVE TEST

### CAUTION:

- **Never perform “Active Test” while driving the vehicle.**
- **The “Active Test” cannot be performed when the following systems warning lamp is illuminated.**
  - **ICC system warning lamp**
  - **Lane departure warning lamp**
  - **BSW/BSI warning lamp**
  - **IBA OFF indicator lamp (IBA system ON)**
- **Shift the selector lever to “P” position, and then perform the test.**

| Test item            | Description   |
|----------------------|---|
| METER LAMP           | The ICC system warning lamp, MAIN switch indicator and IBA OFF indicator lamp can be illuminated by ON/OFF operations as necessary  |
| STOP LAMP            | The ICC brake hold relay can be operated by ON/OFF operations as necessary, and the stop lamp can be illuminated  |
| ICC BUZZER           | Sounds a buzzer used for following systems by arbitrarily operating ON/OFF <ul style="list-style-type: none"> <li>• Intelligent Cruise Control (ICC)</li> <li>• Distance Control Assist (DCA)</li> <li>• Forward Collision Warning (FCW)</li> <li>• Intelligent Brake Assist (IBA)</li> </ul> |
| BRAKE ACTUATOR       | Activates the brake by an arbitrary operation   |
| Active Pedal         | The accelerator pedal actuator can be operated as necessary   |
| DCA INDICATOR        | The DCA system switch indicator can be illuminated by ON/OFF operations as necessary  |
| LDP BUZZER           | Sounds a buzzer used for following systems by arbitrarily operating ON/OFF <ul style="list-style-type: none"> <li>• Lane Departure Warning (LDW)</li> <li>• Lane Departure Prevention (LDP)</li> <li>• Blind Spot Warning (BSW)</li> <li>• Blind Spot Intervention (BSI)</li> </ul>           |
| WARNING SYSTEM IND   | The warning systems ON indicator (on warning systems switch) can be illuminated by ON/OFF operations as necessary   |
| LDP ON IND           | The LDP ON indicator lamp can be illuminated by ON/OFF operations as necessary  |
| LANE DEPARTURE W/L   | The Lane departure warning lamp can be illuminated by ON/OFF operations as necessary  |
| BSW/BSI WARNING LAMP | The BSW/BSI warning lamp can be illuminated by ON/OFF operations as necessary   |
| BSI ON INDICATOR     | The BSI ON indicator can be illuminated by ON/OFF operations as necessary   |

## METER LAMP

### NOTE:

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[LDW & LDP]

The test can be performed only when the engine is running.

| Test item  | Operation | Description   | <ul style="list-style-type: none"> <li>• MAIN switch indicator</li> <li>• ICC system warning lamp</li> <li>• IBA OFF indicator lamp</li> </ul> |
|------------|-----------|---|--|
| METER LAMP | Off       | Stops sending the following signals to exit from the test <ul style="list-style-type: none"> <li>• Meter display signal</li> <li>• ICC warning lamp signal</li> <li>• IBA OFF indicator lamp signal</li> </ul>                      | OFF  |
|            | On        | Transmits the following signals to the combination meter via CAN communication <ul style="list-style-type: none"> <li>• Meter display signal</li> <li>• ICC warning lamp signal</li> <li>• IBA OFF indicator lamp signal</li> </ul> | ON   |

## STOP LAMP

| Test item | Operation | Description  | Stop lamp |
|-----------|-----------|--|-----------|
| STOP LAMP | Off       | Stops transmitting the ICC brake hold relay drive signal below to end the test | OFF       |
|           | On        | Transmits the ICC brake hold relay drive signal                                | ON        |

## ICC BUZZER

| Test item  | Operation  | Description  | ICC warning chime operation sound |
|------------|------------|--|-----------------------------------|
| ICC BUZZER | MODE1      | Transmits the buzzer output signals to the combination meter via CAN communication | Intermittent beep sound           |
|            | Test start | Starts the tests of "MODE1"  | —                                 |
|            | Reset      | Stops transmitting the buzzer output signal below to end the test                  | —                                 |
|            | End        | Returns to the "SELECT TEST ITEM" screen   | —                                 |

## BRAKE ACTUATOR

### NOTE:

The test can be performed only when the engine is running.

| Test item      | Operation  | Description  | "PRESS SENS" value |
|----------------|------------|--|--------------------|
| BRAKE ACTUATOR | MODE1      | Transmits the brake fluid pressure control signal to the ABS actuator and electric unit (control unit) via CAN communication | 10 bar             |
|                | MODE2      |  | 20 bar             |
|                | MODE3      |  | 30 bar             |
|                | Test start | Starts the tests of "MODE1", "MODE2" and "MODE3"   | —                  |
|                | Reset      | Stops transmitting the brake fluid pressure control signal below to end the test   | —                  |
|                | End        | Returns to the "SELECT TEST ITEM" screen   | —                  |

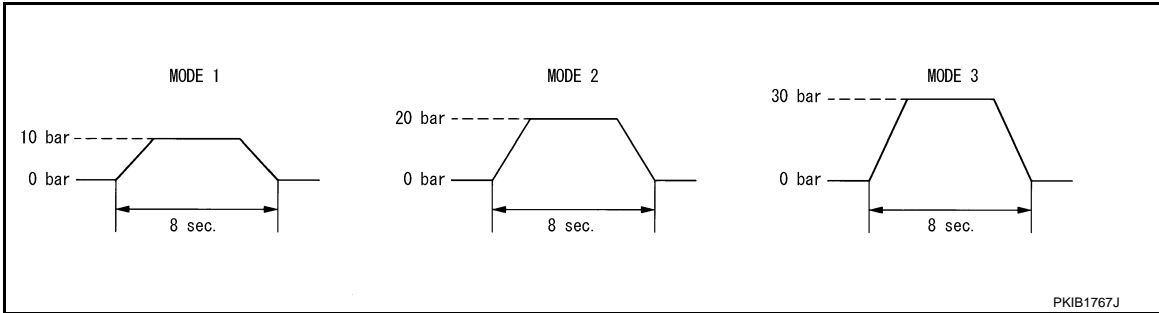
### NOTE:

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[LDW & LDP]

The test is finished in 10 seconds after starting



Active Pedal

**CAUTION:**

- Shift the selector lever to “P” position, and then perform the test.
- Never depress the accelerator pedal excessively. (The engine speed may rise unexpectedly when finishing the test.)

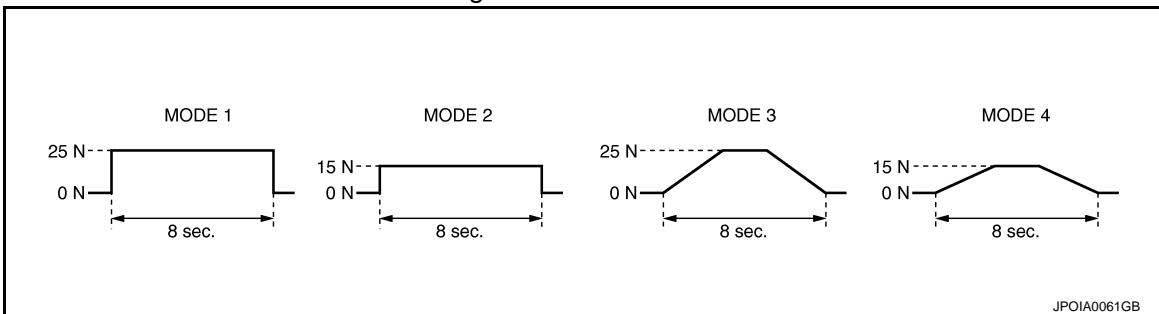
**NOTE:**

- Depress the accelerator pedal to check when performing the test.
- The test can be performed only when the engine is running.

| Test item    | Operation   | Description   | Accelerator pedal operation                 |
|--------------|---|---|---|
| Active Pedal | MODE1   | Transmit the accelerator pedal feedback force control signal to the accelerator pedal actuator via ITS communication. | Constant with a force of 25 N for 8 seconds |
|              | MODE2   |   | Constant with a force of 15 N for 8 seconds |
|              | MODE3   |   | Change up to a force of 25 N for 8 seconds  |
|              | MODE4   |   | Change up to a force of 15 N for 8 seconds  |
|              | Test start  | Starts the tests of “MODE1”, “MODE2”, “MODE3” and “MODE4”   | —   |
| Reset        | Stops transmitting the accelerator pedal feedback force control signal below to end the test. | —   |   |
| End          | Returns to the “SELECT TEST ITEM” screen  | —   |   |

**NOTE:**

The test is finished in 10 seconds after starting



DCA INDICATOR

**NOTE:**

The test can be performed only when the engine is running.

| Test item     | Operation | Description   | DCA system switch indicator |
|---------------|-----------|---|-----------------------------|
| DCA INDICATOR | Off       | Stops transmitting the DCA system switch indicator signal below to end the test                 | —                           |
|               | On        | Transmits the DCA system switch indicator signal to the combination meter via CAN communication | ON                          |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[LDW & LDP]

## LDP BUZZER

| Test item  | Operation | Description  | Warning buzzer |
|------------|-----------|--|----------------|
| LDP BUZZER | Off       | Stops transmitting the warning buzzer signal below to end the test | —              |
|            | On        | Transmits the warning buzzer signal to the warning buzzer          | ON             |

## WARNING SYSTEM IND

| Test item          | Operation | Description  | Warning systems ON indicator |
|--------------------|-----------|--|------------------------------|
| WARNING SYSTEM IND | Off       | Stops transmitting the warning systems ON indicator signal below to end the test       | —                            |
|                    | On        | Transmits the warning systems ON indicator signal to the warning systems ON indicator. | ON                           |

## LDP ON IND

| Test item  | Operation | Description   | LDP ON indicator lamp (Green) |
|------------|-----------|---|-------------------------------|
| LDP ON IND | Off       | Stops transmitting the LDP ON indicator lamp signal below to end the test                 | —                             |
|            | On        | Transmits the LDP ON indicator lamp signal to the combination meter via CAN communication | ON                            |

## LANE DEPARTURE W/L

| Test item          | Operation | Description   | Lane departure warning lamp (Yellow) |
|--------------------|-----------|---|--------------------------------------|
| LANE DEPARTURE W/L | Off       | Stops transmitting the lane departure warning lamp signal below to end the test                 | —                                    |
|                    | On        | Transmits the lane departure warning lamp signal to the combination meter via CAN communication | ON                                   |

## BSW/BSI WARNING LAMP

| Test item            | Operation | Description  | BSW/BSI warning lamp (Yellow) |
|----------------------|-----------|--|-------------------------------|
| BSW/BSI WARNING LAMP | Off       | Stops transmitting the BSW/BSI warning lamp signal below to end the test                 | —                             |
|                      | On        | Transmits the BSW/BSI warning lamp signal to the combination meter via CAN communication | ON                            |

## BSI ON INDICATOR

| Test item        | Operation | Description  | BSI ON indicator lamp (Green) |
|------------------|-----------|--|-------------------------------|
| BSI ON INDICATOR | Off       | Stops transmitting the BSI ON indicator signal below to end the test                 | —                             |
|                  | On        | Transmits the BSI ON indicator signal to the combination meter via CAN communication | ON                            |

# DIAGNOSIS SYSTEM (LANE CAMERA UNIT)

< SYSTEM DESCRIPTION >

[LDW & LDP]

## DIAGNOSIS SYSTEM (LANE CAMERA UNIT)

### CONSULT Function (LANE CAMERA)

INFOID:000000006886340

#### APPLICATION ITEMS

CONSULT performs the following functions by communicating with the lane camera unit.

| Diagnosis mode           | Description   |
|--------------------------|---|
| Work Support             | Performs the camera aiming.   |
| Self Diagnostic Result   | Displays the name of a malfunctioning system stored in the lane camera unit |
| Data Monitor             | Displays lane camera unit input/output data in real time                    |
| Ecu Identification       | Displays lane camera unit part number                                       |
| CAN Diag Support Monitor | Displays a reception/transmission state of ITS communication                |

#### WORK SUPPORT

| Work support items | Description   |
|--------------------|---|
| AUTO AIM           | Outputs camera unit, calculates dislocation of the camera, and displays adjustment direction. |
| AIM CHECK          | <b>NOTE:</b><br>The item is indicated, but not used   |

#### SELF DIAGNOSTIC RESULT

Refer to [DAS-293. "DTC Index"](#).

#### DATA MONITOR

| Monitored item<br>[Unit]         | Description   |
|----------------------------------|---|
| LC INACCURAT [On/Off]            | Lane camera unit status   |
| AIMING DONE [OK/NG]              | Status that camera aiming is done   |
| AIMING RESULT [OK/NOK]           | Result of camera aiming   |
| CAM HIGH TEMP [NORMAL/High]      | Status of lane camera unit high temperature judgment                            |
| VHCL SPD SE [km/h] or [mph]      | Vehicle speed received from ADAS control unit via ITS communication             |
| TURN SIGNAL [Off, LH, RH, LH/RH] | Status of "Turn signal" determined from ADAS control unit via ITS communication |
| LANE DETCT LH [On/Off]           | Left side lane marker detection   |
| LANE DETCT RH [On/Off]           | Right side lane marker detection  |
| CROSS LANE LH [On/Off]           | Condition that the vehicle is crossing left lane marker                         |
| CROSS LANE RH [On/Off]           | Condition that the vehicle is crossing right lane marker                        |
| WARN LANE LH [On/Off]            | Warning for left lane marker  |
| WARN LANE RH [On/Off]            | Warning for right lane marker   |
| VALID POS LH [VLD/INVLD]         | Lateral position for left lane marker is valid                                  |
| VALID POS RH [VLD/INVLD]         | Lateral position for right lane marker is valid                                 |
| XOFFSET [pixel]                  | Lane camera unit installation condition   |
| AIM CHECK YAW [deg]              | Check result of camera aiming   |
| AIM CHECK ROLL [deg]             | Check result of camera aiming   |
| AIM CHECK PITCH [deg]            | Check result of camera aiming   |
| FCTRY AIM YAW [deg]              | Lane camera unit installation condition   |
| FCTRY AIM ROL [deg]              | Lane camera unit installation condition   |

# DIAGNOSIS SYSTEM (LANE CAMERA UNIT)

< SYSTEM DESCRIPTION >

[LDW & LDP]

| Monitored item<br>[Unit] | Description                             |
|--------------------------|---|
| FCTRY AIM PIT [deg]      | Lane camera unit installation condition |
| ADAS MALF [On/Off]       | ADAS control unit status                |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW & LDP]

## ECU DIAGNOSIS INFORMATION

### ADAS CONTROL UNIT

Reference Value

INFOID:000000007218941

#### VALUES ON THE DIAGNOSIS TOOL

| Monitor item  | Condition  |  | Value/Status |
|---------------|--|--|--------------|
| MAIN SW       | Ignition switch ON   | When MAIN switch is pressed  | On           |
|               |  | When MAIN switch is not pressed  | Off          |
| SET/COAST SW  | Ignition switch ON   | When SET/COAST switch is pressed   | On           |
|               |  | When SET/COAST switch is not pressed   | Off          |
| CANCEL SW     | Ignition switch ON   | When CANCEL switch is pressed  | On           |
|               |  | When CANCEL switch is not pressed  | Off          |
| RESUME/ACC SW | Ignition switch ON   | When RESUME/ACCELERATE switch is pressed                                     | On           |
|               |  | When RESUME/ACCELERATE switch is not pressed                                 | Off          |
| DISTANCE SW   | Ignition switch ON   | When DISTANCE switch is pressed  | On           |
|               |  | When DISTANCE switch is not pressed  | Off          |
| CRUISE OPE    | Drive the vehicle and activate the vehicle-to-vehicle distance control mode  | When ICC system is controlling   | On           |
|               |  | When ICC system is not controlling   | Off          |
| BRAKE SW      | Ignition switch ON   | When brake pedal is depressed  | Off          |
|               |  | When brake pedal is not depressed  | On           |
| STOP LAMP SW  | Ignition switch ON   | When brake pedal is depressed  | On           |
|               |  | When brake pedal is not depressed  | Off          |
| IDLE SW       | Engine running   | Idling   | On           |
|               |  | Except idling (depress accelerator pedal)                                    | Off          |
| SET DISTANCE  | <ul style="list-style-type: none"> <li>• Start the engine and turn the ICC system ON</li> <li>• Press the DISTANCE switch to change the vehicle-to-vehicle distance setting</li> </ul> | When set to "long"   | Long         |
|               |  | When set to "middle"   | Mid          |
|               |  | When set to "short"  | Short        |
| CRUISE LAMP   | Start the engine and press MAIN switch   | ICC system ON (MAIN switch indicator ON)                                     | On           |
|               |  | ICC system OFF (MAIN switch indicator OFF)                                   | Off          |
| OWN VHCL      | Start the engine and press MAIN switch   | ICC system ON (Own vehicle indicator ON)                                     | On           |
|               |  | ICC system OFF (Own vehicle indicator OFF)                                   | Off          |
| VHCL AHEAD    | Drive the vehicle and activate the vehicle-to-vehicle distance control mode  | When a vehicle ahead is detected (vehicle ahead detection indicator ON)      | On           |
|               |  | When a vehicle ahead is not detected (vehicle ahead detection indicator OFF) | Off          |
| ICC WARNING   | Start the engine and press MAIN switch   | When ICC system is malfunctioning (ICC system warning lamp ON)               | On           |
|               |  | When ICC system is normal (ICC system warning lamp OFF)                      | Off          |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW & LDP]

| Monitor item  | Condition   |   | Value/Status   |
|---------------|---|---|--|
| VHCL SPEED SE | While driving   |   | Displays the vehicle speed calculated by ADAS control unit |
| SET VHCL SPD  | While driving   | When vehicle speed is set   | Displays the set vehicle speed                             |
| BUZZER O/P    | Engine running  | When the buzzer of the following system operates <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle distance control mode</li> <li>• DCA system</li> <li>• FCW system</li> <li>• IBA system</li> </ul>     | On   |
|               |   | When the buzzer of the following system not operates <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle distance control mode</li> <li>• DCA system</li> <li>• FCW system</li> <li>• IBA system</li> </ul> | Off  |
| THRTL SENSOR  | <b>NOTE:</b><br>The item is indicated, but not monitored                    |   | 0.0  |
| ENGINE RPM    | Engine running  |   | Equivalent to tachometer reading                           |
| WIPER SW      | Ignition switch ON  | Wiper not operating   | Off  |
|               |   | Wiper LO operation  | Low  |
|               |   | Wiper HI operation  | High   |
| YAW RATE      | <b>NOTE:</b><br>The item is indicated, but not monitored                    |   | 0.0  |
| BA WARNING    | Engine running  | IBA OFF indicator lamp ON <ul style="list-style-type: none"> <li>• When IBA system is malfunctioning</li> <li>• When IBA system is turned to OFF</li> </ul>   | On   |
|               |   | IBA OFF indicator lamp OFF <ul style="list-style-type: none"> <li>• When IBA system is normal</li> <li>• When IBA system is turned to ON</li> </ul>   | Off  |
| STP LMP DRIVE | Drive the vehicle and activate the vehicle-to-vehicle distance control mode | When ICC brake hold relay is activated  | On   |
|               |   | When ICC brake hold relay is not activated  | Off  |
| D RANGE SW    | Engine running  | When the selector lever is in "D" position or manual mode   | On   |
|               |   | When the selector lever is in any position other than "D" or manual mode  | Off  |
| NP RANGE SW   | Engine running  | When the selector lever is in "N", "P" position   | On   |
|               |   | When the selector lever is in any position other than "N", "P"  | Off  |
| PKB SW        | Ignition switch ON  | When the parking brake is applied   | On   |
|               |   | When the parking brake is released  | Off  |
| PWR SUP MONI  | Engine running  |   | Power supply voltage value of ADAS control unit            |
| VHCL SPD AT   | While driving   |   | Value of A/T vehicle speed sensor signal                   |
| THRTL OPENING | Engine running  | Depress accelerator pedal   | Displays the throttle position                             |



# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW & LDP]

| Monitor item  | Condition   |  | Value/Status  |
|---------------|---|--|---|
| GEAR          | While driving   |  | Displays the gear position  |
| MODE SIG      | Start the engine and press MAIN switch  | When ICC system is deactivated   | Off   |
|               |   | When vehicle-to-vehicle distance control mode is activated                   | ICC   |
|               |   | When conventional (fixed speed) cruise control mode is activated             | ASCD  |
| SET DISP IND  | <ul style="list-style-type: none"> <li>• Drive the vehicle and activate the conventional (fixed speed) cruise control mode</li> <li>• Press SET/COAST switch</li> </ul> | SET switch indicator ON  | On  |
|               |   | SET switch indicator OFF   | Off   |
| DISTANCE      | Drive the vehicle and activate the vehicle-to-vehicle distance control mode   | When a vehicle ahead is detected   | Displays the distance from the preceding vehicle                    |
|               |   | When a vehicle ahead is not detected   | 0.0   |
| RELATIVE SPD  | Drive the vehicle and activate the vehicle-to-vehicle distance control mode   | When a vehicle ahead is detected   | Displays the relative speed.  |
|               |   | When a vehicle ahead is not detected   | 0.0   |
| DYNA ASIST SW | Ignition switch ON  | When dynamic driver assistance switch is pressed                             | On  |
|               |   | When dynamic driver assistance switch is not pressed                         | Off   |
| DCA ON IND    | Start the engine and press dynamic driver assistance switch (When DCA setting is ON)  | DCA system OFF (DCA system switch indicator OFF)                             | Off   |
|               |   | DCA system ON (DCA system switch indicator ON)                               | On  |
| DCA VHL AHED  | Drive the vehicle and activate the DCA system   | When a vehicle ahead is not detected (vehicle ahead detection indicator OFF) | Off   |
|               |   | When a vehicle ahead is detected (vehicle ahead detection indicator ON)      | On  |
| IBA SW        | Ignition switch ON  | When the IBA OFF switch is pressed   | On  |
|               |   | When the IBA OFF switch is not pressed                                       | Off   |
| FCW SYSTEM ON | Ignition switch ON  | When the FCW system is ON (Warning systems ON indicator ON)                  | On  |
|               |   | When the FCW system is OFF (Warning systems ON indicator OFF)                | Off   |
| APA TEMP      | Engine running  |  | Display the accelerator pedal actuator integrated motor temperature |
| APA PWR       | Ignition switch ON  |  | Power supply voltage value of accelerator pedal actuator            |
| LDW SYSTEM ON | Ignition switch ON  | When the LDW system is ON (Warning systems ON indicator ON)                  | On  |
|               |   | When the LDW system is OFF (Warning systems ON indicator OFF)                | Off   |
| LDW ON LAMP   | Ignition switch ON  | Warning systems ON indicator ON  | On  |
|               |   | Warning systems ON indicator OFF   | Off   |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N

DAS

P

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW & LDP]

| Monitor item       | Condition   |  | Value/Status                |
|--------------------|---|--|-----------------------------|
| LDP ON IND         | Start the engine and press dynamic driver assistance switch (When LDP system setting is ON) | LDP ON indicator lamp ON   | On                          |
|                    |   | LDP ON indicator lamp OFF  | Off                         |
| LANE DPRT W/L      | Drive the vehicle and activate the LDW system or LDP system                                 | Lane departure warning lamp ON   | On                          |
|                    |   | Lane departure warning lamp OFF  | Off                         |
| LDW BUZER OUTPUT   | Drive the vehicle and activate the LDW/LDP system or BSW/BSI system                         | When the buzzer of the following system operates<br>• LDW/LDP system<br>• BSW/BSI system         | On                          |
|                    |   | When the buzzer of the following system does not operate<br>• LDW/LDP system<br>• BSW/BSI system | Off                         |
| LDP SYSTEM ON      | Start the engine and press dynamic driver assistance switch (When LDP system setting is ON) | When the LDP system is ON  | On                          |
|                    |   | When the LDP system is OFF   | Off                         |
| READY signal       | Start the engine and press dynamic driver assistance switch (When LDP system setting is ON) | When the LDP system is ON  | On                          |
|                    |   | When the LDP system is OFF   | Off                         |
| Camera lost        | Drive the vehicle and activate the LDW system, LDP system or BSI system                     | Both side lane markers are detected  | Detect                      |
|                    |   | Deviate side lane marker is lost   | Deviate                     |
|                    |   | Both side lane markers are lost  | Both                        |
| Shift position     | <ul style="list-style-type: none"> <li>• Engine running</li> <li>• While driving</li> </ul> |  | Displays the shift position |
| Turn signal        | Turn signal lamps OFF   |  | Off                         |
|                    | Turn signal lamp LH blinking  |  | LH                          |
|                    | Turn signal lamp RH blinking  |  | RH                          |
|                    | Turn signal lamp LH and RH blinking   |  | LH&RH                       |
| SIDE G             | While driving   | Vehicle turning right  | Negative value              |
|                    |   | Vehicle turning left   | Positive value              |
| WARN REQ           | Drive the vehicle and activate the LDP system   | Lane departure warning is operating  | On                          |
|                    |   | Lane departure warning is not operating  | Off                         |
| STATUS signal      | Drive the vehicle and activate the LDP system   | When the LDP system is ON  | Stnby                       |
|                    |   | When the LDP system is operating   | Warn                        |
|                    |   | When the LDP system is canceled  | Cancl                       |
|                    |   | When the LDP system is OFF   | Off                         |
| Lane unclear       | While driving   | Lane marker is unclear   | On                          |
|                    |   | Lane marker is clear   | Off                         |
| FUNC ITEM          | Ignition switch ON  |  | FUNC3                       |
| FUNC ITEM (NV-ICC) | <b>NOTE:</b><br>The item is indicated, but not monitored                                    |  | Off                         |
| FUNC ITEM (NV-DCA) | <b>NOTE:</b><br>The item is indicated, but not monitored                                    |  | Off                         |
| DCA SELECT         | Ignition switch ON  | "Distance Control Assist" set with the navigation system is ON                                   | On                          |
|                    |   | "Distance Control Assist" set with the navigation system is OFF                                  | Off                         |

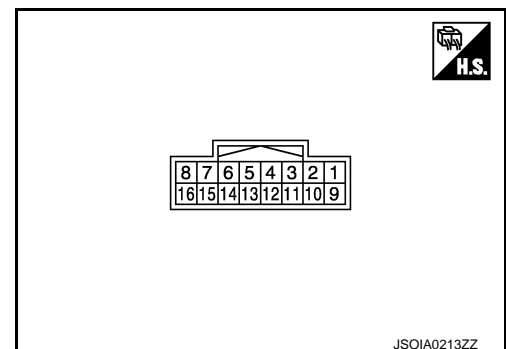
# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW & LDP]

| Monitor item                             | Condition  | Value/Status   |       |
|--|--|--|-------|
| LDP SELECT                               | Ignition switch ON   | "Lane Departure Prevention" set with the navigation system is ON   | On    |
|  |  | "Lane Departure Prevention" set with the navigation system is OFF  | Off   |
| BSI SELECT                               | Ignition switch ON   | "Blind Spot Intervention" set with the navigation system is ON   | On    |
|  |  | "Blind Spot Intervention" set with the navigation system is OFF  | Off   |
| NAVI ICC SELECT                          | <b>NOTE:</b><br>The item is indicated, but not monitored                                       |  | Off   |
| NAVI DCA SELECT                          | <b>NOTE:</b><br>The item is indicated, but not monitored                                       |  | Off   |
| SYS SELECTABILITY                        | Ignition switch ON   | Items set with the navigation system can be switched normally  | On    |
|  |  | Items set with the navigation system cannot be switched normally   | Off   |
| DRIVE MODE STATS                         | Ignition switch ON   | When drive mode select switch position is STANDARD   | STD   |
|  |  | When drive mode select switch position is in SPORT   | SPORT |
|  |  | When drive mode select switch position is in ECO   | ECO   |
|  |  | When drive mode select switch position is in SNOW  | SNOW  |
|  |  | When position of drive mode select switch is in following states<br><ul style="list-style-type: none"> <li>• In the middle of SNOW-ECO</li> <li>• In the middle of ECO-STANDARD</li> <li>• In the middle of STANDARD-SPORTS</li> </ul> | Mid   |
| A signal other than those above is input | ERROR  |  |       |
| WARN SYS SW                              | Ignition switch ON   | When warning systems switch is pressed   | On    |
|  |  | When warning systems switch is not pressed   | Off   |
| BSW/BSI WARN LMP                         | Ignition switch ON   | BSW/BSI warning lamp ON  | On    |
|  |  | BSW/BSI warning lamp OFF   | Off   |
| BSI ON IND                               | Ignition switch ON   | BSI ON indicator ON  | On    |
|  |  | BSI ON indicator OFF   | Off   |
| BSW SYSTEM ON                            | Ignition switch ON   | When the BSW system is ON<br>(Warning systems ON indicator ON)   | On    |
|  |  | When the BSW system is OFF<br>(Warning systems ON indicator OFF)   | Off   |
| BSI SYSTEM ON                            | Start the engine and press dynamic driver assistance switch<br>(When BSI system setting is ON) | When the BSI system is ON  | On    |
|  |  | When the BSI system is OFF   | Off   |

TERMINAL LAYOUT  
PHYSICAL VALUES



DAS

P

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW & LDP]

| Terminal No.<br>(Wire color) |        | Description                       |                  | Condition          |  | Value<br>(Approx.) |
|------------------------------|--------|-----------------------------------|------------------|--------------------|--|--------------------|
| +                            | -      | Signal name                       | Input/<br>Output |                    |  |                    |
| 1<br>(Y)                     |        | Warning systems switch            | Input            | Ignition switch ON | When warning systems switch is not pressed | 12 V               |
|                              |        |                                   |                  |                    | When warning systems switch is pressed     | 0 V                |
| 3<br>(BR)                    |        | IBA OFF switch                    | Input            | Ignition switch ON | When IBA OFF switch is not pressed         | 12 V               |
|                              |        |                                   |                  |                    | When IBA OFF switch is pressed             | 0 V                |
| 4<br>(O)                     |        | Warning systems ON indicator      | Output           | Ignition switch ON | Warning systems ON indicator ON            | 0 V                |
|                              |        |                                   |                  |                    | Warning systems ON indicator OFF           | 12 V               |
| 5<br>(SB)                    |        | ICC brake hold relay drive signal | Output           | Ignition switch ON | —  | 12 V               |
|                              |        |                                   |                  |                    | At "STOP LAMP" test of "Active test"       | 0 V                |
| 6<br>(B/R)                   | Ground | Ground                            | —                | Ignition switch ON | —  | 0 V                |
| 7<br>(L)                     |        | ITS communication-H               | —                | —                  | —  | —                  |
| 8<br>(P)                     |        | ITS communication-L               | —                | —                  | —  | —                  |
| 12<br>(W)                    |        | Warning buzzer signal             | Output           | Ignition switch ON | Warning buzzer operation                   | 0 V                |
|                              |        |                                   |                  |                    | Warning buzzer not operating               | 12 V               |
| 14<br>(L)                    |        | CAN -H                            | —                | —                  | —  | —                  |
| 15<br>(R)                    |        | CAN -L                            | —                | —                  | —  | —                  |
| 16<br>(GR)                   |        | Ignition power supply             | Input            | Ignition switch ON |  | Battery voltage    |

## Fail-safe

INFOID:000000007218942

If a malfunction occurs in each system, ADAS control unit cancels each control, sounds a beep, and turns ON the warning lamp or indicator lamp.

| System   | Buzzer            | Warning lamp/Indicator lamp | Description |
|--|-------------------|-----------------------------|-------------|
| Vehicle-to-vehicle distance control mode       | High-pitched tone | ICC system warning lamp     | Cancel      |
| Conventional (fixed speed) cruise control mode | High-pitched tone | ICC system warning lamp     | Cancel      |
| Intelligent Brake Assist (IBA)                 | High-pitched tone | IBA OFF indicator lamp      | Cancel      |
| Forward Collision Warning (FCW)                | High-pitched tone | IBA OFF indicator lamp      | Cancel      |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW & LDP]

| System                          | Buzzer            | Warning lamp/Indicator lamp | Description  |
|---------------------------------|-------------------|-----------------------------|--|
| Distance Control Assist (DCA)   | High-pitched tone | ICC system warning lamp     | Cancel   |
| Lane Departure Warning (LDW)    | —                 | Lane departure warning lamp | Cancel   |
| Lane Departure Prevention (LDP) | Low-pitched tone  | Lane departure warning lamp | Cancel   |
| Blind Spot Warning (BSW)        | —                 | BSW/BSI warning lamp        | Cancel   |
| Blind Spot Intervention (BSI)   | Low-pitched tone  | BSW/BSI warning lamp        | Cancel   |
| Active trace control function   | —                 | IBA OFF indicator lamp      | <ul style="list-style-type: none"> <li>• Cancel</li> <li>• If a communication error occurs between the A/C auto amp. and CAN communication line, a mode at the instant of error occurrence is maintained until the mode is fixed to STANDARD after turning the ignition switch from OFF to ON</li> </ul> |

## DTC Inspection Priority Chart

INFOID:000000007218943

If multiple DTCs are detected simultaneously, check them one by one depending on the following DTC inspection priority chart.

| Priority | Detected items (DTC)   |
|----------|--|
| 1        | <ul style="list-style-type: none"> <li>• U1507: LOST COMM (SIDE RDR R)</li> <li>• U1508: LOST COMM (SIDE RDR L)</li> </ul>   |
| 2        | <ul style="list-style-type: none"> <li>• U1000: CAN COMM CIRCUIT</li> <li>• U1010: CONTROL UNIT (CAN)</li> </ul>   |
| 3        | <ul style="list-style-type: none"> <li>• C1B00: CAMERA UNIT MALF</li> <li>• C1F02: APA C/U MALF</li> <li>• C1A17: ICC SENSOR MALF</li> <li>• C1B53: SIDE RDR R MALF</li> <li>• C1B54: SIDE RDR L MALF</li> </ul> |

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW & LDP]

| Priority | Detected items (DTC)  |
|----------|---|
| 4        | <ul style="list-style-type: none"> <li>• C1A01: POWER SUPPLY CIR</li> <li>• C1A02: POWER SUPPLY CIR 2</li> <li>• C1A04: ABS/TCS/VDC CIRC</li> <li>• C1A05: BRAKE SW/STOP L SW</li> <li>• C1A06: OPERATION SW CIRC</li> <li>• C1A12: LASER BEAM OFFCNTR</li> <li>• C1A13: STOP LAMP RLY FIX</li> <li>• C1A14: ECM CIRCUIT</li> <li>• C1A16: RADAR STAIN</li> <li>• C1A18: LASER AIMING INCOMP</li> <li>• C1A2A: ICC SEN PWR SUP CIR</li> <li>• C1A21: ICC SENSOR HIGH TEMP</li> <li>• C1A24: NP RANGE</li> <li>• C1A26: ECD MODE MALF</li> <li>• C1A27: ECD PWR SUPPLY CIR</li> <li>• C1A33: CAN TRANSMISSION ERR</li> <li>• C1A34: COMMAND ERROR</li> <li>• C1A35: APA CIR</li> <li>• C1A36: APA CAN COMM CIR</li> <li>• C1A37: APA CAN CIR 2</li> <li>• C1A38: APA CAN CIR 1</li> <li>• C1A39: STRG SEN CIR</li> <li>• C1A40: SYSTEM SW CIRC</li> <li>• C1B01: CAM AIMING INCOMP</li> <li>• C1B03: CAM ABNRML TMP DETCT</li> <li>• C1F01: APA MOTOR MALF</li> <li>• C1F05: APA PWR SUPPLY CIR</li> <li>• U0121: VDC CAN CIR 2</li> <li>• U0126: STRG SEN CAN CIR 1</li> <li>• U0235: ICC SENSOR CAN CIRC 1</li> <li>• U0401: ECM CAN CIR 1</li> <li>• U0402: TCM CAN CIR 1</li> <li>• U0415: VDC CAN CIR 1</li> <li>• U0424: HVAC CAN CIR 1</li> <li>• U0428: STRG SEN CAN CIR 2</li> <li>• U1500: CAM CAN CIR 2</li> <li>• U1501: CAM CAN CIR 1</li> <li>• U1502: ICC SEN CAN COMM CIR</li> <li>• U1503: SIDE RDR L CAN CIR 2</li> <li>• U1504: SIDE RDR L CAN CIR 1</li> <li>• U1505: SIDE RDR R CAN CIR 2</li> <li>• U1506: SIDE RDR R CAN CIR 1</li> <li>• U150B: ECM CAN CIRC 3</li> <li>• U150C: VDC CAN CIRC 3</li> <li>• U150D: TCM CAN CIRC 3</li> <li>• U150E: BCM CAN CIRC 3</li> <li>• U150F: AV CAN CIRC 3</li> <li>• U1512: HVAC CAN CIRC3</li> <li>• U1513: METER CAN CIRC 3</li> <li>• U1514: STRG SEN CAN CIRC 3</li> <li>• U1515: ICC SENSOR CAN CIRC 3</li> <li>• U1516: CAM CAN CIRC 3</li> <li>• U1517: APA CAN CIRC 3</li> <li>• U1518: SIDE RDR L CAN CIRC 3</li> <li>• U1519: SIDE RDR R CAN CIRC 3</li> </ul> |
| 5        | <ul style="list-style-type: none"> <li>• C1A03: VHCL SPEED SE CIRC</li> </ul>   |
| 6        | <ul style="list-style-type: none"> <li>• C1A15: GEAR POSITION</li> </ul>  |
| 7        | <ul style="list-style-type: none"> <li>• C1A00: CONTROL UNIT</li> </ul>   |

## DTC Index

INFOID:000000007218944

### NOTE:

- The details of time display are as per the following.

# ADAS CONTROL UNIT

## < ECU DIAGNOSIS INFORMATION >

[LDW & LDP]

- CRNT: A malfunction is detected now
- PAST: A malfunction was detected in the past
- IGN counter is displayed on FFD (Freeze Frame Data).
- 0: The malfunctions that are detected now  
CAN communication system (U1000, U1010)
- 1 - 39: It increases like 0 → 1 → 2 ... 38 → 39 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 39, it is fixed to 39 until the self-diagnosis results are erased.  
Other than CAN communication system (Other than U1000, U1010)
- 1 - 49: It increases like 0 → 1 → 2 ... 38 → 49 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 49, it is fixed to 49 until the self-diagnosis results are erased.

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC     |                  | CONSULT display      | Warning lamp            |                        |                             |                      | Fail-safe              | Reference               |
|---------|------------------|----------------------|-------------------------|------------------------|-----------------------------|----------------------|------------------------|-------------------------|
| CONSULT | On board display |                      | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System                 |                         |
| C1A00   | 0                | CONTROL UNIT         | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-312</a> |
| C1A01   | 1                | POWER SUPPLY CIR     | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-313</a> |
| C1A02   | 2                | POWER SUPPLY CIR 2   | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-313</a> |
| C1A03   | 3                | VHCL SPEED SE CIRC   | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-314</a> |
| C1A04   | 4                | ABS/TCS/VDC CIRC     | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-315</a> |
| C1A05   | 5                | BRAKE SW/STOP L SW   | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-316</a> |
| C1A06   | 6                | OPERATION SW CIRC    | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">DAS-321</a> |
| C1A12   | 12               | LASER BEAM OFFCN-TR  | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">CCS-91</a>  |
| C1A13   | 13               | STOP LAMP RLY FIX    | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-92</a>  |
| C1A14   | 14               | ECM CIRCUIT          | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">DAS-324</a> |
| C1A15   | 15               | GEAR POSITION        | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-325</a> |
| C1A16   | 16               | RADAR STAIN          | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">CCS-101</a> |
| C1A17   | 17               | ICC SENSOR MALF      | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-103</a> |
| C1A18   | 18               | LASER AIMING INCOMP  | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">CCS-104</a> |
| C1A21   | 21               | ICC SENSOR HIGH TEMP | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-106</a> |
| C1A24   | 24               | NP RANGE             | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-327</a> |

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW & LDP]

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC   |                 | CONSULT display                                     | Warning lamp            |                        |                             |                      | Fail-safe              | Reference               |
|---|-----------------|---|-------------------------|------------------------|-----------------------------|----------------------|------------------------|-------------------------|
| CONSULT   | Onboard display |   | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System                 |                         |
| C1A26   | 26              | ECD MODE MALF                                       | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-110</a> |
| C1A27   | 27              | ECD PWR SUPPLY CIR                                  | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-111</a> |
| C1A33   | 33              | CAN TRANSMISSION ERR                                | ON                      |                        |                             |                      | A, B, E, H             | <a href="#">CCS-113</a> |
| C1A34   | 34              | COMMAND ERROR                                       | ON                      |                        |                             |                      | A, B, E, H             | <a href="#">CCS-114</a> |
| C1A35   | 35              | APA CIR   | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-115</a> |
| C1A36   | 36              | APA CAN COMM CIR                                    | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-116</a> |
| C1A37   | 133             | APA CAN CIR 2                                       | ON                      |                        |                             |                      | A, B, E                | <a href="#">CCS-117</a> |
| C1A38   | 132             | APA CAN CIR 1                                       | ON                      |                        |                             |                      | A, B, E                | <a href="#">CCS-118</a> |
| C1A39   | 39              | STRG SEN CIR  | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">CCS-119</a> |
| C1A40   | 40              | SYSTEM SW CIRC                                      |                         | ON                     |                             |                      | C, D                   | <a href="#">CCS-121</a> |
| C1A2A   | 80              | ICC SEN PWR SUP CIR                                 | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">CCS-112</a> |
| C1B00   | 81              | CAMERA UNIT MALF                                    |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-330</a> |
| C1B01   | 82              | CAM AIMING INCOMP                                   |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-332</a> |
| C1B03   | 83              | CAM ABNRML TMP DETCT                                |                         |                        | BLINK                       | BLINK                | F, G                   | <a href="#">DAS-334</a> |
| C1B53   | 84              | SIDE RDR R MALF                                     |                         |                        |                             | ON                   | G                      | <a href="#">DAS-473</a> |
| C1B54   | 85              | SIDE RDR L MALF                                     |                         |                        |                             | ON                   | G                      | <a href="#">DAS-474</a> |
| C1F01   | 91              | APA MOTOR MALF                                      | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-124</a> |
| C1F02   | 92              | APA C/U MALF  | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-125</a> |
| C1F05   | 95              | APA PWR SUPPLY CIR                                  | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-126</a> |
| NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED | 55              | NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED | —                       | —                      | —                           | —                    | —                      | —                       |
| U0121   | 127             | VDC CAN CIR 2                                       | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">CCS-128</a> |
| U0126   | 130             | STRG SEN CAN CIR 1                                  | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">CCS-130</a> |
| U0235   | 144             | ICC SENSOR CAN CIRC 1                               | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-132</a> |
| U0401   | 120             | ECM CAN CIR 1                                       | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">DAS-338</a> |



# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW & LDP]

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC                   |                  | CONSULT display        | Warning lamp            |                        |                             |                      | Fail-safe              | Reference               |
|-----------------------|------------------|------------------------|-------------------------|------------------------|-----------------------------|----------------------|------------------------|-------------------------|
| CONSULT               | On board display |                        | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System                 |                         |
| U0402                 | 122              | TCM CAN CIR 1          | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-339</a> |
| U0415                 | 126              | VDC CAN CIR 1          | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-341</a> |
| U0424                 | 156              | HVAC CAN CIR 1         |                         |                        |                             |                      |                        | <a href="#">BRC-118</a> |
| U0428                 | 131              | STRG SEN CAN CIR 2     | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">DAS-342</a> |
| U1000 <sup>NOTE</sup> | 100              | CAN COMM CIRCUIT       | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-343</a> |
| U1010                 | 110              | CONTROL UNIT (CAN)     | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-345</a> |
| U1500                 | 145              | CAM CAN CIR 2          |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-350</a> |
| U1501                 | 146              | CAM CAN CIR 1          |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-351</a> |
| U1502                 | 147              | ICC SEN CAN COMM CIR   | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-147</a> |
| U1503                 | 150              | SIDE RDR L CAN CIR 2   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-495</a> |
| U1504                 | 151              | SIDE RDR L CAN CIR 1   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-496</a> |
| U1505                 | 152              | SIDE RDR R CAN CIR 2   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-497</a> |
| U1506                 | 153              | SIDE RDR R CAN CIR 1   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-498</a> |
| U1507                 | 154              | LOST COMM (SIDE RDR R) |                         |                        |                             | ON                   | G                      | <a href="#">DAS-499</a> |
| U1508                 | 155              | LOST COMM (SIDE RDR L) |                         |                        |                             | ON                   | G                      | <a href="#">DAS-500</a> |
| U150B                 | 157              | ECM CAN CIRC 3         | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">DAS-346</a> |
| U150C                 | 158              | VDC CAN CIRC 3         | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-347</a> |
| U150D                 | 159              | TCM CAN CIRC 3         | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-348</a> |
| U150E                 | 160              | BCM CAN CIRC 3         | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">DAS-349</a> |
| U150F                 | 161              | AV CAN CIRC 3          |                         |                        |                             |                      |                        | <a href="#">DAS-53</a>  |
| U1512                 | 162              | HVAC CAN CIRC3         |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-352</a> |
| U1513                 | 163              | METER CAN CIRC 3       | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-353</a> |
| U1514                 | 164              | STRG SEN CAN CIRC 3    | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">CCS-149</a> |
| U1515                 | 165              | ICC SENSOR CAN CIRC 3  | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-150</a> |
| U1516                 | 166              | CAM CAN CIRC 3         |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-354</a> |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW & LDP]

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC     |                 | CONSULT display       | Warning lamp            |                        |                             |                      | Fail-safe | Reference               |
|---------|-----------------|-----------------------|-------------------------|------------------------|-----------------------------|----------------------|-----------|-------------------------|
| CONSULT | Onboard display |                       | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System    |                         |
| U1517   | 167             | APA CAN CIRC 3        | ON                      |                        |                             |                      | A, B, E   | <a href="#">CCS-151</a> |
| U1518   | 168             | SIDE RDR L CAN CIRC 3 |                         |                        |                             | ON                   | G         | <a href="#">DAS-505</a> |
| U1519   | 169             | SIDE RDR R CAN CIRC 3 |                         |                        |                             | ON                   | G         | <a href="#">DAS-506</a> |

**NOTE:**

With the detection of "U1000" some systems do not perform the fail-safe operation.

A system controlling based on a signal received from the control unit performs fail-safe operation when the communication with the ADAS control unit becomes inoperable.

# LANE CAMERA UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW & LDP]

## LANE CAMERA UNIT

### Reference Value

INFOID:000000006886345

### VALUES ON THE DIAGNOSIS TOOL

| Monitor Item    | Condition  | Value/Status                                    |
|-----------------|--|---|
| LC INACCURAT    | Lane camera unit malfunction                             | On  |
|                 | Lane camera unit normal                                  | Off   |
| AIMING DONE     | Camera aiming is completed                               | OK  |
|                 | Camera aiming is not adjusted                            | NG  |
| AIMING RESULT   | Camera aiming is completed                               | OK  |
|                 | Camera aiming is not completed                           | NOK   |
| CAM HIGH TEMP   | When the temperature around lane camera unit is adequate | NORMAL  |
|                 | When the temperature around the lane camera unit is high | High  |
| VHCL SPD SE     | While driving  | Approximately equivalent to speedometer reading |
| TURN SIGNAL     | Turn signal lamp LH and RH blinking                      | LH/RH   |
|                 | Turn signal lamp LH blinking                             | LH  |
|                 | Turn signal lamp RH blinking                             | RH  |
|                 | Turn signal lamps OFF                                    | Off   |
| LANE DETCT LH   | Left side lane marker is detected                        | On  |
|                 | Left side lane marker is not detected                    | Off   |
| LANE DETCT RH   | Right side lane marker is detected                       | On  |
|                 | Right side lane marker is not detected                   | Off   |
| CROSS LANE LH   | The vehicle is crossing left side lane marker            | On  |
|                 | The vehicle is not crossing left side lane marker        | Off   |
| CROSS LANE RH   | The vehicle is crossing right side lane marker           | On  |
|                 | The vehicle is not crossing right side lane marker       | Off   |
| WARN LANE LH    | Warning for left side lane                               | On  |
|                 | Not warning for left side lane                           | Off   |
| WARN LANE RH    | Warning for right side lane                              | On  |
|                 | Not warning for right side lane                          | Off   |
| VALID POS LH    | Lateral position for left side lane marker is valid      | VLD   |
|                 | Lateral position for left side lane marker is invalid    | INVLD   |
| VALID POS RH    | Lateral position for right side lane marker is valid     | VLD   |
|                 | Lateral position for right side lane marker is invalid   | INVLD   |
| XOFFSET         | Camera aiming is completed                               | Approx. 180 pixel                               |
| AIM CHECK YAW   | <b>NOTE:</b><br>The item is indicated, but not used      | —   |
| AIM CHECK ROLL  | <b>NOTE:</b><br>The item is indicated, but not used      | —   |
| AIM CHECK PITCH | <b>NOTE:</b><br>The item is indicated, but not used      | —   |
| FCTRY AIM YAW   | Camera aiming is not completed                           | 0.0 deg   |
|                 | Camera aiming is completed                               | 0 ± 5.0 deg                                     |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N

DAS

P

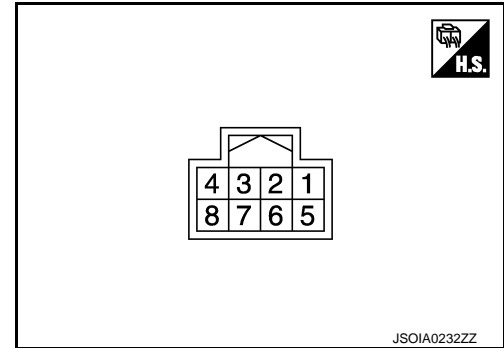
# LANE CAMERA UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW & LDP]

| Monitor Item  | Condition                      | Value/Status |
|---------------|--------------------------------|--------------|
| FCTRY AIM ROL | Camera aiming is not completed | 0.0 deg      |
|               | Camera aiming is completed     | 0 ± 5.0 deg  |
| FCTRY AIM PIT | Camera aiming is not completed | 0.0 deg      |
|               | Camera aiming is completed     | 0 ± 5.0 deg  |
| ADAS MALF     | ADAS control unit malfunction  | On           |
|               | ADAS control unit normal       | Off          |

## TERMINAL LAYOUT



## PHYSICAL VALUES

| Terminal No.<br>(Wire color) |        | Description           |                  | Condition       | Value<br>(Approx.) |
|------------------------------|--------|-----------------------|------------------|-----------------|--------------------|
| +                            | -      | Signal name           | Input/<br>Output |                 |                    |
| 1<br>(B)                     | Ground | Ground                | —                | —               | 0 V                |
| 4<br>(L)                     |        | ITS communication-H   | —                | —               | —                  |
| 5<br>(B)                     |        | Ground                | —                | —               | 0 V                |
| 7<br>(G)                     |        | Ignition power supply | Input            | Ignition switch | Battery voltage    |
| 8<br>(Y)                     |        | ITS communication-L   | —                | —               | —                  |

## Fail-safe

INFOID:000000006886346

### FAIL-SAFE CONTROL BY DTC

#### Lane Departure Warning (LDW)

If a malfunction occurs in the lane camera unit, ADAS control unit cancels control, and turns ON the lane departure warning lamp in the combination meter.

#### Lane Departure Prevention (LDP)

If a malfunction occurs in the lane camera unit, ADAS control unit cancels control, sounds a beep, and turns ON the lane departure warning lamp in the combination meter.

#### Blind Spot Warning (BSW)

If a malfunction occurs in the lane camera unit, ADAS control unit cancels control, and turns ON the BSW/BSI warning lamp in the combination meter.

#### Blind Spot Intervention (BSI)

If a malfunction occurs in the lane camera unit, ADAS control unit cancels control, sounds a beep, and turns ON the BSW/BSI warning in the combination meter.

### TEMPORARY DISABLED STATUS AT HIGH TEMPERATURE

# LANE CAMERA UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW & LDP]

## Lane Departure Warning (LDW)

- If the vehicle is parked in direct sunlight under high temperature conditions, the system may be deactivated automatically. And the lane departure warning lamp (yellow) in the combination meter will blink.
- When interior temperature is reduced, the system will resume operation automatically and the lane departure warning lamp (yellow) in the combination meter will stop blinking.

## Lane Departure Prevention (LDP)

- If the vehicle is parked in direct sunlight under high temperature conditions, the system may be deactivated automatically. And the buzzer sounds and lane departure warning lamp (yellow) in the combination meter will blink.
- When interior temperature is reduced, the system will resume when dynamic driver assistance switch is turned OFF and turned ON and the lane departure warning lamp (yellow) in the combination meter will stop blinking.

## Blind Spot Warning (BSW)

- If the vehicle is parked in direct sunlight under high temperature conditions, the system may be deactivated automatically. And the BSW/BSI warning lamp (yellow) in the combination meter will blink.
- When interior temperature is reduced, the system will resume operation automatically and the BSW/BSI warning lamp (yellow) in the combination meter will stop blinking.

## Blind Spot Intervention (BSI)

- If the vehicle is parked in direct sunlight under high temperature conditions, the system may be deactivated automatically. And the buzzer sounds and BSW/BSI warning lamp (yellow) in the combination meter will blink.
- When interior temperature is reduced, the system will resume when dynamic driver assistance switch is turned OFF and turned ON and the BSW/BSI warning lamp (yellow) in the combination meter will stop blinking.

## DTC Inspection Priority Chart

INFOID:000000006886347

If multiple DTCs are detected simultaneously, check them one by one depending on the following DTC inspection priority chart.

| Priority | Detected items (DTC)  |
|----------|---|
| 1        | <ul style="list-style-type: none"> <li>• U1000: CAN COMM CIRCUIT</li> <li>• U1010: CONTROL UNIT (CAN)</li> </ul>  |
| 2        | C1A50: ADAS MALFUNCTION   |
| 3        | <ul style="list-style-type: none"> <li>• C1B01: CAM AIMING INCOMP</li> <li>• C1B03: ABNRML TEMP DETECT</li> <li>• U0104: ADAS CAN CIR1</li> <li>• U0126: STRG SEN CAN CIR1</li> <li>• U0405: ADAS CAN CIR2</li> <li>• U0428: STRG SEN CAN CIR2</li> </ul> |
| 4        | C1B00: CAMERA UNIT MALF   |

## DTC Index

INFOID:000000006886348

x: Applicable

| DTC   | Warning lamp       | Fail-safe                            |                               | Reference |         |                         |
|-------|--------------------|--------------------------------------|-------------------------------|-----------|---------|-------------------------|
|       |                    | Lane departure warning lamp (yellow) | BSW/BSI warning lamp (yellow) |           | LDW/LDP | BSW/BSI                 |
| C1A50 | ADAS MALFUNCTION   | ON                                   | ON                            | —         | —       | <a href="#">DAS-329</a> |
| C1B00 | CAMERA UNIT MALF   | ON                                   | ON                            | ×         | ×       | <a href="#">DAS-330</a> |
| C1B01 | CAM AIMING INCOMP  | ON                                   | ON                            | ×         | ×       | <a href="#">DAS-332</a> |
| C1B03 | ABNRML TEMP DETECT | Blink                                | Blink                         | ×         | ×       | <a href="#">DAS-334</a> |
| U0104 | ADAS CAN CIR1      | ON                                   | ON                            | ×         | ×       | <a href="#">DAS-335</a> |
| U0126 | STRG SEN CAN CIR1  | ON                                   | ON                            | ×         | ×       | <a href="#">DAS-337</a> |
| U0405 | ADAS CAN CIR2      | ON                                   | ON                            | ×         | ×       | <a href="#">DAS-340</a> |

# LANE CAMERA UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW & LDP]

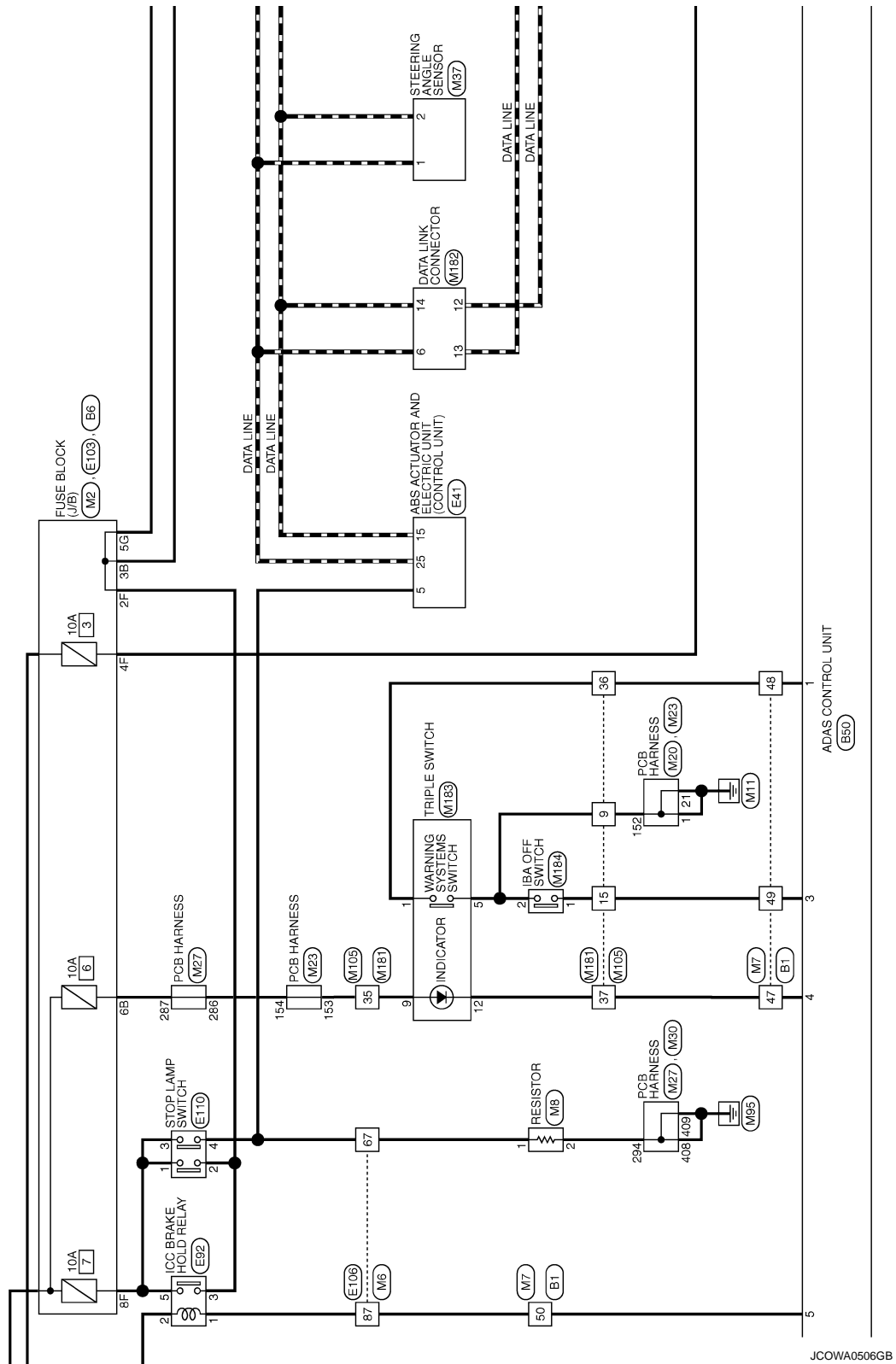
| DTC   |                    | Warning lamp                         |                               | Fail-safe |         | Reference               |
|-------|--------------------|--------------------------------------|-------------------------------|-----------|---------|-------------------------|
|       |                    | Lane departure warning lamp (yellow) | BSW/BSI warning lamp (yellow) | LDW/LDP   | BSW/BSI |                         |
| U0428 | STRG SEN CAN CIR2  | ON                                   | ON                            | ×         | ×       | <a href="#">DAS-342</a> |
| U1000 | CAN COMM CIRCUIT   | ON                                   | ON                            | ×         | ×       | <a href="#">DAS-343</a> |
| U1010 | CONTROL UNIT (CAN) | ON                                   | ON                            | ×         | ×       | <a href="#">DAS-345</a> |



# DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[LDW & LDP]



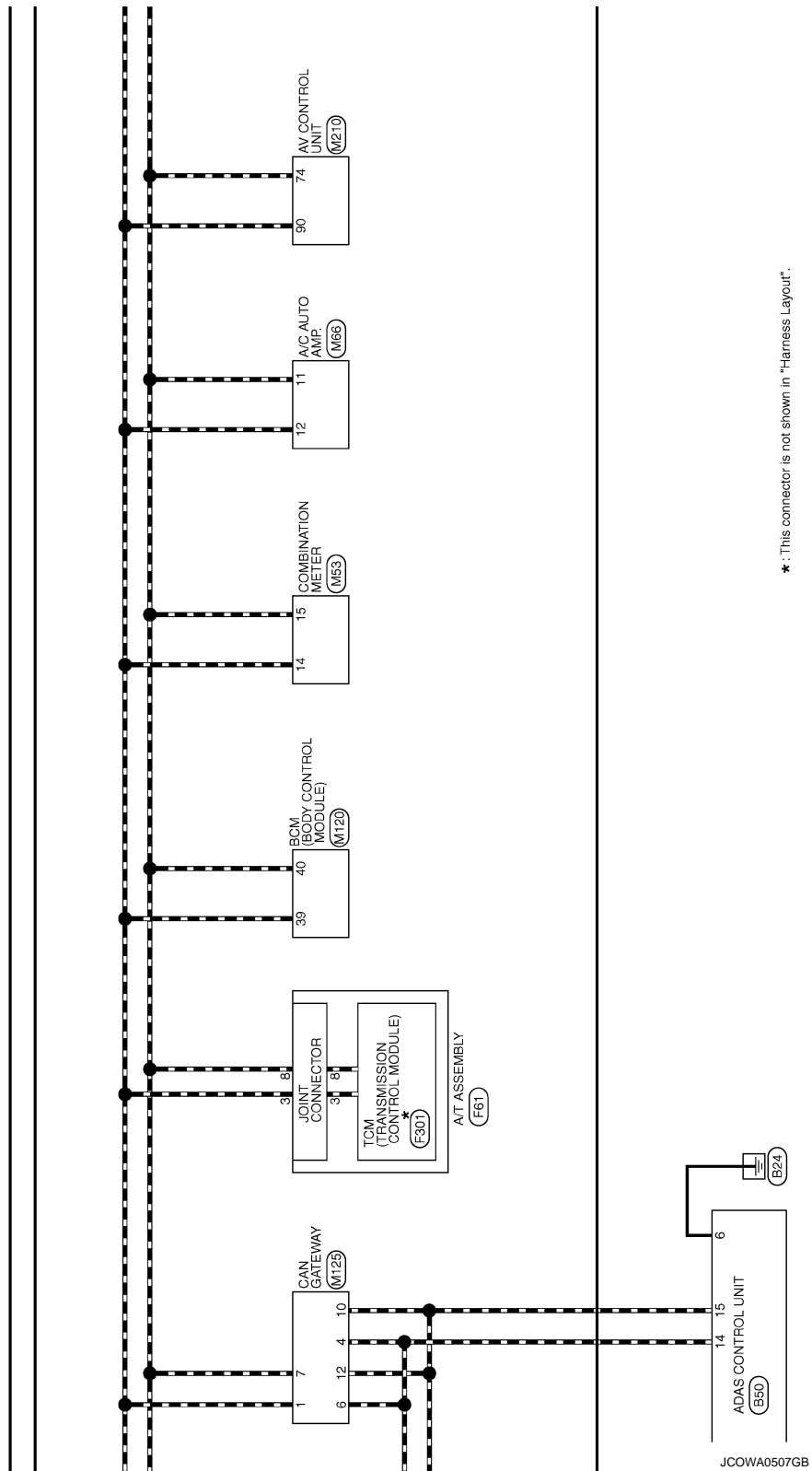
JCOWA0506GB



# DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[LDW & LDP]



\*: This connector is not shown in "Harness Layout".

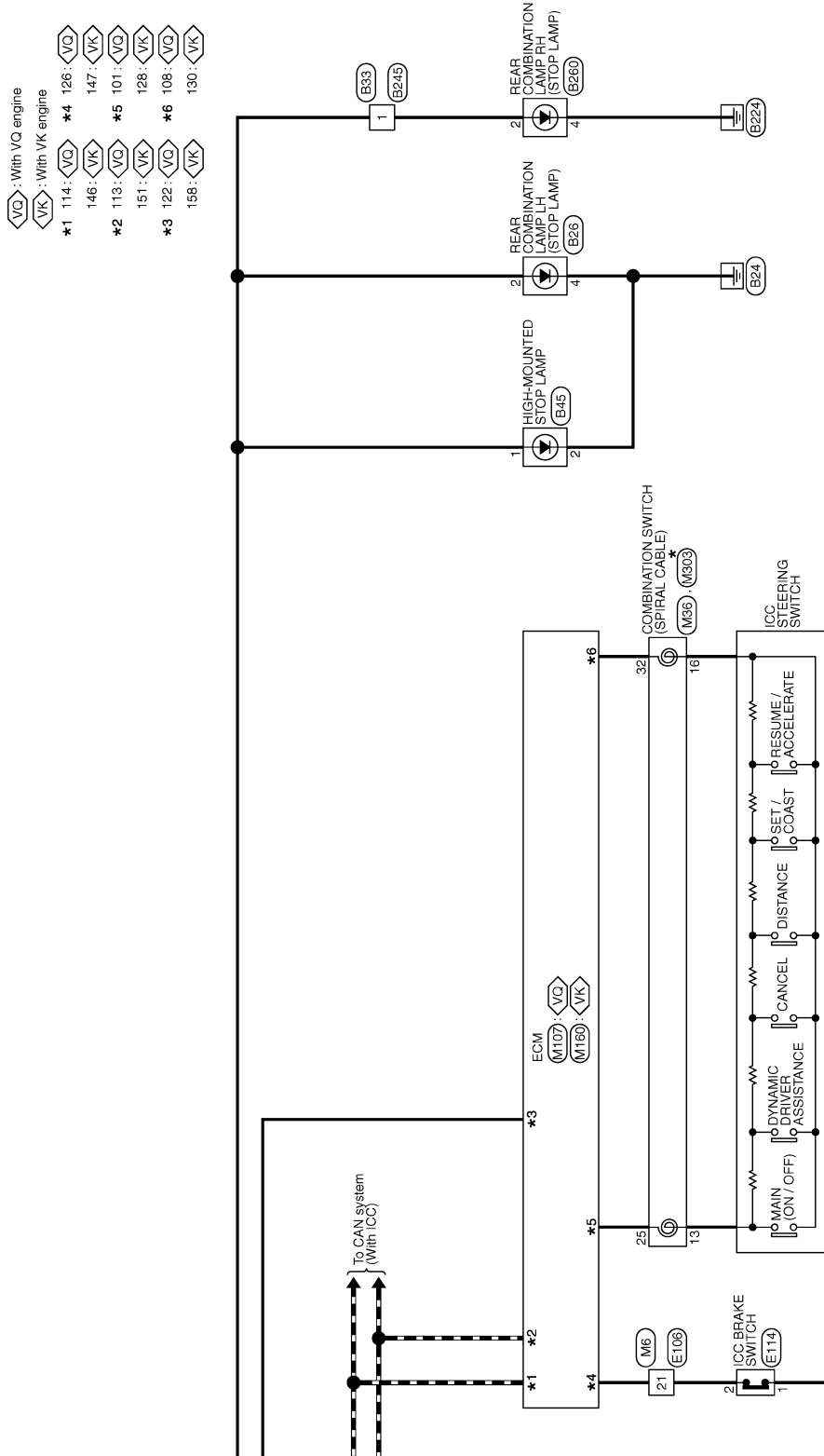
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[LDW & LDP]



JCOWA0508GB

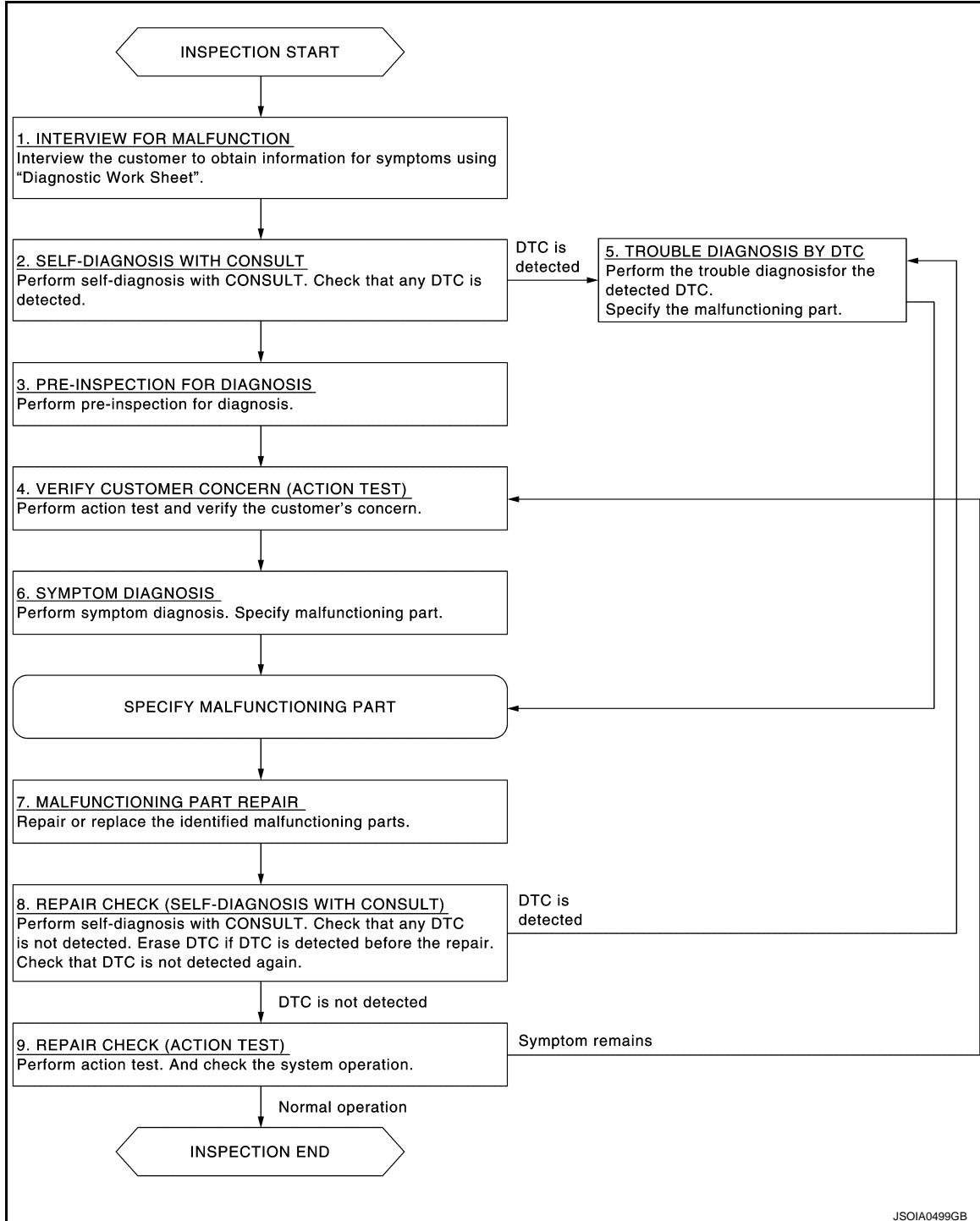
**BASIC INSPECTION**

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000007218409

OVERALL SEQUENCE



DETAILED FLOW

**1. INTERVIEW FOR MALFUNCTION**

Interview the customer to obtain information about symptoms using "Diagnostic Work Sheet". (Refer to [DAS-300, "Diagnostic Work Sheet"](#).)

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[LDW & LDP]

>> GO TO 2.

## 2. SELF-DIAGNOSIS WITH CONSULT

1. Perform "All DTC Reading" with CONSULT.
2. Check if the DTC is detected on the self-diagnosis results of "ICC/ADAS" and/or "LANE CAMERA".

Is any DTC detected?

- YES >> GO TO 5.  
NO >> GO TO 3.

## 3. PRE-INSPECTION FOR DIAGNOSIS

Perform pre-inspection for diagnosis. Refer to [DAS-302, "Inspection Procedure"](#).

>> GO TO 4.

## 4. ACTION TEST

Perform LDW/LDP system action test to check the operation status. Refer to [DAS-303, "Description"](#).

>> GO TO 6.

## 5. TROUBLE DIAGNOSIS BY DTC

Perform trouble diagnosis for the detected DTC. Specify a malfunctioning part. Refer to [DAS-286, "DTC Index"](#) (ICC/ADAS) and/or [DAS-293, "DTC Index"](#) (LANE CAMERA).

>> GO TO 7.

## 6. SYMPTOM DIAGNOSIS

Perform symptom diagnosis. Specify malfunctioning part. Refer to [DAS-363, "Symptom Table"](#).

>> GO TO 7.

## 7. MALFUNCTION PART REPAIR

Repair or replace the identified malfunctioning parts.

>> GO TO 8.

## 8. REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT)

Perform self-diagnosis with CONSULT. Check that any DTC is not detected. Erase DTC if DTC is detected before the repair. Check that DTC is not detected again.

Is any DTC detected?

- YES >> GO TO 5.  
NO >> GO TO 9.

## 9. REPAIR CHECK (ACTION TEST)

Perform LDW/LDP system action test. Also check the system operation.

Does it operate normally?

- YES >> INSPECTION END  
NO >> GO TO 4.

## Diagnostic Work Sheet

INFOID:000000007218410

### DESCRIPTION

In general, each customer feels differently about an incident. It is important to fully understand the symptoms or conditions for a customer complaint.

There are many operating conditions that lead to the malfunction. A good grasp of such conditions can make troubleshooting faster and more accurate.

Some conditions may cause the lane departure warning lamp to stay ON.

# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[LDW & LDP]

Utilize a work sheet sample to organize all of the information for troubleshooting.

**KEY POINTS**

- WHAT..... System and functions
- WHEN..... Date, Frequencies
- WHERE..... Road conditions
- HOW..... Operating conditions, Symptoms

**WORK SHEET SAMPLE**

|                         |  |  |   |                                 |
|-------------------------|--|--|---|---------------------------------|
| Customer name MR/MS     |  | Model and Year   |   | VIN                             |
| Engine #                |  | Trans.   |   | Mileage                         |
| Incident Date           |  | Manuf. Date  |   | In Service Date                 |
| <b>Symptoms</b>         |  |  |   |                                 |
| Indicator/Warning lamps | <input type="checkbox"/> Lane departure warning lamp   | <input type="checkbox"/> Stays ON<br><input type="checkbox"/> Turned ON occasionally | <input type="checkbox"/> Stays OFF<br><input type="checkbox"/> Others ( )                     | <input type="checkbox"/> Blinks |
|                         | <input type="checkbox"/> Warning systems ON indicator  | <input type="checkbox"/> Stays ON  | <input type="checkbox"/> Stays OFF<br><input type="checkbox"/> Others ( )                     | <input type="checkbox"/> Blinks |
|                         | <input type="checkbox"/> LDP ON indicator lamp   | <input type="checkbox"/> Stays ON<br><input type="checkbox"/> Turned ON occasionally | <input type="checkbox"/> Stays OFF<br><input type="checkbox"/> Others ( )                     | <input type="checkbox"/> Blinks |
|                         | <input type="checkbox"/> Other lamps ( )   | <input type="checkbox"/> Stays ON<br><input type="checkbox"/> Turned ON occasionally | <input type="checkbox"/> Stays OFF<br><input type="checkbox"/> Others ( )                     | <input type="checkbox"/> Blinks |
| Functions               | <input type="checkbox"/> When using LDW <input type="checkbox"/> When using LDP  |  |   |                                 |
|                         | <input type="checkbox"/> All functions do not operate.<br><input type="checkbox"/> Warning function does not operate. ( <input type="checkbox"/> No sound <input type="checkbox"/> No indicator )<br><input type="checkbox"/> Yawing function does not operate. (Warning function is operated.)  |  |   |                                 |
|                         | <input type="checkbox"/> Functions when changing the course in the turn signal direction.<br><input type="checkbox"/> Functions are untimely.<br><input type="checkbox"/> Does not function when driving on lane markers.<br><input type="checkbox"/> Functions when driving in a lane.<br><input type="checkbox"/> Functions in a different position from the actual position.<br><input type="checkbox"/> Others ( ) |  |   |                                 |
| <b>Conditions</b>       |  |  |   |                                 |
| Frequency               | <input type="checkbox"/> Continuously  |  | <input type="checkbox"/> Intermittently   |                                 |
| Light conditions        | <input type="checkbox"/> Not affected<br><input type="checkbox"/> In the daytime<br><input type="checkbox"/> Direct light  | <input type="checkbox"/> At night<br><input type="checkbox"/> Backlight              | <input type="checkbox"/> Sunrise/sunset (Strong light)<br><input type="checkbox"/> Others ( ) |                                 |
| Driving conditions      | <input type="checkbox"/> Not affected<br><input type="checkbox"/> Vehicle speed  | MPH (    km/h)   | <input type="checkbox"/> Vehicle is stopped   |                                 |
| Weather conditions      | <input type="checkbox"/> Not affected<br><input type="checkbox"/> Fine<br><input type="checkbox"/> Clouding  | <input type="checkbox"/> Raining   | <input type="checkbox"/> Snowing<br><input type="checkbox"/> Others ( )                       |                                 |
| Road conditions         | <input type="checkbox"/> Not affected<br><input type="checkbox"/> Highway<br><input type="checkbox"/> Uneven roads   | <input type="checkbox"/> In town<br><input type="checkbox"/> Winding roads           | <input type="checkbox"/> Others ( )   |                                 |
| Lane maker conditions   | <input type="checkbox"/> Not affected<br><input type="checkbox"/> Clear  | <input type="checkbox"/> Unclear   | <input type="checkbox"/> Others ( )   |                                 |
| Other conditions        |  |  |   |                                 |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

JSOIA0287GB

# PRE-INSPECTION FOR DIAGNOSIS

< BASIC INSPECTION >

[LDW & LDP]

---

## PRE-INSPECTION FOR DIAGNOSIS

### Inspection Procedure

INFOID:000000007218411

#### 1.CHECK CAMERA LENS AND WINDSHIELD

---

Are camera lens and windshield contaminated with foreign materials?

- YES >> Clean camera lens and windshield.
- NO >> GO TO 2.

#### 2.CHECK LANE CAMERA UNIT INSTALLATION CONDITION

---

Check lane camera unit installation condition (installation position, properly tightened, a bent bracket).

Is it properly installed?

- YES >> GO TO 3.
- NO >> Install lane camera unit properly, and perform camera aiming. Refer to [DAS-307. "Description"](#).

#### 3.CHECK VEHICLE HEIGHT

---

Check vehicle height. Refer to [FSU-20. "Wheelarch Height"](#) (2WD) or [FSU-39. "Wheelarch Height"](#) (AWD).

Is vehicle height appropriate?

- YES >> INSPECTION END
- NO >> Repair vehicle to appropriate height.

## ACTION TEST

## Description

INFOID:000000007218412

- Perform action test to verify the customer's concern.
- Perform action test and check the system operation after system diagnosis.

**WARNING:**

Be careful of traffic conditions and safety around the vehicle when performing road test.

**CAUTION:**

- Fully understand the following items well before the road test;
- Precautions: Refer to [DAS-247, "Precaution for LDW/LDP System Service"](#).
- System description for LDW: Refer to [DAS-251, "LANE DEPARTURE WARNING \(LDW\) SYSTEM : System Description"](#).
- System description for LDP: Refer to [DAS-255, "LANE DEPARTURE PREVENTION \(LDP\) SYSTEM : System Description"](#).
- Handling precaution: Refer to [DAS-263, "Precautions for Lane Departure Warning/Lane Departure Prevention"](#).

## Inspection Procedure

INFOID:000000007218413

**WARNING:**

Be careful of traffic conditions and safety around the vehicle when performing road test.

**CAUTION:**

- Fully understand the following items well before the road test;
- Precautions: Refer to [DAS-247, "Precaution for LDW/LDP System Service"](#).
- System description for LDW: Refer to [DAS-251, "LANE DEPARTURE WARNING \(LDW\) SYSTEM : System Description"](#).
- System description for LDP: Refer to [DAS-255, "LANE DEPARTURE PREVENTION \(LDP\) SYSTEM : System Description"](#).
- Handling precaution: Refer to [DAS-263, "Precautions for Lane Departure Warning/Lane Departure Prevention"](#).

## 1. CHECK LDW SYSTEM SETTING

1. Start the engine.
2. Check that the LDW system setting can be enabled/disabled on the navigation screen.
3. Turn OFF the ignition switch and wait for 30 seconds or more.
4. Check that the previous setting is saved when the engine starts again.

>> GO TO 2.

## 2. ACTION TEST FOR LDW

1. Enable the setting of the LDW system on the navigation screen.
2. Turn warning systems switch ON (warning systems ON indicator is ON).

**NOTE:**

LDP system is OFF.

3. Check the LDW operation according to the following table.

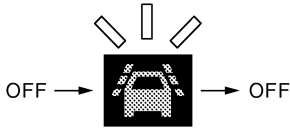
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ACTION TEST

< BASIC INSPECTION >

[LDW & LDP]

| Vehicle condition/ Driver's operation |   | Action   | Warning systems ON indicator | Indication on the combination meter   | Buzzer                 |
|---------------------------------------|---|--|------------------------------|---|------------------------|
| Less than Approx. 60 km/h (40 MPH)    | Close to lane marker  | No action  | ON                           | OFF   | —                      |
| Approx. 70 km/h (45 MPH) or more      | Close to lane marker  | Warning <ul style="list-style-type: none"> <li>• Buzzer sounds</li> <li>• Warning lamp blinks</li> </ul> | ON                           | <br>(Yellow) Blink<br><small>JPOIA0018GB</small> | Short continuous beeps |
|                                       | <ul style="list-style-type: none"> <li>• Close to lane marker</li> <li>• Turn signal ON (Deviate side)</li> </ul> | No action  | ON                           | OFF   | —                      |

**NOTE:**

After the operating conditions of warning are satisfied, the warning continues until the vehicle speed reaches approximately 60 km/h (40 MPH). Refer to [DAS-251. "LANE DEPARTURE WARNING \(LDW\) SYSTEM : System Description"](#).

>> GO TO 3.

### 3. CHECK LDP SYSTEM SETTING

1. Start the engine.
2. Check that the LDP system setting can be enabled/disabled on the navigation screen.
3. Turn OFF the ignition switch and wait for 30 seconds or more.
4. Check that the previous setting is saved when the engine starts again.

>> GO TO 4.


### 4. ACTION TEST FOR LDP

1. Enable the setting of the LDP system on the navigation screen.
2. Turn dynamic driver assistance switch ON (LDP ON indicator lamp is ON).

**NOTE:**

LDW system is OFF.

3. Check the LDP operation according to the following table.

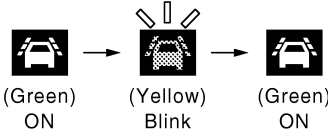

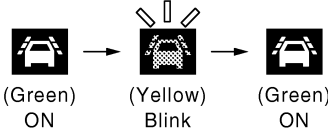
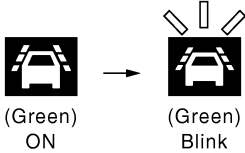
| Vehicle condition/ Driver's operation |                      | Action    | Indication on the combination meter   | Buzzer |
|---------------------------------------|----------------------|-----------|---|--------|
| Less than Approx. 60 km/h (40 MPH)    | Close to lane marker | No action | <br>(Green) ON<br><small>JPOIA0021GB</small> | —      |



# ACTION TEST

< BASIC INSPECTION >

[LDW & LDP]

| Vehicle condition/ Driver's operation  | Action   | Indication on the combination meter   | Buzzer  |                        |
|--|--|---|---|------------------------|
| Approx. 70<br>km/h (45<br>MPH) or more | Close to lane marker   |  <p style="text-align: center; font-size: small;">(Green) ON      (Yellow) Blink      (Green) ON</p> <p style="text-align: center; font-size: x-small;">JPOIA0022GB</p> | Short continuous beeps  |                        |
|  | <ul style="list-style-type: none"> <li>Close to lane marker</li> <li>Turn signal ON (Deviate side)</li> </ul>                          | <p style="text-align: center;">No action</p>  <p style="text-align: center;">(Green) ON</p> <p style="text-align: center; font-size: x-small;">JPOIA0021GB</p>         | —   |                        |
|  | Close to lane marker with soft braking   | <p>Warning</p> <ul style="list-style-type: none"> <li>Buzzer sounds</li> <li>Warning lamp blinks</li> </ul>   |  <p style="text-align: center; font-size: small;">(Green) ON      (Yellow) Blink      (Green) ON</p> <p style="text-align: center; font-size: x-small;">JPOIA0022GB</p> | Short continuous beeps |
|  | <ul style="list-style-type: none"> <li>VDC OFF switch: OFF ⇒ ON</li> <li>Shifting drive mode select switch to SNOW position</li> </ul> | <p>Cancellation</p> <ul style="list-style-type: none"> <li>Buzzer sounds</li> <li>Indicator lamp blinks</li> </ul> <p><b>NOTE:</b><br/>When dynamic driver assistance switch is ON ⇒ OFF, indicator lamp is turned OFF</p>                                |  <p style="text-align: center; font-size: small;">(Green) ON      (Green) Blink</p> <p style="text-align: center; font-size: x-small;">JPOIA0023GB</p>                 | Beep                   |

**NOTE:**

After the operating conditions are satisfied, the control continues until the vehicle speed reaches approximately 60 km/h (40 MPH). Refer to [DAS-255. "LANE DEPARTURE PREVENTION \(LDP\) SYSTEM : System Description"](#).

>> INSPECTION END

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ADDITIONAL SERVICE WHEN REPLACING LANE CAMERA UNIT

< BASIC INSPECTION >

[LDW & LDP]

---

## ADDITIONAL SERVICE WHEN REPLACING LANE CAMERA UNIT

### Description

INFOID:000000007218414

Always adjust the camera aiming after removing and installing or replacing the lane camera unit.

**CAUTION:**

**The system does not operate normally unless the camera aiming adjustment is performed. Always perform it.**

### Work Procedure

INFOID:000000007218415

#### 1. CAMERA AIMING ADJUSTMENT

---

Perform the camera aiming adjustment with CONSULT. Refer to [DAS-307, "Description"](#).

>> GO TO 2.

#### 2. PERFORM SELF-DIAGNOSIS

---

Perform the self-diagnosis of lane camera unit with CONSULT. Check if any DTC is detected.

Is any DTC detected?

YES >> Perform the trouble diagnosis for the detected DTC. Refer to [DAS-293, "DTC Index"](#).

NO >> GO TO 3.

#### 3. LDW/LDP SYSTEM ACTION TEST

- 
1. Perform the LDW/LDP system action test. Refer to [DAS-303, "Description"](#).
  2. Check that the LDW/LDP system operates normally.

>> WORK END

## CAMERA AIMING ADJUSTMENT

## Description

INFOID:000000007218416

Always adjust the camera aiming after removing and installing or replacing the lane camera unit.

**CAUTION:**

- Place the vehicle on level ground when the camera aiming adjustment is operated.
- Follow the **CONSULT** when performing the camera aiming. (Camera aiming adjustment cannot be operated without **CONSULT**.)

## Work Procedure (Preparation)

INFOID:000000007218417

## 1. PERFORM SELF-DIAGNOSIS

Perform self-diagnosis of ADAS control unit and lane camera unit.

Is any DTC detected?

Except "C1B01">>Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to [DAS-286, "DTC Index"](#) (ICC/ADAS) or [DAS-293, "DTC Index"](#) (LANE CAMERA).

"C1B01" or no DTC>>GO TO 2.

## 2. PREPARATION BEFORE CAMERA AIMING ADJUSTMENT

1. Perform pre-inspection for diagnosis. Refer to [DAS-302, "Inspection Procedure"](#).
2. Adjust the tire pressure to the specified pressure value.
3. Maintain no-load in vehicle.
4. Check if coolant and engine oil are filled up to correct level and fuel tank is full.
5. Shift the selector lever to "P" position and release the parking brake.
6. Clean the windshield.
7. Completely clear off the instrument panel.

>> GO TO 3.

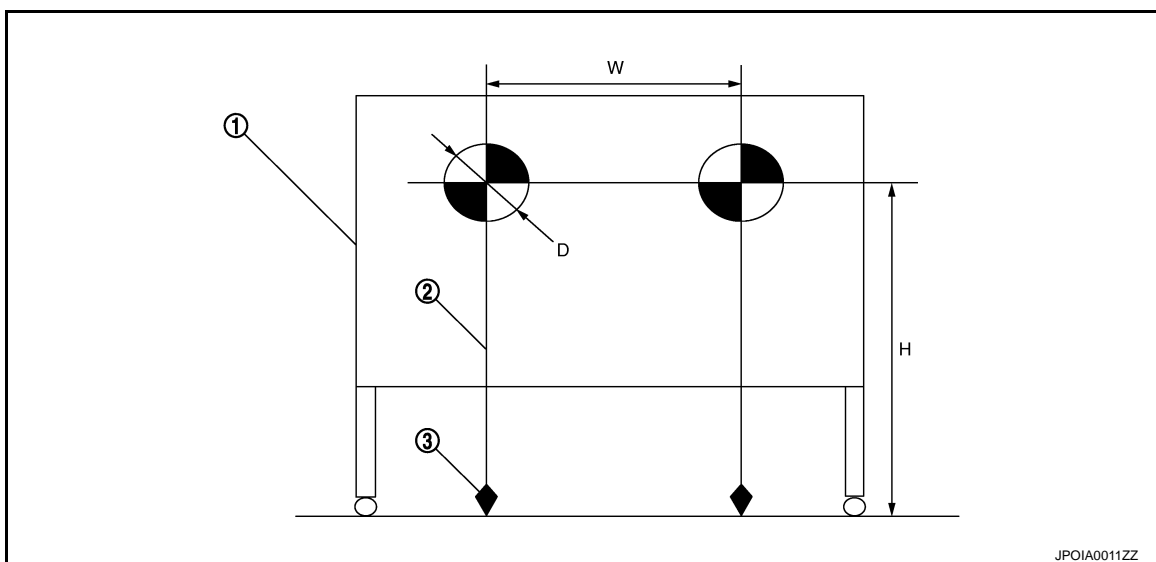
## 3. PREPARATION OF AIMING ADJUSTMENT JIG

Prepare the aiming adjustment jig according to the following procedure and the figure.

1. Print out the target mark attached in this service manual. Refer to [DAS-310, "Work Procedure \(Target Mark Sample\)"](#).
2. Stick a printed target mark on the board with a scotch tape or a piece of double-sided tape.

**NOTE:**

- Use the board that peripheral area of the target is monochrome such as a white-board.
- Notice that the cross of the target is horizontal and vertical.



JPOIA0011ZZ

# CAMERA AIMING ADJUSTMENT

< BASIC INSPECTION >

[LDW & LDP]

1. Board
2. String
3. Cone

☉ : Target mark

**Diameter of a target (D)** : 200 mm (7.87 in)  
**Height of a target center (H)** : 1450 mm (57.09 in)  
**Width between a right target center from a left target center (W)** : 600 mm (23.62 in)

>> Go to [DAS-308, "Work Procedure \(Target Setting\)"](#).

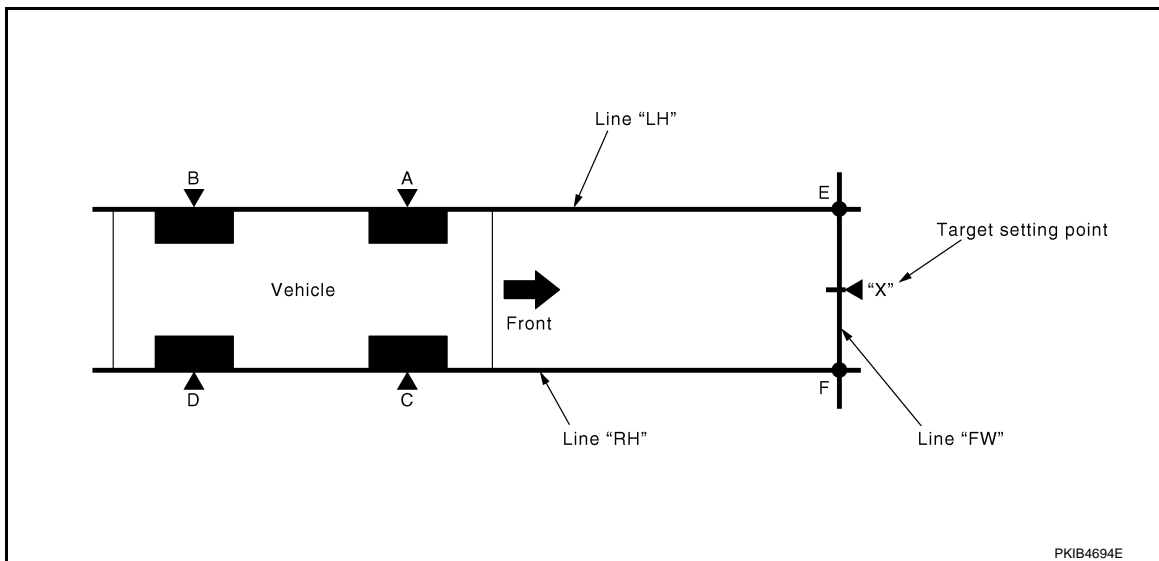
## Work Procedure (Target Setting)

INFOID:000000007218418

### CAUTION:

- Perform this operation in a horizontal position where there is a clear view for 5 m (16.4 ft) forward and 3 m (9.84 ft) wide.
- Place the target in a well-lighted location. (Poor lighting may make it hard to adjust.)
- The target may not be detected when there is a light source within 1.5 m (4.92 ft) from either side and within 1 m (3.28 ft) upward/downward from the target.
- Check the location of the sun. (Sunlight should not shine directly on the front of the vehicle.)
- The target may not be detected when there is the same pattern of black and white as the target when the pattern is within 1 m (3.28 ft) from either side and upward/downward position from the target. (It is desirable that the vehicle is positioned on the opposite side of a single-color wall.)

### 1. TARGET SETTING



**"A" – "E" ("C" – "F")** : 3850 mm (151.57 in)

1. Mark points "A", "B", "C" and "D" at the center of the lateral surface of each wheels.

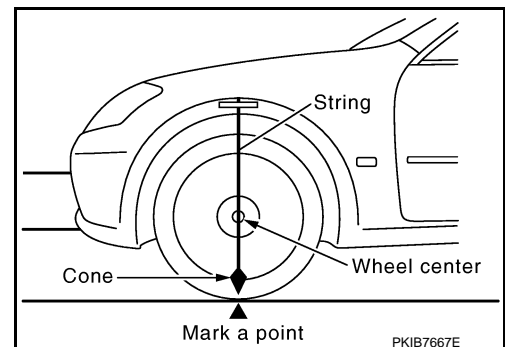
#### NOTE:

Hang a string with a cone from the fender so as to pass through the center of wheel, and then mark a point at the center of the lateral surface of the wheel.

2. Draw line "LH" passing through points "A" and "B" on the left side of vehicle.

#### NOTE:

Approximately 4 m (13.12 ft) or more from the front end of vehicle.



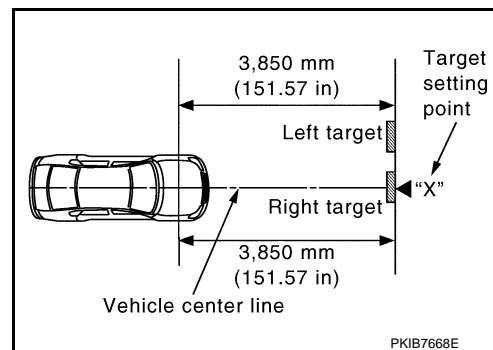
# CAMERA AIMING ADJUSTMENT

[LDW & LDP]

## < BASIC INSPECTION >

3. Mark point "E" on the line "LH" at the positions 3850 mm (151.57 in) from point "A".
4. Draw line "RH" passing through points "C" and "D" on the right side of vehicle in the same way as step 2.  
**NOTE:**  
Approximately 4 m (13.12 ft) or more from the front end of vehicle.
5. Mark point "F" on the line "RH" at the positions 3850 mm (151.57 in) from point "C".
6. Draw line "FW" passing through the points "E" and "F" on the front side of vehicle.
7. Mark point "X" at the center of point "E" and "F" on the line "FW".  
**CAUTION:**  
**Make sure that "E" to "X" is equal to "F" to "X".**
8. Position the center of the right target to point of "X".

>> Go to [DAS-309, "Work Procedure \(Camera Aiming Adjustment\)"](#).



## Work Procedure (Camera Aiming Adjustment)

INFOID:000000007218419

### **CAUTION:**

Perform the adjustment under unloaded vehicle condition.

### 1. CHECK VEHICLE HEIGHT

Measure the wheelarch height. Calculate "Dh".

$$Dh [mm] = (Hfl + Hfr) \div 2 - 756$$

where,

Hfl: Front left wheelarch height [mm]

Hfr: Front right wheelarch height [mm]

### **NOTE:**

"Dh" may be calculated as a minus value.

>> GO TO 2.

### 2. CAMERA AIMING ADJUSTMENT

#### **CAUTION:**

Operate CONSULT outside the vehicle, and close all the doors. (To retain vehicle attitude appropriately)

1. Select "Work Support" on "LANE CAMERA" with CONSULT.
2. Select "AUTO AIM".
3. Confirm the following items;
  - The target should be accurately placed.
  - The vehicle should be stopped.
4. Select "Start" to perform camera aiming.

#### **CAUTION:**

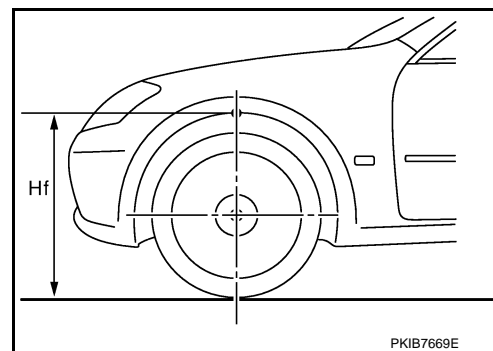
- Never select "Start" when the target is not accurately placed.
- Wait 5 seconds or more after selecting "Start".

5. Input "Dh", and then select "Start".

#### **CAUTION:**

Never change "Ht" and "Dt".

6. Confirm the displayed item.
  - "Normally Completed": Select "Completion".
  - "SUSPENSION", "X AIMING NG Y" "ABNORMALLY COMPLETED": Perform the following services.



# CAMERA AIMING ADJUSTMENT

< BASIC INSPECTION >

[LDW & LDP]

| Displayed item                        |                           | Possible cause   | Service procedure  |
|---------------------------------------|---------------------------|--|--|
| SUSPENSION                            | —                         | Temporary malfunction in internal processing of the lane camera unit.  | Go back to Step 1  |
|                                       | 00H Routine not activated | Lane camera unit malfunction.  | Position the target appropriately again. Perform the aiming again. Refer to <a href="#">DAS-308, "Work Procedure (Target Setting)"</a> |
|                                       | 10H Writing error         | <ul style="list-style-type: none"> <li>• Temporary malfunction in internal processing of the lane camera unit.</li> <li>• Lane camera unit malfunction.</li> </ul>                                 |  |
| X AIMING NG Y<br>(X: 0 - 7, Y: 1 - 8) | —                         | <ul style="list-style-type: none"> <li>• A target is not-yet-placed.<br/>(The lane camera unit cannot detect a target.)</li> <li>• The position of the lane camera unit is not correct.</li> </ul> | Position the target appropriately again. Perform the aiming again. Refer to <a href="#">DAS-307, "Work Procedure (Preparation)"</a> .  |
| ABNORMALLY COMPLETED                  | —                         | <ul style="list-style-type: none"> <li>• Inappropriate work environment.</li> <li>• Inappropriate vehicle condition.</li> </ul>  |  |

**NOTE:**

Replace camera unit if "00H Routine not activated" or "10H Writing error" are repeatedly indicated during the above two services are performed.

7. Confirm that "Normally Completed" is displayed and then select "End" to close the aiming adjustment procedure.

>> GO TO 3.

### 3. PERFORM SELF-DIAGNOSIS

Perform self-diagnosis of lane camera unit with CONSULT.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to [DAS-293, "DTC Index"](#).

NO >> GO TO 4.

### 4. ACTION TEST

Test the LDW/LDP system operation by action test. Refer to [DAS-303, "Description"](#).

>> WORK END

Work Procedure (Target Mark Sample)

INFOID:000000007218420

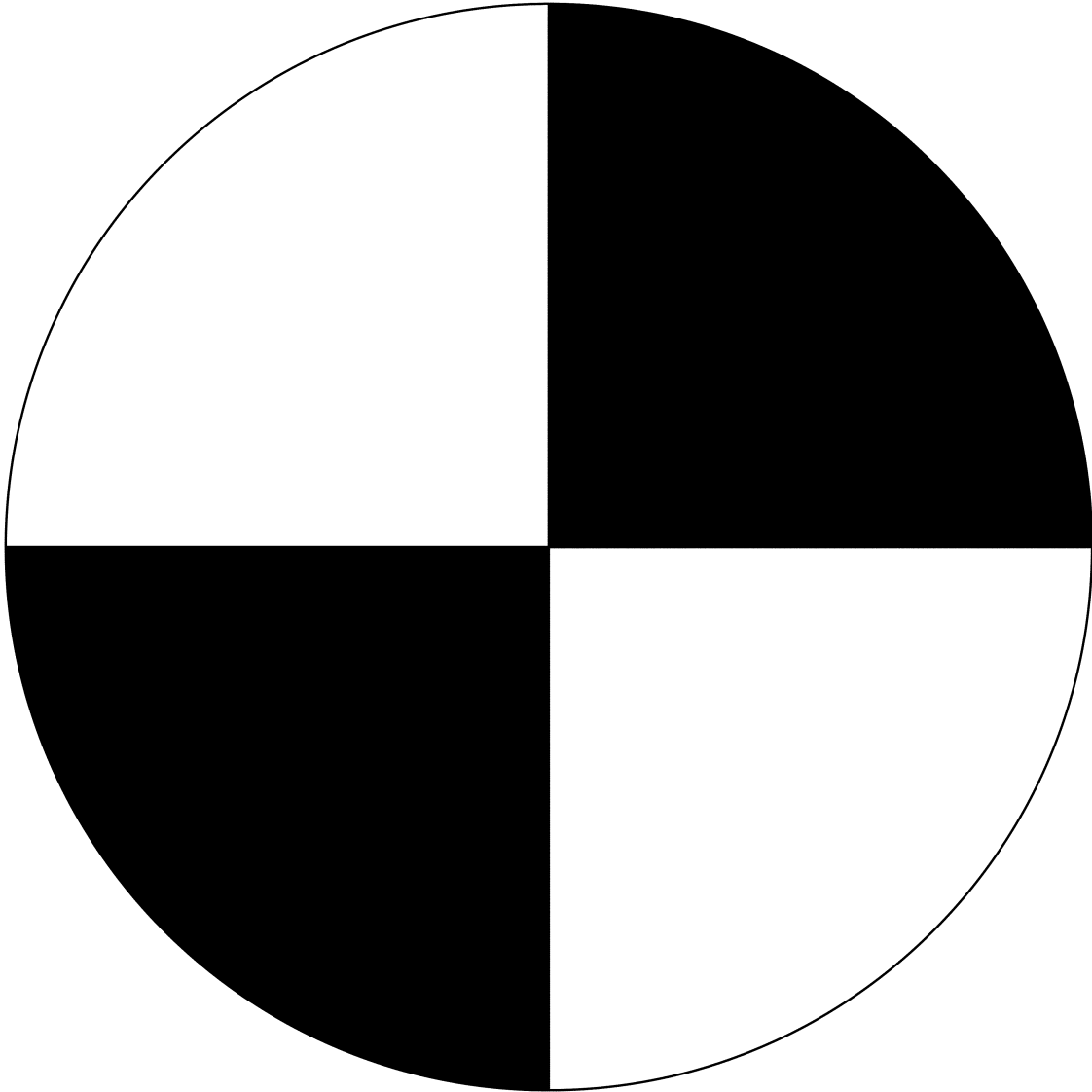
**NOTE:**

# CAMERA AIMING ADJUSTMENT

< BASIC INSPECTION >

[LDW & LDP]

Print this illustration so that the diameter of the circle is 200 mm (7.87 in).



A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N

DAS

PGIA0105J

P

# DTC/CIRCUIT DIAGNOSIS

## C1A00 CONTROL UNIT

### DTC Logic

INFOID:000000006886362

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                | Possible causes   |
|---------------------------|------------------------|--|-------------------|
| C1A00<br>(0)              | CONTROL UNIT           | ADAS control unit internal malfunction | ADAS control unit |

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1A00" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A00" detected as the current malfunction?

- YES >> Refer to [DAS-312, "Diagnosis Procedure"](#).  
 NO >> INSPECTION END

### Diagnosis Procedure

INFOID:000000006886363

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if any DTC other than "C1A00" is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-286, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



# C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

### DTC Logic

INFOID:000000006886364

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|---------------------------|------------------------|--|--|
| C1A01<br>(1)              | POWER SUPPLY CIR       | The battery voltage sent to ADAS control unit remains less than 7.9 V for 5 seconds  | <ul style="list-style-type: none"><li>• Connector, harness, fuse</li><li>• ADAS control unit</li></ul> |
| C1A02<br>(2)              | POWER SUPPLY CIR 2     | The battery voltage sent to ADAS control unit remains more than 19.3 V for 5 seconds |  |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A01" or "C1A02" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A01" or "C1A02" detected as the current malfunction?

- YES >> Refer to [DAS-313, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886365

#### 1.CHECK ADAS CONTROL UNIT POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit of ADAS control unit. Refer to [DAS-355, "ADAS CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).  
NO >> Repair or replace the malfunctioning parts.

DAS

# C1A03 VEHICLE SPEED SENSOR

[LDW & LDP]

< DTC/CIRCUIT DIAGNOSIS >

## C1A03 VEHICLE SPEED SENSOR

### DTC Logic

INFOID:000000007218395

### DTC DETECTION LOGIC

| DTC<br>(On board<br>display) | Trouble diagnosis<br>name | DTC detecting condition  | Possible causes  |
|------------------------------|---------------------------|--|--|
| C1A03<br>(3)                 | VHCL SPEED SE<br>CIRC     | If the wheel speed signal from ABS actuator and electric unit (control unit) received by the ADAS control unit via CAN communication, are inconsistent | <ul style="list-style-type: none"><li>• Wheel speed sensor</li><li>• ABS actuator and electric unit (control unit)</li><li>• ADAS control unit</li></ul> |

#### NOTE:

If DTC "C1A03" is detected along with DTC "U1000" or "C1A04", first diagnose the DTC "U1000" or "C1A04".

- Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#) for DTC "U1000".
- Refer to [DAS-315, "DTC Logic"](#) for DTC "C1A04".

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Drive the vehicle at 30 km/h (19 MPH) or more.

#### CAUTION:

**Always drive safely.**

4. Stop the vehicle.
5. Perform "All DTC Reading" with CONSULT.
6. Check if the "C1A03" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A03" detected as the current malfunction?

YES-1 (Lane departure warning lamp: ON)>>Refer to [DAS-314, "Diagnosis Procedure"](#).

YES-2 (Lane departure warning lamp: OFF)>>Refer to [CCS-80, "DTC Logic"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000007218396

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "C1A04" or "U1000" is detected other than "C1A03" in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-286, "DTC Index"](#).

NO >> GO TO 2.

#### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).

NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

# C1A04 ABS/TCS/VDC SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## C1A04 ABS/TCS/VDC SYSTEM

### DTC Logic

INFOID:000000006886368

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                           | Possible causes                               |
|---------------------------|------------------------|---|---|
| C1A04<br>(4)              | ABS/TCS/VDC CIRC       | If a malfunction occurs in the VDC/TCS/ABS system | ABS actuator and electric unit (control unit) |

#### NOTE:

If DTC "C1A04" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).

### Diagnosis Procedure

INFOID:000000006886369

#### 1. CHECK SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the "U1000" is detected other than "C1A04" in "Self Diagnostic Result" of "ICC/ADAS".

##### Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

#### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

##### Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1A05 BRAKE SW/STOP LAMP SW

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## C1A05 BRAKE SW/STOP LAMP SW

### DTC Logic

INFOID:000000006886370

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|---------------------------|------------------------|---|---|
| C1A05<br>(5)              | BRAKE SW/STOP L SW     | A mismatch between a stop lamp switch signal and a ICC brake switch signal received from ECM and a stop lamp signal received from the ABS actuator and electric unit (control unit) continues for 10 seconds or more with vehicle speeds at approximately 40 km/h or more | <ul style="list-style-type: none"><li>• Stop lamp switch circuit</li><li>• ICC brake switch circuit</li><li>• Stop lamp switch</li><li>• ICC brake switch</li><li>• Incorrect stop lamp switch installation</li><li>• Incorrect ICC brake switch installation</li><li>• ECM</li><li>• ABS actuator and electric unit (control unit)</li></ul> |

#### NOTE:

If DTC "C1A05" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).

### Diagnosis Procedure

INFOID:000000007218422

#### 1.CHECK SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the "U1000" is detected other than "C1A05" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).

NO >> GO TO 2.

#### 2.CHECK STOP LAMP SWITCH AND ICC BRAKE SWITCH

Check that "STOP LAMP SW" and "BRAKE SW" operate normally in "DATA MONITOR" of "ICC/ADAS".

Is the inspection result normal?

YES >> GO TO 3.

NO-1 >> When "BRAKE SW" operation is malfunctioning: GO TO 4.

NO-2 >> When "STOP LAMP SW" operation is malfunctioning: GO TO 9.

#### 3.CHECK STOP LAMP SWITCH

Check that "STOP LAMP SW" operate normally in "DATA MONITOR" of "ABS".

Is the inspection result normal?

YES >> GO TO 14.

NO >> GO TO 9.

#### 4.CHECK ICC BRAKE SWITCH INSTALLATION

1. Turn ignition switch OFF.
2. Check ICC brake switch for correct installation. Refer to [BR-7, "Inspection and Adjustment"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Adjust ICC brake switch installation. Refer to [BR-7, "Inspection and Adjustment"](#).

#### 5.ICC BRAKE SWITCH INSPECTION

1. Disconnect ICC brake switch connector.
2. Check ICC brake switch. Refer to [DAS-319, "Component Inspection \(ICC Brake Switch\)"](#).

Is the inspection result normal?

# C1A05 BRAKE SW/STOP LAMP SW

[LDW & LDP]

## < DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 6.  
NO >> Replace ICC brake switch.

### 6.CHECK ICC BRAKE SWITCH POWER SUPPLY CIRCUIT

1. Turn the ignition switch ON.
2. Check voltage between ICC brake switch harness connector and ground.

| Terminals        |          | Voltage<br>(Approx.) |
|------------------|----------|----------------------|
| (+)              | (-)      |                      |
| ICC brake switch |          | Ground               |
| Connector        | Terminal |                      |
| E114             | 1        |                      |
|                  |          | Battery voltage      |

Is the inspection result normal?

- YES >> GO TO 7.  
NO >> Repair the harnesses or connectors.

### 7.CHECK HARNESS BETWEEN ICC BRAKE SWITCH AND ECM

1. Turn ignition switch OFF
2. Disconnect ECM connector.
3. Check for continuity between ICC brake switch harness connector and ECM harness connector.

VQ37VHR

| ICC brake switch |          | ECM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| E114             | 2        | M107      | 126      | Existed    |

VK56VD

| ICC brake switch |          | ECM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| E114             | 2        | M160      | 147      | Existed    |

4. Check for continuity between ICC brake switch harness connector and ground.

| ICC brake switch |          | Ground | Continuity  |
|------------------|----------|--------|-------------|
| Connector        | Terminal |        |             |
| E114             | 2        |        | Not existed |

Is the inspection result normal?

- YES >> GO TO 8.  
NO >> Repair the harnesses or connectors.

### 8.PERFORM SELF-DIAGNOSIS OF ECM

1. Connect all connectors again if the connectors are disconnected.
2. Turn ignition switch ON.
3. Perform "All DTC Reading".
4. Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE". Refer to [EC-117, "DTC Index"](#) (VQ37VHR) or [EC-1083, "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651, "DTC Index"](#) (VK56VD for Mexico).

Is any DTC detected?

- YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

### 9.CHECK STOP LAMP SWITCH INSTALLATION

1. Turn ignition switch OFF.
2. Check stop lamp switch for correct installation. Refer to [BR-7, "Inspection and Adjustment"](#).

Is the inspection result normal?

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1A05 BRAKE SW/STOP LAMP SW

[LDW & LDP]

## < DTC/CIRCUIT DIAGNOSIS >

YES >> GO TO 10.

NO >> Adjust stop lamp switch installation. Refer to [BR-7, "Inspection and Adjustment"](#).

### 10.STOP LAMP SWITCH INSPECTION

1. Disconnect stop lamp switch connector.
2. Check stop lamp switch. Refer to [DAS-319, "Component Inspection \(Stop Lamp Switch\)"](#).

Is the inspection result normal?

YES >> GO TO 11.

NO >> Replace stop lamp switch.

### 11.CHECK STOP LAMP SWITCH POWER SUPPLY CIRCUIT

1. Turn the ignition switch ON.
2. Check voltage between stop lamp switch harness connector and ground.

| Terminals        |          | Voltage<br>(Approx.) |
|------------------|----------|----------------------|
| (+)              | (-)      |                      |
| Stop lamp switch |          | Ground               |
| Connector        | Terminal |                      |
| E110             | 1        |                      |
|                  | 3        |                      |

Is the inspection result normal?

YES >> GO TO 12.

NO >> Repair the harnesses or connectors.

### 12.CHECK HARNESS BETWEEN STOP LAMP SWITCH AND ECM

1. Turn ignition switch OFF
2. Disconnect ECM, rear combination lamp and high-mounted stop lamp connectors.
3. Check for continuity between stop lamp switch harness connector and ECM harness connector.

VQ37VHR

| Stop lamp switch |          | ECM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| E110             | 2        | M107      | 122      | Existed    |

VK56VD

| Stop lamp switch |          | ECM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| E110             | 2        | M160      | 158      | Existed    |

4. Check for continuity between stop lamp switch harness connector and ground.

| Stop lamp switch |          | Ground | Continuity  |
|------------------|----------|--------|-------------|
| Connector        | Terminal |        |             |
| E110             | 2        |        | Not existed |

Is the inspection result normal?

YES >> GO TO 13.

NO >> Repair the harnesses or connectors.

### 13.CHECK HARNESS BETWEEN STOP LAMP SWITCH AND ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check for continuity between stop lamp switch harness connector and ABS actuator and electric unit (control unit) harness connector.

# C1A05 BRAKE SW/STOP LAMP SW

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

| Stop lamp switch |          | ABS actuator and electric unit (control unit) |          | Continuity |
|------------------|----------|---|----------|------------|
| Connector        | Terminal | Connector                                     | Terminal |            |
| E110             | 4        | E41   | 5        | Existed    |

3. Check for continuity between stop lamp switch harness connector and ground.

| Stop lamp switch |          | Ground | Continuity  |
|------------------|----------|--------|-------------|
| Connector        | Terminal |        |             |
| E110             | 4        |        | Not existed |

Is the inspection result normal?

YES >> GO TO 14.

NO >> Repair the harnesses or connectors.

## 14.PERFORM SELF-DIAGNOSIS OF ECM

1. Connect all connectors again if the connectors are disconnected.
2. Turn ignition switch ON.
3. Perform "All DTC Reading".
4. Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE". Refer to [EC-117, "DTC Index"](#) (VQ37VHR) or [EC-1083, "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651, "DTC Index"](#) (VK56VD for Mexico).

Is any DTC detected?

YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.

NO >> GO TO 15.

## 15.PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Check if any DTC is detected in "Self Diagnostic Result" of "ABS". Refer to [BRC-51, "DTC Index"](#).

Is any DTC detected?

YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.

NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

## Component Inspection (ICC Brake Switch)

INFOID:000000007218423

### 1.CHECK ICC BRAKE SWITCH

Check for continuity between ICC brake switch terminals.

| Terminal |   | Condition                     | Continuity  |
|----------|---|-------------------------------|-------------|
| 1        | 2 | When brake pedal is depressed | Not existed |
|          |   | When brake pedal is released  | Existed     |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace ICC brake switch.

## Component Inspection (Stop Lamp Switch)

INFOID:000000007218424

### 1.CHECK STOP LAMP SWITCH

Check for continuity between stop lamp switch terminals.

| Terminal |   | Condition                     | Continuity  |
|----------|---|-------------------------------|-------------|
| 1        | 2 | When brake pedal is depressed | Existed     |
|          |   | When brake pedal is released  | Not existed |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P



# C1A05 BRAKE SW/STOP LAMP SW

[LDW & LDP]

< DTC/CIRCUIT DIAGNOSIS >

| Terminal |   | Condition                     | Continuity  |
|----------|---|-------------------------------|-------------|
| 3        | 4 | When brake pedal is depressed | Existed     |
|          |   | When brake pedal is released  | Not existed |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace stop lamp switch.



C1A06 OPERATION SW

DTC Logic

INFOID:000000006886374

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|---------------------------|------------------------|---|---|
| C1A06<br>(6)              | OPERATION SW CIRC      | <ul style="list-style-type: none"> <li>Any switch of the ICC steering switch is detected as "ON" continuously for 60 seconds</li> <li>An ON/OFF state judgment of the ICC differs between ECM and ADAS control unit, and the state continues for 2 seconds or more</li> </ul> | <ul style="list-style-type: none"> <li>ICC steering switch circuit</li> <li>ICC steering switch</li> <li>ECM</li> </ul> |

**NOTE:**

If DTC "C1A06" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

**1. PERFORM DTC CONFIRMATION PROCEDURE**

- Start the engine.
- Wait for approximately 5 minutes after turning the LDP system ON.
- Perform "All DTC Reading" with CONSULT.
- Check if the "C1A06" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A06" detected as the current malfunction?

- YES >> Refer to [DAS-321, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000007218425

**1. CHECK SELF-DIAGNOSIS RESULTS**

Check if "U1000" is detected other than "C1A06" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-51, "DTC Logic"](#).
- NO >> GO TO 2.

**2. CHECK ICC STEERING SWITCH**

- Turn the ignition switch OFF.
- Disconnect the ICC steering switch connector.
- Check the ICC steering switch. Refer to [DAS-322, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Replace the ICC steering switch.

**3. CHECK HARNESS BETWEEN SPIRAL CABLE AND ECM**

- Disconnect the ECM connector.
- Check for continuity between the spiral cable harness connector and ECM harness connector.

VQ37VHR

| Spiral cable |          | ECM       |          | Continuity |
|--------------|----------|-----------|----------|------------|
| Connector    | Terminal | Connector | Terminal |            |
| M36          | 25       | M107      | 101      | Existed    |
|              | 32       |           | 108      |            |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

VK56VD

| Spiral cable |          | ECM       |          | Continuity |
|--------------|----------|-----------|----------|------------|
| Connector    | Terminal | Connector | Terminal |            |
| M36          | 25       | M160      | 128      | Existed    |
|              | 32       |           | 130      |            |

3. Check for continuity between spiral cable harness connector and ground.

| Spiral cable |          | Ground | Continuity  |
|--------------|----------|--------|-------------|
| Connector    | Terminal |        |             |
| M36          | 25       |        | Not existed |
|              | 32       |        |             |

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair the harnesses or connectors.

## 4. CHECK SPIRAL CABLE

Check for continuity between spiral cable terminals.

| Spiral cable |    | Continuity |
|--------------|----|------------|
| Terminal     |    |            |
| 13           | 25 | Existed    |
| 16           | 32 |            |

Is the inspection result normal?

- YES >> GO TO 5.
- NO >> Replace the spiral cable.

## 5. PERFORM SELF-DIAGNOSIS OF ECM

1. Connect the connectors of ICC steering switch and ECM connector.
2. Turn the ignition switch ON.
3. Perform "All DTC Reading".
4. Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".

Is any DTC detected?

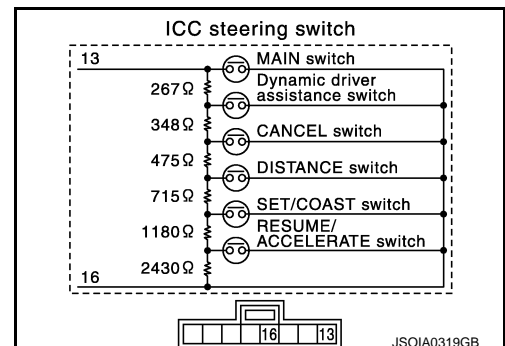
- YES >> Perform self-diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [EC-117. "DTC Index"](#) (VQ37VHR) or [EC-1083. "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651. "DTC Index"](#) (VK56VD for Mexico).
- NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

## Component Inspection

INFOID:000000007218426

### 1. CHECK ICC STEERING SWITCH

Check resistance between ICC steering switch terminals.



# C1A06 OPERATION SW

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

| Terminal | Switch operation                               | Resistance [Ω] |
|----------|--|----------------|
| 13    16 | When pressing MAIN switch                      | Approx. 0      |
|          | When pressing dynamic driver assistance switch | Approx. 267    |
|          | When pressing CANCEL switch                    | Approx. 615    |
|          | When pressing DISTANCE switch                  | Approx. 1090   |
|          | When pressing SET/COAST switch                 | Approx. 1805   |
|          | When pressing RESUME/ACCELERATE switch         | Approx. 2985   |
|          | When all switches are not pressed              | Approx. 5415   |

Is the inspection result normal?

- YES    >> INSPECTION END
- NO     >> Replace the ICC steering switch.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

&lt; DTC/CIRCUIT DIAGNOSIS &gt;

## C1A14 ECM

## DTC Logic

INFOID:000000006886377

## DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes   |
|---------------------------|------------------------|--------------------------|---|
| C1A14<br>(14)             | ECM CIRCUIT            | If ECM is malfunctioning | <ul style="list-style-type: none"> <li>Accelerator pedal position sensor</li> <li>ECM</li> <li>ADAS control unit</li> </ul> |

**NOTE:**

If DTC "C1A14" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).

**1. PERFORM DTC CONFIRMATION PROCEDURE**

- Start the engine.
- Operate the LDP system and drive.  
**CAUTION:**  
**Always drive safely.**
- Stop the vehicle.
- Perform "All DTC Reading" with CONSULT.
- Check if the "C1A14" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A14" detected as the current malfunction?

- YES >> Refer to [DAS-324, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

## Diagnosis Procedure

INFOID:000000006886378

**1. CHECK SELF-DIAGNOSIS RESULTS**

Check if "U1000" is detected other than "C1A14" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

**2. PERFORM SELF-DIAGNOSIS OF ECM**

Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [EC-117, "DTC Index"](#) (VQ37VHR) or [EC-1083, "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651, "DTC Index"](#) (VK56VD for Mexico).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

# C1A15 GEAR POSITION

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## C1A15 GEAR POSITION

### Description

INFOID:000000006886379

ADAS control unit judges the gear position based on the following signals.

- Current gear position signal transmitted from TCM via CAN communication.
- Value of gear ratio calculated from input speed signal transmitted from TCM via CAN communication.
- Value of gear ratio calculated from the vehicle speed signal transmitted from ABS actuator and electric unit (control unit) via CAN communication.

### DTC Logic

INFOID:000000006886380

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes   |
|---------------------------|------------------------|--|---|
| C1A15<br>(15)             | GEAR POSITION          | A mismatch between an current gear position signal transmitted from TCM via CAN communication and a gear position calculated by the ADAS control unit continues for approximately 11 minutes or more | <ul style="list-style-type: none"><li>• Input speed sensor</li><li>• Vehicle speed sensor A/T (output speed sensor)</li><li>• TCM</li></ul> |

#### NOTE:

If DTC "C1A15" is detected along with DTC "U1000", "C1A03", or "C1A04", first diagnose the DTC "U1000", "C1A03", or "C1A04".

- Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#) for DTC "U1000".
- Refer to [DAS-314, "DTC Logic"](#) for DTC "C1A03".
- Refer to [DAS-315, "DTC Logic"](#) for DTC "C1A04".

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Drive the vehicle at 10 km/h (6 MPH) or faster for approximately 15 minutes or more.

#### CAUTION:

**Always drive safely.**

4. Stop the vehicle.
5. Perform "All DTC Reading" with CONSULT.
6. Check if "C1A15" is detected as the current malfunction in the "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A15" detected as the current malfunction?

YES >> Refer to [DAS-325, "Diagnosis Procedure"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886381

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "C1A03", "C1A04", or "U1000" is detected other than "C1A15" in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-286, "DTC Index"](#).

NO >> GO TO 2.

#### 2. CHECK VEHICLE SPEED SIGNAL

Check that "VHCL SPEED SE" operates normally in "DATA MONITOR" of "ICC/ADAS".

#### CAUTION:

**Be careful of the vehicle speed.**

Is the inspection result normal?

< DTC/CIRCUIT DIAGNOSIS >

---

- YES >> GO TO 3.
- NO >> GO TO 7.

### 3.CHECK GEAR POSITION

---

Check that "GEAR" operates normally in "DATA MONITOR" of "ICC/ADAS".

**CAUTION:**

**Be careful of the vehicle speed.**

Is the inspection result normal?

- YES >> GO TO 5.
- NO >> GO TO 4.

### 4.CHECK GEAR POSITION SIGNAL

---

Check that "GEAR" operates normally in "DATA MONITOR" of "TRANSMISSION".

Is the inspection result normal?

- YES >> GO TO 5.
- NO >> GO TO 6.

### 5.CHECK INPUT SPEED SENSOR SIGNAL

---

Check that "INPUT SPEED" operates normally in "DATA MONITOR" of "TRANSMISSION".

Is the inspection result normal?

- YES >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).
- NO >> GO TO 6.

### 6.CHECK TCM SELF-DIAGNOSIS RESULTS

---

1. Perform "All DTC Reading".
2. Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [TM-78. "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

### 7.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

---

1. Perform "All DTC Reading".
2. Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51. "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

# C1A24 NP RANGE

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## C1A24 NP RANGE

### DTC Logic

INFOID:000000006886382

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|---------------------------|------------------------|--|--|
| C1A24<br>(24)             | NP RANGE               | A mismatch between a shift position signal transmitted from TCM via CAN communication and an current gear position signal continues for 60 seconds or more | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Transmission range switch</li> </ul> |

#### NOTE:

If DTC "C1A24" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343. "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1.CHECK DTC REPRODUCE (1)

1. Start the engine.
2. Turn the LDP system ON.
3. Wait for approximately 5 minutes or more after shifting the selector lever to "P" position.
4. Perform "All DTC Reading" with CONSULT.
5. Check if the "C1A24" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A24" detected as the current malfunction?

- YES >> Refer to [DAS-327. "Diagnosis Procedure"](#).  
 NO >> GO TO 2.

#### 2.CHECK DTC REPRODUCE (2)

1. Wait for approximately 5 minutes or more after shifting the selector lever to "N" position.
2. Perform "All DTC Reading".
3. Check if the "C1A24" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A24" detected as the current malfunction?

- YES >> Refer to [DAS-327. "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44. "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886383

#### 1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A24" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
 Refer to [DAS-343. "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2.CHECK NP POSITION SWITCH SIGNAL

Check that "NP RANGE SW" operates normally in "DATA MONITOR" of "ICC/ADAS".

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

#### 3.CHECK TCM DATA MONITOR

Check that "SLCT LVR POSI" operates normally in "DATA MONITOR" of "TRANSMISSION".

Is the inspection result normal?

- YES >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).  
 NO >> GO TO 4.

< DTC/CIRCUIT DIAGNOSIS >

---

## 4. PERFORM TCM SELF-DIAGNOSIS

---

1. Perform "All DTC Reading".
2. Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [TM-78, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



# C1A50 ADAS CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## C1A50 ADAS CONTROL UNIT

### DTC Logic

INFOID:000000006886384

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition                | Possible cause    |
|-------|------------------------|--|-------------------|
| C1A50 | ADAS MALFUNCTION       | If ADAS control unit is malfunctioning | ADAS control unit |

#### NOTE:

If DTC "C1A50" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343. "ADAS CONTROL UNIT : DTC Logic"](#).

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A50" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "C1A50" detected as the current malfunction?

- YES >> Refer to [DAS-329. "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44. "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886385

#### 1. CHECK LANE CAMERA UNIT SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A50" in "Self Diagnostic Result" of "LANE CAMERA".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-293. "DTC Index"](#).  
NO >> GO TO 2.

#### 2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-286. "DTC Index"](#).  
NO >> Replace the lane camera unit. Refer to [DAS-371. "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1B00 CAMERA UNIT MALF

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## C1B00 CAMERA UNIT MALF

### ADAS CONTROL UNIT

#### ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886386

#### DTC DETECTION LOGIC

| DTC<br>(On board<br>display) | Trouble diagnosis name | DTC detecting condition               | Possible causes  |
|------------------------------|------------------------|---------------------------------------|------------------|
| C1B00<br>(81)                | CAMERA UNIT MALF       | If lane camera unit is malfunctioning | Lane camera unit |

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1B00" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1B00" detected as the current malfunction?

YES >> Refer to [DAS-330, "ADAS CONTROL UNIT : Diagnosis Procedure"](#).

NO >> INSPECTION END

#### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886387

##### 1.CHECK SELF-DIAGNOSIS RESULTS

Check if "C1B00" is detected in "Self Diagnostic Result" of "LANE CAMERA".

Is "C1B00" detected?

YES >> Refer to [DAS-330, "LANE CAMERA UNIT : DTC Logic"](#)

NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

### LANE CAMERA UNIT

#### LANE CAMERA UNIT : DTC Logic

INFOID:000000006886388

#### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition               | Possible causes  |
|-------|------------------------|---------------------------------------|------------------|
| C1B00 | CAMERA UNIT MALF       | If lane camera unit is malfunctioning | Lane camera unit |

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1B00" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "C1B00" detected as the current malfunction?

YES >> Refer to [DAS-330, "LANE CAMERA UNIT : Diagnosis Procedure"](#).

NO >> INSPECTION END

#### LANE CAMERA UNIT : Diagnosis Procedure

INFOID:000000006886389

##### 1.CHECK SELF-DIAGNOSIS RESULTS

Check if any DTC other than "C1B00" is detected in "Self Diagnostic Result" of "LANE CAMERA".

Is any DTC detected?

# C1B00 CAMERA UNIT MALF

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-293, "DTC Index"](#).
- NO >> Replace the lane camera unit. Refer to [DAS-371, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

< DTC/CIRCUIT DIAGNOSIS >

## C1B01 CAM AIMING INCMP

### ADAS CONTROL UNIT

#### ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886390

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition        | Possible causes  |
|---------------------------|------------------------|--------------------------------|--|
| C1B01<br>(82)             | CAM AIMING INCMP       | Camera aiming is not completed | <ul style="list-style-type: none"> <li>Lane camera aiming is not adjusted</li> <li>Lane camera aiming adjustment has been interrupted</li> </ul> |

#### DTC CONFIRMATION PROCEDURE

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

- Start the engine.
- Operate the LDP system and drive.  
**CAUTION:**  
**Always drive safely.**
- Perform "All DTC Reading" with CONSULT.
- Check if the "C1B01" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1B01" detected as the current malfunction?

- YES >> Refer to [DAS-332, "ADAS CONTROL UNIT : Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

#### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886391

##### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "C1B01" is detected in "Self Diagnostic Result" of "LANE CAMERA".

Is "C1B01" detected?

- YES >> Refer to [DAS-332, "LANE CAMERA UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

##### 2. CHECK DATA MONITOR

- Start the engine.
- Check that "OK" is indicated for the value of "AIMING RESULT" in "DATA MONITOR" of "LANE CAMERA".

Is "OK" indicated?

- YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).  
 NO >> Replace the lane camera unit. Refer to [DAS-371, "Removal and Installation"](#).

## LANE CAMERA UNIT

#### LANE CAMERA UNIT : DTC Logic

INFOID:000000006886392

#### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition        | Possible causes  |
|-------|------------------------|--------------------------------|--|
| C1B01 | CAM AIMING INCMP       | Camera aiming is not completed | <ul style="list-style-type: none"> <li>Lane camera aiming is not adjusted</li> <li>Lane camera aiming adjustment has been interrupted</li> </ul> |

#### DTC CONFIRMATION PROCEDURE

# C1B01 CAM AIMING INCOMP

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1B01" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "C1B01" detected as the current malfunction?

- YES >> Refer to [DAS-333, "LANE CAMERA UNIT : Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

## LANE CAMERA UNIT : Diagnosis Procedure

INFOID:000000006886393

## 1. CAMERA AIMING ADJUSTMENT

1. Perform the camera aiming. Refer to [DAS-307, "Description"](#).
2. Erase all self-diagnosis results with CONSULT.
3. Perform "All DTC Reading".
4. Check if the "C1B01" is detected in "Self Diagnostic Result" of "LANE CAMERA".

Is "C1B01" detected?

- YES >> Replace the lane camera unit. Refer to [DAS-371, "Removal and Installation"](#).  
NO >> INSPECTION END

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1B03 ABNRML TEMP DETECT

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## C1B03 ABNRML TEMP DETECT

### ADAS CONTROL UNIT

#### ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886394

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                                 | Possible causes                               |
|---------------------------|------------------------|---|---|
| C1B03<br>(83)             | CAM ABNRML TMP DETCT   | Temperature around lane camera unit is excessively high | Interior room temperature is excessively high |

#### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886395

### 1. CHECK LANE CAMERA UNIT SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the "C1B03" is detected in "Self Diagnostic Result" of "LANE CAMERA"

Is "C1B03" detected?

- YES >> Refer to [DAS-334. "LANE CAMERA UNIT : DTC Logic"](#)  
NO >> GO TO 2.

### 2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

1. Erase All self-diagnosis results with CONSULT.
2. Perform "All DTC Reading".
3. Check if the "C1B03" is detected in "Self Diagnostic Result" of "ICC/ADAS"

Is "C1B03" detected?

- YES >> Replace the ADAS control unit. Refer to [DAS-371. "Removal and Installation"](#).  
NO >> INSPECTION END

### LANE CAMERA UNIT

#### LANE CAMERA UNIT : DTC Logic

INFOID:000000006886396

#### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition                                 | Possible causes                               |
|-------|------------------------|---|---|
| C1B03 | ABNRML TEMP DETECT     | Temperature around lane camera unit is excessively high | Interior room temperature is excessively high |

#### LANE CAMERA UNIT : Diagnosis Procedure

INFOID:000000006886397

### 1. COOLING LANE CAMERA UNIT

1. Wait for 10 minutes or more to cool the lane camera unit.
2. Erase All self-diagnosis results with CONSULT.
3. Perform "All DTC Reading".
4. Check if the "C1B03" is detected in "Self Diagnostic Result" of "LANE CAMERA".

Is "C1B03" detected?

- YES >> Replace the lane camera unit. Refer to [DAS-371. "Removal and Installation"](#).  
NO >> INSPECTION END

# U0104 ADAS CAN 1

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## U0104 ADAS CAN 1

### DTC Logic

INFOID:000000006886398

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|-------|------------------------|---|-------------------|
| U0104 | ADAS CAN CIR 1         | If lane camera unit detects an error signal that is received from ADAS control unit via ITS communication | ADAS control unit |

#### NOTE:

If DTC "U0104" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "LANE CAMERA UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0104" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "U0104" detected as the current malfunction?

- YES >> Refer to [DAS-335, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886399

#### 1. CHECK LANE CAMERA UNIT SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0104" in "Self Diagnostic Result" of "LANE CAMERA".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343, "LANE CAMERA UNIT : DTC Logic"](#).
- NO >> GO TO 2.

#### 2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-286, "DTC Index"](#).
- NO >> Replace the lane camera unit. Refer to [DAS-371, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

U0121 VDC CAN 2

DTC Logic

INFOID:000000006886400

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes                               |
|---------------------------|------------------------|--|---|
| U0121<br>(127)            | VDC CAN CIR2           | If ADAS control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication | ABS actuator and electric unit (control unit) |

**NOTE:**

If DTC “U0121” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

**1**.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U0121” is detected as the current malfunction in “Self Diagnostic Result” of “ICC/ADAS”.

Is “U0121” detected as the current malfunction?

- YES >> Refer to [DAS-336, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006886401

**1**.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U0121” in “Self Diagnostic Result” of “ICC/ADAS”.

Is “U1000” detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

**2**.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “ABS”.

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



# U0126 STRG SEN CAN 1

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## U0126 STRG SEN CAN 1

### DTC Logic

INFOID:000000006886402

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes       |
|-------|------------------------|---|-----------------------|
| U0126 | STRG SEN CAN CIR1      | If lane camera unit detects an error signal that is received from steering angle sensor via ADAS control unit | Steering angle sensor |

#### NOTE:

If DTC "U0126" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "LANE CAMERA UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0126" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "U0126" detected as the current malfunction?

- YES >> Refer to [DAS-337, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886403

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0126" in "Self Diagnostic Result" of "LANE CAMERA".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-343, "LANE CAMERA UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-286, "DTC Index"](#).  
NO >> Replace the lane camera unit. Refer to [DAS-371, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

U0401 ECM CAN 1

DTC Logic

INFOID:000000006886404

DTC DETECTION LOGIC

| DTC<br>(On board<br>display) | Trouble diagnosis name | DTC detecting condition  | Possible causes |
|------------------------------|------------------------|--|-----------------|
| U0401<br>(120)               | ECM CAN CIR1           | If ADAS control unit detects an error signal that is received from ECM via CAN communication | ECM             |

**NOTE:**

If DTC "U0401" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

**1**.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0401" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0401" detected as the current malfunction?

- YES >> Refer to [DAS-338, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006886405

**1**.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

**2**.CHECK ECM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [EC-117, "DTC Index"](#) (VQ37VHR) or [EC-1083, "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651, "DTC Index"](#) (VK56VD for Mexico).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

U0402 TCM CAN 1

DTC Logic

INFOID:000000006886406

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes |
|---------------------------|------------------------|--|-----------------|
| U0402<br>(122)            | TCM CAN CIRC1          | If ADAS control unit detects an error signal that is received from TCM via CAN communication | TCM             |

**NOTE:**

If DTC "U0402" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

**1.** PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0402" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0402" detected as the current malfunction?

- YES >> Refer to [DAS-339, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006886407

**1.** CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0402" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

**2.** CHECK TCM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [TM-78, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P



# U0405 ADAS CAN 2

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## U0405 ADAS CAN 2

### DTC Logic

INFOID:000000006886408

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|-------|------------------------|---|-------------------|
| U0405 | ADAS CAN CIR 2         | If lane camera unit detects an error signal that is received from ADAS control unit via ITS communication | ADAS control unit |

#### NOTE:

If DTC "U0405" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "LANE CAMERA UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0405" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "U0405" detected as the current malfunction?

- YES >> Refer to [DAS-340, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886409

#### 1. CHECK LANE CAMERA UNIT SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0405" in "Self Diagnostic Result" of "LANE CAMERA".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343, "LANE CAMERA UNIT : DTC Logic"](#).
- NO >> GO TO 2.

#### 2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-286, "DTC Index"](#).
- NO >> Replace the lane camera unit. Refer to [DAS-371, "Removal and Installation"](#).

# U0415 VDC CAN 1

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## U0415 VDC CAN 1

### DTC Logic

INFOID:000000006886410

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes                               |
|---------------------------|------------------------|--|---|
| U0415<br>(126)            | VDC CAN CIR1           | If ADAS control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication | ABS actuator and electric unit (control unit) |

#### NOTE:

If DTC "U0415" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0415" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0415" detected as the current malfunction?

- YES >> Refer to [DAS-341, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886411

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0415" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## U0428 STRG SEN CAN 2

### DTC Logic

INFOID:000000006886412

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes       |
|-------|------------------------|---|-----------------------|
| U0428 | STRG SEN CAN CIR2      | If lane camera unit detects an error signal that is received from steering angle sensor via ADAS control unit | Steering angle sensor |

**NOTE:**

If DTC "U0428" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "LANE CAMERA UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0428" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "U0428" detected as the current malfunction?

- YES >> Refer to [DAS-342, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886413

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0428" in "Self Diagnostic Result" of "LANE CAMERA".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343, "LANE CAMERA UNIT : DTC Logic"](#).
- NO >> GO TO 2.

#### 2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-286, "DTC Index"](#).
- NO >> Replace the lane camera unit. Refer to [DAS-371, "Removal and Installation"](#).

## U1000 CAN COMM CIRCUIT

### ADAS CONTROL UNIT

#### ADAS CONTROL UNIT : Description

INFOID:000000006886414

#### CAN COMMUNICATION

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control units, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads the required data only.

CAN communication signal chart. Refer to [LAN-35, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

#### ITS COMMUNICATION

- ITS communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speed by connecting control units with 2 communication lines.
- ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

#### ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886415

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|---------------------------|------------------------|--|--|
| U1000<br>(100)            | CAN COMM CIRCUIT       | If ADAS control unit is not transmitting or receiving CAN communication signal or ITS communication signal for 2 seconds or more | <ul style="list-style-type: none"> <li>• CAN communication system</li> <li>• ITS communication system</li> </ul> |

#### NOTE:

If "U1000" is detected, first diagnose the CAN communication system.

#### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886416

### 1. PERFORM THE SELF-DIAGNOSIS

1. Turn the ignition switch ON.
2. Turn the LDP system ON, and then wait for 30 seconds or more.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1000" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected as the current malfunction?

YES >> Refer to [LAN-25, "Trouble Diagnosis Flow Chart"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

## LANE CAMERA UNIT

#### LANE CAMERA UNIT : Description

INFOID:000000006886417

#### ITS COMMUNICATION

- ITS communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speed by connecting control units with 2 communication lines.
- ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

#### LANE CAMERA UNIT : DTC Logic

INFOID:000000006886418

#### DTC DETECTION LOGIC

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes          |
|-------|------------------------|---|--------------------------|
| U1000 | CAN COMM CIRCUIT       | If lane camera unit is not transmitting or receiving ITS communication signal for 2 seconds or more | ITS communication system |

## LANE CAMERA UNIT : Diagnosis Procedure

INFOID:000000006886419

### 1. PERFORM THE SELF-DIAGNOSIS

1. Turn the ignition switch ON.
2. Turn the LDP system ON, and then wait for 2 seconds or more.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1000" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "U1000" detected as the current malfunction?

- YES >> Refer to [LAN-25. "Trouble Diagnosis Flow Chart"](#).  
NO >> Refer to [GI-44. "Intermittent Incident"](#).



# U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## U1010 CONTROL UNIT (CAN)

### ADAS CONTROL UNIT

#### ADAS CONTROL UNIT : Description

INFOID:000000006886420

CAN controller controls the communication of CAN communication signal and ITS communication signal, and the error detection.

#### ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886421

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes   |
|---------------------------|------------------------|--|-------------------|
| U1010<br>(110)            | CONTROL UNIT (CAN)     | If ADAS control unit detects malfunction by CAN controller initial diagnosis | ADAS control unit |

#### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886422

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the LDP system ON.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "U1010" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1010" detected as the current malfunction?

- YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).  
NO >> INSPECTION END

### LANE CAMERA UNIT

#### LANE CAMERA UNIT : Description

INFOID:000000006886423

CAN controller controls the communication of ITS communication signal and the error detection.

#### LANE CAMERA UNIT : DTC Logic

INFOID:000000006886424

#### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes  |
|-------|------------------------|---|------------------|
| U1010 | CONTROL UNIT (CAN)     | If lane camera unit detects malfunction by CAN controller initial diagnosis | Lane camera unit |

#### LANE CAMERA UNIT : Diagnosis Procedure

INFOID:000000006886425

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the LDP system ON.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "U1010" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "U1010" detected as the current malfunction?

- YES >> Replace the lane camera unit. Refer to [DAS-371, "Removal and Installation"](#).  
NO >> INSPECTION END

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## U150B ECM CAN 3

### DTC Logic

INFOID:000000006886426

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U150B<br>(157)            | ECM CAN CIRC 3         | ADAS control unit detects an error signal that is received from ECM via CAN communication | ECM             |

**NOTE:**

If DTC "U150B" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343. "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U150B" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U150B" detected as the current malfunction?

- YES >> Refer to [DAS-346. "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44. "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886427

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U150B" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343. "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK ECM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [EC-117. "DTC Index"](#) (VQ37VHR) or [EC-1083. "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651. "DTC Index"](#) (VK56VD for Mexico).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

## U150C VDC CAN 3

### DTC Logic

INFOID:000000006886428

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes                               |
|---------------------------|------------------------|---|---|
| U150C<br>(158)            | VDC CAN CIRC 3         | ADAS control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication | ABS actuator and electric unit (control unit) |

**NOTE:**

If DTC "U150C" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U150C" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U150C" detected as the current malfunction?

- YES >> Refer to [DAS-347, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886429

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U150C" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



## U150D TCM CAN 3

### DTC Logic

INFOID:000000006886430

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U150D<br>(159)            | TCM CAN CIRC 3         | ADAS control unit detects an error signal that is received from TCM via CAN communication | TCM             |

**NOTE:**

If DTC "U150D" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343. "ADAS CONTROL UNIT : DTC Logic"](#).

#### DTC CONFIRMATION PROCEDURE

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U150D" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U150D" detected as the current malfunction?

- YES >> Refer to [DAS-348. "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44. "Intermittent Incident"](#).

#### Diagnosis Procedure

INFOID:000000006886431

##### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U150D" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343. "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

##### 2. CHECK TCM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [TM-78. "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

**U150E BCM CAN 3**

**DTC Logic**

INFOID:000000006886432

**DTC DETECTION LOGIC**

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U150E<br>(160)            | BCM CAN CIRC 3         | ADAS control unit detects an error signal that is received from BCM via CAN communication | BCM             |

**NOTE:**

If DTC "U150E" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).

**DTC CONFIRMATION PROCEDURE**

**1. PERFORM DTC CONFIRMATION PROCEDURE**

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U150E" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U150E" detected as the current malfunction?

- YES >> Refer to [DAS-349, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

**Diagnosis Procedure**

INFOID:000000006886433

**1. CHECK SELF-DIAGNOSIS RESULTS**

Check if "U1000" is detected other than "U150E" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

**2. CHECK BCM SELF-DIAGNOSIS RESULTS**

Check if any DTC is detected in "Self Diagnostic Result" of "BCM".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BCS-57, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P



**U1500 CAM CAN 2**

**DTC Logic**

INFOID:000000006886434

**DTC DETECTION LOGIC**

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|---------------------------|------------------------|--|------------------|
| U1500<br>(145)            | CAM CAN CIRC 2         | ADAS control unit detects an error signal that is received from lane camera unit via ITS communication | Lane camera unit |

**NOTE:**

If DTC "U1500" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).

**DTC CONFIRMATION PROCEDURE**

**1. PERFORM DTC CONFIRMATION PROCEDURE**

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1500" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1500" detected as the current malfunction?

- YES >> Refer to [DAS-350, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

**Diagnosis Procedure**

INFOID:000000006886435

**1. CHECK SELF-DIAGNOSIS RESULTS**

Check if "U1000" is detected other than "U1500" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

**2. CHECK LANE CAMERA UNIT SELF-DIAGNOSIS RESULTS**

Check if any DTC is detected in "Self Diagnostic Result" of "LANE CAMERA".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-293, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

# U1501 CAM CAN 1

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## U1501 CAM CAN 1

### DTC Logic

INFOID:000000006886436

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|---------------------------|------------------------|--|------------------|
| U1501<br>(145)            | CAM CAN CIRC 1         | ADAS control unit detects an error signal that is received from lane camera unit via ITS communication | Lane camera unit |

#### NOTE:

If DTC "U1501" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1501" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1501" detected as the current malfunction?

- YES >> Refer to [DAS-351, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886437

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1501" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK LANE CAMERA UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "LANE CAMERA".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-293, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## U1512 HVAC CAN 3

### DTC Logic

INFOID:000000006886438

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U1512<br>(162)            | HVAC CAN CIRC 3        | ADAS control unit detects an error signal that is received from A/C auto amp. via CAN communication | A/C auto amp.   |

**NOTE:**

If DTC "U1512" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1512" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1512" detected as the current malfunction?

- YES >> Refer to [DAS-352, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886439

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1512" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK A/C AUTO AMP. SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "HVAC".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [HAC-62, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



# U1513 METER CAN 3

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## U1513 METER CAN 3

### DTC Logic

INFOID:000000006886440

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|---------------------------|------------------------|---|-------------------|
| U1513<br>(163)            | METER CAN CIRC 3       | ADAS control unit detects an error signal that is received from combination meter via CAN communication | Combination meter |

#### NOTE:

If DTC "U1513" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1513" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1513" detected as the current malfunction?

- YES >> Refer to [DAS-353, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886441

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1513" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK COMBINATION METER SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "METER/M&A".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [MWI-44, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## U1516 CAM CAN 3

### DTC Logic

INFOID:000000006886442

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|---------------------------|------------------------|--|------------------|
| U1516<br>(166)            | CAM CAN CIRC 3         | ADAS control unit detects an error signal that is received from lane camera unit via ITS communication | Lane camera unit |

**NOTE:**

If DTC "U1516" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1516" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1516" detected as the current malfunction?

- YES >> Refer to [DAS-354, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886443

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1516" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK LANE CAMERA UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "LANE CAMERA".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-293, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

# POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## POWER SUPPLY AND GROUND CIRCUIT

### ADAS CONTROL UNIT

#### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886444

#### 1. CHECK FUSES

Check if any of the following fuses are blown:

| Signal name           | Fuse No. |
|-----------------------|----------|
| Ignition power supply | 46       |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

#### 2. CHECK ADAS CONTROL UNIT POWER SUPPLY CIRCUIT

Check voltage between ADAS control unit harness connector and ground.

| Terminal          |          | Condition          | Voltage<br>(Approx.) |
|-------------------|----------|--------------------|----------------------|
| (+)               | (-)      |                    |                      |
| ADAS control unit |          | Ignition<br>switch | 0 V                  |
| Connector         | Terminal |                    |                      |
| B50               | 16       | OFF                | 0 V                  |
|                   |          | ON                 | Battery volt-<br>age |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the ADAS control unit power supply circuit.

#### 3. CHECK ADAS CONTROL UNIT GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the ADAS control unit connector.
3. Check for continuity between ADAS control unit harness connector and ground.

| ADAS control unit |          | Ground | Continuity |
|-------------------|----------|--------|------------|
| Connector         | Terminal |        |            |
| B50               | 6        |        | Existed    |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair the ADAS control unit ground circuit.

### LANE CAMERA UNIT

#### LANE CAMERA UNIT : Diagnosis Procedure

INFOID:000000006886445

#### 1. CHECK FUSES

Check if any of the following fuses are blown:

| Signal name           | Fuse No. |
|-----------------------|----------|
| Ignition power supply | 46       |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## 2. CHECK LANE CAMERA UNIT POWER SUPPLY CIRCUIT

Check voltage between lane camera unit harness connector and ground.

| Terminal         |          | Condition       | Voltage (Approx.) |
|------------------|----------|-----------------|-------------------|
| (+)              | (-)      |                 |                   |
| Lane camera unit |          | Ignition switch | 0 V               |
| Connector        | Terminal |                 |                   |
| R8               | 7        | OFF             | 0 V               |
|                  |          | ON              | Battery voltage   |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the lane camera unit power supply circuit.

## 3. CHECK LANE CAMERA UNIT GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the lane camera unit connector.
3. Check for continuity between lane camera unit harness connector and ground.

| Lane camera unit |          | Ground | Continuity |
|------------------|----------|--------|------------|
| Connector        | Terminal |        |            |
| R8               | 1        |        | Existed    |
|                  | 5        |        |            |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair the lane camera unit ground circuit.

# WARNING SYSTEMS SWITCH CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## WARNING SYSTEMS SWITCH CIRCUIT

### Component Function Check

INFOID:000000006886446

#### 1.CHECK WARNING SYSTEMS SWITCH INPUT SIGNAL

1. Turn the ignition switch ON.
2. Select the DATA MONITOR item "WARN SYS SW" of "ICC/ADAS" with CONSULT.
3. With operating the warning systems switch, check the monitor status.

| Monitor item | Condition                             | Monitor status |
|--------------|---------------------------------------|----------------|
| WARN SYS SW  | Warning systems switch is pressed     | On             |
|              | Warning systems switch is not pressed | OFF            |

Is the inspection result normal?

- YES >> Warning systems switch circuit is normal.  
NO >> Refer to [DAS-357. "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000006886447

#### 1.CHECK WARNING SYSTEMS SWITCH SIGNAL INPUT

1. Turn the ignition switch ON.
2. Check voltage between ADAS control unit harness connector and ground.

| Terminals         |          | Condition              | Voltage (Approx.) |
|-------------------|----------|------------------------|-------------------|
| (+)               | (-)      |                        |                   |
| ADAS control unit |          | Warning systems switch |                   |
| Connector         | Terminal |                        |                   |
| B50               | 1        | Pressed                |                   |
|                   |          | Released               | 12 V              |

Is the inspection result normal?

- YES >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).  
NO >> GO TO 2.

#### 2.CHECK WARNING SYSTEMS SWITCH

1. Turn ignition switch OFF.
2. Remove warning systems switch.
3. Check warning systems switch. Refer to [DAS-358. "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Replace the warning systems switch. Refer to [DAS-372. "Removal and Installation"](#).

#### 3.CHECK WARNING SYSTEMS SWITCH GROUND CIRCUIT

Check continuity between triple switch harness connector terminal and the ground.

| Triple switch |          | Ground | Continuity |
|---------------|----------|--------|------------|
| Connector     | Terminal |        |            |
| M183          | 5        |        | Existed    |

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Repair harness or connector.

#### 4.CHECK WARNING SYSTEMS SWITCH SIGNAL INPUT CIRCUIT FOR OPEN

1. Disconnect the ADAS control unit connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# WARNING SYSTEMS SWITCH CIRCUIT

[LDW & LDP]

< DTC/CIRCUIT DIAGNOSIS >

2. Check continuity between the ADAS control unit harness connector and triple switch harness connector.

| ADAS control unit |          | Triple switch |          | Continuity |
|-------------------|----------|---------------|----------|------------|
| Connector         | Terminal | Connector     | Terminal |            |
| B50               | 1        | M183          | 1        | Existed    |

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

## 5.CHECK WARNING SYSTEMS SWITCH SIGNAL INPUT CIRCUIT FOR SHORT

Check continuity between the ADAS control unit harness connector and ground.

| ADAS control unit |          | Ground | Continuity  |
|-------------------|----------|--------|-------------|
| Connector         | Terminal |        |             |
| B50               | 1        |        | Not existed |

Is the inspection result normal?

YES >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

NO >> Repair the harnesses or connectors.

## Component Inspection

INFOID:000000006886448

## 1.CHECK WARNING SYSTEMS SWITCH

Check continuity of warning systems switch.

| Terminal |   | Condition                               | Continuity  |
|----------|---|---|-------------|
| 1        | 5 | When warning systems switch is pressed  | Existed     |
|          |   | When warning systems switch is released | Not existed |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace warning systems switch.

# WARNING SYSTEMS ON INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## WARNING SYSTEMS ON INDICATOR CIRCUIT

### Component Function Check

INFOID:000000006886449

#### 1. CHECK WARNING SYSTEMS ON INDICATOR

1. Turn the ignition switch ON.
2. Select the active test item "WARNING SYSTEM IND" of "ICC/ADAS" with CONSULT.
3. With operating the test item, check the operation.

**On** : Warning systems ON indicator illuminates

**Off** : Warning systems ON indicator is turned OFF

Is the inspection result normal?

YES >> INSPECTION END

NO >> Refer to [DAS-359, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000006886450

#### 1. CHECK WARNING ON INDICATOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect triple switch connector.
3. Turn ignition switch ON.
4. Check voltage between triple switch harness connector and ground.

| Terminals     |          | Voltage<br>(Approx.) |
|---------------|----------|----------------------|
| (+)           | (-)      |                      |
| Triple switch |          | Ground               |
| Connector     | Terminal |                      |
| M183          | 9        |                      |
|               |          | Battery voltage      |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the warning systems ON indicator power supply circuit.

#### 2. CHECK WARNING SYSTEMS ON INDICATOR SIGNAL FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect the ADAS control unit harness connector.
3. Check continuity between the ADAS control unit harness connector and triple switch harness connector.

| ADAS control unit |          | Triple switch |          | Continuity |
|-------------------|----------|---------------|----------|------------|
| Connector         | Terminal | Connector     | Terminal |            |
| B50               | 4        | M183          | 12       | Existed    |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

#### 3. CHECK WARNING SYSTEMS ON INDICATOR SIGNAL CIRCUIT FOR SHORT

Check continuity between the ADAS control unit harness connector and ground.

| ADAS control unit |          | Ground | Continuity  |
|-------------------|----------|--------|-------------|
| Connector         | Terminal |        |             |
| B50               | 4        |        | Not existed |

Is the inspection result normal?

YES >> GO TO 4.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# WARNING SYSTEMS ON INDICATOR CIRCUIT

[LDW & LDP]

< DTC/CIRCUIT DIAGNOSIS >

NO >> Repair the harnesses or connectors.

## 4.CHECK WARNING SYSTEMS ON INDICATOR

Check the warning systems ON indicator. Refer to [DAS-360, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

NO >> Replace warning systems switch. [DAS-372, "Removal and Installation"](#).

## Component Inspection

INFOID:000000006886451

## 1.CHECK WARNING SYSTEMS ON INDICATOR

Apply battery voltage to warning systems switch terminals 9 and 12, and then check if the warning systems ON indicator illuminates.

| Terminals |     | Condition                               | Warning systems ON indicator |
|-----------|-----|---|------------------------------|
| (+)       | (-) |   |                              |
| 9         | 12  | When the battery voltage is applied     | On                           |
|           |     | When the battery voltage is not applied | Off                          |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the warning systems switch. Refer to [DAS-372, "Removal and Installation"](#).



# WARNING BUZZER CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW & LDP]

## WARNING BUZZER CIRCUIT

### Component Function Check

INFOID:000000006886452

#### 1. CHECK WARNING BUZZER

1. Turn the ignition switch ON.
2. Select the active test item "LDP BUZZER" of "ICC/ADAS" with CONSULT.
3. With operating the test item, check the operation.

**On** : Warning buzzer is activated.

**Off** : Warning buzzer is not activated.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Refer to [DAS-361, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000006886453

#### 1. CHECK WARNING BUZZER POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the warning buzzer connector.
3. Turn ignition switch ON.
4. Check voltage between the warning buzzer harness connector and ground.

| Terminals      |          | Voltage<br>(Approx.)      |
|----------------|----------|---------------------------|
| (+)            | (-)      |                           |
| Warning buzzer |          | Ground<br>Battery voltage |
| Connector      | Terminal |                           |
| M45            | 1        |                           |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the warning buzzer power supply circuit.

#### 2. CHECK WARNING BUZZER GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between the warning buzzer harness connector and ground.

| Warning buzzer |          | Ground | Continuity |
|----------------|----------|--------|------------|
| Connector      | Terminal |        |            |
| M45            | 3        |        | Existed    |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

#### 3. CHECK WARNING BUZZER SIGNAL CIRCUIT FOR OPEN

1. Disconnect the ADAS control unit connector.
2. Check continuity between the ADAS control unit harness connector and warning buzzer harness connector.

| ADAS control unit |          | Warning buzzer |          | Continuity |
|-------------------|----------|----------------|----------|------------|
| Connector         | Terminal | Connector      | Terminal |            |
| B50               | 12       | M45            | 2        | Existed    |

Is the inspection result normal?

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# WARNING BUZZER CIRCUIT

[LDW & LDP]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 4.  
NO >> Repair the harnesses or connectors.

## 4.CHECK WARNING BUZZER SIGNAL CIRCUIT FOR SHORT

Check continuity between the ADAS control unit harness connector and ground.

| ADAS control unit |          | Ground | Continuity  |
|-------------------|----------|--------|-------------|
| Connector         | Terminal |        |             |
| B50               | 12       |        | Not existed |

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Repair the harnesses or connectors.

## 5.CHECK WARNING BUZZER OPERATION

1. Connect the warning buzzer connector.
2. Turn ignition switch ON.
3. Apply ground to warning buzzer terminal 2.
4. Check condition of the warning buzzer.

Does warning buzzer sound?

- YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).  
NO >> Replace the warning buzzer. Refer to [DAS-374, "Removal and Installation"](#).

# LDW & LDP SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[LDW & LDP]

## SYMPTOM DIAGNOSIS

### LDW & LDP SYSTEM SYMPTOMS

#### Symptom Table

INFOID:000000007218399

**NOTE:**

For the operational conditions of Lane Departure Warning (LDW) and Lane Departure Prevention (LDP), refer to the following descriptions.

- LDW: [DAS-251, "LANE DEPARTURE WARNING \(LDW\) SYSTEM : System Description"](#)
- LDP: [DAS-255, "LANE DEPARTURE PREVENTION \(LDP\) SYSTEM : System Description"](#)

| Symptom   | Possible cause   | Inspection item/Reference page   |
|---|--|--|
| Indicator/warning lamps do not illuminate when ignition switch OFF ⇒ ON                         | Lane departure warning lamp (Yellow) does not illuminate.  | <ul style="list-style-type: none"> <li>• Combination meter</li> <li>• ADAS control unit</li> </ul> Lane departure warning lamp does not turned ON<br>Refer to <a href="#">DAS-365, "Description"</a>   |
|   | LDP ON indicator lamp (Green) does not illuminate.   | <ul style="list-style-type: none"> <li>• Combination meter</li> <li>• ADAS control unit</li> </ul> LDP ON indicator lamp does not turned ON<br>Refer to <a href="#">DAS-366, "Description"</a>   |
|   | Warning systems ON indicator does not illuminate.  | <ul style="list-style-type: none"> <li>• Harness between ADAS control unit and warning systems switch</li> <li>• Warning systems switch</li> <li>• ADAS control unit</li> </ul> Warning systems ON indicator circuit<br>Refer to <a href="#">DAS-359, "Component Function Check"</a>   |
|   | Lane departure warning lamp (Yellow) and LDP ON indicator lamp (Green) does not illuminate.  | <ul style="list-style-type: none"> <li>• Combination meter</li> <li>• ADAS control unit</li> </ul> <ul style="list-style-type: none"> <li>• Lane departure warning lamp does not turned ON<br/>                             Refer to <a href="#">DAS-365, "Description"</a></li> <li>• LDP ON indicator lamp does not turned ON<br/>                             Refer to <a href="#">DAS-366, "Description"</a></li> </ul>  |
|   | All of indicator/warning lamps does not illuminate;<br>• Lane departure warning lamp (Yellow)<br>• LDP ON indicator lamp (Green)<br>• Warning systems ON indicator | <ul style="list-style-type: none"> <li>• Power supply and ground circuit of ADAS control unit</li> <li>• ADAS control unit</li> </ul> Power supply and ground circuit of ADAS control unit<br>Refer to <a href="#">DAS-355, "ADAS CONTROL UNIT : Diagnosis Procedure"</a>  |
| LDW system is not activated. (Indicator/warning lamps illuminate when ignition switch OFF ⇒ ON) | Warning systems ON indicator is not turned ON ⇔ OFF when operating warning systems switch  | <ul style="list-style-type: none"> <li>• Harness between ADAS control unit and warning systems switch</li> <li>• Harness between warning systems switch and ground</li> <li>• Warning systems switch</li> <li>• ADAS control unit</li> </ul> <ul style="list-style-type: none"> <li>• Warning systems switch circuit<br/>                             Refer to <a href="#">DAS-357, "Component Function Check"</a></li> <li>• LDW system setting can not be turned ON/OFF on the navigation screen<br/>                             Refer to <a href="#">DAS-368, "Description"</a></li> </ul> |
|   | Warning buzzer is not sounding. (Lane departure warning lamp is activated.)  | <ul style="list-style-type: none"> <li>• Harness between the IPDM E/R and warning buzzer</li> <li>• Harness between ADAS control unit and warning buzzer</li> <li>• Harness between warning buzzer and ground</li> <li>• Warning buzzer</li> <li>• ADAS control unit</li> </ul> Warning buzzer circuit<br>Refer to <a href="#">DAS-361, "Component Function Check"</a>   |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# LDW & LDP SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[LDW & LDP]

| Symptom   | Possible cause  | Inspection item/Reference page  |
|---|---|---|
| LDP system is not activated.<br>(LDW system is functioning normally)  | <ul style="list-style-type: none"> <li>• Dynamic driver assistance switch</li> <li>• Combination meter</li> <li>• ADAS control unit</li> <li>• AV control unit</li> </ul> | <ul style="list-style-type: none"> <li>• Dynamic driver assistance switch (ICC steering switch)<br/>Refer to <a href="#">DAS-322, "Component Inspection"</a></li> <li>• LDP system setting can not be turned ON/OFF on the navigation screen<br/>Refer to <a href="#">DAS-368, "Description"</a></li> </ul> |
|   | —   | <ul style="list-style-type: none"> <li>• Cause of auto-cancel 2<br/>Refer to <a href="#">DAS-266</a></li> <li>• Normal operating condition<br/>Refer to <a href="#">DAS-369</a></li> </ul>  |
| Warning functions are not timely<br>(Example) <ul style="list-style-type: none"> <li>• Does not function when driving on lane markers</li> <li>• Functions when driving in a lane</li> <li>• Functions in a different position from the actual position.</li> </ul> | <ul style="list-style-type: none"> <li>• Camera aiming adjustment</li> <li>• Lane camera unit</li> <li>• ADAS control unit</li> </ul>                                     | Camera aiming adjustment<br><a href="#">DAS-307, "Description"</a>  |
| Functions when changing the course in direction of the turn signal  | Turn indicator signal (CAN) <ul style="list-style-type: none"> <li>• BCM</li> <li>• ADAS control unit</li> </ul>  | System operates even when using turn signal<br>Refer to <a href="#">DAS-367, "Description"</a>  |

# LANE DEPARTURE WARNING LAMP DOES NOT TURNED ON

< SYMPTOM DIAGNOSIS >

[LDW & LDP]

## LANE DEPARTURE WARNING LAMP DOES NOT TURNED ON

### Description

INFOID:000000006886455

The lane departure warning lamp in the combination meter does not turn ON when turning on the ignition switch

### Diagnosis Procedure

INFOID:000000006886456

#### 1. CHECK LANE DEPARTURE WARNING LAMP

1. Check that "LANE DEPARTURE W/L" operate normally in "ACTIVE TEST" of "ICC/ADAS".
2. Operate the test items to check that the lane departure warning lamp blinks

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> GO TO 2.

#### 2. CHECK COMBINATION METER

Turn the ignition switch from OFF to ON to check that "LANE W/L" included in "DATA MONITOR" in "METER/M&A" operates normally.

Is the inspection result normal?

- YES >> Replace the combination meter. Refer to [MWI-79, "Removal and Installation"](#).
- NO >> GO TO 3.

#### 3. CHECK SELF-DIAGNOSIS RESULTS OF COMBINATION METER

1. Perform "All DTC Reading" with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "METER/M&A". Refer to [MWI-44, "DTC Index"](#).

Is any DTC detected?

- YES >> Repair or replace malfunctioning parts.
- NO >> GO TO 4.

#### 4. CHECK SELF-DIAGNOSIS RESULTS OF ADAS CONTROL UNIT

Check if the DTC is detected in self-diagnosis results of "ICC/ADAS" Refer to [DAS-286, "DTC Index"](#).

Is any DTC detected?

- YES >> Repair or replace malfunctioning parts.
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# LDP ON INDICATOR LAMP DOES NOT TURNED ON

< SYMPTOM DIAGNOSIS >

[LDW & LDP]

## LDP ON INDICATOR LAMP DOES NOT TURNED ON

### Description

INFOID:000000006886457

The LDP ON indicator lamp in the combination meter does not turn ON when turning on the ignition switch

### Diagnosis Procedure

INFOID:000000006886458

#### 1. CHECK LDP ON INDICATOR LAMP

1. Check that "LDP ON IND" operate normally in "ACTIVE TEST" of "ICC/ADAS".
2. Check if the LDP ON indicator lamp illuminates when operates each test item.

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> GO TO 2.

#### 2. CHECK COMBINATION METER

Turn the ignition switch from OFF to ON to check that "LDP IND" included in "DATA MONITOR" in "METER/M&A" operates normally.

Is the inspection result normal?

- YES >> Replace the combination meter. Refer to [MWI-79. "Removal and Installation"](#).
- NO >> GO TO 3.

#### 3. CHECK SELF-DIAGNOSIS RESULTS OF COMBINATION METER

1. Perform "All DTC Reading" with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "METER/M&A". Refer to [MWI-44. "DTC Index"](#).

Is any DTC detected?

- YES >> Repair or replace malfunctioning parts.
- NO >> GO TO 4.

#### 4. CHECK SELF-DIAGNOSIS RESULTS OF ADAS CONTROL UNIT

Check if the DTC is detected in self-diagnosis results of "ICC/ADAS" Refer to [DAS-286. "DTC Index"](#).

Is any DTC detected?

- YES >> Repair or replace malfunctioning parts.
- NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

# THE SYSTEM OPERATES EVEN WHEN USING TURN SIGNAL

< SYMPTOM DIAGNOSIS >

[LDW & LDP]

## THE SYSTEM OPERATES EVEN WHEN USING TURN SIGNAL

### Description

INFOID:000000006886459

The warning of Lane Departure Warning (LDW) and Lane Departure Prevention (LDP) and the yaw moment control are activated during the use of a turn signal.

#### NOTE:

For the operational conditions of Lane Departure Warning (LDW) and Lane Departure Prevention (LDP), refer to the following descriptions.

- LDW: [DAS-251, "LANE DEPARTURE WARNING \(LDW\) SYSTEM : System Description"](#)
- LDP: [DAS-255, "LANE DEPARTURE PREVENTION \(LDP\) SYSTEM : System Description"](#)

### Diagnosis Procedure

INFOID:000000006886460

#### 1. CHECK TURN SIGNAL OPERATION

Check that both right and left turn signals are normal.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning parts. Refer to [EXL-94, "Symptom Table"](#).

#### 2. CHECK SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading" with CONSULT.

2. Check if the DTC is detected in self-diagnosis results of "ICC/ADAS" Refer to [DAS-286, "DTC Index"](#).

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts.

NO >> Replace ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# LDW/LDP SYSTEM SETTINGS CANNOT BE TURNED ON/OFF ON THE NAVIGATION SCREEN

< SYMPTOM DIAGNOSIS >

[LDW & LDP]

## LDW/LDP SYSTEM SETTINGS CANNOT BE TURNED ON/OFF ON THE NAVIGATION SCREEN

### Description

INFOID:000000007218397

- LDW system setting is not selectable on the navigation screen.
- LDP system setting is not selectable on the navigation screen.

#### NOTE:

- When the ignition switch is in ACC position, LDW or LDP system settings cannot be changed.
- "Lane Departure Warning" or "Lane Departure Prevention" is not indicated on the navigation screen.
- The switching between ON and OFF cannot be performed by operating the navigation system.
- The item of "Lane Departure Warning" or "Lane Departure Prevention" on the navigation screen is not active.
- After turning ON the ignition switch or starting the engine, LDW or LDP settings of the navigation system cannot be selected for several tens of seconds under the following conditions:
  - After replacing AV control unit.
  - After erasing connection history of the navigation system.
  - After erasing self-diagnosis results of AV control unit.
- The LDW or LDP system setting differs from the one set at the previous driving.

#### NOTE:

Turn OFF the ignition switch and wait for 5 seconds or more.

### Diagnosis Procedure

INFOID:000000007218398

#### 1. CHECK LDP SYSTEM SETTING

1. Start the engine.
2. Check that the LDP system settings is selectable on the navigation screen.

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> GO TO 2.

#### 2. PERFORM THE SELF-DIAGNOSIS

1. Perform self-diagnosis with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "ICC/ADAS", "MULTI AV" and "METER/M&A". Refer to the following.
  - ICC/ADAS: [DAS-286, "DTC Index"](#)
  - MULTI AV: [AV-168, "DTC Index"](#)
  - METER/M&A: [MWI-44, "DTC Index"](#)

Is any DTC detected?

- YES >> Repair or replace malfunctioning parts.
- NO >> INSPECTION END

#### 3. CHECK DATA MONITOR OF ADAS CONTROL UNIT

Check that "LDP SELECT" operates normally in "DATA MONITOR" of "ICC/ADAS" with CONSULT.

Is the inspection result normal?

- YES >> Refer to [AV-141, "On Board Diagnosis Function"](#).
- NO >> GO TO 4.

#### 4. CHECK MULTIFUNCTION SWITCH

Operate the multifunction switch to check that the audio, navigation system, and air conditioner operate properly.

Is the inspection result normal?

- YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).
- NO >> Repair or replace malfunctioning parts.



# NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[LDW & LDP]

## NORMAL OPERATING CONDITION

### Description

INFOID:000000006886463

#### LANE DEPARTURE WARNING (LDW)

- LDW system is only a warning device to inform the driver of a potential unintended lane departure. It will not steer the vehicle or prevent loss of control. It is the driver's responsibility to stay alert, drive safely, keep the vehicle in the traveling lane, and be in control of the vehicle at all times.
- LDW system will not operate at speeds below approximately 70 km/h (45 MPH) or if it cannot detect lane markers.
- Excessive noise will interfere with the warning chime sound, and the chime may not be heard.
- LDW system may not function properly under the following conditions:
  - On roads where there are multiple parallel lane markers; lane markers that are faded or not painted clearly; yellow painted lane markers; non-standard lane markers; or lane markers covered with water, dirt or snow, etc.
  - On roads where the discontinued lane markers are still detectable.
  - On roads where there are sharp curves.
  - On roads where there are sharply contrasting objects, such as shadows, snow, water, wheel ruts, seams or lines remaining after road repairs. (The LDW system could detect these items as lane markers.)
  - On roads where the traveling lane merges or separates.
  - When the vehicle's traveling direction does not align with the lane marker.
  - When traveling close to other vehicle in front of the vehicle, which obstructs the lane camera unit detection range.
  - When rain, snow or dirt adheres to the windshield in front of the lane camera unit.
  - When the headlights are not bright due to dirt on the lens or if the aiming is not adjusted properly.
  - When strong light enters the lane camera unit. (For example, the light directly shines on the front of the vehicle at sunrise or sunset.)
  - When a sudden change in brightness occurs. (For example, when the vehicle enters or exits a tunnel or under a bridge.)

#### LANE DEPARTURE PREVENTION (LDP)

- LDP system will not steer the vehicle or prevent loss of control. It is the driver's responsibility to stay alert, drive safely, keep the vehicle in the traveling lane, and be in control of vehicle at all times.
- LDP system is primarily intended for use on well-developed freeways or highways. It may not detect the lane markers in certain roads, weather or driving conditions.
- Using the LDP system under some conditions of road, lane marker or weather, or when driver change lanes without using the turn signal could lead to an unexpected system operation. In such conditions, driver needs to correct the vehicle's direction with driver's steering operation to avoid accidents.
- When the LDP system is operating, avoid excessive or sudden steering maneuvers. Otherwise, driver could lose control of the vehicle.
- The LDP system will not operate at speeds below approximately 70 km/h (45 MPH) or if it cannot detect lane markers.
- The LDP system may not function properly under the following conditions, and do not use the LDP system:
  - During bad weather (rain, fog, snow, wind, etc.).
  - When driving on slippery roads, such as on ice or snow, etc.
  - When driving on winding or uneven roads.
  - When there is a lane closure due to road repairs.
  - When driving in a makeshift lane.
  - When driving on roads where the lane width is too narrow.
  - When driving with a tire that is not within normal tire conditions (for example, tire wear, low tire pressure, installation of spare tire, tire chains, non-standard wheels).
  - When the vehicle is equipped with non-original brake parts or suspension parts.
- Excessive noise will interfere with the warning chime sound, and the chime may not be heard.
- The functions of the LDP system (warning and brake control assist) may or may not operate properly under the following conditions:
  - On roads where there are multiple parallel lane markers; lane markers that are faded or not painted clearly; yellow painted lane markers; non-standard lane markers or lane markers covered with water, dirt or snow, etc.
  - On roads where discontinued lane markers are still detectable.
  - On roads where there are sharp curves.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DAS

P

## NORMAL OPERATING CONDITION

[LDW & LDP]

### < SYMPTOM DIAGNOSIS >

---

- On roads where there are sharply contrasting objects, such as shadows, snow, water, wheel ruts, seams or lines remaining after road repairs (The LDP system could detect these items as lane markers.).
- On roads where the traveling lane merges or separates.
- When the vehicle's traveling direction does not align with the lane marker.
- When traveling close to other vehicle in front of the vehicle, which obstructs the lane camera unit detection range.
- When rain, snow or dirt adheres to the windshield in front of the lane camera unit.
- When the headlights are not bright due to dirt on the lens or if the aiming is not adjusted properly.
- When strong light enters the lane camera unit (For example, the light directly shines on the front of the vehicle at sunrise or sunset.)
- When a sudden change in brightness occurs (For example, when the vehicle enters or exits a tunnel or under a bridge.)
- While the LDP system is operating, driver may hear a sound of brake operation. This is normal and indicates that the LDP system is operating properly.

# REMOVAL AND INSTALLATION

## LANE CAMERA UNIT

### Removal and Installation

INFOID:000000006886464

#### REMOVAL

1. Remove headlining assembly. Refer to [INT-46, "Removal and Installation"](#).
2. Remove the bolts.
3. Remove lane camera unit.

#### INSTALLATION

Install in the reverse order of removal.

**CAUTION:**

- Remove the camera lens cap for replacement.
- Never give an impact to the lane camera unit.
- Perform the camera aiming every time the lane camera unit is removed and installed. Refer to [DAS-307, "Description"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## WARNING SYSTEMS SWITCH

[LDW & LDP]

< REMOVAL AND INSTALLATION >

---

### WARNING SYSTEMS SWITCH

#### Removal and Installation

INFOID:000000006886465

#### REMOVAL

1. Remove the instrument lower panel LH. Refer to [IP-13. "Removal and Installation"](#).
2. Remove warning systems switch from instrument lower panel LH.

#### **NOTE:**

Warning systems switch and VDC OFF switch are integrated.

#### INSTALLATION

Install in the reverse order of removal.

# DYNAMIC DRIVER ASSISTANCE SWITCH

< REMOVAL AND INSTALLATION >

[LDW & LDP]

## DYNAMIC DRIVER ASSISTANCE SWITCH

### Exploded View

INFOID:000000006886466

Dynamic driver assistance switch is integrated in the ICC steering switch. Refer to [ST-31, "Exploded View"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## WARNING BUZZER

### Removal and Installation

INFOID:000000006886467

#### REMOVAL

1. Remove the AV control unit. Refer to [AV-263, "Removal and Installation"](#).
2. Remove the screw.
3. Remove warning buzzer.

#### INSTALLATION

Install in the reverse order of removal.

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000006886468

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

**WARNING:**

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

**WARNING:**

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

Precaution for BSW/BSI System Service

INFOID:000000006886469

**WARNING:**

Be careful of traffic conditions and safety around the vehicle when performing road test.

**CAUTION:**

- Never use the BSI system when driving with free rollers or a chassis dynamometer.
- Never perform the active test while driving.
- Never disassemble and remodel the lane camera unit.
- Do not use the lane camera unit that is removed from the vehicle.
- Never change BSW initial state ON ⇒ OFF without the consent of the customer.

TO KEEP THE BSW/BSI SYSTEM OPERATING PROPERLY, BE SURE TO OBSERVE THE FOLLOWING ITEMS:

Lane Camera Unit Maintenance

The lane camera unit for the LDW/LDP system is located above the inside mirror. To keep the proper operation of the LDW/LDP systems and prevent a system malfunction, be sure to observe the following:

- Always keep the windshield clean.
- Do not attach a sticker (including transparent material) or install an accessory near the camera unit.
- Do not place reflective materials, such as white paper or a mirror, on the instrument panel. The reflection of sunlight may adversely affect the camera unit capability of detecting the lane markers.
- Do not strike or damage the areas around the camera unit.
- Do not touch the camera lens or remove the screw located on the camera unit.

System Maintenance

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## PRECAUTIONS

< PRECAUTION >

[BSW & BSI]

---

The two side radar for the BSW and BSI systems are located near the rear bumper.

- Always keep the area near the side radar clean.
- Do not attach stickers (including transparent material), install accessories or apply additional paint near the side radar.
- Do not strike or damage the area around the side radar.



# COMPONENT PARTS

< SYSTEM DESCRIPTION >

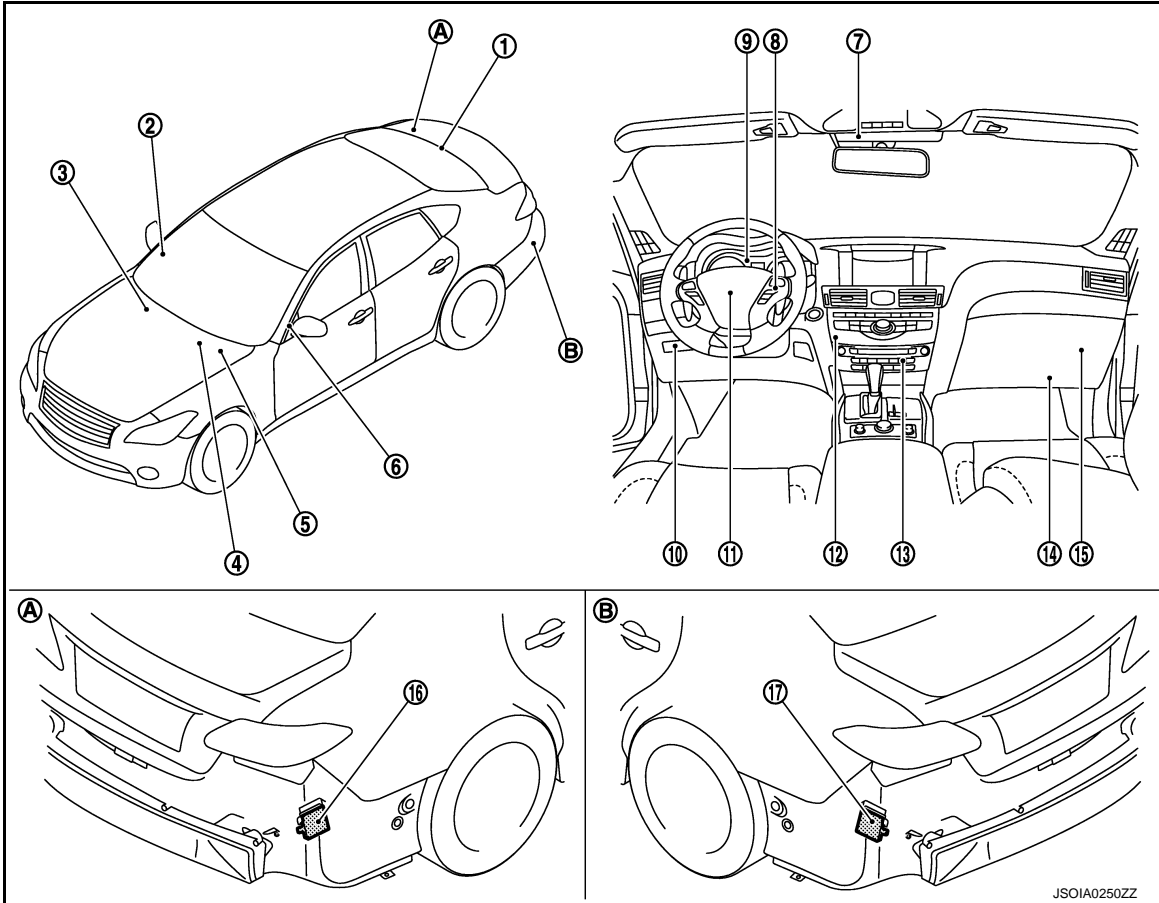
[BSW & BSI]

## SYSTEM DESCRIPTION

### COMPONENT PARTS

#### Component Parts Location

INFOID:000000006886470



- |  |  |  |
|--|--|--|
| 1. ADAS control unit<br>Refer to <a href="#">DAS-14, "Component Parts Location"</a> .  | 2. BSW/BSI indicator RH  | 3. TCM<br>Refer to <a href="#">TM-10, "A/T CONTROL SYSTEM : Component Parts Location"</a> .                                |
| 4. BCM<br>Refer to <a href="#">BCS-4, "BODY CONTROL SYSTEM : Component Parts Location"</a> .   | 5. ABS actuator and electric unit (control unit)<br>Refer to <a href="#">BRC-9, "Component Parts Location"</a> . | 6. BSW/BSI indicator LH  |
| 7. Lane camera unit<br>Refer to <a href="#">DAS-248, "LANE DEPARTURE WARNING (LDW) SYSTEM : Component Parts Location"</a> .  | 8. Dynamic driver assistance switch  | 9. Combination meter<br>• BSI ON indicator (Green)<br>• BSW/BSI warning lamp (Yellow)                                      |
| 10. • Warning systems switch<br>• Warning systems ON indicator<br>Refer to <a href="#">DAS-248, "LANE DEPARTURE WARNING (LDW) SYSTEM : Component Parts Location"</a> . | 11. Steering angle sensor  | 12. Warning buzzer<br>Refer to <a href="#">DAS-248, "LANE DEPARTURE WARNING (LDW) SYSTEM : Component Parts Location"</a> . |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
DAS  
P

# COMPONENT PARTS

< SYSTEM DESCRIPTION >

[BSW & BSI]

- |  |   |  |
|--|---|--|
| <p>13. AV control unit</p> <p>16. Side radar RH<br/>A. Rear bumper removed condition</p> | <p>14. ECM<br/>Refer to the following.</p> <ul style="list-style-type: none"> <li>• VQ37VHR: <a href="#">EC-38. "ENGINE CONTROL SYSTEM : Component Parts Location"</a>.</li> <li>• VK56VD (USA and Canada): <a href="#">EC-990. "ENGINE CONTROL SYSTEM : Component Parts Location"</a>.</li> <li>• VK56VD (Mexico): <a href="#">EC-1564. "ENGINE CONTROL SYSTEM : Component Parts Location"</a>.</li> </ul> <p>17. Side radar LH<br/>B. Rear bumper removed condition</p> | <p>15. A/C auto amp.<br/>Refer to <a href="#">HAC-7. "AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Component Parts Location"</a>.</p> |
|--|---|--|

## Component Description

INFOID:000000006886471

| Component  | Description  |
|--|--|
| ADAS control unit  | <ul style="list-style-type: none"> <li>• Being connected with side radar (LH and RH) via ITS communication, receives vehicle detection signal and transmits BSW/BSI indicator signal and BSW/BSI indicator dimmer signal to side radar</li> <li>• Being connected with lane camera unit via ITS communication, receives detected lane condition signal</li> <li>• Receives steering angle sensor signal from steering angle sensor via CAN communication</li> <li>• Judges a BSW/BSI indicator ON/OFF state and an approach state to the lane marker, based on each signal and calculates yaw moment to help return the vehicle back to the center of the lane.</li> <li>• Transmits target yaw moment signal to ABS actuator and electric unit (control unit)</li> <li>• Activates the warning buzzer and warning systems ON indicator</li> <li>• Transmits BSI ON indicator signal and BSW/BSI warning lamp signal to combination meter via CAN communication</li> </ul> |
| Side radar LH/ RH  | <ul style="list-style-type: none"> <li>• Being connected with ADAS control unit via ITS communication, transmits vehicle detection signal</li> <li>• Receives BSW/BSI indicator signal and BSW/BSI indicator dimmer signal from ADAS control unit and transmits an indicator operation signal to BSW/BSI indicator LH/RH</li> <li>• RH side radar equips right/left switching signal circuit for identifying LH or RH because the parts of side radar are common for right and left</li> </ul>   |
| BSW/BSI indicator LH/ RH                                     | Receives BSW/BSI indicator operation signal from side radar LH/RH and turns OFF, turns ON or blinks  |
| Lane camera unit   | <ul style="list-style-type: none"> <li>• Detects the lane marker by the built-in camera</li> <li>• Transmits detected lane condition signal to ADAS control unit</li> </ul>  |
| ABS actuator and electric unit (control unit)                | <ul style="list-style-type: none"> <li>• Transmits vehicle speed signal to ADAS control unit via CAN communication</li> <li>• Transmits yaw rate signal/side G sensor signal to ADAS control unit via CAN communication</li> <li>• Receives a target yaw moment signal from the ADAS control unit via CAN communication and controls brake pressure of four wheels, respectively</li> </ul>  |
| Warning systems switch                                       | Inputs the switch signal to ADAS control unit  |
| Dynamic driver assistance switch                             | Inputs the switch signal to ECM  |
| Warning systems ON indicator (On the warning systems switch) | Indicates BSW system status  |
| Warning buzzer   | Receives buzzer signal from ADAS control unit and sounds buzzer.   |
| Combination meter  | <ul style="list-style-type: none"> <li>• Turns the BSW/ BSI warning lamp and BSI ON indicator ON/OFF according to the signals from the ADAS control unit via CAN communication</li> <li>• Receives BSI ON indicator signal, and BSW/BSI warning lamp signal via CAN communication.</li> </ul>  |
| Steering angle sensor  | Transmits steering angle sensor signal to ADAS control unit via CAN communication  |
| BCM  | <ul style="list-style-type: none"> <li>• Transmits turn indicator signal to ADAS control unit via CAN communication</li> <li>• Transmits dimmer signal to ADAS control unit via CAN communication</li> </ul>   |
| ECM  | Transmits the accelerator pedal position signal, engine speed signal and ICC steering switch signal (dynamic driver assistance switch signal) to ADAS control unit via CAN communication   |

# COMPONENT PARTS

< SYSTEM DESCRIPTION >

[BSW & BSI]

| Component       | Description  |
|-----------------|--|
| TCM             | Transmits the output shaft speed signal, input speed signal, current gear position signal and shift position signal to ADAS control unit via CAN communication |
| A/C auto amp.   | Transmits the mode selection state of the drive mode select switch to ADAS control unit via CAN communication  |
| AV control unit | Transmits the system selection signal to ADAS control unit via CAN communication   |

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DAS

P

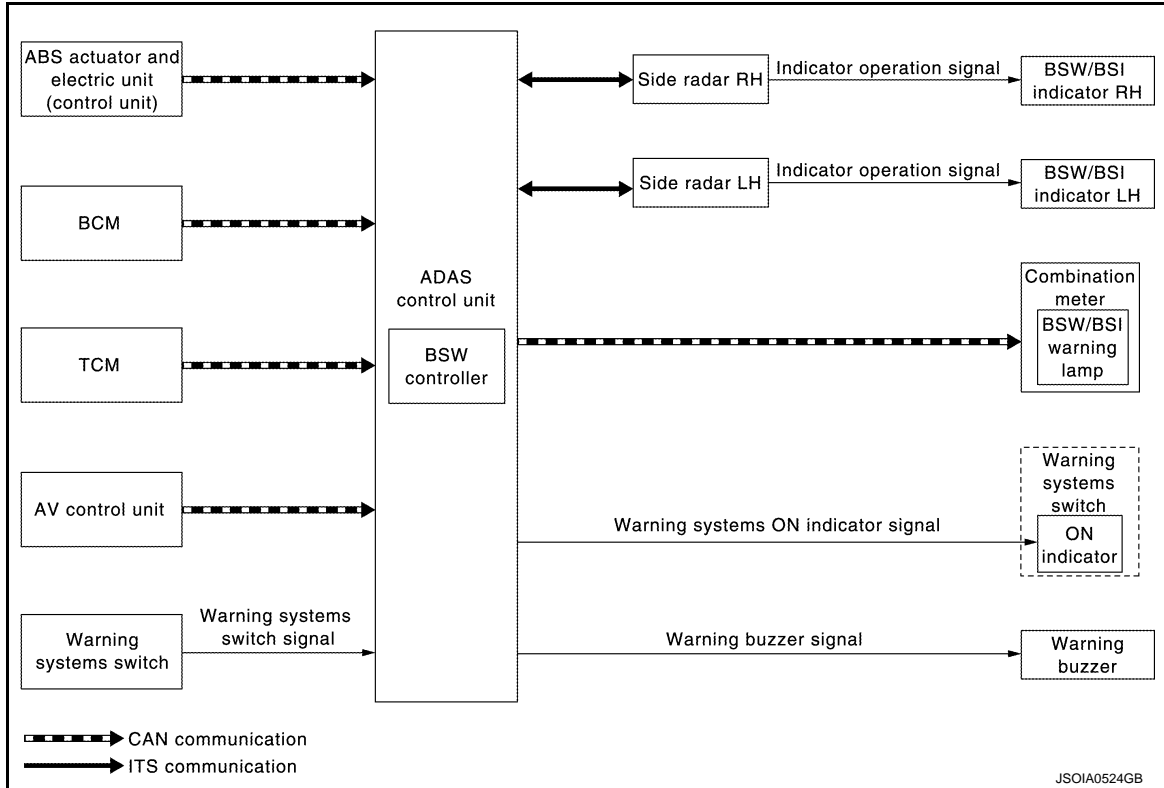
SYSTEM

BLIND SPOT WARNING (BSW) SYSTEM

BLIND SPOT WARNING (BSW) SYSTEM : System Description

INFOID:000000007218949

SYSTEM DIAGRAM



ADAS CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

ADAS control unit receives signals via CAN communication. It also detects vehicle conditions that are necessary for BSW control.

Input Signal Item

| Transmit unit                                 | Signal name                                     | Description  |
|---|---|--|
| TCM   | CAN communication<br>Shift position signal      | Receives a selector lever position   |
| ABS actuator and electric unit (control unit) | CAN communication<br>Vehicle speed signal (ABS) | Receives wheel speeds of four wheels   |
| BCM   | CAN communication<br>Turn indicator signal      | Receives an operational state of the turn signal lamp and the hazard lamp                          |
|   | Dimmer signal                                   | Receives an ON/OFF state of dimmer signal  |
| AV control unit                               | CAN communication<br>System selection signal    | Receives a selection state of each item in "Driver Assistance" selected with the navigation system |
| Side radar LH, RH                             | ITS communication<br>Vehicle detection signal   | Receives vehicle detection condition of detection zone.  |
| Warning systems switch                        | Warning systems switch signal                   | Receives an ON/OFF state of the warning systems switch   |

Output Signal Item

# SYSTEM

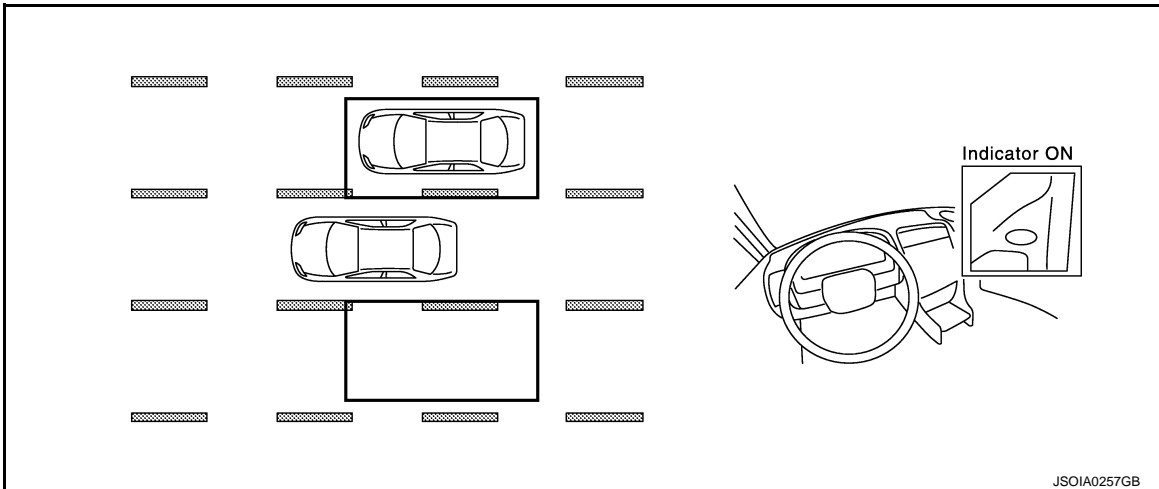
< SYSTEM DESCRIPTION >

[BSW & BSI]

| Reception unit               | Signal name                         |                                 | Description   |
|------------------------------|-------------------------------------|---------------------------------|---|
| Combination meter            | CAN communication                   | BSW/BSI warning lamp signal     | Transmits a BSW/BSI warning lamp signal to turn ON the BSW/BSI warning lamp |
|                              |                                     | BSI ON inductor signal          | Transmits a BSI ON inductor lamp signal to turn ON the BSI ON inductor lamp |
| Side radar LH, RH            | ITS communication                   | BSW/BSI indicator signal        | Transmits a BSW/BSI indicator signal to turn ON the BSW/BSI indicator       |
|                              |                                     | BSW/BSI indicator dimmer signal | Transmits a BSW/BSI indicator dimmer signal to dimmer BSW/BSI indicator     |
|                              |                                     | Vehicle speed signal            | Transmits a vehicle speed calculated by the ADAS control unit               |
| Warning systems ON indicator | Warning systems ON indicator signal |                                 | Turns ON the Warning systems ON indicator                                   |
| Warning buzzer               | Warning buzzer operation signal     |                                 | Activates the warning buzzer  |

## FUNCTION DESCRIPTION

- The BSW system can help alert the driver of other vehicles in adjacent lanes when changing lanes.
- The BSW system uses side radar installed near the rear bumper to detect vehicles in an adjacent lane.
- The side radar can detect vehicles on either side of vehicle within the detection zone shown as illustrated.
- This detection zone starts from the outside mirror of vehicle and extends approximately 10 ft (3.0 m) behind the rear bumper, and approximately 10 ft (3.0 m) sideways.
- The BSW system operates above approximately 32 km/h (20 MPH).
- If the side radar detects vehicles in the detection zone, the BSW/BSI indicator illuminates.



- If the driver then activates the turn signal, a buzzer will sound twice and the BSW/BSI indicator will blink.

**NOTE:**

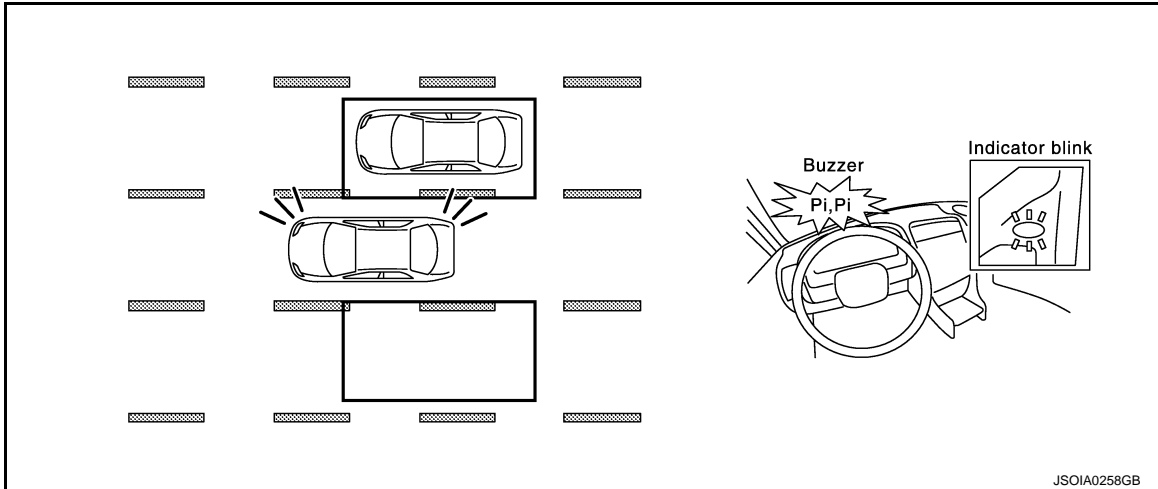
DAS

# SYSTEM

## < SYSTEM DESCRIPTION >

[BSW & BSI]

A buzzer sounds if the side radar have already detected vehicles when the driver activates the turn signal. If a vehicle comes into the detection zone after the driver activates the turn signal, then only the BSW/BSI indicator blinks and no buzzer sounds.



### BSW SYSTEM OPERATION DESCRIPTION

- ADAS control unit enables BSW system.
- The ADAS control unit turns on the BSW system when the warning systems switch is turned ON.
- Side radar detects a vehicle in the adjacent lane, and transmits the vehicle detection signal to ADAS control unit via ITS communication.
- ADAS control unit starts the control as follows, based on a vehicle detection signal, turn signal and dimmer signal transmitted from BCM via CAN communication:
  - BSW/BSI indicator signal and BSW/BSI indicator dimmer signal transmission to side radar.
  - Buzzer signal transmission to warning buzzer.
- Side radar transmits an indicator operation signal to the BSW/BSI indicator according to BSW/BSI indicator signal and BSW/BSI indicator dimmer signal.

#### Operation Condition of BSW System

ADAS control unit performs the control when the following conditions are satisfied.

- When the warning systems switch is turned ON\* or BSI system turned ON.
- When the vehicle drives at 32 km/h (20 MPH) or more to the forward direction.

#### NOTE:

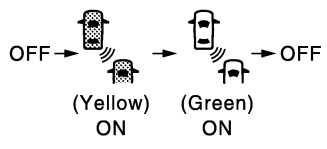
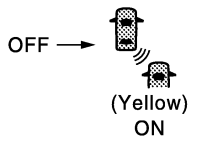
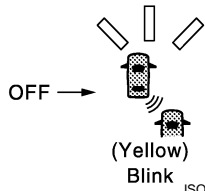
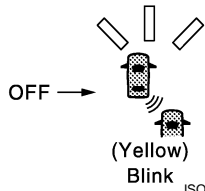
- \*: When the BSW system setting on the navigation screen is ON.
- After the operating conditions of warning are satisfied, the warning continues until the vehicle speed reaches approximately 29 km/h (18 MPH)
- The BSW system may not function properly, depending on the situation. Refer to [DAS-395. "Precautions for Blind Spot Warning/Blind Spot Intervention"](#).

### BULB CHECK ACTION AND FAIL-SAFE INDICATION

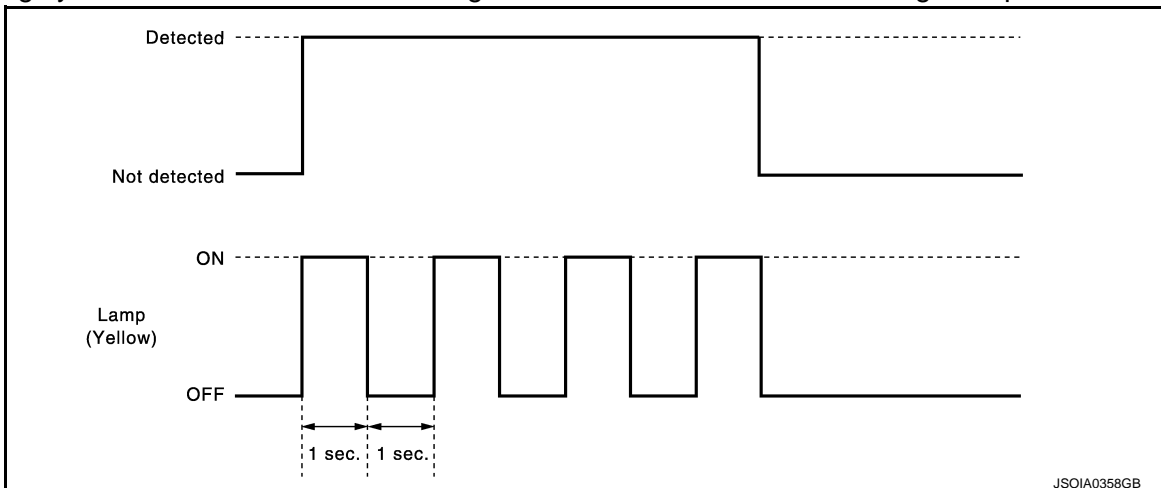
# SYSTEM

< SYSTEM DESCRIPTION >

[BSW & BSI]

| Vehicle condition/Driver's operation  | BSW/BSI indicator | Warning systems ON indicator | Indication on the combination meter  |
|---|-------------------|------------------------------|--|
| Ignition switch:<br>OFF ⇒ ON  | Approx. 2 sec. ON | Approx. 5 sec. ON            |  <p style="text-align: center; font-size: small;">JSOIA0253GB</p>   |
| When DTC is detected  | OFF               | ON                           |  <p style="text-align: center; font-size: small;">JSOIA0254GB</p>   |
| When the camera detects that interior temperature is high   | OFF               | ON                           |  <p style="text-align: center; font-size: small;">JSOIA0255GB</p>   |
| When radar blockage is detected   | OFF               | ON                           |  <p style="text-align: center; font-size: small;">JSOIA0255GB</p> |
| When the warning systems system switch is pressed<br>(When the settings of LDW system, FCW system, and BSW system on the navigation screen are "OFF") | OFF               | Blink                        | —  |

Blinking cycle when the side radar blockage condition or lane camera unit high temperature condition



**NOTE:**  
Time shown in the figure is approximate time.

DAS

# SYSTEM

< SYSTEM DESCRIPTION >

[BSW & BSI]

## BLIND SPOT WARNING (BSW) SYSTEM : Fail-safe (ADAS Control Unit) INFOID:000000007218950

If a malfunction occurs in each system, ADAS control unit cancels each control, sounds a beep, and turns ON the warning lamp or indicator lamp.

| System   | Buzzer            | Warning lamp/Indicator lamp | Description  |
|--|-------------------|-----------------------------|--|
| Vehicle-to-vehicle distance control mode       | High-pitched tone | ICC system warning lamp     | Cancel   |
| Conventional (fixed speed) cruise control mode | High-pitched tone | ICC system warning lamp     | Cancel   |
| Intelligent Brake Assist (IBA)                 | High-pitched tone | IBA OFF indicator lamp      | Cancel   |
| Forward Collision Warning (FCW)                | High-pitched tone | IBA OFF indicator lamp      | Cancel   |
| Distance Control Assist (DCA)                  | High-pitched tone | ICC system warning lamp     | Cancel   |
| Lane Departure Warning (LDW)                   | —                 | Lane departure warning lamp | Cancel   |
| Lane Departure Prevention (LDP)                | Low-pitched tone  | Lane departure warning lamp | Cancel   |
| Blind Spot Warning (BSW)                       | —                 | BSW/BSI warning lamp        | Cancel   |
| Blind Spot Intervention (BSI)                  | Low-pitched tone  | BSW/BSI warning lamp        | Cancel   |
| Active trace control function                  | —                 | IBA OFF indicator lamp      | <ul style="list-style-type: none"> <li>• Cancel</li> <li>• If a communication error occurs between the A/C auto amp. and CAN communication line, a mode at the instant of error occurrence is maintained until the mode is fixed to STANDARD after turning the ignition switch from OFF to ON</li> </ul> |

## BLIND SPOT WARNING (BSW) SYSTEM : Fail-safe (Lane Camera Unit) INFOID:000000007218951

### FAIL-SAFE CONTROL BY DTC

If a malfunction occurs in the lane camera unit, ADAS control unit cancels control, and turns ON the BSW/BSI warning lamp in the combination meter.

### TEMPORARY DISABLED STATUS AT HIGH TEMPERATURE

- If the vehicle is parked in direct sunlight under high temperature conditions, the system may be deactivated automatically. And the BSW/BSI warning lamp (yellow) in the combination meter will blink.
- When interior temperature is reduced, the system will resume operation automatically and the BSW/BSI warning lamp (yellow) in the combination meter will stop blinking.

## BLIND SPOT WARNING (BSW) SYSTEM : Fail-safe (Side Radar) INFOID:000000007218952

### FAIL-SAFE CONTROL BY DTC

If a malfunction occurs in the side radar, ADAS control unit cancels control, and turns ON the BSW/BSI warning lamp in the combination meter.

### TEMPORARY DISABLED STATUS AT BLOCKAGE



# SYSTEM

[BSW & BSI]

## < SYSTEM DESCRIPTION >

When the side radar is blocked, the operation is temporarily cancelled. Then the BSW/BSI warning lamp (yellow) in combination meter blinks. Also, under the following conditions, the operation may be temporarily cancelled.

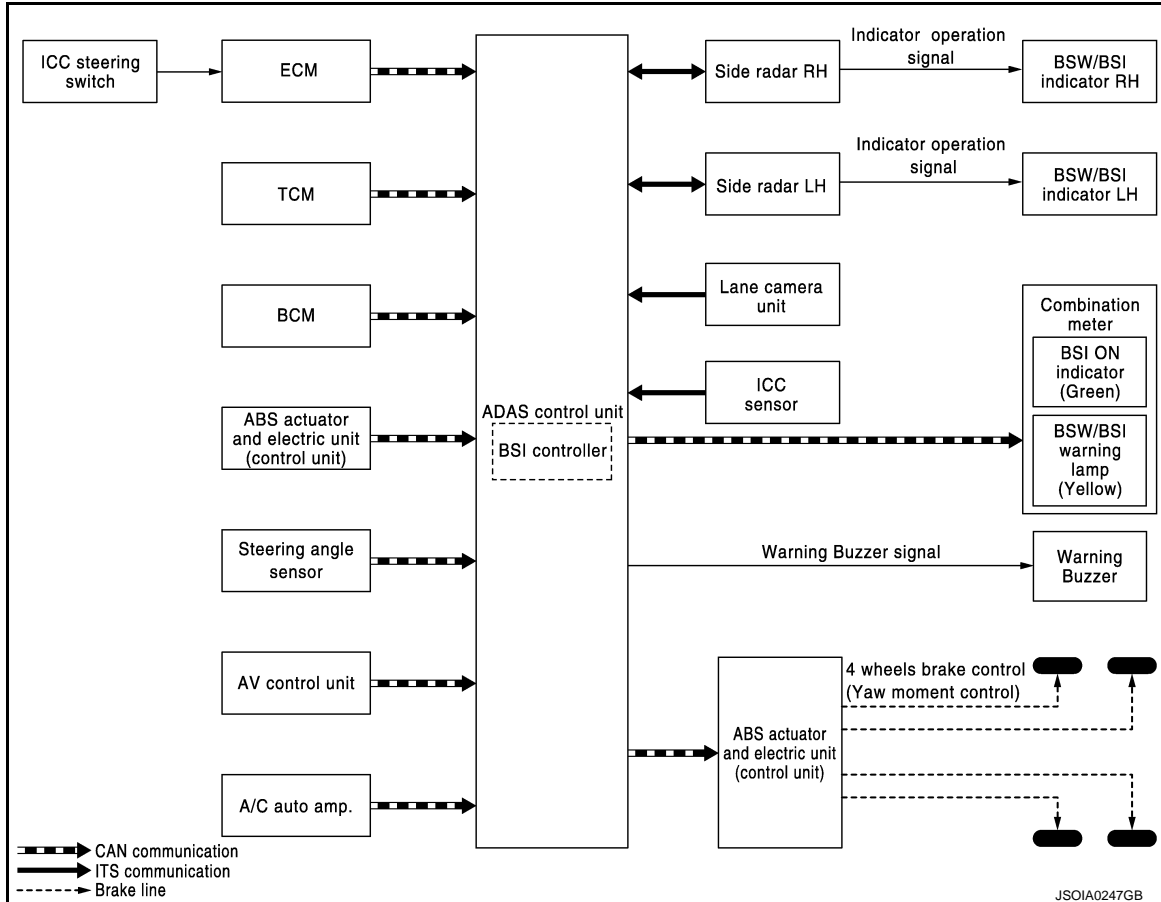
- The side radar may be blocked by temporary ambient conditions such as splashing water, mist or fog.
- The blocked condition may also be caused by objects such as ice, frost or dirt obstructing the side radar.

## BLIND SPOT INTERVENTION (BSI) SYSTEM

### BLIND SPOT INTERVENTION (BSI) SYSTEM : System Description

INFOID:000000006886476

#### SYSTEM DIAGRAM



#### ADAS CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

##### Input Signal Item

| Transmit unit | Signal name       |   | Description   |
|---------------|-------------------|---|---|
| ECM           | CAN communication | Accelerator pedal position signal       | Receives accelerator pedal position (angle)               |
|               |                   | ICC steering switch signal              | Receives the operational state of the ICC steering switch |
|               |                   | Dynamic driver assistance switch signal |   |
| TCM           | CAN communication | Engine speed signal                     | Receives engine speed                                     |
|               |                   | Input speed signal                      | Receives the number of revolutions of input shaft         |
|               |                   | Current gear position signal            | Receives a current gear position                          |
|               |                   | Shift position signal                   | Receives a select lever position                          |
|               |                   | Output shaft revolution signal          | Receives the number of revolutions of output shaft        |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# SYSTEM

## < SYSTEM DESCRIPTION >

[BSW & BSI]

| Transmit unit                                 | Signal name       |  | Description  |
|---|-------------------|--|--|
| ABS actuator and electric unit (control unit) | CAN communication | ABS malfunction signal                   | Receives a malfunction state of ABS  |
|   |                   | ABS operation signal                     | Receives an operational state of ABS   |
|   |                   | TCS malfunction signal                   | Receives a malfunction state of TCS  |
|   |                   | TCS operation signal                     | Receives an operational state of TCS   |
|   |                   | VDC OFF switch signal                    | Receives an ON/OFF state of VDC  |
|   |                   | VDC malfunction signal                   | Receives a malfunction state of VDC  |
|   |                   | VDC operation signal                     | Receives an operational state of VDC   |
|   |                   | Vehicle speed signal (ABS)               | Receives wheel speeds of four wheels   |
|   |                   | Yaw rate signal                          | Receives yaw rate acting on the vehicle  |
|   |                   | Side G sensor signal                     | Receives lateral G acting on the vehicle   |
| Combination meter                             | CAN communication | Parking brake switch signal              | Receives an operational state of the parking brake   |
| BCM   | CAN communication | Turn indicator signal                    | Receives an operational state of the turn signal lamp and the hazard lamp                                      |
|   |                   | Dimmer signal                            | Receives ON/OFF state of dimmer signal   |
| Steering angle sensor                         | CAN communication | Steering angle sensor malfunction signal | Receives a malfunction state of steering angle sensor  |
|   |                   | Steering angle sensor signal             | Receives the number of revolutions, turning direction of the steering wheel                                    |
|   |                   | Steering angle speed signal              | Receives the turning angle speed of the steering wheel   |
| AV control unit                               | CAN communication | System selection signal                  | Receives a selection state of each item in "Driver Assistance" selected with the navigation system             |
| A/C auto amp.                                 | CAN communication | SNOW mode signal                         | Receives a mode selection state of the drive mode select switch  |
| ICC sensor                                    | ITS communication | ICC sensor signal                        | Receives detection results, such as the presence or absence of a leading vehicle and distance from the vehicle |
| Lane camera unit                              | ITS communication | Detection lane condition signal          | Receives detection results of lane marker  |
| Side radar LH, RH                             | ITS communication | Vehicle detection signal                 | Receives vehicle detection condition of detection zone.  |

### Output Signal Item

| Reception unit                                | Signal name                     |                                 | Description   |
|---|---------------------------------|---------------------------------|---|
| ABS actuator and electric unit (control unit) | CAN communication               | Target yaw moment signal        | Transmits a target yaw moment signal to generate yaw moment to the vehicle    |
| Combination meter                             | CAN communication               | BSW/BSI warning lamp signal     | Transmits a BSW/BSI warning lamp signal to turn ON the BSW/BSI warning lamp   |
|   |                                 | BSI ON indicator lamp signal    | Transmits a BSI ON indicator lamp signal to turn ON the BSI ON indicator lamp |
| Lane camera unit                              | ITS communication               | Vehicle speed signal            | Transmits a vehicle speed calculated by the ADAS control unit                 |
|   |                                 | Turn indicator signal           | Transmits a turn indicator signal received from BCM                           |
| Side radar LH, RH                             | ITS communication               | BSW/BSI indicator signal        | Transmits a BSW/BSI indicator signal to turn ON the BSW/BSI indicator         |
|   |                                 | BSW/BSI indicator dimmer signal | Transmits a BSW/BSI indicator dimmer signal to dimmer BSW/BSI indicator       |
|   |                                 | Vehicle speed signal            | Transmits a vehicle speed calculated by the ADAS control unit                 |
| Warning buzzer                                | Warning buzzer operation signal |                                 | Activates the warning buzzer  |

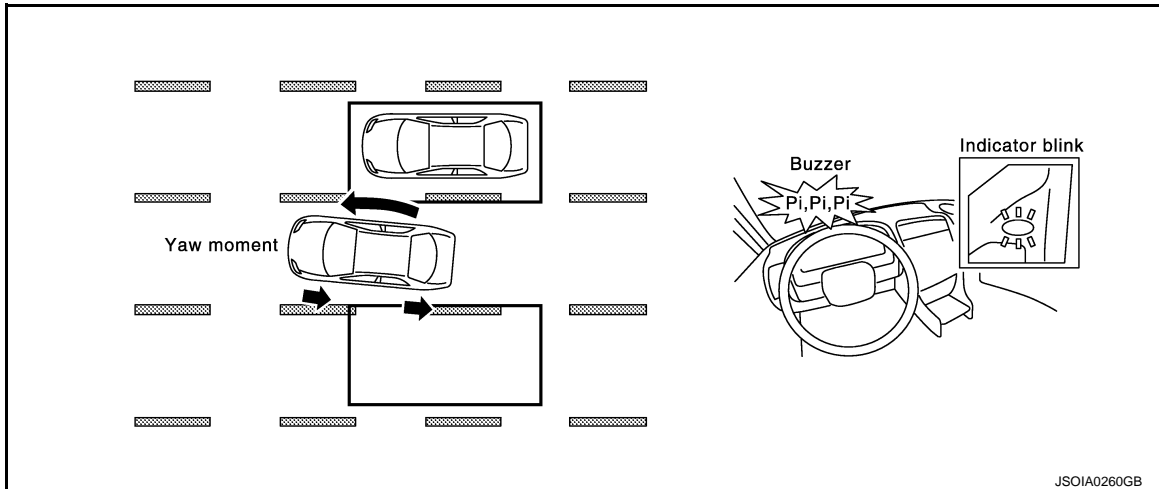
# SYSTEM

[BSW & BSI]

## < SYSTEM DESCRIPTION >

### FUNCTION DESCRIPTION

- The BSI system can help alert the driver of other vehicles in adjacent lanes when changing lanes. BSI always operates together with BSW.
- The BSI system operates above approximately 60 km/h (37 MPH).
- The BSI system uses side radar installed near the rear bumper to detect other vehicles beside vehicle in an adjacent lane.
- The side radar can detect vehicles on either side of vehicle within the detection zone shown as illustrated.
- This detection zone starts from the outside mirror of vehicle and extends approximately 10 ft (3.0 m) behind the rear bumper, and approximately 10 ft (3.0 m) sideways.
- If the BSW/BSI indicator is illuminated while vehicle is approaching a lane marker, the BSW/BSI indicator blinks and an audible warning will sound three times. Then the system applies the brakes on one side of the vehicle for a short period of time to help return the vehicle back to the center of the lane.



- BSI operates regardless of turn signal usage.
- The brightness of BSW/BSI indicator lights is adjusted automatically depending on the brightness of the ambient light.

#### NOTE:

- BSI is typically activated earlier than LDP when getting closer to the lane marker.
- Warning and brake control will only be activated if the BSW/BSI indicator is already illuminated when vehicle approaches a lane marker.
- If another vehicle comes into the detection zone after vehicle has crossed a lane marker, no warning or brake control will be activated.

### BSI SYSTEM OPERATION DESCRIPTION

- ADAS control unit enables BSI system.
- Turn ON the dynamic driver assistance switch, and BSI system setting on the navigation screen. Then BSI ON indicator comes on.
- Combination meter turns BSI ON indicator lamp ON/OFF according to the signals from ADAS control unit via CAN communication.
- Side radar detects a vehicle in the adjacent lane, and transmits the vehicle detection signal to ADAS control unit via ITS communication.
- Side radar receives vehicle speed signal from ADAS control unit and changes its detecting function.
- Lane camera unit monitors lane markers of the traveling lane and transmits the detected lane condition signal to ADAS control unit via ITS communication.
- ADAS control unit starts the control as follows, based on a vehicle detection signal, lane condition signal, turn signal and dimmer signal transmitted from BCM via CAN communication:
  - BSW/BSI indicator signal and BSW/BSI indicator dimmer signal transmission to side radar.
  - Buzzer signal transmission to warning buzzer.
  - Calculation of necessary yaw moment and transmission of the target yaw moment signal to ABS actuator and electric unit (control unit).
- Side radar transmits an indicator operation signal to the BSW/BSI indicator according to BSW/BSI indicator operation signal and BSW/BSI indicator dimmer signal.
- ABS actuator and electric unit (control unit) controls brake pressure of four wheels respectively according to the target yaw moment signal.

#### Operation Condition of BSI System

ADAS control unit performs the control when the following conditions are satisfied.

# SYSTEM

[BSW & BSI]

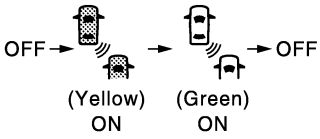
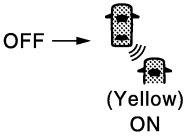
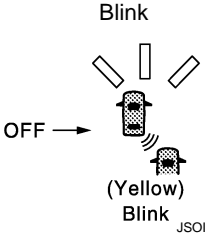
< SYSTEM DESCRIPTION >

- BSI ON indicator: ON
- When the vehicle drives at 60 km/h (37 MPH) or more to the forward direction.

**NOTE:**

- When the BSI system setting on the navigation screen is ON.
- The BSI system may not function properly, depending on the situation. Refer to [DAS-395, "Precautions for Blind Spot Warning/Blind Spot Intervention"](#).
- BSI braking will not operate or will stop operating and only a warning chime will sound under the following conditions.
  - When the brake pedal is depressed.
  - When the accelerator pedal is depressed while brake control assist is provided.
  - When steering quickly.
  - When the ICC, DCA, FCW or IBA warnings sound.
  - When the hazard warning flashers are operated.
  - When driving on a curve at a high speed.
- Under the following conditions, the BSI system will be turned off automatically, a beep will sound and the BSI ON indicator will blink. The BSW system is still available, but the BSI system will not be available until the conditions no longer exist.
  - When the VDC system (except TCS function) or ABS operates.
  - When the VDC system is turned OFF.
  - When the drive mode select switch is turned to the SNOW mode.

**BULB CHECK ACTION AND FAIL-SAFE INDICATION.**

| Vehicle condition/Driver's operation | BSW/BSI indicator    | Warning buzzer | Indication on the combination meter   |
|--------------------------------------|----------------------|----------------|---|
| Ignition switch:<br>OFF ⇒ ON         | Approx.<br>2 sec. ON | OFF            |  <p style="text-align: right; font-size: small;">J50IA0253GB</p>  |
| When DTC is detected                 | OFF                  | Beep           |  <p style="text-align: right; font-size: small;">J50IA0254GB</p> |
| When radar blockage is detected      | OFF                  | Beep           |  <p style="text-align: right; font-size: small;">J50IA0255GB</p> |

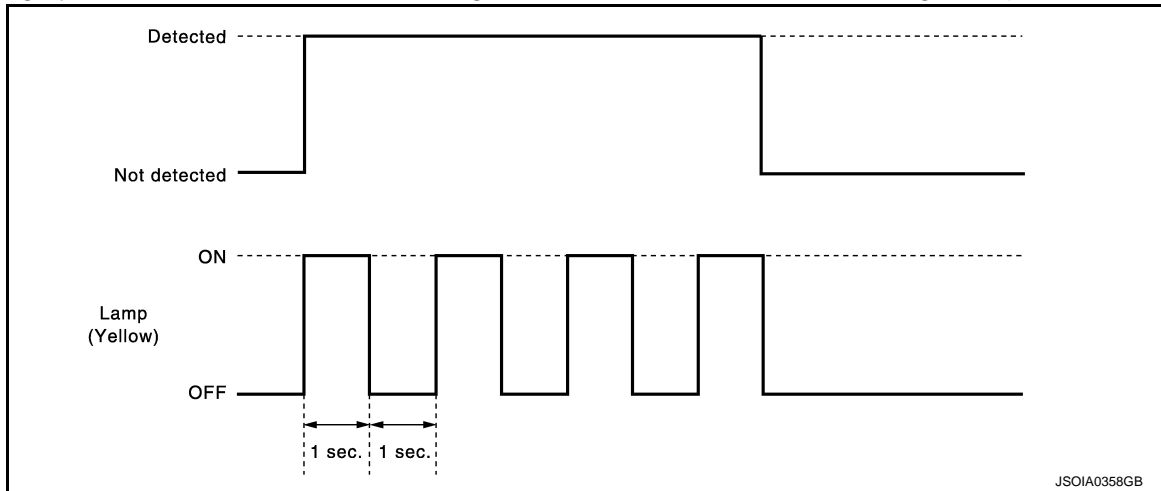
# SYSTEM

## < SYSTEM DESCRIPTION >

[BSW & BSI]

| Vehicle condition/Driver's operation  | BSW/BSI indicator | Warning buzzer | Indication on the combination meter |
|---|-------------------|----------------|-------------------------------------|
| When the camera detects that the interior temperature is high   | OFF               | Beep           |                                     |
| When the dynamic driver assistance switch is turned ON with settings of DCA system, LDP system and BSI system OFF | OFF               | —              |                                     |

Blinking cycle when the side radar blockage condition or lane camera unit high temperature condition



**NOTE:**

Time shown in the figure is approximate time.

### BLIND SPOT INTERVENTION (BSI) SYSTEM : Fail-safe (ADAS Control Unit)

INFOID:000000006886477

If a malfunction occurs in each system, ADAS control unit cancels each control, sounds a beep, and turns ON the warning lamp or indicator lamp.

| System   | Buzzer            | Warning lamp/Indicator lamp | Description |
|--|-------------------|-----------------------------|-------------|
| Vehicle-to-vehicle distance control mode       | High-pitched tone | ICC system warning lamp     | Cancel      |
| Conventional (fixed speed) cruise control mode | High-pitched tone | ICC system warning lamp     | Cancel      |
| Intelligent Brake Assist (IBA)                 | High-pitched tone | IBA OFF indicator lamp      | Cancel      |
| Forward Collision Warning (FCW)                | High-pitched tone | IBA OFF indicator lamp      | Cancel      |

DAS

# SYSTEM

< SYSTEM DESCRIPTION >

[BSW & BSI]

| System                          | Buzzer            | Warning lamp/Indicator lamp | Description  |
|---------------------------------|-------------------|-----------------------------|--|
| Distance Control Assist (DCA)   | High-pitched tone | ICC system warning lamp     | Cancel   |
| Lane Departure Warning (LDW)    | —                 | Lane departure warning lamp | Cancel   |
| Lane Departure Prevention (LDP) | Low-pitched tone  | Lane departure warning lamp | Cancel   |
| Blind Spot Warning (BSW)        | —                 | BSW/BSI warning lamp        | Cancel   |
| Blind Spot Intervention (BSI)   | Low-pitched tone  | BSW/BSI warning lamp        | Cancel   |
| Active trace control function   | —                 | IBA OFF indicator lamp      | <ul style="list-style-type: none"> <li>• Cancel</li> <li>• If a communication error occurs between the A/C auto amp. and CAN communication line, a mode at the instant of error occurrence is maintained until the mode is fixed to STANDARD after turning the ignition switch from OFF to ON</li> </ul> |

## BLIND SPOT INTERVENTION (BSI) SYSTEM : Fail-safe (Lane Camera Unit)

INFOID:000000006886478

### FAIL-SAFE CONTROL BY DTC

If a malfunction occurs in the lane camera unit, ADAS control unit cancels control, sounds a beep, and turns ON the BSW/BSI warning in the combination meter.

### TEMPORARY DISABLED STATUS AT HIGH TEMPERATURE

- If the vehicle is parked in direct sunlight under high temperature conditions, the system may be deactivated automatically. And the buzzer sounds and BSW/BSI warning lamp (yellow) in the combination meter will blink.
- When interior temperature is reduced, the system will resume when dynamic driver assistance switch is turned OFF and turned ON and the BSW/BSI warning lamp (yellow) in the combination meter will stop blinking.

## BLIND SPOT INTERVENTION (BSI) SYSTEM : Fail-safe (Side Radar)

INFOID:000000006886479

### FAIL-SAFE CONTROL BY DTC

If a malfunction occurs in the side radar, ADAS control unit cancels control, sounds a beep, and turns ON the BSW/BSI warning in the combination meter.

### TEMPORARY DISABLED STATUS AT BLOCKAGE

When the side radar is blocked, the operation is temporarily cancelled. Then the buzzer sounds and BSW/BSI warning lamp (yellow) in combination meter blinks. Also, under the following conditions, the operation may be temporarily cancelled.

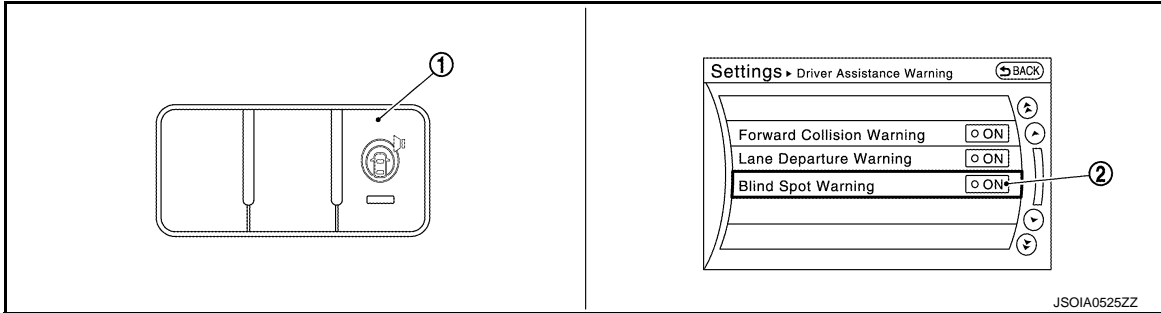
- The side radar may be blocked by temporary ambient conditions such as splashing water, mist or fog.
- The blocked condition may also be caused by objects such as ice, frost or dirt obstructing the side radar.

## OPERATION

### BLIND SPOT WARNING (BSW) SYSTEM

#### BLIND SPOT WARNING (BSW) SYSTEM : Switch Name and Function

INFOID:000000007218953

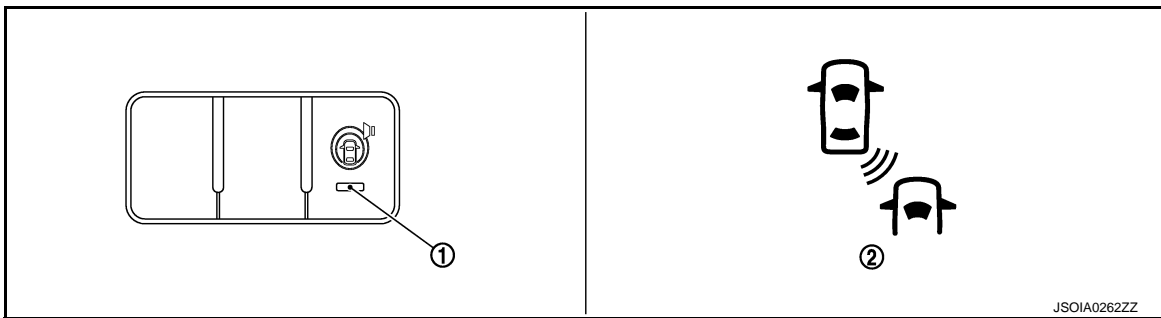


| No. | Name  | Function  |
|-----|---|---|
| 1   | Warning systems switch                            | Turns BSW system ON/OFF<br>(When the setting of BSW system on the navigation system setting screen is ON) |
| 2   | BSW setting screen<br>(Navigation setting screen) | Changes setting of BSW system (ON/OFF)  |

#### BLIND SPOT WARNING (BSW) SYSTEM : System Display and Warning

INFOID:000000007218954

##### INDICATOR AND WARNING LAMP



| No. | Name                          | Description  |
|-----|-------------------------------|--|
| 1   | Warning systems ON indicator  | <ul style="list-style-type: none"> <li>Indicates that the FCW system, LDW system, and/or BSW system is ON</li> <li>Blinks when the setting of LDW, FCW, and BSW are "OFF" and the warning systems switch is pressed</li> </ul>   |
| 2   | BSW/BSI warning lamp (yellow) | <ul style="list-style-type: none"> <li>Turns ON when BSW/BSI system is malfunctioning</li> <li>Blinks when the following conditions:                             <ul style="list-style-type: none"> <li>- When the camera detects that interior temperature is high</li> <li>- When radar blockage is detected.</li> </ul> </li> </ul> |

##### DISPLAY AND WARNING OPERATION

| Vehicle condition/ Driver's operation |                                      |                       |   | Action                              |        |
|---------------------------------------|--------------------------------------|-----------------------|---|-------------------------------------|--------|
| Warning systems ON indicator          | Vehicle speed (Approx.) [km/h (MPH)] | Turn signal condition | Status of vehicle detection within detection area | Indication on the BSW/BSI indicator | Buzzer |
| OFF                                   | —                                    | —                     | —   | OFF                                 | OFF    |

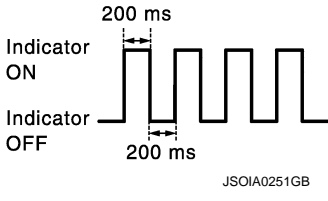
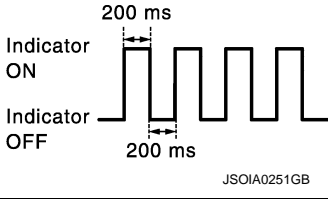
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# OPERATION

[BSW & BSI]

## < SYSTEM DESCRIPTION >

| Vehicle condition/ Driver's operation |  |                                    |   | Action                              |  |
|---------------------------------------|--|------------------------------------|---|-------------------------------------|--|
| Warning systems ON indicator          | Vehicle speed (Approx.) [km/h (MPH)]           | Turn signal condition              | Status of vehicle detection within detection area                                   | Indication on the BSW/BSI indicator | Buzzer   |
| ON                                    | Less than approx. 29 (18)                      | —                                  | —   | OFF                                 | OFF  |
|                                       | Approx. 32 (20) or more                        | —                                  | Vehicle is absent   | OFF                                 | OFF  |
|                                       |  | OFF                                | Vehicle is detected   | ON                                  | OFF  |
|                                       |  | ON<br>(Vehicle detected direction) | Before turn signal operates<br>Vehicle is detected                                  | Blink                               |  |
| ON<br>(Vehicle detected direction)    | Vehicle is detected after turn signal operates | Blink                              |  | OFF                                 |  |

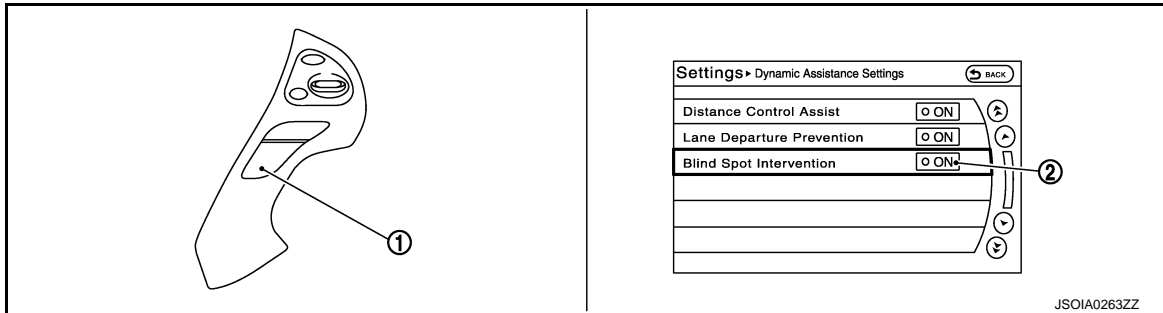
**NOTE:**

- If vehicle speed exceeds approximately 32 km/h (20MPH), BSW function operates until the vehicle speed becomes lower than approximately 29km/h (18MPH).
- Time shown in the figure is approximate time.
- Always BSI system operates together with BSW system. Whenever BSI system is turned on by pushing the dynamic driver assistance switch, BSW system also be turned on even if the BSW system is turned off. However, at this time the warning systems ON indicator remains OFF.

## BLIND SPOT INTERVENTION (BSI) SYSTEM

### BLIND SPOT INTERVENTION (BSI) SYSTEM : Switch Name and Function

INFOID:000000006886482



| No. | Name  | Function                               |
|-----|---|--|
| 1   | Dynamic driver assistance switch                  | Turns BSI, LDP, and DCA systems ON/OFF |
| 2   | BSI setting screen<br>(Navigation setting screen) | Changes setting of BSI system (ON/OFF) |



# OPERATION

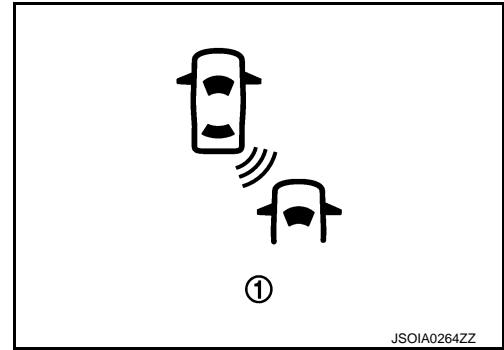
< SYSTEM DESCRIPTION >

[BSW & BSI]

## BLIND SPOT INTERVENTION (BSI) SYSTEM : System Display and Warning

INFOID:000000006886483

### INDICATOR AND WARNING LAMP



| No. | Name                          | Description   |
|-----|-------------------------------|---|
| 1   | BSI ON indicator (green)      | <ul style="list-style-type: none"> <li>• Turns ON while BSI system is ON</li> <li>• Blinks when dynamic driver assistance switch is pressed while setting of LDP/DCA/BSI is OFF</li> <li>• Under the following conditions, the BSI ON indicator (green) will blink.                             <ul style="list-style-type: none"> <li>- When the VDC system (except TCS function) or ABS operates.</li> <li>- When the VDC system is turned off.</li> <li>- When the drive mode select switch is turned to the SNOW mode.</li> </ul> </li> </ul> |
|     | BSW/BSI warning lamp (yellow) | <ul style="list-style-type: none"> <li>• Turns ON when BSW/BSI system is malfunctioning</li> <li>• Blinks when the following conditions:                             <ul style="list-style-type: none"> <li>- When the camera detects that interior temperature is high.</li> <li>- When radar blockage is detected.</li> </ul> </li> </ul>   |

### DISPLAY AND WARNING OPERATION

Whenever the BSI system is turned on, the BSW system will also be on.

| Vehicle condition/Driver's operation |                                      |   |                                     | Action  |               |  |
|--------------------------------------|--------------------------------------|---|-------------------------------------|---|---------------|--|
| BSI ON indicator                     | Vehicle speed (Approx.) [km/h (MPH)] | Status of vehicle detection within detection area | Status of approach to adjacent lane | Indication on the BSW/BSI indicator   | Brake control | Buzzer   |
| OFF                                  | —                                    | —   | —                                   | OFF   | OFF           | OFF  |
| Green                                | Less than approx. 60 (37)            | —   | —                                   | OFF   | OFF           | OFF  |
|                                      | Approx. 60 (37) or more              | Vehicle is absent                                 | —                                   | OFF   | OFF           | OFF  |
|                                      |                                      | Vehicle is detected                               | Not approaching                     | ON  | OFF           | OFF  |
|                                      | Approx. 60 (37) or more              | Vehicle is detected                               | Approaching                         | <p style="text-align: center;">Blink</p> <p style="text-align: center;">Time shown in the figure is approximate time.</p> | ON            | <p style="text-align: center;">Time shown in the figure is approximate time.</p> |

Under the following conditions, the BSI system will be turned off automatically, a beep will sound and the BSI ON indicator (green) will blink. The BSW system is still available, but the BSI system will not be available until the conditions no longer exist.

## < SYSTEM DESCRIPTION >

---

- When the VDC system (except TCS function) or ABS operates.
- When the VDC system is turned OFF.
- When the drive mode select switch is turned to the SNOW mode.

## HANDLING PRECAUTION

## Precautions for Blind Spot Warning/Blind Spot Intervention

INFOID:000000006886484

## LANE CAMERA UNIT HANDLING

Refer to [DAS-263. "Precautions for Lane Departure Warning/Lane Departure Prevention"](#).

## SIDE RADAR HANDLING

- Side radar for BSW/BSI system is located inside the rear bumper.
- Always keep the rear bumper near the side radar clean.
- Do not attach a sticker (including transparent material), install an accessory or paintwork near the side radar.
- Do not strike or damage the areas around the side radar.
- Do not strike, damage, and scratch the side radar, especially the vent seal (gray circular) area, under repair.

## BSW &amp; BSI

**CAUTION:**

- The BSW and BSI systems are not a replacement for proper driving procedure and are not designed to prevent contact with vehicles or objects. When changing lanes, always use the side and rear mirrors and turn and look in the direction driver will move to ensure it is safe to change lanes. Never rely solely on the BSW or BSI system.
- Using the BSI system under some road, lane marker or weather conditions could lead to improper system operation. Always rely on driver's own steering and braking operation to avoid accidents.
- The BSW and BSI systems may not provide a warning or brake control for vehicles that pass through the detection zone quickly.
- Do not use the BSW or BSI systems when towing a trailer.
- Excessive noise (e.g. audio system volume, open vehicle window) will interfere with the chime sound, and it may not be heard.
- The side radar may not be able to detect and activate BSI/BSW when certain objects are present such as:
  - Pedestrians, bicycles, animals.
  - Several types of vehicles such as motorcycles.
  - Oncoming vehicles.
  - Vehicles remaining in the detection zone when driver accelerate from a stop.
  - A vehicle merging into an adjacent lane at a speed approximately the same as vehicle.
  - A vehicle approaching rapidly from behind.
  - A vehicle which vehicle overtakes rapidly.
- Severe weather or road spray conditions may reduce the ability of the radar to detect other vehicles.
- The side radar detection zone is designed based on a standard lane width. When driving in a wider lane, the side radar may not detect vehicles in an adjacent lane. When driving in a narrow lane, the side radar may detect vehicles driving two lanes away.
- The side radar are designed to ignore most stationary objects, however objects such as guardrails, walls, foliage and parked vehicles may occasionally be detected. This is a normal operating condition.

## BSI

**CAUTION:**

- Do not use the BSI system under the following conditions because the system may not function properly.
  - During bad weather (e.g. rain, fog, snow, wind, etc.)
  - When driving on slippery roads, such as on ice or snow, etc.
  - When driving on winding or uneven roads.
  - When there is a lane closure due to road repairs.
  - When driving in a makeshift lane.
  - When driving on roads where the lane width is too narrow.
  - When driving with a tire that is not within normal tire conditions (e.g. tire wear, low tire pressure, installation of spare tire, tire chains, non-standard wheels).
  - When the vehicle is equipped with non-original brake parts or suspension parts.
- The camera may not detect lane markers in the following situations and the BSI system may not operate properly.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DAS

P

## HANDLING PRECAUTION

< SYSTEM DESCRIPTION >

[BSW & BSI]

- On roads where there are multiple parallel lane markers; lane markers that are faded or not painted clearly; yellow painted lane markers; nonstandard lane markers; lane markers covered with water, dirt, snow, etc.
- On roads where discontinued lane markers are still detectable.
- On roads where there are sharp curves.
- On roads where there are sharply contrasting objects, such as shadows, snow, water, wheel ruts, seams or lines remaining after road repairs.
- On roads where the traveling lane merges or separates.
- When the vehicle is traveling direction does not align with the lane markers.
- When traveling close to the vehicle in front of driver, which obstructs the lane camera unit detection range.
- When rain, snow or dirt adheres to the windshield in front of a lane camera unit.
- When the headlights are not bright due to dirt on the lens or if aiming is not adjusted properly.
- When strong light enters a lane camera unit. (e.g. light directly shines on the front of the vehicle at sunrise or sunset.)
- When a sudden change in brightness occurs. (e.g. when the vehicle enters or exits a tunnel or under a bridge.)
- The BSI system will not operate if your vehicle is on a lane marker when another vehicle enters the detection zone. In this case only the BSW system operates.
- BSI braking will not operate or will stop operating and only a warning chime will sound under the following conditions.
  - When the brake pedal is depressed.
  - When the accelerator pedal is depressed while brake control assist is provided.
  - When steering quickly.
  - When the ICC, DCA, FCW or IBA warnings sound.
  - When the hazard warning flashers are operated.
  - When driving on a curve at a high speed.

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BSW & BSI]

## DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

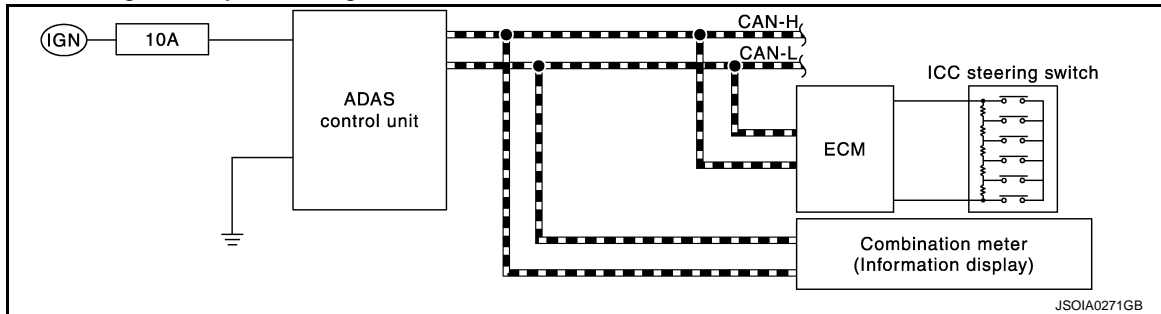
### On Board Diagnosis Function

INFOID:000000007218496

#### DESCRIPTION

The DTC is displayed on the information display by operating the ICC steering switch.

#### On Board Self-diagnosis System Diagram



#### METHOD OF STARTING

##### CAUTION:

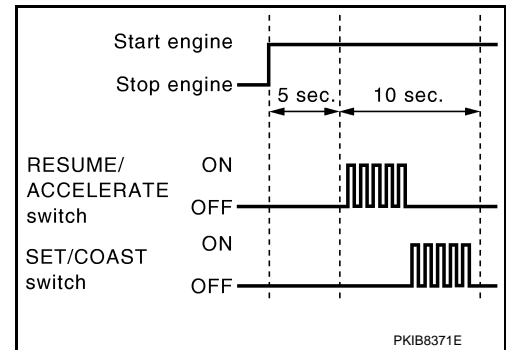
##### Start condition of on board self-diagnosis

- ICC system OFF
- DCA system OFF
- Vehicle speed 0 km/h (0 MPH)

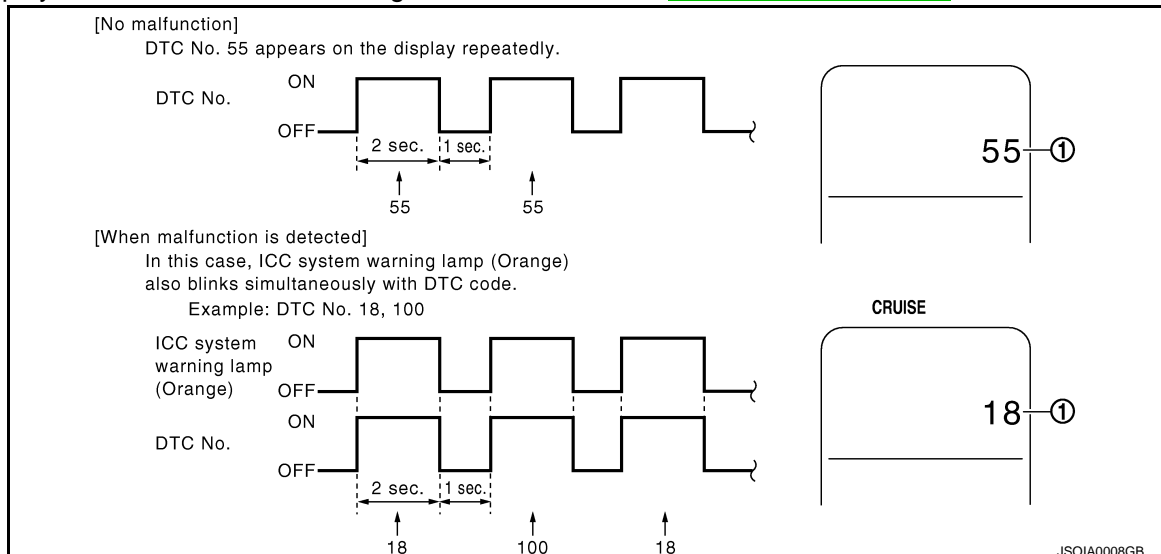
1. Turn the ignition switch OFF.
2. Start the engine.
3. Wait for 5 seconds after starting the engine. Push up the RESUME/ACCELERATE switch 5 times and push down the SET/COAST switch 5 times within 10 seconds.

##### NOTE:

If the above operation cannot be performed within 10 seconds after waiting for 5 seconds after starting the engine, repeat the procedure from step 1.



4. The DTC is displayed on the set vehicle speed indicator (1) on the ICC system display on the information display when the on board self-diagnosis starts. Refer to [DAS-420, "DTC Index"](#).



##### NOTE:

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

[BSW & BSI]

## < SYSTEM DESCRIPTION >

- It displays for up to 5 minutes and then stops.
- If multiple malfunctions exist, up to 6 DTCs can be stored in memory at the most, and the most recent one is displayed first.

## WHEN THE ON BOARD SELF-DIAGNOSIS DOES NOT START

If the on board self-diagnosis does not start, check the following items.

| Assumed abnormal part                                   |                               | Inspection item  |
|---|-------------------------------|--|
| Information display                                     | Combination meter malfunction | Check that the self-diagnosis function of the combination meter operates. Refer to <a href="#">MWI-30, "On Board Diagnosis Function"</a> .   |
| ICC steering switch malfunction                         |                               | Perform the inspection for DTC "C1A06". Refer to <a href="#">CCS-88, "DTC Logic"</a> .   |
| Harness malfunction between ICC steering switch and ECM |                               |  |
| ECM malfunction   |                               |  |
| ADAS control unit malfunction                           |                               | <ul style="list-style-type: none"> <li>• Check power supply and ground circuit of ADAS control unit. Refer to <a href="#">DAS-54, "Diagnosis Procedure"</a>.</li> <li>• Perform SELF-DIAGNOSIS for "ICC/ADAS" with CONSULT, and then check the malfunctioning parts. Refer to <a href="#">DAS-420, "DTC Index"</a>.</li> </ul> |

## HOW TO ERASE ON BOARD SELF-DIAGNOSIS

1. Turn the ignition switch OFF.
2. Start the engine, and then start the on board self-diagnosis.
3. Press the CANCEL switch 5 times, and then press the DISTANCE switch 5 times under the condition that the on board self-diagnosis starts.

### NOTE:

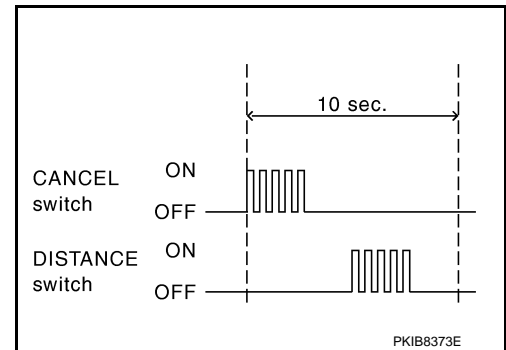
- Complete the operation within 10 seconds after pressing the CANCEL switch first.
- If the operation is not completed within 10 seconds, repeat the procedure from step 1.

4. DTC 55 is displayed after erasing.

### NOTE:

DTCs for existing malfunction can not be erased.

5. Turn ignition switch OFF, and finish the diagnosis.



## CONSULT Function (ICC/ADAS)

INFOID:000000007218497

## APPLICATION ITEMS

CONSULT performs the following functions via CAN communication using ADAS control unit.

| Diagnosis mode           | Description  |
|--------------------------|--|
| Work Support             | Displays causes of automatic system cancellation occurred during system control                                |
| Self Diagnostic Result   | Displays the name of a malfunctioning system stored in the ADAS control unit                                   |
| Data Monitor             | Displays ADAS control unit input/output data in real time  |
| Active Test              | Enables an operational check of a load by transmitting a driving signal from the ADAS control unit to the load |
| Ecu Identification       | Displays ADAS control unit part number   |
| CAN Diag Support Monitor | Displays a reception/transmission state of CAN communication and ITS communication                             |

## WORK SUPPORT

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BSW & BSI]

| Work support items     | Description   |
|------------------------|---|
| CAUSE OF AUTO-CANCEL 1 | Displays causes of automatic system cancellation occurred during control of the following systems <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle control mode</li> <li>• Conventional (fixed speed) control mode</li> <li>• Distance Control Assist (DCA)</li> </ul> |
| CAUSE OF AUTO-CANCEL 2 | Displays causes of automatic system cancellation occurred during control of the following systems <ul style="list-style-type: none"> <li>• Lane Departure Prevention (LDP)</li> <li>• Blind Spot Intervention (BSI)</li> </ul>  |

**NOTE:**

- Causes of the maximum five cancellations (system cancel) are displayed.
- The displayed cancellation causes display the number of the ignition switch ON/OFF up to 254. It is fixed to 254 if it is over 254. It returns to 0 when the same cancellation cause is detected again.

Display Items for The Cause of Automatic Cancellation 1

| Cause of cancellation | Vehicle-to-vehicle distance control mode | Conventional (fixed speed) cruise control mode | Distance Control Assist | Description  |
|-----------------------|--|--|-------------------------|--|
| OPERATING WIPER       | ×  |  |                         | The wiper operates at HI (it includes when the wiper is operated at HI with the wiper switch AUTO position)  |
| OPERATING ABS         | ×  |  | ×                       | ABS function was operated  |
| OPERATING TCS         | ×  | ×  | ×                       | TCS function was operated  |
| OPERATING VDC         | ×  | ×  | ×                       | VDC function was operated  |
| ECM CIRCUIT           | ×  | ×  |                         | ECM did not permit ICC operation   |
| OPE SW VOLT CIRC      | ×  | ×  | ×                       | The ICC steering switch input voltage is not within standard range   |
| LASER SUNBEAM         | ×  |  | ×                       | Intense light such as sunlight entered ICC sensor light sensing part   |
| LASER TEMP            | ×  |  | ×                       | Temperature around ICC sensor became low   |
| SNOW MODE SW          | ×  |  | ×                       | Shifting of the drive mode selector to SNOW position   |
| OP SW DOUBLE TOUCH    | ×  | ×  |                         | ICC steering switches were pressed at the same time  |
| VHCL SPD DOWN         | ×  | ×  | ×                       | Vehicle speed lower than the speed as follows <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle distance control mode is 24 km/h (15 MPH)</li> <li>• Conventional (fixed speed) cruise control mode is 32 km/h (20 MPH)</li> </ul> |
| WHL SPD ELEC NOISE    | ×  | ×  | ×                       | Wheel speed sensor signal caught electromagnetic noise   |
| VDC/TCS OFF SW        | ×  |  | ×                       | VDC OFF switch was pressed   |
| VHCL SPD UNMATCH      | ×  | ×  | ×                       | Wheel speed became different from A/T vehicle speed  |
| TIRE SLIP             | ×  | ×  |                         | Wheel slipped  |
| IGN LOW VOLT          | ×  | ×  | ×                       | Decrease in ADAS control unit IGN voltage  |
| PARKING BRAKE ON      | ×  | ×  |                         | The parking brake is operating   |

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BSW & BSI]

|                         |   |   |   |   |
|-------------------------|---|---|---|---|
| WHEEL SPD UNMATCH       | × | × | × | The wheel speeds of 4 wheels are out of the specified values  |
| INCHING LOST            | × |   |   | A vehicle ahead is not detected during the following driving when the vehicle speed is approximately 24 km/h (15 MPH) or less |
| CAN COMM ERROR          | × | × | × | ADAS control unit received an abnormal signal with CAN communication  |
| ABS/TCS/VDC CIRC        | × | × | × | An abnormal condition occurs in VDC/TCS/ABS system  |
| ECD CIRCUIT             | × | × | × | An abnormal condition occurs in ECD system  |
| ASCD VHCL SPD DTAC      |   | × |   | Vehicle speed is detached from set vehicle speed  |
| ASCD DOUBLE COMD        |   | × |   | Cancel switch and operation switch are detected simultaneously  |
| APA HI TEMP             |   |   | × | The accelerator pedal actuator integrated motor temperature is high   |
| ICC SENSOR CAN COMM ERR | × |   | × | Communication error between ADAS control unit and the ICC sensor  |
| ABS WARNING LAMP        | × |   | × | ABS warning lamp ON   |
| NO RECORD               | × | × | × | —   |

## Display Items for The Cause of Automatic Cancellation 2

| Cause of cancellation   | Lane departure prevention | Blind spot intervention | Description  |
|-------------------------|---------------------------|-------------------------|--|
| OPE VDC/TCS/ABS 1       | ×                         |                         | The activation of VDC, TCS, or ABS during LDP system control                                 |
| Vehicle dynamics        | ×                         |                         | Vehicle behavior exceeds specified value   |
| Steering speed          | ×                         |                         | Steering speed was more than the specified value in evasive direction                        |
| End by yaw angle        | ×                         |                         | Yaw angle was the end of LDP control   |
| Departure yaw large     | ×                         |                         | Detected more than the specified value of yaw angle in departure direction                   |
| ICC WARNING             | ×                         |                         | Target approach warning of ICC system, IBA system, or FCW system was activated               |
| CURVATURE               | ×                         |                         | Road curve was more than the specified value   |
| Steering angle large    | ×                         |                         | Steering angle was more than the specified value   |
| Brake is operated       | ×                         |                         | Brake pedal was operated   |
| IGN LOW VOLT            | ×                         |                         | Decrease in ADAS control unit IGN voltage  |
| Lateral offset          | ×                         |                         | Distance of vehicle and lane was detached in lateral direction more than the specified value |
| Lane marker lost        | ×                         |                         | Lane camera unit lost the trace of lane marker   |
| Lane marker unclear     | ×                         |                         | Detected lane marker was unclear   |
| Yaw acceleration        | ×                         |                         | Detected yawing speed was more than the specified value                                      |
| Deceleration large      | ×                         |                         | Deceleration in a longitudinal direction was more than the specified value                   |
| Accel is operated       | ×                         |                         | Accelerator pedal was depressed  |
| Departure steering      | ×                         |                         | Steering wheel was steered more than the specified value in departure direction              |
| Evasive steering        | ×                         |                         | Steering wheel was steered more than the specified value in the evasive direction            |
| R range                 | ×                         |                         | Selector lever was operated to R range   |
| Parking brake drift     | ×                         |                         | Rear wheels lock was detected  |
| Not operating condition | ×                         |                         | Did not meet the operating condition (vehicle speed, turn signal operation, etc.)            |
| SNOW MODE SW            | ×                         |                         | Shifting of the drive mode selector to SNOW position   |



# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BSW & BSI]

| Cause of cancellation        | Lane departure prevention | Blind spot intervention | Description  |
|------------------------------|---------------------------|-------------------------|--|
| VDC OFF SW                   | ×                         |                         | VDC OFF switch was pressed   |
| OPE VDC/ABS 2                | ×                         |                         | The activation of VDC or ABS during a standby time of LDP system control                     |
| BSI WARNING                  | ×                         |                         | Blind Spot Intervention system was activated   |
| BSI) OPE VDC/TCS/ABS 1       |                           | ×                       | The activation of VDC, TCS, or ABS during Blind Spot Intervention system control             |
| BSI) Vehicle dynamics        |                           | ×                       | Vehicle behavior exceeds specified value   |
| BSI) Steering speed          |                           | ×                       | Steering speed was more than the specified value in evasive direction                        |
| BSI) End by yaw angle        |                           | ×                       | Yaw angle was the end of Blind Spot Intervention control                                     |
| BSI) Departure yaw large     |                           | ×                       | Detected more than the specified value of yaw angle in departure direction                   |
| BSI) ICC WARNING             |                           | ×                       | Target approach warning of ICC system, IBA system or FCW system was activated                |
| BSI) CURVATURE               |                           | ×                       | Road curve was more than the specified value   |
| BSI) Steering angle large    |                           | ×                       | Steering angle was more than the specified value   |
| BSI) Brake is operated       |                           | ×                       | Brake pedal was operated   |
| BSI) IGN LOW VOLT            |                           | ×                       | Decrease in ADAS control unit IGN voltage  |
| BSI) Lateral offset          |                           | ×                       | Distance of vehicle and lane was detached in lateral direction more than the specified       |
| BSI) Lane marker lost        |                           | ×                       | Lane camera unit lost the trace of lane marker   |
| BSI) Lane marker unclear     |                           | ×                       | Detected lane marker was unclear   |
| BSI) Yaw acceleration        |                           | ×                       | Detected yawing speed was more than the specified value                                      |
| BSI) Deceleration large      |                           | ×                       | Deceleration in a longitudinal direction was more than the specified value                   |
| BSI) Accel is operated       |                           | ×                       | Accelerator pedal was depressed  |
| BSI) Departure steering      |                           | ×                       | Steering wheel was steered more than the specified value in departure direction              |
| BSI) Evasive steering        |                           | ×                       | Steering wheel was steered more than the specified value in the evasive direction            |
| BSI) R range                 |                           | ×                       | Selector lever was operated to R range   |
| BSI) Parking brake drift     |                           | ×                       | Rear wheels lock was detected  |
| BSI) SNOW MODE SW            |                           | ×                       | Shifting of the drive mode selector to SNOW position   |
| BSI) VDC OFF SW              |                           | ×                       | VDC OFF switch was pressed   |
| BSI) OPE VDC/ABS 2           |                           | ×                       | The activation of VDC or ABS during a standby time of Blind Spot Intervention system control |
| BSI) Not operating condition |                           | ×                       | Did not meet the operating condition (vehicle speed, turn signal operation, etc.)            |
| Side Radar Lost              |                           | ×                       | Unrecognized side radar LH or RH by the ADAS control unit                                    |
| NO RECORD                    | ×                         | ×                       | —  |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## SELF DIAGNOSTIC RESULT

Refer to [DAS-420. "DTC Index"](#).

## DATA MONITOR

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BSW & BSI]

| Monitored item<br>[Unit]         | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description  |
|----------------------------------|------------------|-------------------|-----------------------|-----------------------|--|
| MAIN SW<br>[On/Off]              | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| SET/COAST SW<br>[On/Off]         | ×                | ×                 |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| CANCEL SW<br>[On/Off]            | ×                | ×                 |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| RESUME/ACC SW<br>[On/Off]        | ×                | ×                 |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| DISTANCE SW<br>[On/Off]          | ×                |                   |                       |                       | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| CRUISE OPE<br>[On/Off]           | ×                | ×                 |                       |                       | Indicates whether controlling or not (ON means "controlling")  |
| BRAKE SW<br>[On/Off]             | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status as judged from ICC brake switch signal (ECM transmits ICC brake switch signal through CAN communication)   |
| STOP LAMP SW<br>[On/Off]         | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status as judged from stop lamp switch signal (ECM transmits stop lamp switch signal through CAN communication)   |
| IDLE SW<br>[On/Off]              | ×                |                   |                       |                       | Indicates [On/Off] status of idle switch read from ADAS control unit through CAN communication (ECM transmits On/Off status through CAN communication)   |
| SET DISTANCE<br>[Short/Mid/Long] | ×                | ×                 |                       |                       | Indicates set distance memorized in ADAS control unit  |
| CRUISE LAMP<br>[On/Off]          | ×                | ×                 |                       |                       | Indicates [On/Off] status of MAIN switch indicator output  |
| OWN VHCL<br>[On/Off]             | ×                |                   |                       |                       | Indicates [On/Off] status of own vehicle indicator output  |
| VHCL AHEAD<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of vehicle ahead detection indicator output  |
| ICC WARNING<br>[On/Off]          | ×                |                   |                       |                       | Indicates [On/Off] status of ICC system warning lamp output  |
| VHCL SPEED SE<br>[km/h] or [mph] | ×                | ×                 | ×                     | ×                     | Indicates vehicle speed calculated from ADAS control unit through CAN communication [ABS actuator and electric unit (control unit) transmits vehicle speed signal (wheel speed) through CAN communication] |
| SET VHCL SPD<br>[km/h] or [mph]  | ×                | ×                 |                       |                       | Indicates set vehicle speed memorized in ADAS control unit   |
| BUZZER O/P<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of ICC warning chime output  |
| THRTL SENSOR<br>[deg]            | ×                | ×                 |                       |                       | <b>NOTE:</b><br>The item is displayed, but it is not monitored   |
| ENGINE RPM<br>[rpm]              | ×                |                   |                       |                       | Indicates engine speed read from ADAS control unit through CAN communication (ECM transmits engine speed signal through CAN communication)   |
| WIPER SW<br>[OFF/LOW/HIGH]       | ×                |                   |                       |                       | Indicates wiper [OFF/LOW/HIGH] status (BCM transmits front wiper request signal through CAN communication)   |
| YAW RATE<br>[deg/s]              | ×                |                   |                       |                       | <b>NOTE:</b><br>The item is displayed, but it is not monitored   |
| BA WARNING<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of IBA OFF indicator lamp output   |
| STP LMP DRIVE<br>[On/Off]        | ×                | ×                 |                       |                       | Indicates [On/Off] status of ICC brake hold relay drive output   |
| D RANGE SW<br>[On/Off]           | ×                |                   |                       |                       | Indicates [On/Off] status of "D" or "M" positions read from ADAS control unit through CAN communication; ON when position "D" or "M" (TCM transmits shift position signal through CAN communication).      |

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BSW & BSI]

| Monitored item<br>[Unit]          | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description  |
|-----------------------------------|------------------|-------------------|-----------------------|-----------------------|--|
| NP RANGE SW<br>[On/Off]           | ×                |                   |                       |                       | Indicates shift position signal read from ADAS control unit through CAN communication (TCM transmits shift position signal through CAN communication)  |
| PKB SW<br>[On/Off]                | ×                |                   |                       |                       | Parking brake switch status [On/Off] judged from the parking brake switch signal that ADAS control unit readout via CAN communication is displayed (combination meter transmits the parking brake switch signal via CAN communication) |
| PWR SUP MONI<br>[V]               | ×                | ×                 |                       |                       | Indicates IGN voltage input by ADAS control unit   |
| VHCL SPD AT<br>[km/h] or [mph]    | ×                |                   |                       |                       | Indicates vehicle speed calculated from A/T vehicle speed sensor read from ADAS control unit through CAN communication (TCM transmits A/T vehicle speed sensor signal through CAN communication)                                       |
| THRTL OPENING<br>[%]              | ×                | ×                 |                       |                       | Indicates throttle position read from ADAS control unit through CAN communication (ECM transmits accelerator pedal position signal through CAN communication).   |
| GEAR<br>[1, 2, 3, 4, 5, 6, 7]     | ×                |                   |                       |                       | Indicates A/T gear position read from ADAS control unit through CAN communication (TCM transmits current gear position signal through CAN communication)   |
| MODE SIG<br>[OFF, ICC, ASCD]      | ×                |                   |                       |                       | Indicates the active mode from ICC or ASCD [conventional (fixed speed) cruise control mode]  |
| SET DISP IND<br>[On/Off]          | ×                |                   |                       |                       | Indicates [On/Off] status of SET switch indicator output   |
| DISTANCE<br>[m]                   | ×                |                   |                       |                       | Indicates the distance from the vehicle ahead  |
| RELATIVE SPD<br>[m/s]             | ×                |                   |                       |                       | Indicates the relative speed of the vehicle ahead  |
| DYNA ASIST SW<br>[On/Off]         | ×                | ×                 |                       | ×                     | Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)   |
| DCA ON IND<br>[On/Off]            | ×                |                   |                       |                       | The status [ON/OFF] of DCA system switch indicator output is displayed   |
| DCA VHL AHED<br>[On/Off]          | ×                |                   |                       |                       | The status [ON/OFF] of vehicle ahead detection indicator output in DCA system is displayed   |
| IBA SW<br>[On/Off]                | ×                | ×                 |                       |                       | Indicates [On/Off] status of IBA OFF switch  |
| FCW SYSTEM ON<br>[On/Off]         | ×                | ×                 |                       |                       | Indicates [On/Off] status of FCW system  |
| APA TEMP<br>[°C]                  | ×                |                   |                       |                       | Accelerator pedal actuator integrated motor temperature that the ADAS control unit readout via ITS communication is displayed (Accelerator pedal actuator transmits the integrated motor temperature via ITS communication)            |
| APA PWR<br>[V]                    | ×                |                   |                       |                       | Accelerator pedal actuator power supply voltage that the ADAS control unit readout via ITS communication is displayed (Accelerator pedal actuator transmits the power supply voltage via ITS communication)                            |
| LDW SYSTEM ON<br>[On/Off]         |                  |                   | ×                     |                       | Indicates [On/Off] status of LDW system  |
| LDW ON LAMP<br>[On/Off]           |                  |                   | ×                     |                       | Indicates [On/Off] status of warning systems ON indicator output   |
| LDP ON IND<br>[On/Off]            |                  |                   | ×                     |                       | Indicates [On/Off] status of LDP ON indicator lamp (Green) output  |
| LANE DPRT W/L<br>[On/Off]         |                  |                   | ×                     |                       | Indicates [On/Off] status of lane departure warning lamp (Yellow) output   |
| LDW BUZER OUT-<br>PUT<br>[On/Off] |                  |                   | ×                     |                       | Indicates [On/Off] status of warning buzzer output   |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BSW & BSI]

| Monitored item<br>[Unit]                      | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description   |
|---|------------------|-------------------|-----------------------|-----------------------|---|
| LDP SYSTEM ON<br>[On/Off]                     |                  |                   | ×                     |                       | Indicates [On/Off] status of LDP system   |
| WARN REQ<br>[On/Off]                          |                  |                   | ×                     |                       | Indicates an ADAS control unit judged warning state (ON/OFF) of LDP system  |
| READY signal<br>[On/Off]                      |                  |                   | ×                     |                       | Indicates LDP system settings   |
| Camera lost<br>[Detect/Deviate/Both]          |                  |                   | ×                     | ×                     | Indicates a lane marker detection state judged from a lane marker detection signal read by the ADAS control unit via ITS communication<br>(Lane camera unit transmits a lane marker signal via ITS communication)   |
| Shift position<br>[Off, P, R, N, D, M/T1 - 7] |                  |                   | ×                     | ×                     | Indicates shift position read from ADAS control unit through CAN communication<br>(TCM transmits shift position signal through CAN communication)   |
| Turn signal<br>[OFF/LH/RH/LH&RH]              |                  |                   | ×                     | ×                     | Indicates turn signal operation status read from ADAS control unit through CAN communication (BCM transmits turn indicator signal through CAN communication)  |
| SIDE G<br>[G]                                 |                  |                   | ×                     | ×                     | Indicates lateral G acting on the vehicle. This lateral G is judged from a side G sensor signal read by ADAS control unit via CAN communication<br>(The ABS actuator and electric unit (control unit) transmits a side G sensor signal via CAN communication) |
| STATUS signal<br>[Stnby/Warn/Cancel/Off]      |                  |                   | ×                     |                       | Indicates a control state of LDP system   |
| Lane unclear<br>[On/Off]                      |                  |                   | ×                     | ×                     | Indicates an ON/OFF state of the lane marker. The ON/OFF state is judged from a detected lane condition signal read by the ADAS control unit via ITS communication<br>(The lane camera unit transmits a detected lane condition signal via ITS communication) |
| FUNC ITEM<br>[FUNC3]                          | ×                | ×                 | ×                     | ×                     | Indicates systems which can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system<br>FUNC3: Distance Control Assist (DCA), Lane Departure Prevention (LDP) and Blind Spot Intervention (BSI)             |
| FUNC ITEM (NV-ICC)<br>[Off]                   | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| FUNC ITEM (NV-DCA)<br>[Off]                   | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| DCA SELECT<br>[On/Off]                        | ×                | ×                 | ×                     | ×                     | Indicates an ON/OFF state of the DCA system. The DCA system can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system  |
| LDP SELECT<br>[On/Off]                        | ×                | ×                 | ×                     | ×                     | Indicates an ON/OFF state of LDP system. LDP system can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system  |
| BSI SELECT<br>[On/Off]                        | ×                | ×                 | ×                     | ×                     | Indicates an ON/OFF state of BSI system. BSI system can be set to ON/OFF by selecting "Driver Assistance" ⇒ "Dynamic Assistance Settings" of the navigation system.   |
| NAVI ICC SELECT<br>[Off]                      | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| NAVI DCA SELECT<br>[Off]                      | ×                | ×                 | ×                     | ×                     | <b>NOTE:</b><br>The item is displayed, but it is not monitored  |
| SYS SELECTABILITY<br>[On/Off]                 | ×                | ×                 | ×                     | ×                     | Indicates the availability of ON/OFF switching for "Driver Assistance" items received from the AV control unit via CAN communication  |

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BSW & BSI]

| Monitored item<br>[Unit]                               | ALL SIG<br>(ICC) | MAIN SIG<br>(ICC) | MAIN SIG<br>(LDW/LDP) | MAIN SIG<br>(BSW/BSI) | Description   |
|--|------------------|-------------------|-----------------------|-----------------------|---|
| DRIVE MODE STATS<br>[STD/SPORT/ECO/<br>SNOW/MID/ERROR] | ×                | ×                 | ×                     | ×                     | Indicates a drive mode selector select position judged from a drive mode select switch position signal read by the ADAS control unit via CAN communication<br>(The A/C auto amp. transmits a switch position signal of the drive mode select switch signal via CAN communication) |
| WARN SYS SW<br>[On/Off]                                | ×                | ×                 | ×                     | ×                     | Indicates [On/Off] status of warning systems switch   |
| BSW/BSI WARN LMP<br>[On/Off]                           |                  |                   |                       | ×                     | Indicates [On/Off] status of BSW/BSI warning lamp output  |
| BSI ON IND<br>[On/Off]                                 |                  |                   |                       | ×                     | Indicates [On/Off] status of BSI ON indicator output  |
| BSW SYSTEM ON<br>[On/Off]                              |                  |                   |                       | ×                     | Indicates [On/Off] status of BSW system   |
| BSI SYSTEM ON<br>[On/Off]                              |                  |                   |                       | ×                     | Indicates [On/Off] status of BSI system   |

## ACTIVE TEST

### CAUTION:

- **Never perform “Active Test” while driving the vehicle.**
- **The “Active Test” cannot be performed when the following systems warning lamp is illuminated.**
  - **ICC system warning lamp**
  - **Lane departure warning lamp**
  - **BSW/BSI warning lamp**
  - **IBA OFF indicator lamp (IBA system ON)**
- **Shift the selector lever to “P” position, and then perform the test.**

| Test item            | Description   |
|----------------------|---|
| METER LAMP           | The ICC system warning lamp, MAIN switch indicator and IBA OFF indicator lamp can be illuminated by ON/OFF operations as necessary  |
| STOP LAMP            | The ICC brake hold relay can be operated by ON/OFF operations as necessary, and the stop lamp can be illuminated  |
| ICC BUZZER           | Sounds a buzzer used for following systems by arbitrarily operating ON/OFF <ul style="list-style-type: none"> <li>• Intelligent Cruise Control (ICC)</li> <li>• Distance Control Assist (DCA)</li> <li>• Forward Collision Warning (FCW)</li> <li>• Intelligent Brake Assist (IBA)</li> </ul> |
| BRAKE ACTUATOR       | Activates the brake by an arbitrary operation   |
| Active Pedal         | The accelerator pedal actuator can be operated as necessary   |
| DCA INDICATOR        | The DCA system switch indicator can be illuminated by ON/OFF operations as necessary  |
| LDP BUZZER           | Sounds a buzzer used for following systems by arbitrarily operating ON/OFF <ul style="list-style-type: none"> <li>• Lane Departure Warning (LDW)</li> <li>• Lane Departure Prevention (LDP)</li> <li>• Blind Spot Warning (BSW)</li> <li>• Blind Spot Intervention (BSI)</li> </ul>           |
| WARNING SYSTEM IND   | The warning systems ON indicator (on warning systems switch) can be illuminated by ON/OFF operations as necessary   |
| LDP ON IND           | The LDP ON indicator lamp can be illuminated by ON/OFF operations as necessary  |
| LANE DEPARTURE W/L   | The Lane departure warning lamp can be illuminated by ON/OFF operations as necessary  |
| BSW/BSI WARNING LAMP | The BSW/BSI warning lamp can be illuminated by ON/OFF operations as necessary   |
| BSI ON INDICATOR     | The BSI ON indicator can be illuminated by ON/OFF operations as necessary   |

## METER LAMP

### NOTE:

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BSW & BSI]

The test can be performed only when the engine is running.

| Test item  | Operation | Description   | <ul style="list-style-type: none"> <li>• MAIN switch indicator</li> <li>• ICC system warning lamp</li> <li>• IBA OFF indicator lamp</li> </ul> |
|------------|-----------|---|--|
| METER LAMP | Off       | Stops sending the following signals to exit from the test <ul style="list-style-type: none"> <li>• Meter display signal</li> <li>• ICC warning lamp signal</li> <li>• IBA OFF indicator lamp signal</li> </ul>                      | OFF  |
|            | On        | Transmits the following signals to the combination meter via CAN communication <ul style="list-style-type: none"> <li>• Meter display signal</li> <li>• ICC warning lamp signal</li> <li>• IBA OFF indicator lamp signal</li> </ul> | ON   |

## STOP LAMP

| Test item | Operation | Description  | Stop lamp |
|-----------|-----------|--|-----------|
| STOP LAMP | Off       | Stops transmitting the ICC brake hold relay drive signal below to end the test | OFF       |
|           | On        | Transmits the ICC brake hold relay drive signal                                | ON        |

## ICC BUZZER

| Test item  | Operation  | Description  | ICC warning chime operation sound |
|------------|------------|--|-----------------------------------|
| ICC BUZZER | MODE1      | Transmits the buzzer output signals to the combination meter via CAN communication | Intermittent beep sound           |
|            | Test start | Starts the tests of "MODE1"  | —                                 |
|            | Reset      | Stops transmitting the buzzer output signal below to end the test                  | —                                 |
|            | End        | Returns to the "SELECT TEST ITEM" screen   | —                                 |

## BRAKE ACTUATOR

### NOTE:

The test can be performed only when the engine is running.

| Test item      | Operation  | Description  | "PRESS SENS" value |
|----------------|------------|--|--------------------|
| BRAKE ACTUATOR | MODE1      | Transmits the brake fluid pressure control signal to the ABS actuator and electric unit (control unit) via CAN communication | 10 bar             |
|                | MODE2      |  | 20 bar             |
|                | MODE3      |  | 30 bar             |
|                | Test start | Starts the tests of "MODE1", "MODE2" and "MODE3"   | —                  |
|                | Reset      | Stops transmitting the brake fluid pressure control signal below to end the test   | —                  |
|                | End        | Returns to the "SELECT TEST ITEM" screen   | —                  |

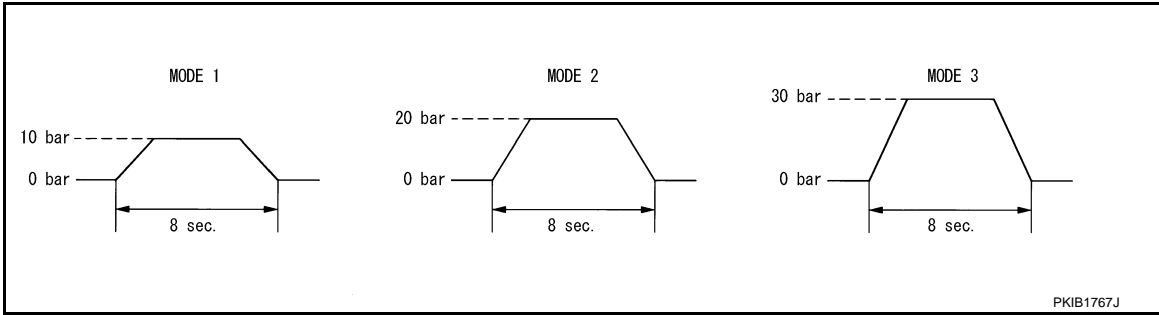
### NOTE:

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

[BSW & BSI]

## < SYSTEM DESCRIPTION >

The test is finished in 10 seconds after starting



Active Pedal

**CAUTION:**

- Shift the selector lever to “P” position, and then perform the test.
- Never depress the accelerator pedal excessively. (The engine speed may rise unexpectedly when finishing the test.)

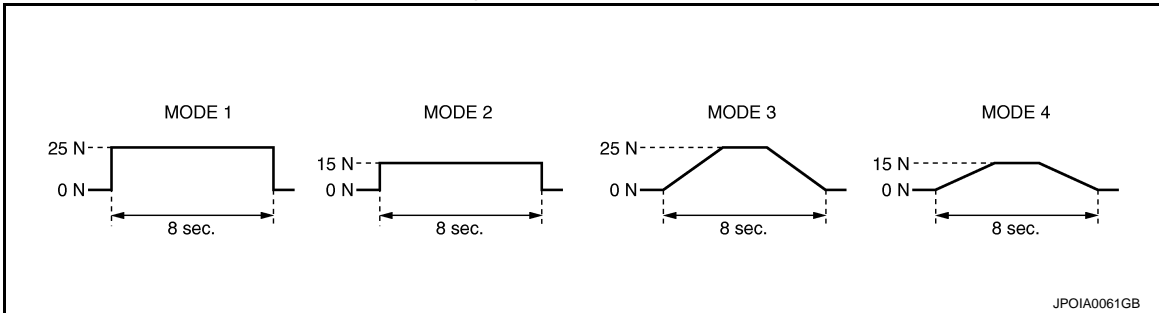
**NOTE:**

- Depress the accelerator pedal to check when performing the test.
- The test can be performed only when the engine is running.

| Test item    | Operation   | Description   | Accelerator pedal operation                 |
|--------------|---|---|---|
| Active Pedal | MODE1   | Transmit the accelerator pedal feedback force control signal to the accelerator pedal actuator via ITS communication. | Constant with a force of 25 N for 8 seconds |
|              | MODE2   |   | Constant with a force of 15 N for 8 seconds |
|              | MODE3   |   | Change up to a force of 25 N for 8 seconds  |
|              | MODE4   |   | Change up to a force of 15 N for 8 seconds  |
|              | Test start  | Starts the tests of “MODE1”, “MODE2”, “MODE3” and “MODE4”   | —   |
| Reset        | Stops transmitting the accelerator pedal feedback force control signal below to end the test. | —   |   |
| End          | Returns to the “SELECT TEST ITEM” screen  | —   |   |

**NOTE:**

The test is finished in 10 seconds after starting



DCA INDICATOR

**NOTE:**

The test can be performed only when the engine is running.

| Test item     | Operation | Description   | DCA system switch indicator |
|---------------|-----------|---|-----------------------------|
| DCA INDICATOR | Off       | Stops transmitting the DCA system switch indicator signal below to end the test                 | —                           |
|               | On        | Transmits the DCA system switch indicator signal to the combination meter via CAN communication | ON                          |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BSW & BSI]

## LDP BUZZER

| Test item  | Operation | Description  | Warning buzzer |
|------------|-----------|--|----------------|
| LDP BUZZER | Off       | Stops transmitting the warning buzzer signal below to end the test | —              |
|            | On        | Transmits the warning buzzer signal to the warning buzzer          | ON             |

## WARNING SYSTEM IND

| Test item          | Operation | Description  | Warning systems ON indicator |
|--------------------|-----------|--|------------------------------|
| WARNING SYSTEM IND | Off       | Stops transmitting the warning systems ON indicator signal below to end the test       | —                            |
|                    | On        | Transmits the warning systems ON indicator signal to the warning systems ON indicator. | ON                           |

## LDP ON IND

| Test item  | Operation | Description   | LDP ON indicator lamp (Green) |
|------------|-----------|---|-------------------------------|
| LDP ON IND | Off       | Stops transmitting the LDP ON indicator lamp signal below to end the test                 | —                             |
|            | On        | Transmits the LDP ON indicator lamp signal to the combination meter via CAN communication | ON                            |

## LANE DEPARTURE W/L

| Test item          | Operation | Description   | Lane departure warning lamp (Yellow) |
|--------------------|-----------|---|--------------------------------------|
| LANE DEPARTURE W/L | Off       | Stops transmitting the lane departure warning lamp signal below to end the test                 | —                                    |
|                    | On        | Transmits the lane departure warning lamp signal to the combination meter via CAN communication | ON                                   |

## BSW/BSI WARNING LAMP

| Test item            | Operation | Description  | BSW/BSI warning lamp (Yellow) |
|----------------------|-----------|--|-------------------------------|
| BSW/BSI WARNING LAMP | Off       | Stops transmitting the BSW/BSI warning lamp signal below to end the test                 | —                             |
|                      | On        | Transmits the BSW/BSI warning lamp signal to the combination meter via CAN communication | ON                            |

## BSI ON INDICATOR

| Test item        | Operation | Description  | BSI ON indicator lamp (Green) |
|------------------|-----------|--|-------------------------------|
| BSI ON INDICATOR | Off       | Stops transmitting the BSI ON indicator signal below to end the test                 | —                             |
|                  | On        | Transmits the BSI ON indicator signal to the combination meter via CAN communication | ON                            |



# DIAGNOSIS SYSTEM (SIDE RADAR LH)

[BSW & BSI]

< SYSTEM DESCRIPTION >

## DIAGNOSIS SYSTEM (SIDE RADAR LH)

### CONSULT Function (SIDE RADAR LEFT)

INFOID:000000006886487

#### DESCRIPTION

CONSULT performs the following functions by communicating with the side radar LH.

| Select diag mode       | Function   |
|------------------------|--|
| Self Diagnostic Result | Displays memorized DTC in the side radar.                                      |
| Data Monitor           | Displays real-time data of side radar.   |
| Active Test            | Enables operation check of electrical loads by sending driving signal to them. |
| Ecu Identification     | Displays part number of side radar.  |

#### SELF DIAGNOSTIC RESULT

##### Self Diagnostic Result

Displays memorized DTC in side radar LH. Refer to [DAS-426. "DTC Index"](#).

##### FFD (Freeze Frame Data)

The side radar records the following data when the malfunction is detected.

| Freeze Frame Data item | Description   |
|------------------------|---|
| VHCL SP from ADAS      | The vehicle speed (from ADAS control unit) at the moment a malfunction is detected is displayed |
| TURN SIG STATUS        | Turn signal status at the moment a malfunction is detected is displayed                         |

#### DATA MONITOR

| Monitored Item [unit] | Description   |
|-----------------------|---|
| BEAM DISTANCE         | —<br>The item is displayed, but it is not used.         |
| BEAM POSITION         | —<br>The item is displayed, but it is not used.         |
| SIDE RADAR MALF       | Off<br>Side radar is normal.                            |
|                       | On<br>Side radar is malfunctioning.                     |
| BLOCKAGE COND         | Off<br>Side radar is not blocked.                       |
|                       | On<br>Side radar is blocked.                            |
| ACTIVATE OPE          | —<br>The item is displayed, but it is not used.         |
| VEHICLE DETECT        | Off<br>Does not detect a vehicle within detection area. |
|                       | On<br>Detects a vehicle within detection area.          |

#### ACTIVE TEST

##### CAUTION:

- Never perform the active test while driving.
- Active test cannot be started while the BSW/BSI indicator is illuminated.

| Active test item        | Operation | Description  |
|-------------------------|-----------|--|
| BSW/BSI INDICATOR DRIVE | On        | Outputs the voltage to illuminate the BSW/BSI indicator. |
|                         | Off       | Stops the voltage to illuminate the BSW/BSI indicator.   |

# DIAGNOSIS SYSTEM (SIDE RADAR RH)

[BSW & BSI]

< SYSTEM DESCRIPTION >

## DIAGNOSIS SYSTEM (SIDE RADAR RH)

### CONSULT Function (SIDE RADAR RIGHT)

INFOID:000000006886488

#### DESCRIPTION

CONSULT performs the following functions by communicating with the side radar RH.

| Select diag mode       | Function   |
|------------------------|--|
| Self Diagnostic Result | Displays memorized DTC in the side radar.                                      |
| Data Monitor           | Displays real-time data of side radar.   |
| Active Test            | Enables operation check of electrical loads by sending driving signal to them. |
| Ecu Identification     | Displays part number of side radar.  |

#### SELF DIAGNOSTIC RESULT

##### Self Diagnostic Result

Displays memorized DTC in side radar RH. Refer to [DAS-428. "DTC Index"](#).

##### FFD (Freeze Frame Data)

The side radar records the following data when the malfunction is detected.

| Freeze Frame Data item | Description   |
|------------------------|---|
| VHCL SP from ADAS      | The vehicle speed (from ADAS control unit) at the moment a malfunction is detected is displayed |
| TURN SIG STATUS        | Turn signal status at the moment a malfunction is detected is displayed                         |

#### DATA MONITOR

| Monitored Item [unit] | Description   |
|-----------------------|---|
| BEAM DISTANCE         | —<br>The item is displayed, but it is not used.         |
| BEAM POSITION         | —<br>The item is displayed, but it is not used.         |
| SIDE RADAR MALF       | Off<br>Side radar is normal.                            |
|                       | On<br>Side radar is malfunctioning.                     |
| BLOCKAGE COND         | Off<br>Side radar is not blocked.                       |
|                       | On<br>Side radar is blocked.                            |
| ACTIVATE OPE          | —<br>The item is displayed, but it is not used.         |
| VEHICLE DETECT        | Off<br>Does not detect a vehicle within detection area. |
|                       | On<br>Detects a vehicle within detection area.          |

#### ACTIVE TEST

##### CAUTION:

- Never perform the active test while driving.
- Active test cannot be started while the BSW/BSI indicator is illuminated.

| Active test item           | Operation | Description  |
|----------------------------|-----------|--|
| BSW/BSI INDICATOR<br>DRIVE | On        | Outputs the voltage to illuminate the BSW/BSI indicator. |
|                            | Off       | Stops the voltage to illuminate the BSW/BSI indicator.   |

# DIAGNOSIS SYSTEM (LANE CAMERA UNIT)

< SYSTEM DESCRIPTION >

[BSW & BSI]

## DIAGNOSIS SYSTEM (LANE CAMERA UNIT)

### CONSULT Function (LANE CAMERA)

INFOID:000000007218479

#### APPLICATION ITEMS

CONSULT performs the following functions by communicating with the lane camera unit.

| Diagnosis mode           | Description   |
|--------------------------|---|
| Work Support             | Performs the camera aiming.   |
| Self Diagnostic Result   | Displays the name of a malfunctioning system stored in the lane camera unit |
| Data Monitor             | Displays lane camera unit input/output data in real time                    |
| Ecu Identification       | Displays lane camera unit part number                                       |
| CAN Diag Support Monitor | Displays a reception/transmission state of ITS communication                |

#### WORK SUPPORT

| Work support items | Description   |
|--------------------|---|
| AUTO AIM           | Outputs camera unit, calculates dislocation of the camera, and displays adjustment direction. |
| AIM CHECK          | <b>NOTE:</b><br>The item is indicated, but not used   |

#### SELF DIAGNOSTIC RESULT

Refer to [DAS-431. "DTC Index"](#).

#### DATA MONITOR

| Monitored item<br>[Unit]         | Description   |
|----------------------------------|---|
| LC INACCURAT [On/Off]            | Lane camera unit status   |
| AIMING DONE [OK/NG]              | Status that camera aiming is done   |
| AIMING RESULT [OK/NOK]           | Result of camera aiming   |
| CAM HIGH TEMP [NORMAL/High]      | Status of lane camera unit high temperature judgment                            |
| VHCL SPD SE [km/h] or [mph]      | Vehicle speed received from ADAS control unit via ITS communication             |
| TURN SIGNAL [Off, LH, RH, LH/RH] | Status of "Turn signal" determined from ADAS control unit via ITS communication |
| LANE DETCT LH [On/Off]           | Left side lane marker detection   |
| LANE DETCT RH [On/Off]           | Right side lane marker detection  |
| CROSS LANE LH [On/Off]           | Condition that the vehicle is crossing left lane marker                         |
| CROSS LANE RH [On/Off]           | Condition that the vehicle is crossing right lane marker                        |
| WARN LANE LH [On/Off]            | Warning for left lane marker  |
| WARN LANE RH [On/Off]            | Warning for right lane marker   |
| VALID POS LH [VLD/INVLD]         | Lateral position for left lane marker is valid                                  |
| VALID POS RH [VLD/INVLD]         | Lateral position for right lane marker is valid                                 |
| XOFFSET [pixel]                  | Lane camera unit installation condition   |
| AIM CHECK YAW [deg]              | Check result of camera aiming   |
| AIM CHECK ROLL [deg]             | Check result of camera aiming   |
| AIM CHECK PITCH [deg]            | Check result of camera aiming   |
| FCTRY AIM YAW [deg]              | Lane camera unit installation condition   |
| FCTRY AIM ROL [deg]              | Lane camera unit installation condition   |

# DIAGNOSIS SYSTEM (LANE CAMERA UNIT)

< SYSTEM DESCRIPTION >

[BSW & BSI]

| Monitored item<br>[Unit] | Description                             |
|--------------------------|---|
| FCTRY AIM PIT [deg]      | Lane camera unit installation condition |
| ADAS MALF [On/Off]       | ADAS control unit status                |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

## ECU DIAGNOSIS INFORMATION

### ADAS CONTROL UNIT

Reference Value

INFOID:000000007218492

#### VALUES ON THE DIAGNOSIS TOOL

| Monitor item  | Condition  |  | Value/Status |
|---------------|--|--|--------------|
| MAIN SW       | Ignition switch ON   | When MAIN switch is pressed  | On           |
|               |  | When MAIN switch is not pressed  | Off          |
| SET/COAST SW  | Ignition switch ON   | When SET/COAST switch is pressed   | On           |
|               |  | When SET/COAST switch is not pressed   | Off          |
| CANCEL SW     | Ignition switch ON   | When CANCEL switch is pressed  | On           |
|               |  | When CANCEL switch is not pressed  | Off          |
| RESUME/ACC SW | Ignition switch ON   | When RESUME/ACCELERATE switch is pressed                                     | On           |
|               |  | When RESUME/ACCELERATE switch is not pressed                                 | Off          |
| DISTANCE SW   | Ignition switch ON   | When DISTANCE switch is pressed  | On           |
|               |  | When DISTANCE switch is not pressed  | Off          |
| CRUISE OPE    | Drive the vehicle and activate the vehicle-to-vehicle distance control mode  | When ICC system is controlling   | On           |
|               |  | When ICC system is not controlling   | Off          |
| BRAKE SW      | Ignition switch ON   | When brake pedal is depressed  | Off          |
|               |  | When brake pedal is not depressed  | On           |
| STOP LAMP SW  | Ignition switch ON   | When brake pedal is depressed  | On           |
|               |  | When brake pedal is not depressed  | Off          |
| IDLE SW       | Engine running   | Idling   | On           |
|               |  | Except idling (depress accelerator pedal)                                    | Off          |
| SET DISTANCE  | <ul style="list-style-type: none"> <li>• Start the engine and turn the ICC system ON</li> <li>• Press the DISTANCE switch to change the vehicle-to-vehicle distance setting</li> </ul> | When set to "long"   | Long         |
|               |  | When set to "middle"   | Mid          |
|               |  | When set to "short"  | Short        |
| CRUISE LAMP   | Start the engine and press MAIN switch   | ICC system ON (MAIN switch indicator ON)                                     | On           |
|               |  | ICC system OFF (MAIN switch indicator OFF)                                   | Off          |
| OWN VHCL      | Start the engine and press MAIN switch   | ICC system ON (Own vehicle indicator ON)                                     | On           |
|               |  | ICC system OFF (Own vehicle indicator OFF)                                   | Off          |
| VHCL AHEAD    | Drive the vehicle and activate the vehicle-to-vehicle distance control mode  | When a vehicle ahead is detected (vehicle ahead detection indicator ON)      | On           |
|               |  | When a vehicle ahead is not detected (vehicle ahead detection indicator OFF) | Off          |
| ICC WARNING   | Start the engine and press MAIN switch   | When ICC system is malfunctioning (ICC system warning lamp ON)               | On           |
|               |  | When ICC system is normal (ICC system warning lamp OFF)                      | Off          |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

| Monitor item  | Condition   |   | Value/Status   |
|---------------|---|---|--|
| VHCL SPEED SE | While driving   |   | Displays the vehicle speed calculated by ADAS control unit |
| SET VHCL SPD  | While driving   | When vehicle speed is set   | Displays the set vehicle speed                             |
| BUZZER O/P    | Engine running  | When the buzzer of the following system operates <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle distance control mode</li> <li>• DCA system</li> <li>• FCW system</li> <li>• IBA system</li> </ul>     | On   |
|               |   | When the buzzer of the following system not operates <ul style="list-style-type: none"> <li>• Vehicle-to-vehicle distance control mode</li> <li>• DCA system</li> <li>• FCW system</li> <li>• IBA system</li> </ul> | Off  |
| THRTL SENSOR  | <b>NOTE:</b><br>The item is indicated, but not monitored                    |   | 0.0  |
| ENGINE RPM    | Engine running  |   | Equivalent to tachometer reading                           |
| WIPER SW      | Ignition switch ON  | Wiper not operating   | Off  |
|               |   | Wiper LO operation  | Low  |
|               |   | Wiper HI operation  | High   |
| YAW RATE      | <b>NOTE:</b><br>The item is indicated, but not monitored                    |   | 0.0  |
| BA WARNING    | Engine running  | IBA OFF indicator lamp ON <ul style="list-style-type: none"> <li>• When IBA system is malfunctioning</li> <li>• When IBA system is turned to OFF</li> </ul>   | On   |
|               |   | IBA OFF indicator lamp OFF <ul style="list-style-type: none"> <li>• When IBA system is normal</li> <li>• When IBA system is turned to ON</li> </ul>   | Off  |
| STP LMP DRIVE | Drive the vehicle and activate the vehicle-to-vehicle distance control mode | When ICC brake hold relay is activated  | On   |
|               |   | When ICC brake hold relay is not activated  | Off  |
| D RANGE SW    | Engine running  | When the selector lever is in "D" position or manual mode   | On   |
|               |   | When the selector lever is in any position other than "D" or manual mode  | Off  |
| NP RANGE SW   | Engine running  | When the selector lever is in "N", "P" position   | On   |
|               |   | When the selector lever is in any position other than "N", "P"  | Off  |
| PKB SW        | Ignition switch ON  | When the parking brake is applied   | On   |
|               |   | When the parking brake is released  | Off  |
| PWR SUP MONI  | Engine running  |   | Power supply voltage value of ADAS control unit            |
| VHCL SPD AT   | While driving   |   | Value of A/T vehicle speed sensor signal                   |
| THRTL OPENING | Engine running  | Depress accelerator pedal   | Displays the throttle position                             |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

| Monitor item  | Condition   |  | Value/Status  |
|---------------|---|--|---|
| GEAR          | While driving   |  | Displays the gear position  |
| MODE SIG      | Start the engine and press MAIN switch  | When ICC system is deactivated   | Off   |
|               |   | When vehicle-to-vehicle distance control mode is activated                   | ICC   |
|               |   | When conventional (fixed speed) cruise control mode is activated             | ASCD  |
| SET DISP IND  | <ul style="list-style-type: none"> <li>• Drive the vehicle and activate the conventional (fixed speed) cruise control mode</li> <li>• Press SET/COAST switch</li> </ul> | SET switch indicator ON  | On  |
|               |   | SET switch indicator OFF   | Off   |
| DISTANCE      | Drive the vehicle and activate the vehicle-to-vehicle distance control mode   | When a vehicle ahead is detected   | Displays the distance from the preceding vehicle                    |
|               |   | When a vehicle ahead is not detected   | 0.0   |
| RELATIVE SPD  | Drive the vehicle and activate the vehicle-to-vehicle distance control mode   | When a vehicle ahead is detected   | Displays the relative speed.  |
|               |   | When a vehicle ahead is not detected   | 0.0   |
| DYNA ASIST SW | Ignition switch ON  | When dynamic driver assistance switch is pressed                             | On  |
|               |   | When dynamic driver assistance switch is not pressed                         | Off   |
| DCA ON IND    | Start the engine and press dynamic driver assistance switch (When DCA setting is ON)  | DCA system OFF (DCA system switch indicator OFF)                             | Off   |
|               |   | DCA system ON (DCA system switch indicator ON)                               | On  |
| DCA VHL AHED  | Drive the vehicle and activate the DCA system   | When a vehicle ahead is not detected (vehicle ahead detection indicator OFF) | Off   |
|               |   | When a vehicle ahead is detected (vehicle ahead detection indicator ON)      | On  |
| IBA SW        | Ignition switch ON  | When the IBA OFF switch is pressed   | On  |
|               |   | When the IBA OFF switch is not pressed                                       | Off   |
| FCW SYSTEM ON | Ignition switch ON  | When the FCW system is ON (Warning systems ON indicator ON)                  | On  |
|               |   | When the FCW system is OFF (Warning systems ON indicator OFF)                | Off   |
| APA TEMP      | Engine running  |  | Display the accelerator pedal actuator integrated motor temperature |
| APA PWR       | Ignition switch ON  |  | Power supply voltage value of accelerator pedal actuator            |
| LDW SYSTEM ON | Ignition switch ON  | When the LDW system is ON (Warning systems ON indicator ON)                  | On  |
|               |   | When the LDW system is OFF (Warning systems ON indicator OFF)                | Off   |
| LDW ON LAMP   | Ignition switch ON  | Warning systems ON indicator ON  | On  |
|               |   | Warning systems ON indicator OFF   | Off   |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N

DAS

P

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

| Monitor item       | Condition   |  | Value/Status                |
|--------------------|---|--|-----------------------------|
| LDP ON IND         | Start the engine and press dynamic driver assistance switch (When LDP system setting is ON) | LDP ON indicator lamp ON   | On                          |
|                    |   | LDP ON indicator lamp OFF  | Off                         |
| LANE DPRT W/L      | Drive the vehicle and activate the LDW system or LDP system                                 | Lane departure warning lamp ON   | On                          |
|                    |   | Lane departure warning lamp OFF  | Off                         |
| LDW BUZER OUTPUT   | Drive the vehicle and activate the LDW/LDP system or BSW/BSI system                         | When the buzzer of the following system operates<br>• LDW/LDP system<br>• BSW/BSI system         | On                          |
|                    |   | When the buzzer of the following system does not operate<br>• LDW/LDP system<br>• BSW/BSI system | Off                         |
| LDP SYSTEM ON      | Start the engine and press dynamic driver assistance switch (When LDP system setting is ON) | When the LDP system is ON  | On                          |
|                    |   | When the LDP system is OFF   | Off                         |
| READY signal       | Start the engine and press dynamic driver assistance switch (When LDP system setting is ON) | When the LDP system is ON  | On                          |
|                    |   | When the LDP system is OFF   | Off                         |
| Camera lost        | Drive the vehicle and activate the LDW system, LDP system or BSI system                     | Both side lane markers are detected  | Detect                      |
|                    |   | Deviate side lane marker is lost   | Deviate                     |
|                    |   | Both side lane markers are lost  | Both                        |
| Shift position     | <ul style="list-style-type: none"> <li>• Engine running</li> <li>• While driving</li> </ul> |  | Displays the shift position |
| Turn signal        | Turn signal lamps OFF   |  | Off                         |
|                    | Turn signal lamp LH blinking  |  | LH                          |
|                    | Turn signal lamp RH blinking  |  | RH                          |
|                    | Turn signal lamp LH and RH blinking   |  | LH&RH                       |
| SIDE G             | While driving   | Vehicle turning right  | Negative value              |
|                    |   | Vehicle turning left   | Positive value              |
| WARN REQ           | Drive the vehicle and activate the LDP system   | Lane departure warning is operating  | On                          |
|                    |   | Lane departure warning is not operating  | Off                         |
| STATUS signal      | Drive the vehicle and activate the LDP system   | When the LDP system is ON  | Stnby                       |
|                    |   | When the LDP system is operating   | Warn                        |
|                    |   | When the LDP system is canceled  | Cancl                       |
|                    |   | When the LDP system is OFF   | Off                         |
| Lane unclear       | While driving   | Lane marker is unclear   | On                          |
|                    |   | Lane marker is clear   | Off                         |
| FUNC ITEM          | Ignition switch ON  |  | FUNC3                       |
| FUNC ITEM (NV-ICC) | <b>NOTE:</b><br>The item is indicated, but not monitored                                    |  | Off                         |
| FUNC ITEM (NV-DCA) | <b>NOTE:</b><br>The item is indicated, but not monitored                                    |  | Off                         |
| DCA SELECT         | Ignition switch ON  | "Distance Control Assist" set with the navigation system is ON                                   | On                          |
|                    |   | "Distance Control Assist" set with the navigation system is OFF                                  | Off                         |



# ADAS CONTROL UNIT

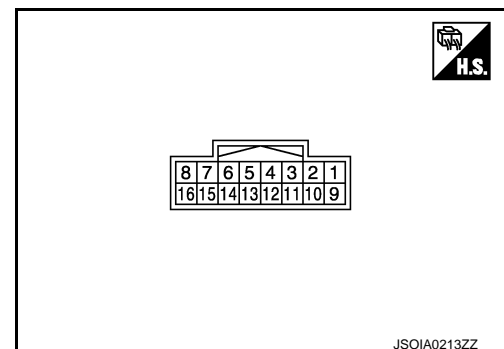
< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

| Monitor item                             | Condition  | Value/Status   |       |
|--|--|--|-------|
| LDP SELECT                               | Ignition switch ON   | "Lane Departure Prevention" set with the navigation system is ON   | On    |
|  |  | "Lane Departure Prevention" set with the navigation system is OFF  | Off   |
| BSI SELECT                               | Ignition switch ON   | "Blind Spot Intervention" set with the navigation system is ON   | On    |
|  |  | "Blind Spot Intervention" set with the navigation system is OFF  | Off   |
| NAVI ICC SELECT                          | <b>NOTE:</b><br>The item is indicated, but not monitored                                       |  | Off   |
| NAVI DCA SELECT                          | <b>NOTE:</b><br>The item is indicated, but not monitored                                       |  | Off   |
| SYS SELECTABILITY                        | Ignition switch ON   | Items set with the navigation system can be switched normally  | On    |
|  |  | Items set with the navigation system cannot be switched normally   | Off   |
| DRIVE MODE STATS                         | Ignition switch ON   | When drive mode select switch position is STANDARD   | STD   |
|  |  | When drive mode select switch position is in SPORT   | SPORT |
|  |  | When drive mode select switch position is in ECO   | ECO   |
|  |  | When drive mode select switch position is in SNOW  | SNOW  |
|  |  | When position of drive mode select switch is in following states<br><ul style="list-style-type: none"> <li>• In the middle of SNOW-ECO</li> <li>• In the middle of ECO-STANDARD</li> <li>• In the middle of STANDARD-SPORTS</li> </ul> | Mid   |
| A signal other than those above is input | ERROR  |  |       |
| WARN SYS SW                              | Ignition switch ON   | When warning systems switch is pressed   | On    |
|  |  | When warning systems switch is not pressed   | Off   |
| BSW/BSI WARN LMP                         | Ignition switch ON   | BSW/BSI warning lamp ON  | On    |
|  |  | BSW/BSI warning lamp OFF   | Off   |
| BSI ON IND                               | Ignition switch ON   | BSI ON indicator ON  | On    |
|  |  | BSI ON indicator OFF   | Off   |
| BSW SYSTEM ON                            | Ignition switch ON   | When the BSW system is ON<br>(Warning systems ON indicator ON)   | On    |
|  |  | When the BSW system is OFF<br>(Warning systems ON indicator OFF)   | Off   |
| BSI SYSTEM ON                            | Start the engine and press dynamic driver assistance switch<br>(When BSI system setting is ON) | When the BSI system is ON  | On    |
|  |  | When the BSI system is OFF   | Off   |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N

TERMINAL LAYOUT  
PHYSICAL VALUES



DAS

P

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

| Terminal No.<br>(Wire color) |                       | Description                       |                    | Condition          |  | Value<br>(Approx.) |
|------------------------------|-----------------------|-----------------------------------|--------------------|--------------------|--|--------------------|
| +                            | -                     | Signal name                       | Input/<br>Output   |                    |  |                    |
| 1<br>(Y)                     | Ground                | Warning systems switch            | Input              | Ignition switch ON | When warning systems switch is not pressed | 12 V               |
|                              |                       |                                   |                    |                    | When warning systems switch is pressed     | 0 V                |
| 3<br>(BR)                    |                       | IBA OFF switch                    | Input              | Ignition switch ON | When IBA OFF switch is not pressed         | 12 V               |
|                              |                       |                                   |                    |                    | When IBA OFF switch is pressed             | 0 V                |
| 4<br>(O)                     |                       | Warning systems ON indicator      | Output             | Ignition switch ON | Warning systems ON indicator ON            | 0 V                |
|                              |                       |                                   |                    |                    | Warning systems ON indicator OFF           | 12 V               |
| 5<br>(SB)                    |                       | ICC brake hold relay drive signal | Output             | Ignition switch ON | —  | 12 V               |
|                              |                       |                                   |                    |                    | At "STOP LAMP" test of "Active test"       | 0 V                |
| 6<br>(B/R)                   |                       | Ground                            | —                  | Ignition switch ON | —  | 0 V                |
| 7<br>(L)                     |                       | ITS communication-H               | —                  | —                  | —  | —                  |
| 8<br>(P)                     |                       | ITS communication-L               | —                  | —                  | —  | —                  |
| 12<br>(W)                    |                       | Warning buzzer signal             | Output             | Ignition switch ON | Warning buzzer operation                   | 0 V                |
|                              |                       |                                   |                    |                    | Warning buzzer not operating               | 12 V               |
| 14<br>(L)                    |                       | CAN -H                            | —                  | —                  | —  | —                  |
| 15<br>(R)                    | CAN -L                | —                                 | —                  | —                  | —  |                    |
| 16<br>(GR)                   | Ignition power supply | Input                             | Ignition switch ON |                    | Battery voltage                            |                    |

## Fail-safe

INFOID:000000007218493

If a malfunction occurs in each system, ADAS control unit cancels each control, sounds a beep, and turns ON the warning lamp or indicator lamp.

| System   | Buzzer            | Warning lamp/Indicator lamp | Description |
|--|-------------------|-----------------------------|-------------|
| Vehicle-to-vehicle distance control mode       | High-pitched tone | ICC system warning lamp     | Cancel      |
| Conventional (fixed speed) cruise control mode | High-pitched tone | ICC system warning lamp     | Cancel      |
| Intelligent Brake Assist (IBA)                 | High-pitched tone | IBA OFF indicator lamp      | Cancel      |
| Forward Collision Warning (FCW)                | High-pitched tone | IBA OFF indicator lamp      | Cancel      |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

| System                          | Buzzer            | Warning lamp/Indicator lamp | Description  |
|---------------------------------|-------------------|-----------------------------|--|
| Distance Control Assist (DCA)   | High-pitched tone | ICC system warning lamp     | Cancel   |
| Lane Departure Warning (LDW)    | —                 | Lane departure warning lamp | Cancel   |
| Lane Departure Prevention (LDP) | Low-pitched tone  | Lane departure warning lamp | Cancel   |
| Blind Spot Warning (BSW)        | —                 | BSW/BSI warning lamp        | Cancel   |
| Blind Spot Intervention (BSI)   | Low-pitched tone  | BSW/BSI warning lamp        | Cancel   |
| Active trace control function   | —                 | IBA OFF indicator lamp      | <ul style="list-style-type: none"> <li>• Cancel</li> <li>• If a communication error occurs between the A/C auto amp. and CAN communication line, a mode at the instant of error occurrence is maintained until the mode is fixed to STANDARD after turning the ignition switch from OFF to ON</li> </ul> |

## DTC Inspection Priority Chart

INFOID:000000007218494

If multiple DTCs are detected simultaneously, check them one by one depending on the following DTC inspection priority chart.

| Priority | Detected items (DTC)   |
|----------|--|
| 1        | <ul style="list-style-type: none"> <li>• U1507: LOST COMM (SIDE RDR R)</li> <li>• U1508: LOST COMM (SIDE RDR L)</li> </ul>   |
| 2        | <ul style="list-style-type: none"> <li>• U1000: CAN COMM CIRCUIT</li> <li>• U1010: CONTROL UNIT (CAN)</li> </ul>   |
| 3        | <ul style="list-style-type: none"> <li>• C1B00: CAMERA UNIT MALF</li> <li>• C1F02: APA C/U MALF</li> <li>• C1A17: ICC SENSOR MALF</li> <li>• C1B53: SIDE RDR R MALF</li> <li>• C1B54: SIDE RDR L MALF</li> </ul> |

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

| Priority | Detected items (DTC)  |
|----------|---|
| 4        | <ul style="list-style-type: none"> <li>• C1A01: POWER SUPPLY CIR</li> <li>• C1A02: POWER SUPPLY CIR 2</li> <li>• C1A04: ABS/TCS/VDC CIRC</li> <li>• C1A05: BRAKE SW/STOP L SW</li> <li>• C1A06: OPERATION SW CIRC</li> <li>• C1A12: LASER BEAM OFFCNTR</li> <li>• C1A13: STOP LAMP RLY FIX</li> <li>• C1A14: ECM CIRCUIT</li> <li>• C1A16: RADAR STAIN</li> <li>• C1A18: LASER AIMING INCOMP</li> <li>• C1A2A: ICC SEN PWR SUP CIR</li> <li>• C1A21: ICC SENSOR HIGH TEMP</li> <li>• C1A24: NP RANGE</li> <li>• C1A26: ECD MODE MALF</li> <li>• C1A27: ECD PWR SUPPLY CIR</li> <li>• C1A33: CAN TRANSMISSION ERR</li> <li>• C1A34: COMMAND ERROR</li> <li>• C1A35: APA CIR</li> <li>• C1A36: APA CAN COMM CIR</li> <li>• C1A37: APA CAN CIR 2</li> <li>• C1A38: APA CAN CIR 1</li> <li>• C1A39: STRG SEN CIR</li> <li>• C1A40: SYSTEM SW CIRC</li> <li>• C1B01: CAM AIMING INCOMP</li> <li>• C1B03: CAM ABNRML TMP DETCT</li> <li>• C1F01: APA MOTOR MALF</li> <li>• C1F05: APA PWR SUPPLY CIR</li> <li>• U0121: VDC CAN CIR 2</li> <li>• U0126: STRG SEN CAN CIR 1</li> <li>• U0235: ICC SENSOR CAN CIRC 1</li> <li>• U0401: ECM CAN CIR 1</li> <li>• U0402: TCM CAN CIR 1</li> <li>• U0415: VDC CAN CIR 1</li> <li>• U0424: HVAC CAN CIR 1</li> <li>• U0428: STRG SEN CAN CIR 2</li> <li>• U1500: CAM CAN CIR 2</li> <li>• U1501: CAM CAN CIR 1</li> <li>• U1502: ICC SEN CAN COMM CIR</li> <li>• U1503: SIDE RDR L CAN CIR 2</li> <li>• U1504: SIDE RDR L CAN CIR 1</li> <li>• U1505: SIDE RDR R CAN CIR 2</li> <li>• U1506: SIDE RDR R CAN CIR 1</li> <li>• U150B: ECM CAN CIRC 3</li> <li>• U150C: VDC CAN CIRC 3</li> <li>• U150D: TCM CAN CIRC 3</li> <li>• U150E: BCM CAN CIRC 3</li> <li>• U150F: AV CAN CIRC 3</li> <li>• U1512: HVAC CAN CIRC3</li> <li>• U1513: METER CAN CIRC 3</li> <li>• U1514: STRG SEN CAN CIRC 3</li> <li>• U1515: ICC SENSOR CAN CIRC 3</li> <li>• U1516: CAM CAN CIRC 3</li> <li>• U1517: APA CAN CIRC 3</li> <li>• U1518: SIDE RDR L CAN CIRC 3</li> <li>• U1519: SIDE RDR R CAN CIRC 3</li> </ul> |
| 5        | <ul style="list-style-type: none"> <li>• C1A03: VHCL SPEED SE CIRC</li> </ul>   |
| 6        | <ul style="list-style-type: none"> <li>• C1A15: GEAR POSITION</li> </ul>  |
| 7        | <ul style="list-style-type: none"> <li>• C1A00: CONTROL UNIT</li> </ul>   |

## DTC Index

INFOID:000000007218495

### NOTE:

- The details of time display are as per the following.

# ADAS CONTROL UNIT

[BSW & BSI]

< ECU DIAGNOSIS INFORMATION >

- CRNT: A malfunction is detected now
- PAST: A malfunction was detected in the past
- IGN counter is displayed on FFD (Freeze Frame Data).
- 0: The malfunctions that are detected now  
CAN communication system (U1000, U1010)
- 1 - 39: It increases like 0 → 1 → 2 ... 38 → 39 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 39, it is fixed to 39 until the self-diagnosis results are erased.  
Other than CAN communication system (Other than U1000, U1010)
- 1 - 49: It increases like 0 → 1 → 2 ... 38 → 49 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 49, it is fixed to 49 until the self-diagnosis results are erased.

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC     |                  | CONSULT display      | Warning lamp            |                        |                             |                      | Fail-safe              | Reference               |
|---------|------------------|----------------------|-------------------------|------------------------|-----------------------------|----------------------|------------------------|-------------------------|
| CONSULT | On board display |                      | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System                 |                         |
| C1A00   | 0                | CONTROL UNIT         | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-445</a> |
| C1A01   | 1                | POWER SUPPLY CIR     | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-446</a> |
| C1A02   | 2                | POWER SUPPLY CIR 2   | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-446</a> |
| C1A03   | 3                | VHCL SPEED SE CIRC   | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-447</a> |
| C1A04   | 4                | ABS/TCS/VDC CIRC     | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-448</a> |
| C1A05   | 5                | BRAKE SW/STOP L SW   | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-449</a> |
| C1A06   | 6                | OPERATION SW CIRC    | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">DAS-454</a> |
| C1A12   | 12               | LASER BEAM OFFCN-TR  | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">CCS-91</a>  |
| C1A13   | 13               | STOP LAMP RLY FIX    | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-92</a>  |
| C1A14   | 14               | ECM CIRCUIT          | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">DAS-457</a> |
| C1A15   | 15               | GEAR POSITION        | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-458</a> |
| C1A16   | 16               | RADAR STAIN          | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">CCS-101</a> |
| C1A17   | 17               | ICC SENSOR MALF      | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-103</a> |
| C1A18   | 18               | LASER AIMING INCOMP  | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">CCS-104</a> |
| C1A21   | 21               | ICC SENSOR HIGH TEMP | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-106</a> |
| C1A24   | 24               | NP RANGE             | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-460</a> |

DAS

P

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC   |                 | CONSULT display                                     | Warning lamp            |                        |                             |                      | Fail-safe              | Reference               |
|---|-----------------|---|-------------------------|------------------------|-----------------------------|----------------------|------------------------|-------------------------|
| CONSULT   | Onboard display |   | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System                 |                         |
| C1A26   | 26              | ECD MODE MALF                                       | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-110</a> |
| C1A27   | 27              | ECD PWR SUPPLY CIR                                  | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-111</a> |
| C1A33   | 33              | CAN TRANSMISSION ERR                                | ON                      |                        |                             |                      | A, B, E, H             | <a href="#">CCS-113</a> |
| C1A34   | 34              | COMMAND ERROR                                       | ON                      |                        |                             |                      | A, B, E, H             | <a href="#">CCS-114</a> |
| C1A35   | 35              | APA CIR   | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-115</a> |
| C1A36   | 36              | APA CAN COMM CIR                                    | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-116</a> |
| C1A37   | 133             | APA CAN CIR 2                                       | ON                      |                        |                             |                      | A, B, E                | <a href="#">CCS-117</a> |
| C1A38   | 132             | APA CAN CIR 1                                       | ON                      |                        |                             |                      | A, B, E                | <a href="#">CCS-118</a> |
| C1A39   | 39              | STRG SEN CIR  | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">DAS-462</a> |
| C1A40   | 40              | SYSTEM SW CIRC                                      |                         | ON                     |                             |                      | C, D                   | <a href="#">CCS-121</a> |
| C1A2A   | 80              | ICC SEN PWR SUP CIR                                 | ON                      | ON                     |                             |                      | A, C, D, E             | <a href="#">DAS-464</a> |
| C1B00   | 81              | CAMERA UNIT MALF                                    |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-464</a> |
| C1B01   | 82              | CAM AIMING INCMP                                    |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-466</a> |
| C1B03   | 83              | CAM ABNRML TMP DETCT                                |                         |                        | BLINK                       | BLINK                | F, G                   | <a href="#">DAS-468</a> |
| C1B53   | 84              | SIDE RDR R MALF                                     |                         |                        |                             | ON                   | G                      | <a href="#">DAS-473</a> |
| C1B54   | 85              | SIDE RDR L MALF                                     |                         |                        |                             | ON                   | G                      | <a href="#">DAS-474</a> |
| C1F01   | 91              | APA MOTOR MALF                                      | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-124</a> |
| C1F02   | 92              | APA C/U MALF  | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-125</a> |
| C1F05   | 95              | APA PWR SUPPLY CIR                                  | ON                      |                        |                             |                      | A, E                   | <a href="#">CCS-126</a> |
| NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED | 55              | NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED | —                       | —                      | —                           | —                    | —                      | —                       |
| U0121   | 127             | VDC CAN CIR 2                                       | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-483</a> |
| U0126   | 130             | STRG SEN CAN CIR 1                                  | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">DAS-484</a> |
| U0235   | 144             | ICC SENSOR CAN CIRC 1                               | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-132</a> |
| U0401   | 120             | ECM CAN CIR 1                                       | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">DAS-486</a> |

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC                   |                  | CONSULT display        | Warning lamp            |                        |                             |                      | Fail-safe              | Reference               |
|-----------------------|------------------|------------------------|-------------------------|------------------------|-----------------------------|----------------------|------------------------|-------------------------|
| CONSULT               | On board display |                        | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System                 |                         |
| U0402                 | 122              | TCM CAN CIR 1          | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-487</a> |
| U0415                 | 126              | VDC CAN CIR 1          | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-490</a> |
| U0424                 | 156              | HVAC CAN CIR 1         |                         |                        |                             |                      |                        | <a href="#">BRC-118</a> |
| U0428                 | 131              | STRG SEN CAN CIR 2     | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">DAS-491</a> |
| U1000 <sup>NOTE</sup> | 100              | CAN COMM CIRCUIT       | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-477</a> |
| U1010                 | 110              | CONTROL UNIT (CAN)     | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-480</a> |
| U1500                 | 145              | CAM CAN CIR 2          |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-493</a> |
| U1501                 | 146              | CAM CAN CIR 1          |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-494</a> |
| U1502                 | 147              | ICC SEN CAN COMM CIR   | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-147</a> |
| U1503                 | 150              | SIDE RDR L CAN CIR 2   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-495</a> |
| U1504                 | 151              | SIDE RDR L CAN CIR 1   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-496</a> |
| U1505                 | 152              | SIDE RDR R CAN CIR 2   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-497</a> |
| U1506                 | 153              | SIDE RDR R CAN CIR 1   |                         |                        |                             | ON                   | G                      | <a href="#">DAS-498</a> |
| U1507                 | 154              | LOST COMM (SIDE RDR R) |                         |                        |                             | ON                   | G                      | <a href="#">DAS-499</a> |
| U1508                 | 155              | LOST COMM (SIDE RDR L) |                         |                        |                             | ON                   | G                      | <a href="#">DAS-500</a> |
| U150B                 | 157              | ECM CAN CIRC 3         | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">DAS-507</a> |
| U150C                 | 158              | VDC CAN CIRC 3         | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G, H | <a href="#">DAS-508</a> |
| U150D                 | 159              | TCM CAN CIRC 3         | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-509</a> |
| U150E                 | 160              | BCM CAN CIRC 3         | ON                      |                        | ON                          | ON                   | A, B, E, F, G          | <a href="#">DAS-510</a> |
| U150F                 | 161              | AV CAN CIRC 3          |                         |                        |                             |                      |                        | <a href="#">DAS-53</a>  |
| U1512                 | 162              | HVAC CAN CIRC3         |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-501</a> |
| U1513                 | 163              | METER CAN CIRC 3       | ON                      | ON                     | ON                          | ON                   | A, B, C, D, E, F, G    | <a href="#">DAS-502</a> |
| U1514                 | 164              | STRG SEN CAN CIRC 3    | ON                      | ON                     |                             | ON                   | A, B, C, D, E, G, H    | <a href="#">DAS-503</a> |
| U1515                 | 165              | ICC SENSOR CAN CIRC 3  | ON                      | ON                     |                             |                      | A, B, C, D, E          | <a href="#">CCS-150</a> |
| U1516                 | 166              | CAM CAN CIRC 3         |                         |                        | ON                          | ON                   | F, G                   | <a href="#">DAS-504</a> |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

Systems for fail-safe

- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Intelligent Brake Assist (IBA)
- D: Forward Collision Warning (FCW)
- E: Distance Control Assist (DCA)
- F: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- G: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)
- H: Active trace control function

| DTC     |                 | CONSULT display       | Warning lamp            |                        |                             |                      | Fail-safe | Reference               |
|---------|-----------------|-----------------------|-------------------------|------------------------|-----------------------------|----------------------|-----------|-------------------------|
| CONSULT | Onboard display |                       | ICC system warning lamp | IBA OFF indicator lamp | Lane departure warning lamp | BSW/BSI warning lamp | System    |                         |
| U1517   | 167             | APA CAN CIRC 3        | ON                      |                        |                             |                      | A, B, E   | <a href="#">CCS-151</a> |
| U1518   | 168             | SIDE RDR L CAN CIRC 3 |                         |                        |                             | ON                   | G         | <a href="#">DAS-505</a> |
| U1519   | 169             | SIDE RDR R CAN CIRC 3 |                         |                        |                             | ON                   | G         | <a href="#">DAS-506</a> |

**NOTE:**

With the detection of "U1000" some systems do not perform the fail-safe operation.

A system controlling based on a signal received from the control unit performs fail-safe operation when the communication with the ADAS control unit becomes inoperable.



# SIDE RADAR LH

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

## SIDE RADAR LH

### Reference Value

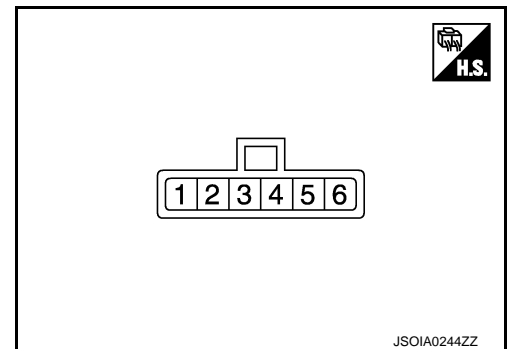
INFOID:000000006886494

### VALUES ON THE DIAGNOSIS TOOL

#### CONSULT MONITOR ITEM

| Monitor Item    | Condition  | Value/Status |
|-----------------|--|--------------|
| BEAM DISTANCE   | <b>NOTE:</b><br>The item is displayed, but it is not used. | —            |
| BEAM POSITION   | <b>NOTE:</b><br>The item is displayed, but it is not used. | —            |
| SIDE RADAR MALF | Side radar is normal.                                      | Off          |
|                 | Side radar is malfunctioning.                              | On           |
| BLOCKAGE COND   | Side radar is not blocked.                                 | Off          |
|                 | Side radar is blocked.                                     | On           |
| ACTIVATE OPE    | <b>NOTE:</b><br>The item is displayed, but it is not used. | —            |
| VEHICLE DETECT  | Radar does not detect a vehicle.                           | Off          |
|                 | Radar detects a vehicle.                                   | On           |

### TERMINAL LAYOUT



### PHYSICAL VALUES

| Terminal No.<br>(Wire color) |        | Description           |                  | Condition   | Value<br>(Approx.) |
|------------------------------|--------|-----------------------|------------------|---|--------------------|
| +                            | -      | Signal name           | Input/<br>Output |   |                    |
| 2<br>(B/Y)                   | Ground | Ground                | —                | —   | 0 V                |
| 3<br>(Y)                     | —      | ITS communication-L   | —                | —   | —                  |
| 4<br>(L)                     | —      | ITS communication-H   | —                | —   | —                  |
| 5<br>(GR)                    | Ground | Ignition power supply | Input            | Ignition switch ON  | Battery voltage    |
| 6<br>(BR)                    | Ground | BSW/BSI indicator     | Output           | Approx. 2 sec. after ignition switch OFF ⇒ ON<br>(bulb check) | 6 V                |

### Fail-safe

INFOID:000000006886495

### FAIL-SAFE CONTROL BY DTC

Blind Spot Warning (BSW)

# SIDE RADAR LH

## < ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

If a malfunction occurs in the side radar, ADAS control unit cancels control, and turns ON the BSW/BSI warning lamp in the combination meter.

### Blind Spot Intervention (BSI)

If a malfunction occurs in the side radar, ADAS control unit cancels control, sounds a beep, and turns ON the BSW/BSI warning in the combination meter.

### TEMPORARY DISABLED STATUS AT BLOCKAGE

#### Blind Spot Warning (BSW)

When the side radar is blocked, the operation is temporarily cancelled. Then the BSW/BSI warning lamp (yellow) in combination meter blinks. Also, under the following conditions, the operation may be temporarily cancelled.

- The side radar may be blocked by temporary ambient conditions such as splashing water, mist or fog.
- The blocked condition may also be caused by objects such as ice, frost or dirt obstructing the side radar.

#### Blind Spot Intervention (BSI)

When the side radar is blocked, the operation is temporarily cancelled. Then the buzzer sounds and BSW/BSI warning lamp (yellow) in combination meter blinks. Also, under the following conditions, the operation may be temporarily cancelled.

- The side radar may be blocked by temporary ambient conditions such as splashing water, mist or fog.
- The blocked condition may also be caused by objects such as ice, frost or dirt obstructing the side radar.

## DTC Inspection Priority Chart

INFOID:000000006886496

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

| Priority | Detected items (DTC)   |
|----------|--|
| 1        | <ul style="list-style-type: none"> <li>• U1000: CAN COMM CIRCUIT</li> <li>• U1010: CONTROL UNIT (CAN)</li> </ul>   |
| 2        | <ul style="list-style-type: none"> <li>• U0104: ADAS CAN CIR 1</li> <li>• U0405: ADAS CAN CIR 2</li> </ul>   |
| 3        | C1B50: SIDE RDR MALFUNCTION  |
| 4        | <ul style="list-style-type: none"> <li>• C1B51: BSW/BSI IND SHORT CIR</li> <li>• C1B52: BSW/BSI IND OPEN CIR</li> <li>• C1B55: RADAR BLOCKAGE</li> </ul> |

## DTC Index

INFOID:000000006886497

×: Applicable

| DTC   |                       | BSW/BSI warning lamp | Fail-safe | Reference page          |
|-------|-----------------------|----------------------|-----------|-------------------------|
| C1B50 | SIDE RDR MALFUNCTION  | ON                   | ×         | <a href="#">DAS-469</a> |
| C1B51 | BSW/BSI IND SHORT CIR | ON                   | ×         | <a href="#">DAS-470</a> |
| C1B52 | BSW/BSI IND OPEN CIR  | ON                   | ×         | <a href="#">DAS-471</a> |
| C1B55 | RADAR BLOCKAGE        | Blink                | ×         | <a href="#">DAS-475</a> |
| U1000 | CAN COMM CIRCUIT      | ON                   | ×         | <a href="#">DAS-476</a> |
| U1010 | CONTROL UNIT (CAN)    | ON                   | ×         | <a href="#">DAS-479</a> |
| U0104 | ADAS CAN CIR1         | ON                   | ×         | <a href="#">DAS-481</a> |
| U0405 | ADAS CAN CIR2         | ON                   | ×         | <a href="#">DAS-488</a> |

# SIDE RADAR RH

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

## SIDE RADAR RH

### Reference Value

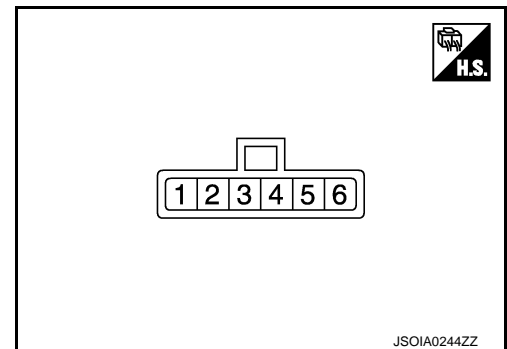
INFOID:000000006886498

### VALUES ON THE DIAGNOSIS TOOL

#### CONSULT MONITOR ITEM

| Monitor Item    | Condition  | Value/Status |
|-----------------|--|--------------|
| BEAM DISTANCE   | <b>NOTE:</b><br>The item is displayed, but it is not used. | —            |
| BEAM POSITION   | <b>NOTE:</b><br>The item is displayed, but it is not used. | —            |
| SIDE RADAR MALF | Side radar is normal.                                      | Off          |
|                 | Side radar is malfunctioning.                              | On           |
| BLOCKAGE COND   | Side radar is not blocked.                                 | Off          |
|                 | Side radar is blocked.                                     | On           |
| ACTIVATE OPE    | <b>NOTE:</b><br>The item is displayed, but it is not used. | —            |
| VEHICLE DETECT  | Radar does not detect a vehicle.                           | Off          |
|                 | Radar detects a vehicle.                                   | On           |

### TERMINAL LAYOUT



### PHYSICAL VALUES

| Terminal No.<br>(Wire color) |        | Description                 |                  | Condition  | Value<br>(Approx.) |
|------------------------------|--------|-----------------------------|------------------|--|--------------------|
| +                            | -      | Signal name                 | Input/<br>Output |  |                    |
| 1<br>(B/R)                   | Ground | Right/Left switching signal | Input            | —  | 0 V                |
| 2<br>(B/R)                   | Ground | Ground                      | —                | —  | 0 V                |
| 3<br>(Y)                     | —      | ITS communication-L         | —                | —  | —                  |
| 4<br>(L)                     | —      | ITS communication-H         | —                | —  | —                  |
| 5<br>(G)                     | Ground | Ignition power supply       | Input            | Ignition switch ON   | Battery voltage    |
| 6<br>(BR)                    | Ground | BSW/BSI indicator           | Output           | Approx. 2 sec. after ignition switch OFF ⇒ ON (bulb check) | 6 V                |

### Fail-safe

INFOID:000000006886499

### FAIL-SAFE CONTROL BY DTC

# SIDE RADAR RH

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

## Blind Spot Warning (BSW)

If a malfunction occurs in the side radar, ADAS control unit cancels control, and turns ON the BSW/BSI warning lamp in the combination meter.

## Blind Spot Intervention (BSI)

If a malfunction occurs in the side radar, ADAS control unit cancels control, sounds a beep, and turns ON the BSW/BSI warning in the combination meter.

## TEMPORARY DISABLED STATUS AT BLOCKAGE

### Blind Spot Warning (BSW)

When the side radar is blocked, the operation is temporarily cancelled. Then the BSW/BSI warning lamp (yellow) in combination meter blinks. Also, under the following conditions, the operation may be temporarily cancelled.

- The side radar may be blocked by temporary ambient conditions such as splashing water, mist or fog.
- The blocked condition may also be caused by objects such as ice, frost or dirt obstructing the side radar.

### Blind Spot Intervention (BSI)

When the side radar is blocked, the operation is temporarily cancelled. Then the buzzer sounds and BSW/BSI warning lamp (yellow) in combination meter blinks. Also, under the following conditions, the operation may be temporarily cancelled.

- The side radar may be blocked by temporary ambient conditions such as splashing water, mist or fog.
- The blocked condition may also be caused by objects such as ice, frost or dirt obstructing the side radar.

## DTC Inspection Priority Chart

INFOID:000000006886500

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

| Priority | Detected items (DTC)   |
|----------|--|
| 1        | <ul style="list-style-type: none"><li>• U1000: CAN COMM CIRCUIT</li><li>• U1010: CONTROL UNIT (CAN)</li></ul>  |
| 2        | <ul style="list-style-type: none"><li>• U0104: ADAS CAN CIR 1</li><li>• U0405: ADAS CAN CIR 2</li></ul>  |
| 3        | C1B50: SIDE RDR MALFUNCTION  |
| 4        | <ul style="list-style-type: none"><li>• C1B51: BSW/BSI IND SHORT CIR</li><li>• C1B52: BSW/BSI IND OPEN CIR</li><li>• C1B55: RADAR BLOCKAGE</li></ul> |

## DTC Index

INFOID:000000006886501

×: Applicable

| DTC   |                       | BSW/BSI warning lamp | Fail-safe | Reference page          |
|-------|-----------------------|----------------------|-----------|-------------------------|
| C1B50 | SIDE RDR MALFUNCTION  | ON                   | ×         | <a href="#">DAS-469</a> |
| C1B51 | BSW/BSI IND SHORT CIR | ON                   | ×         | <a href="#">DAS-470</a> |
| C1B52 | BSW/BSI IND OPEN CIR  | ON                   | ×         | <a href="#">DAS-471</a> |
| C1B55 | RADAR BLOCKAGE        | Blink                | ×         | <a href="#">DAS-475</a> |
| U1000 | CAN COMM CIRCUIT      | ON                   | ×         | <a href="#">DAS-477</a> |
| U1010 | CONTROL UNIT (CAN)    | ON                   | ×         | <a href="#">DAS-479</a> |
| U0104 | ADAS CAN CIR1         | ON                   | ×         | <a href="#">DAS-481</a> |
| U0405 | ADAS CAN CIR2         | ON                   | ×         | <a href="#">DAS-488</a> |

# LANE CAMERA UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

## LANE CAMERA UNIT

### Reference Value

INFOID:000000007218487

### VALUES ON THE DIAGNOSIS TOOL

| Monitor Item    | Condition  | Value/Status                                    |
|-----------------|--|---|
| LC INACCURAT    | Lane camera unit malfunction                             | On  |
|                 | Lane camera unit normal                                  | Off   |
| AIMING DONE     | Camera aiming is completed                               | OK  |
|                 | Camera aiming is not adjusted                            | NG  |
| AIMING RESULT   | Camera aiming is completed                               | OK  |
|                 | Camera aiming is not completed                           | NOK   |
| CAM HIGH TEMP   | When the temperature around lane camera unit is adequate | NORMAL  |
|                 | When the temperature around the lane camera unit is high | High  |
| VHCL SPD SE     | While driving  | Approximately equivalent to speedometer reading |
| TURN SIGNAL     | Turn signal lamp LH and RH blinking                      | LH/RH   |
|                 | Turn signal lamp LH blinking                             | LH  |
|                 | Turn signal lamp RH blinking                             | RH  |
|                 | Turn signal lamps OFF                                    | Off   |
| LANE DETCT LH   | Left side lane marker is detected                        | On  |
|                 | Left side lane marker is not detected                    | Off   |
| LANE DETCT RH   | Right side lane marker is detected                       | On  |
|                 | Right side lane marker is not detected                   | Off   |
| CROSS LANE LH   | The vehicle is crossing left side lane marker            | On  |
|                 | The vehicle is not crossing left side lane marker        | Off   |
| CROSS LANE RH   | The vehicle is crossing right side lane marker           | On  |
|                 | The vehicle is not crossing right side lane marker       | Off   |
| WARN LANE LH    | Warning for left side lane                               | On  |
|                 | Not warning for left side lane                           | Off   |
| WARN LANE RH    | Warning for right side lane                              | On  |
|                 | Not warning for right side lane                          | Off   |
| VALID POS LH    | Lateral position for left side lane marker is valid      | VLD   |
|                 | Lateral position for left side lane marker is invalid    | INVLD   |
| VALID POS RH    | Lateral position for right side lane marker is valid     | VLD   |
|                 | Lateral position for right side lane marker is invalid   | INVLD   |
| XOFFSET         | Camera aiming is completed                               | Approx. 180 pixel                               |
| AIM CHECK YAW   | <b>NOTE:</b><br>The item is indicated, but not used      | —   |
| AIM CHECK ROLL  | <b>NOTE:</b><br>The item is indicated, but not used      | —   |
| AIM CHECK PITCH | <b>NOTE:</b><br>The item is indicated, but not used      | —   |
| FCTRY AIM YAW   | Camera aiming is not completed                           | 0.0 deg   |
|                 | Camera aiming is completed                               | 0 ± 5.0 deg                                     |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N

DAS

P

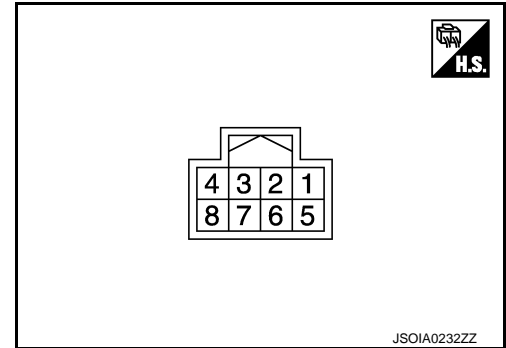
# LANE CAMERA UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

| Monitor Item  | Condition                      | Value/Status |
|---------------|--------------------------------|--------------|
| FCTRY AIM ROL | Camera aiming is not completed | 0.0 deg      |
|               | Camera aiming is completed     | 0 ± 5.0 deg  |
| FCTRY AIM PIT | Camera aiming is not completed | 0.0 deg      |
|               | Camera aiming is completed     | 0 ± 5.0 deg  |
| ADAS MALF     | ADAS control unit malfunction  | On           |
|               | ADAS control unit normal       | Off          |

## TERMINAL LAYOUT



## PHYSICAL VALUES

| Terminal No.<br>(Wire color) |        | Description           |                  | Condition       | Value<br>(Approx.) |
|------------------------------|--------|-----------------------|------------------|-----------------|--------------------|
| +                            | -      | Signal name           | Input/<br>Output |                 |                    |
| 1<br>(B)                     | Ground | Ground                | —                | —               | 0 V                |
| 4<br>(L)                     |        | ITS communication-H   | —                | —               | —                  |
| 5<br>(B)                     |        | Ground                | —                | —               | 0 V                |
| 7<br>(G)                     |        | Ignition power supply | Input            | Ignition switch | Battery voltage    |
| 8<br>(Y)                     |        | ITS communication-L   | —                | —               | —                  |

## Fail-safe

INFOID:000000007218488

### FAIL-SAFE CONTROL BY DTC

#### Lane Departure Warning (LDW)

If a malfunction occurs in the lane camera unit, ADAS control unit cancels control, and turns ON the lane departure warning lamp in the combination meter.

#### Lane Departure Prevention (LDP)

If a malfunction occurs in the lane camera unit, ADAS control unit cancels control, sounds a beep, and turns ON the lane departure warning lamp in the combination meter.

#### Blind Spot Warning (BSW)

If a malfunction occurs in the lane camera unit, ADAS control unit cancels control, and turns ON the BSW/BSI warning lamp in the combination meter.

#### Blind Spot Intervention (BSI)

If a malfunction occurs in the lane camera unit, ADAS control unit cancels control, sounds a beep, and turns ON the BSW/BSI warning in the combination meter.

### TEMPORARY DISABLED STATUS AT HIGH TEMPERATURE

# LANE CAMERA UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

## Lane Departure Warning (LDW)

- If the vehicle is parked in direct sunlight under high temperature conditions, the system may be deactivated automatically. And the lane departure warning lamp (yellow) in the combination meter will blink.
- When interior temperature is reduced, the system will resume operation automatically and the lane departure warning lamp (yellow) in the combination meter will stop blinking.

## Lane Departure Prevention (LDP)

- If the vehicle is parked in direct sunlight under high temperature conditions, the system may be deactivated automatically. And the buzzer sounds and lane departure warning lamp (yellow) in the combination meter will blink.
- When interior temperature is reduced, the system will resume when dynamic driver assistance switch is turned OFF and turned ON and the lane departure warning lamp (yellow) in the combination meter will stop blinking.

## Blind Spot Warning (BSW)

- If the vehicle is parked in direct sunlight under high temperature conditions, the system may be deactivated automatically. And the BSW/BSI warning lamp (yellow) in the combination meter will blink.
- When interior temperature is reduced, the system will resume operation automatically and the BSW/BSI warning lamp (yellow) in the combination meter will stop blinking.

## Blind Spot Intervention (BSI)

- If the vehicle is parked in direct sunlight under high temperature conditions, the system may be deactivated automatically. And the buzzer sounds and BSW/BSI warning lamp (yellow) in the combination meter will blink.
- When interior temperature is reduced, the system will resume when dynamic driver assistance switch is turned OFF and turned ON and the BSW/BSI warning lamp (yellow) in the combination meter will stop blinking.

## DTC Inspection Priority Chart

INFOID:000000007218489

If multiple DTCs are detected simultaneously, check them one by one depending on the following DTC inspection priority chart.

| Priority | Detected items (DTC)  |
|----------|---|
| 1        | <ul style="list-style-type: none"> <li>• U1000: CAN COMM CIRCUIT</li> <li>• U1010: CONTROL UNIT (CAN)</li> </ul>  |
| 2        | C1A50: ADAS MALFUNCTION   |
| 3        | <ul style="list-style-type: none"> <li>• C1B01: CAM AIMING INCOMP</li> <li>• C1B03: ABNRML TEMP DETECT</li> <li>• U0104: ADAS CAN CIR1</li> <li>• U0126: STRG SEN CAN CIR1</li> <li>• U0405: ADAS CAN CIR2</li> <li>• U0428: STRG SEN CAN CIR2</li> </ul> |
| 4        | C1B00: CAMERA UNIT MALF   |

## DTC Index

INFOID:000000007218490

x: Applicable

| DTC   | Warning lamp       | Fail-safe                            |                               | Reference |         |                         |
|-------|--------------------|--------------------------------------|-------------------------------|-----------|---------|-------------------------|
|       |                    | Lane departure warning lamp (yellow) | BSW/BSI warning lamp (yellow) |           | LDW/LDP | BSW/BSI                 |
| C1A50 | ADAS MALFUNCTION   | ON                                   | ON                            | —         | —       | <a href="#">DAS-329</a> |
| C1B00 | CAMERA UNIT MALF   | ON                                   | ON                            | ×         | ×       | <a href="#">DAS-330</a> |
| C1B01 | CAM AIMING INCOMP  | ON                                   | ON                            | ×         | ×       | <a href="#">DAS-332</a> |
| C1B03 | ABNRML TEMP DETECT | Blink                                | Blink                         | ×         | ×       | <a href="#">DAS-334</a> |
| U0104 | ADAS CAN CIR1      | ON                                   | ON                            | ×         | ×       | <a href="#">DAS-335</a> |
| U0126 | STRG SEN CAN CIR1  | ON                                   | ON                            | ×         | ×       | <a href="#">DAS-337</a> |
| U0405 | ADAS CAN CIR2      | ON                                   | ON                            | ×         | ×       | <a href="#">DAS-340</a> |

# LANE CAMERA UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW & BSI]

| DTC   |                    | Warning lamp                         |                               | Fail-safe |         | Reference               |
|-------|--------------------|--------------------------------------|-------------------------------|-----------|---------|-------------------------|
|       |                    | Lane departure warning lamp (yellow) | BSW/BSI warning lamp (yellow) | LDW/LDP   | BSW/BSI |                         |
| U0428 | STRG SEN CAN CIR2  | ON                                   | ON                            | ×         | ×       | <a href="#">DAS-342</a> |
| U1000 | CAN COMM CIRCUIT   | ON                                   | ON                            | ×         | ×       | <a href="#">DAS-343</a> |
| U1010 | CONTROL UNIT (CAN) | ON                                   | ON                            | ×         | ×       | <a href="#">DAS-345</a> |

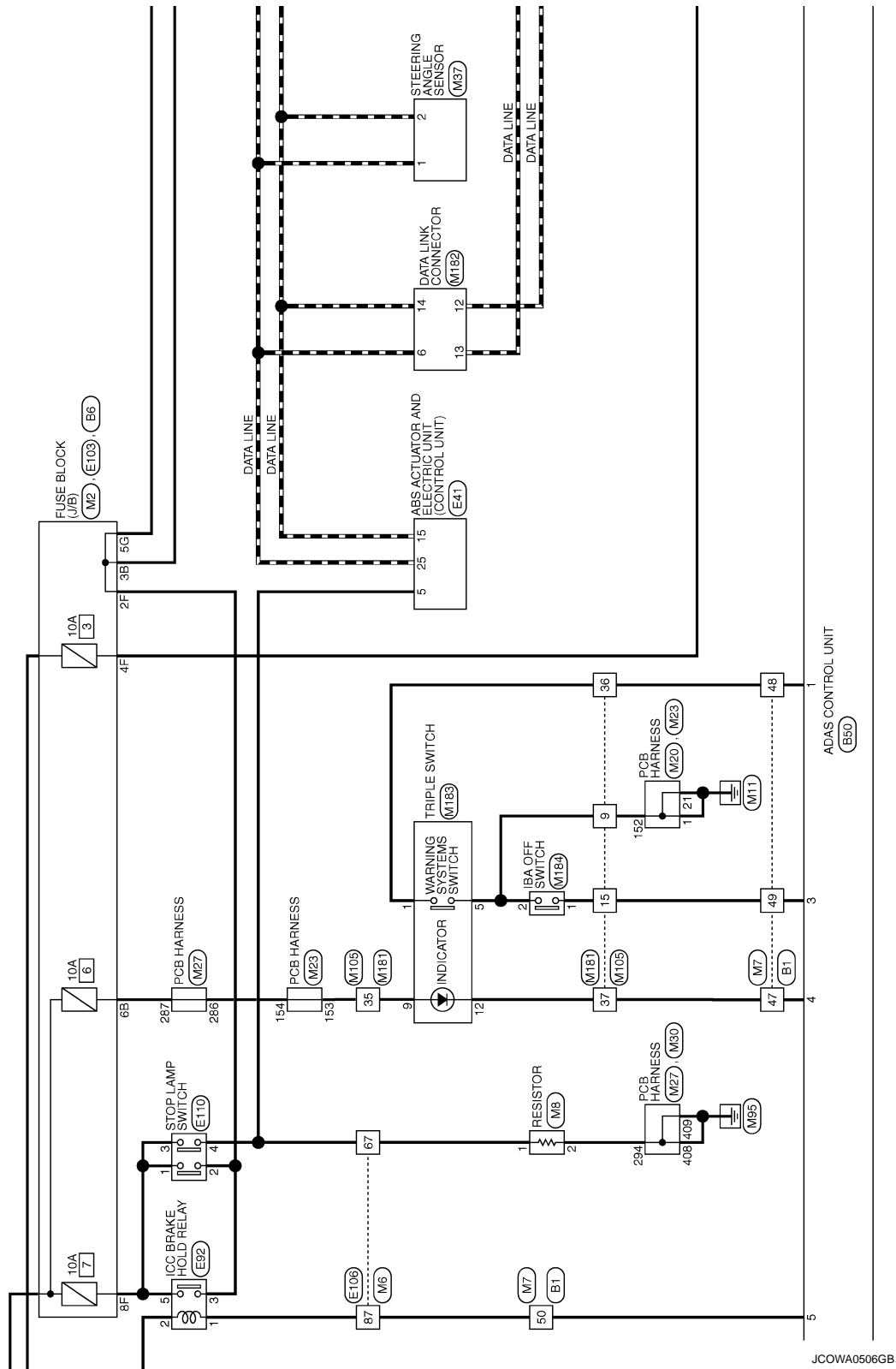




# DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[BSW & BSI]

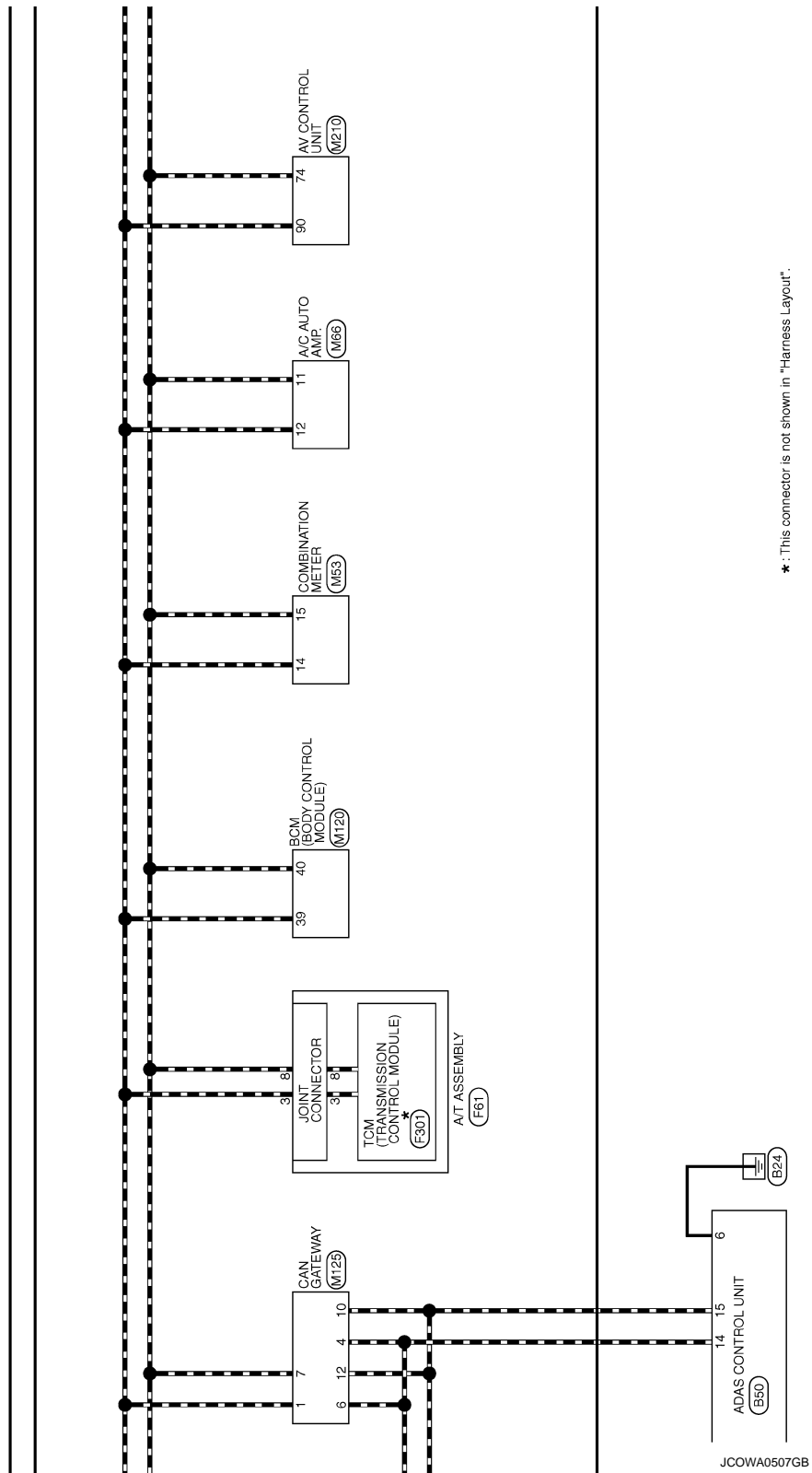


JCOWA0506GB

# DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[BSW & BSI]



\* : This connector is not shown in "Harness Layout".

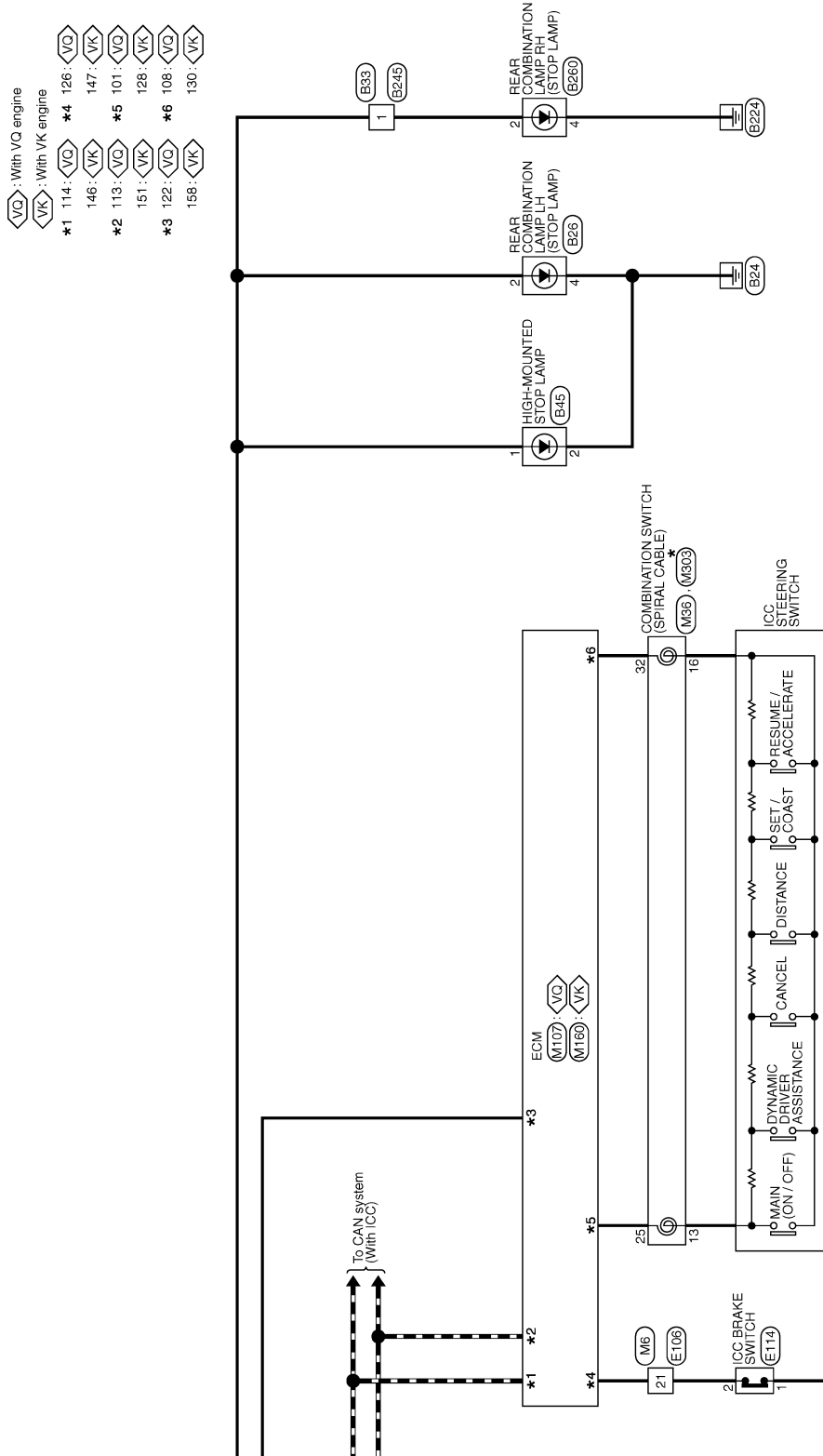
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DRIVER ASSISTANCE SYSTEMS

[BSW & BSI]

< WIRING DIAGRAM >



\*: This connector is not shown in "Harness Layout".

JCOWA0508GB

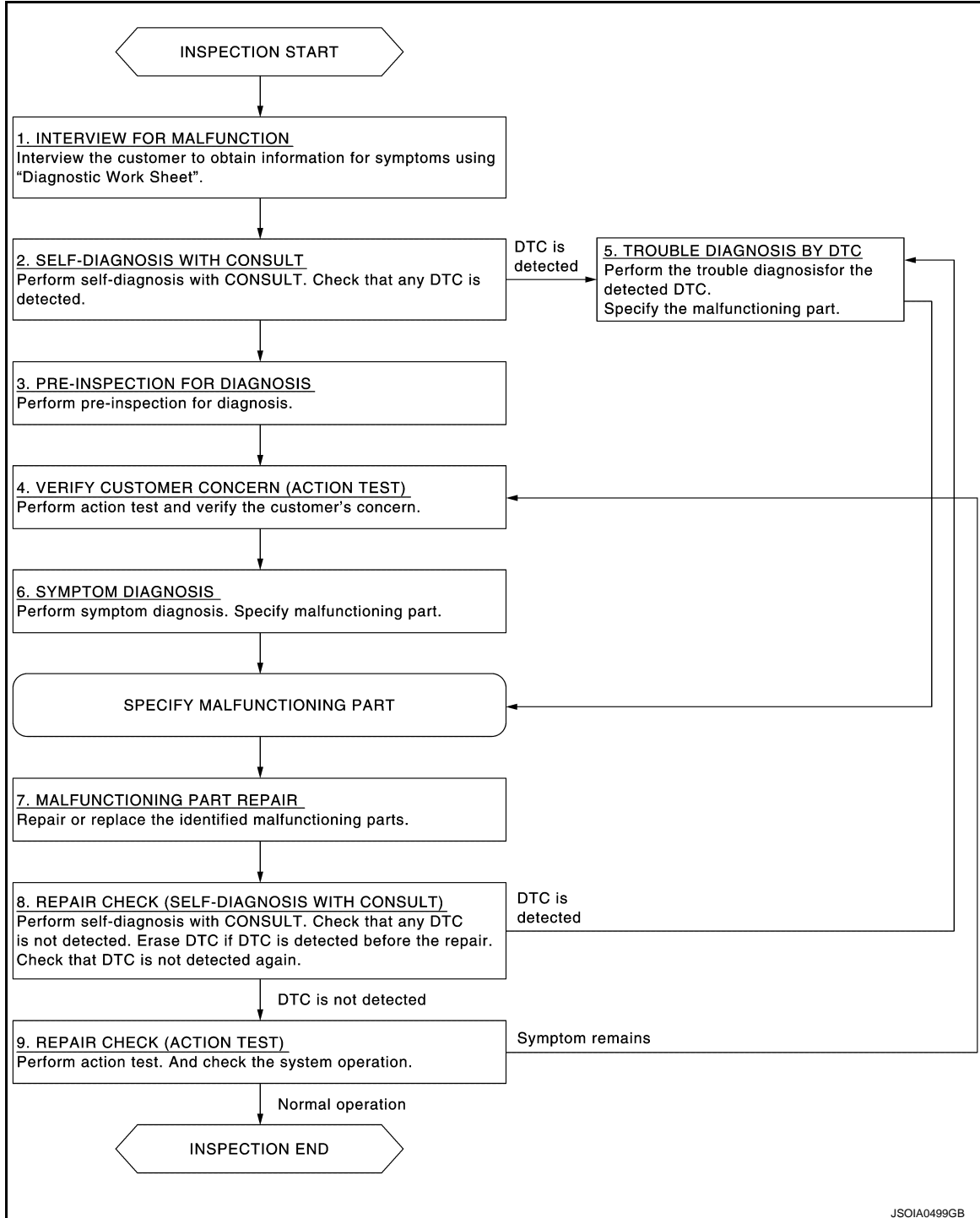
## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORK FLOW

#### Work Flow

INFOID:000000007218961

#### OVERALL SEQUENCE



#### DETAILED FLOW

##### 1. INTERVIEW FOR MALFUNCTION

It is also important to clarify the customer concerns before starting the inspection. Interview the customer about the concerns carefully and understand the symptoms fully.

**NOTE:**

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# DIAGNOSIS AND REPAIR WORK FLOW

[BSW & BSI]

< BASIC INSPECTION >

The customers are not professionals. Never assume that “maybe the customer means...” or “maybe the customer mentioned this symptom”.

>> GO TO 2.

## 2. SELF-DIAGNOSIS WITH CONSULT

---

1. Perform “All DTC Reading” with CONSULT.
2. Check if the DTC is detected on the self-diagnosis results of “SIDE RADAR LEFT/RIGHT” and/or “ICC/ADAS”.

Is any DTC detected?

YES >> GO TO 5.

NO >> GO TO 3.

## 3. PRE-INSPECTION FOR DIAGNOSIS

---

Perform pre-inspection for diagnosis. Refer to [DAS-440, "Inspection Procedure"](#).

>> GO TO 4.

## 4. ACTION TEST

---

Perform BSW and BSI system action test to check the operation status. Refer to [DAS-442, "Work Procedure"](#). Check if any other malfunctions occur.

>> GO TO 6.

## 5. TROUBLE DIAGNOSIS BY DTC

---

1. Check the DTC in the self-diagnosis results.
2. Perform trouble diagnosis for the detected DTC. Refer to [DAS-426, "DTC Index"](#) or [DAS-428, "DTC Index"](#)(SIDE RADAR LEFT/RIGHT), [DAS-431, "DTC Index"](#) (LANE CAMERA UNIT) and/or [DAS-420, "DTC Index"](#) (ICC/ADAS).

### NOTE:

If “DTC: U1000” is detected, first diagnose the CAN communication system or ITS communication system.

>> GO TO 7.

## 6. SYMPTOM DIAGNOSIS

---

Perform the applicable diagnosis according to the diagnosis chart by symptom. Refer to [DAS-521, "Symptom Table"](#).

>> GO TO 7.

## 7. MALFUNCTIONING PART REPAIR

---

Repair or replace the identified malfunctioning parts.

>> GO TO 8.

## 8. REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT)

---

1. Erases self-diagnosis results.
2. Perform “All DTC Reading” again after repairing or replacing the specific items.
3. Check if any DTC is detected in self-diagnosis results of “SIDE RADAR LEFT/RIGHT”, “LANE CAMERA UNIT” and “ICC/ADAS”.

Is any DTC detected?

YES >> GO TO 5.

NO >> GO TO 9.

## 9. REPAIR CHECK (ACTION TEST)

---

Perform the BSW and BSI system action test. Check that the malfunction symptom is solved or no other symptoms occur.

# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[BSW & BSI]

Is there a malfunction symptom?

YES >> GO TO 4.

NO >> INSPECTION END

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DAS

P

---

## PRE-INSPECTION FOR DIAGNOSIS

### Inspection Procedure

INFOID:000000007218962

#### 1. PERFORM PRE-INSPECTION OF LANE CAMERA UNIT

---

Perform pre-inspection of lane camera unit. Refer to [DAS-302, "Inspection Procedure"](#).

>> GO TO 2.

#### 2. CHECK REAR BUMPER NEAR THE SIDE RADAR

---

Are rear bumper near the side radar contaminated with foreign materials?

YES >> Clean the rear bumper.

NO >> GO TO 3.

#### 3. CHECK SIDE RADAR AND THE SIDE RADAR OUTSKIRTS

---

Are side radar and the side radar outskirts contaminated with foreign materials?

YES >> Clean the side radar or side radar outskirts.

NO >> GO TO 4.

#### 4. CHECK SIDE RADAR INSTALLATION CONDITION

---

Check side radar installation condition (installation position, properly tightened, a bent bracket).

Is it properly installed?

YES >> INSPECTION END

NO >> Install side radar properly.



# ADDITIONAL SERVICE WHEN REPLACING LANE CAMERA UNIT

< BASIC INSPECTION >

[BSW & BSI]

## ADDITIONAL SERVICE WHEN REPLACING LANE CAMERA UNIT

### Description

INFOID:000000007218965

Always adjust the camera aiming after removing and installing or replacing the lane camera unit.

#### **CAUTION:**

**The system does not operate normally unless the camera aiming adjustment is performed. Always perform it.**

### Work Procedure

INFOID:000000007218966

#### 1. CAMERA AIMING ADJUSTMENT

Perform the camera aiming adjustment. Refer to [DAS-307, "Description"](#).

>> GO TO 2.

#### 2. BSW/BSI SYSTEM ACTION TEST

1. Perform the BSW/BSI system action test. Refer to [DAS-442, "Work Procedure"](#).
2. Check that the BSW/BSI system operates normally.

>> WORK END

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

---

## ACTION TEST

### Description

INFOID:000000007218967

Always perform the BSW and BSI system action test to check that the system operates normally after replacing the lane camera unit, replacing the side radar left (right), or repairing any BSI system malfunction.

**NOTE:**

Perform the BSI system action test after checking that the LDP system operates normally because the BSI system shares components with the LDP system.

**CAUTION:**

**To prevent the possibility of accident, be careful of traffic conditions and safety around the vehicle when performing road test.**

**NOTE:**

Fully understand the following items well before the road test;

- Precautions: Refer to [DAS-375, "Precaution for BSW/BSI System Service"](#).
- System description for BSW: Refer to [DAS-380, "BLIND SPOT WARNING \(BSW\) SYSTEM : System Description"](#).
- System description for BSI: Refer to [DAS-385, "BLIND SPOT INTERVENTION \(BSI\) SYSTEM : System Description"](#).
- Normal operating condition: Refer to [DAS-526, "Description"](#).

### Work Procedure

INFOID:000000007218968

**CAUTION:**

**Be careful of traffic conditions and safety around the vehicle when performing road test.**

**NOTE:**

Fully understand the following items well before the road test;

- Precautions: Refer to [DAS-375, "Precaution for BSW/BSI System Service"](#).
- System description for BSW: Refer to [DAS-380, "BLIND SPOT WARNING \(BSW\) SYSTEM : System Description"](#).
- System description for BSI: Refer to [DAS-385, "BLIND SPOT INTERVENTION \(BSI\) SYSTEM : System Description"](#).
- Normal operating condition: Refer to [DAS-526, "Description"](#).

### 1. LDW/LDP SYSTEM ACTION TEST

---

Perform the LDW/LDP system action test. Refer to [DAS-303, "Inspection Procedure"](#).

>> GO TO 2.

### 2. CHECK BSW SYSTEM SETTING

---

1. Start the engine.
2. Check that the BSW system setting can be enabled/disabled on the navigation screen.
3. Turn OFF the ignition switch and wait for 5 seconds or more.
4. Check that the previous setting is saved when the engine starts again.

>> GO TO 3.

### 3. BSW SYSTEM ACTION TEST

---

1. Enable the setting of the BSW system on the navigation screen.
2. Turn warning systems switch ON (warning systems ON indicator is ON).

**NOTE:**

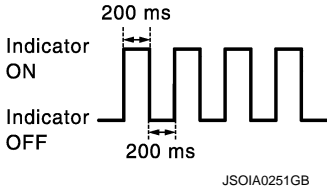
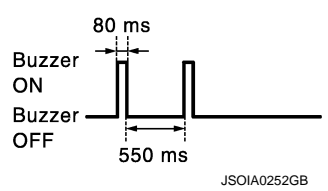
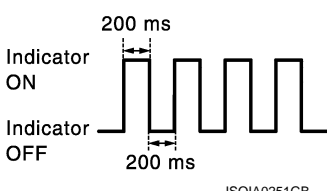
BSI system is OFF.

3. Check BSW operation according to the following table.

# ACTION TEST

< BASIC INSPECTION >

[BSW & BSI]

| Vehicle condition/ Driver's operation |  |  |  | Action  |  |
|---------------------------------------|--|--|--|---|--|
| Warning systems ON indicator          | Vehicle speed (Approx.) [km/h (MPH)]           | Turn signal condition  | Status of vehicle detection within detection area  | Indication on the BSW/BSI indicator   | Buzzer   |
| OFF                                   | —  | —  | —  | OFF   | OFF  |
| ON                                    | Less than approx. 29 (18)                      | —  | —  | OFF   | OFF  |
|                                       |  | —  | Vehicle is absent                                  | OFF   | OFF  |
|                                       | Approx. 32 (20) or more                        | OFF  | Vehicle is detected                                | ON  | OFF  |
|                                       |  | ON (Vehicle detected direction)  | Before turn signal operates<br>Vehicle is detected | Blink<br> | Short continuous beep<br> |
| ON (Vehicle detected direction)       | Vehicle is detected after turn signal operates | Blink<br> | OFF  |   |  |

**NOTE:**

- If vehicle speed exceeds approximately 32 km/h (20MPH), BSW function operates until the vehicle speed becomes lower than approximately 29km/h (18MPH).
- Time shown in the figure is approximate time.
- Always BSI system operates together with BSW system. Whenever BSI system is turned on by pushing the dynamic driver assistance switch, BSW system also be turned on even if the BSW system is turned off. However, at this time the warning systems ON indicator remains OFF.

>> GO TO 4.

## 4. CHECK BSI SYSTEM SETTING

1. Start the engine.
2. Check that the BSI system setting can be enabled/disabled on the navigation screen.
3. Turn OFF the ignition switch and wait for 5 seconds or more.
4. Check that the previous setting is saved when the engine starts again.

>> GO TO 5.

## 5. CHECK DYNAMIC DRIVER ASSISTANCE SWITCH

1. Start the engine.
2. After starting the engine wait for 5 seconds or more.
3. Enable the setting of the BSI system on the navigation screen.
4. Press the dynamic driver assistance switch.
5. Check that the BSI ON indicator on the combination meter illuminates.
6. Check that the BSI ON indicator turns OFF when the system is turned OFF by pressing the dynamic driver assistance switch.
7. Check that the BSI ON indicator turns OFF when the engine starts again.

DAS

## ACTION TEST

< BASIC INSPECTION >

[BSW & BSI]

---

**NOTE:**

- The BSI ON indicator does not illuminate even when the dynamic driver assistance switch is turned ON within approximately 5 seconds after starting the engine.
- When the BSI system setting is disabled on the navigation screen, the BSI ON indicator is not turned ON by pressing the dynamic driver assistance switch.

>> INSPECTION END

# DTC/CIRCUIT DIAGNOSIS

## C1A00 CONTROL UNIT

### DTC Logic

INFOID:000000006886515

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                | Possible causes   |
|---------------------------|------------------------|--|-------------------|
| C1A00<br>(0)              | CONTROL UNIT           | ADAS control unit internal malfunction | ADAS control unit |

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1A00" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

#### Is "C1A00" detected as the current malfunction?

- YES >> Refer to [DAS-445. "Diagnosis Procedure"](#).
- NO >> INSPECTION END

### Diagnosis Procedure

INFOID:000000006886516

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if any DTC other than "C1A00" is detected in "Self Diagnostic Result" of "ICC/ADAS".

#### Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-420. "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

### DTC Logic

INFOID:000000006886517

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|---------------------------|------------------------|--|--|
| C1A01<br>(1)              | POWER SUPPLY CIR       | The battery voltage sent to ADAS control unit remains less than 7.9 V for 5 seconds  | <ul style="list-style-type: none"><li>• Connector, harness, fuse</li><li>• ADAS control unit</li></ul> |
| C1A02<br>(2)              | POWER SUPPLY CIR 2     | The battery voltage sent to ADAS control unit remains more than 19.3 V for 5 seconds |  |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A01" or "C1A02" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A01" or "C1A02" detected as the current malfunction?

YES >> Refer to [DAS-446. "Diagnosis Procedure"](#).

NO >> Refer to [GI-44. "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886518

#### 1.CHECK ADAS CONTROL UNIT POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit of ADAS control unit. Refer to [DAS-511. "ADAS CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the ADAS control unit. Refer to [DAS-54. "Diagnosis Procedure"](#).

NO >> Repair or replace the malfunctioning parts.

# C1A03 VEHICLE SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## C1A03 VEHICLE SPEED SENSOR

### DTC Logic

INFOID:000000007218514

### DTC DETECTION LOGIC

| DTC<br>(On board<br>display) | Trouble diagnosis<br>name | DTC detecting condition  | Possible causes  |
|------------------------------|---------------------------|--|--|
| C1A03<br>(3)                 | VHCL SPEED SE<br>CIRC     | If the wheel speed signal from ABS actuator and electric unit (control unit) received by the ADAS control unit via CAN communication, are inconsistent | <ul style="list-style-type: none"><li>• Wheel speed sensor</li><li>• ABS actuator and electric unit (control unit)</li><li>• ADAS control unit</li></ul> |

#### NOTE:

If DTC "C1A03" is detected along with DTC "U1000" or "C1A04", first diagnose the DTC "U1000" or "C1A04".

- Refer to [DAS-343, "ADAS CONTROL UNIT : DTC Logic"](#) for DTC "U1000".
- Refer to [DAS-315, "DTC Logic"](#) for DTC "C1A04".

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Drive the vehicle at 30 km/h (19 MPH) or more.

#### CAUTION:

**Always drive safely.**

4. Stop the vehicle.
5. Perform "All DTC Reading" with CONSULT.
6. Check if the "C1A03" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A03" detected as the current malfunction?

YES-1 (Lane departure warning lamp: ON)>>Refer to [DAS-447, "Diagnosis Procedure"](#).

YES-2 (Lane departure warning lamp: OFF)>>Refer to [CCS-80, "DTC Logic"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000007218515

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "C1A04" or "U1000" is detected other than "C1A03" in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-420, "DTC Index"](#).

NO >> GO TO 2.

#### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).

NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

# C1A04 ABS/TCS/VDC SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## C1A04 ABS/TCS/VDC SYSTEM

### DTC Logic

INFOID:000000006886521

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                           | Possible causes                               |
|---------------------------|------------------------|---|---|
| C1A04<br>(4)              | ABS/TCS/VDC CIRC       | If a malfunction occurs in the VDC/TCS/ABS system | ABS actuator and electric unit (control unit) |

#### NOTE:

If DTC "C1A04" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

### Diagnosis Procedure

INFOID:000000006886522

#### 1. CHECK SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the "U1000" is detected other than "C1A04" in "Self Diagnostic Result" of "ICC/ADAS".

##### Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

#### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

##### Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



# C1A05 BRAKE SW/STOP LAMP SW

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## C1A05 BRAKE SW/STOP LAMP SW

### DTC Logic

INFOID:000000006886523

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|---------------------------|------------------------|---|---|
| C1A05<br>(5)              | BRAKE SW/STOP L SW     | A mismatch between a stop lamp switch signal and a ICC brake switch signal received from ECM and a stop lamp signal received from the ABS actuator and electric unit (control unit) continues for 10 seconds or more with vehicle speeds at approximately 40 km/h or more | <ul style="list-style-type: none"><li>• Stop lamp switch circuit</li><li>• ICC brake switch circuit</li><li>• Stop lamp switch</li><li>• ICC brake switch</li><li>• Incorrect stop lamp switch installation</li><li>• Incorrect ICC brake switch installation</li><li>• ECM</li><li>• ABS actuator and electric unit (control unit)</li></ul> |

#### NOTE:

If DTC "C1A05" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477. "ADAS CONTROL UNIT : DTC Logic"](#).

### Diagnosis Procedure

INFOID:000000007218501

#### 1.CHECK SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the "U1000" is detected other than "C1A05" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-477. "ADAS CONTROL UNIT : DTC Logic"](#).

NO >> GO TO 2.

#### 2.CHECK STOP LAMP SWITCH AND ICC BRAKE SWITCH

Check that "STOP LAMP SW" and "BRAKE SW" operate normally in "DATA MONITOR" of "ICC/ADAS".

Is the inspection result normal?

YES >> GO TO 3.

NO-1 >> When "BRAKE SW" operation is malfunctioning: GO TO 4.

NO-2 >> When "STOP LAMP SW" operation is malfunctioning: GO TO 9.

#### 3.CHECK STOP LAMP SWITCH

Check that "STOP LAMP SW" operate normally in "DATA MONITOR" of "ABS".

Is the inspection result normal?

YES >> GO TO 14.

NO >> GO TO 9.

#### 4.CHECK ICC BRAKE SWITCH INSTALLATION

1. Turn ignition switch OFF.
2. Check ICC brake switch for correct installation. Refer to [BR-7. "Inspection and Adjustment"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Adjust ICC brake switch installation. Refer to [BR-7. "Inspection and Adjustment"](#).

#### 5.ICC BRAKE SWITCH INSPECTION

1. Disconnect ICC brake switch connector.
2. Check ICC brake switch. Refer to [DAS-452. "Component Inspection \(ICC Brake Switch\)"](#).

Is the inspection result normal?

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1A05 BRAKE SW/STOP LAMP SW

[BSW & BSI]

## < DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 6.  
NO >> Replace ICC brake switch.

### 6. CHECK ICC BRAKE SWITCH POWER SUPPLY CIRCUIT

1. Turn the ignition switch ON.
2. Check voltage between ICC brake switch harness connector and ground.

| Terminals        |          | Voltage<br>(Approx.)          |
|------------------|----------|-------------------------------|
| (+)              | (-)      |                               |
| ICC brake switch |          | Ground<br><br>Battery voltage |
| Connector        | Terminal |                               |
| E114             | 1        |                               |

#### Is the inspection result normal?

- YES >> GO TO 7.  
NO >> Repair the harnesses or connectors.

### 7. CHECK HARNESS BETWEEN ICC BRAKE SWITCH AND ECM

1. Turn ignition switch OFF
2. Disconnect ECM connector.
3. Check for continuity between ICC brake switch harness connector and ECM harness connector.

VQ37VHR

| ICC brake switch |          | ECM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| E114             | 2        | M107      | 126      | Existed    |

VK56VD

| ICC brake switch |          | ECM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| E114             | 2        | M160      | 147      | Existed    |

4. Check for continuity between ICC brake switch harness connector and ground.

| ICC brake switch |          | Ground | Continuity  |
|------------------|----------|--------|-------------|
| Connector        | Terminal |        |             |
| E114             | 2        |        | Not existed |

#### Is the inspection result normal?

- YES >> GO TO 8.  
NO >> Repair the harnesses or connectors.

### 8. PERFORM SELF-DIAGNOSIS OF ECM

1. Connect all connectors again if the connectors are disconnected.
2. Turn ignition switch ON.
3. Perform "All DTC Reading".
4. Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE". Refer to [EC-117, "DTC Index"](#) (VQ37VHR) or [EC-1083, "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651, "DTC Index"](#) (VK56VD for Mexico).

#### Is any DTC detected?

- YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

### 9. CHECK STOP LAMP SWITCH INSTALLATION

1. Turn ignition switch OFF.
2. Check stop lamp switch for correct installation. Refer to [BR-7, "Inspection and Adjustment"](#).

#### Is the inspection result normal?

# C1A05 BRAKE SW/STOP LAMP SW

[BSW & BSI]

## < DTC/CIRCUIT DIAGNOSIS >

YES >> GO TO 10.

NO >> Adjust stop lamp switch installation. Refer to [BR-7, "Inspection and Adjustment"](#).

### 10.STOP LAMP SWITCH INSPECTION

1. Disconnect stop lamp switch connector.

2. Check stop lamp switch. Refer to [DAS-452, "Component Inspection \(Stop Lamp Switch\)"](#).

Is the inspection result normal?

YES >> GO TO 11.

NO >> Replace stop lamp switch.

### 11.CHECK STOP LAMP SWITCH POWER SUPPLY CIRCUIT

1. Turn the ignition switch ON.

2. Check voltage between stop lamp switch harness connector and ground.

| Terminals        |          | Voltage<br>(Approx.) |
|------------------|----------|----------------------|
| (+)              | (-)      |                      |
| Stop lamp switch |          | Ground               |
| Connector        | Terminal |                      |
| E110             | 1        |                      |
|                  | 3        |                      |
|                  |          | Battery voltage      |

Is the inspection result normal?

YES >> GO TO 12.

NO >> Repair the harnesses or connectors.

### 12.CHECK HARNESS BETWEEN STOP LAMP SWITCH AND ECM

1. Turn ignition switch OFF

2. Disconnect ECM, rear combination lamp and high-mounted stop lamp connectors.

3. Check for continuity between stop lamp switch harness connector and ECM harness connector.

VQ37VHR

| Stop lamp switch |          | ECM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| E110             | 2        | M107      | 122      | Existed    |

VK56VD

| Stop lamp switch |          | ECM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| E110             | 2        | M160      | 158      | Existed    |

4. Check for continuity between stop lamp switch harness connector and ground.

| Stop lamp switch |          | Ground | Continuity  |
|------------------|----------|--------|-------------|
| Connector        | Terminal |        |             |
| E110             | 2        |        | Not existed |

Is the inspection result normal?

YES >> GO TO 13.

NO >> Repair the harnesses or connectors.

### 13.CHECK HARNESS BETWEEN STOP LAMP SWITCH AND ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Disconnect ABS actuator and electric unit (control unit) connector.

2. Check for continuity between stop lamp switch harness connector and ABS actuator and electric unit (control unit) harness connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1A05 BRAKE SW/STOP LAMP SW

[BSW & BSI]

## < DTC/CIRCUIT DIAGNOSIS >

| Stop lamp switch |          | ABS actuator and electric unit (control unit) |          | Continuity |
|------------------|----------|---|----------|------------|
| Connector        | Terminal | Connector                                     | Terminal |            |
| E110             | 4        | E41   | 5        | Existed    |

3. Check for continuity between stop lamp switch harness connector and ground.

| Stop lamp switch |          | Ground | Continuity  |
|------------------|----------|--------|-------------|
| Connector        | Terminal |        |             |
| E110             | 4        |        | Not existed |

Is the inspection result normal?

YES >> GO TO 14.

NO >> Repair the harnesses or connectors.

## 14.PERFORM SELF-DIAGNOSIS OF ECM

1. Connect all connectors again if the connectors are disconnected.
2. Turn ignition switch ON.
3. Perform "All DTC Reading".
4. Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE". Refer to [EC-117, "DTC Index"](#) (VQ37VHR) or [EC-1083, "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651, "DTC Index"](#) (VK56VD for Mexico).

Is any DTC detected?

YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.

NO >> GO TO 15.

## 15.PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Check if any DTC is detected in "Self Diagnostic Result" of "ABS". Refer to [BRC-51, "DTC Index"](#).

Is any DTC detected?

YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.

NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

## Component Inspection (ICC Brake Switch)

INFOID:000000007218502

### 1.CHECK ICC BRAKE SWITCH

Check for continuity between ICC brake switch terminals.

| Terminal |   | Condition                     | Continuity  |
|----------|---|-------------------------------|-------------|
| 1        | 2 | When brake pedal is depressed | Not existed |
|          |   | When brake pedal is released  | Existed     |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace ICC brake switch.

## Component Inspection (Stop Lamp Switch)

INFOID:000000007218503

### 1.CHECK STOP LAMP SWITCH

Check for continuity between stop lamp switch terminals.

| Terminal |   | Condition                     | Continuity  |
|----------|---|-------------------------------|-------------|
| 1        | 2 | When brake pedal is depressed | Existed     |
|          |   | When brake pedal is released  | Not existed |

# C1A05 BRAKE SW/STOP LAMP SW

[BSW & BSI]

## < DTC/CIRCUIT DIAGNOSIS >

| Terminal |   | Condition                     | Continuity  |
|----------|---|-------------------------------|-------------|
| 3        | 4 | When brake pedal is depressed | Existed     |
|          |   | When brake pedal is released  | Not existed |

### Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace stop lamp switch.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## C1A06 OPERATION SW

### DTC Logic

INFOID:000000006886527

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|---------------------------|------------------------|---|---|
| C1A06<br>(6)              | OPERATION SW<br>CIRC   | <ul style="list-style-type: none"> <li>Any switch of the ICC steering switch is detected as "ON" continuously for 60 seconds</li> <li>An ON/OFF state judgment of the ICC differs between ECM and ADAS control unit, and the state continues for 2 seconds or more</li> </ul> | <ul style="list-style-type: none"> <li>ICC steering switch circuit</li> <li>ICC steering switch</li> <li>ECM</li> </ul> |

**NOTE:**

If DTC "C1A06" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

#### DTC CONFIRMATION PROCEDURE

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

- Start the engine.
- Wait for approximately 5 minutes after turning the BSI system ON.
- Perform "All DTC Reading" with CONSULT.
- Check if the "C1A06" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A06" detected as the current malfunction?

- YES >> Refer to [DAS-454, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

#### Diagnosis Procedure

INFOID:000000007218505

##### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A06" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
 Refer to [DAS-51, "DTC Logic"](#).  
 NO >> GO TO 2.

##### 2. CHECK ICC STEERING SWITCH

- Turn the ignition switch OFF.
- Disconnect the ICC steering switch connector.
- Check the ICC steering switch. Refer to [DAS-455, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Replace the ICC steering switch.

##### 3. CHECK HARNESS BETWEEN SPIRAL CABLE AND ECM

- Disconnect the ECM connector.
- Check for continuity between the spiral cable harness connector and ECM harness connector.

VQ37VHR

| Spiral cable |          | ECM       |          | Continuity |
|--------------|----------|-----------|----------|------------|
| Connector    | Terminal | Connector | Terminal |            |
| M36          | 25       | M107      | 101      | Existed    |
|              | 32       |           | 108      |            |

< DTC/CIRCUIT DIAGNOSIS >

VK56VD

| Spiral cable |          | ECM       |          | Continuity |
|--------------|----------|-----------|----------|------------|
| Connector    | Terminal | Connector | Terminal |            |
| M36          | 25       | M160      | 128      | Existed    |
|              | 32       |           | 130      |            |

3. Check for continuity between spiral cable harness connector and ground.

| Spiral cable |          | Ground | Continuity  |
|--------------|----------|--------|-------------|
| Connector    | Terminal |        |             |
| M36          | 25       |        | Not existed |
|              | 32       |        |             |

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair the harnesses or connectors.

4.CHECK SPIRAL CABLE

Check for continuity between spiral cable terminals.

| Spiral cable |    | Continuity |
|--------------|----|------------|
| Terminal     |    |            |
| 13           | 25 | Existed    |
| 16           | 32 |            |

Is the inspection result normal?

- YES >> GO TO 5.
- NO >> Replace the spiral cable.

5.PERFORM SELF-DIAGNOSIS OF ECM

1. Connect the connectors of ICC steering switch and ECM connector.
2. Turn the ignition switch ON.
3. Perform "All DTC Reading".
4. Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".

Is any DTC detected?

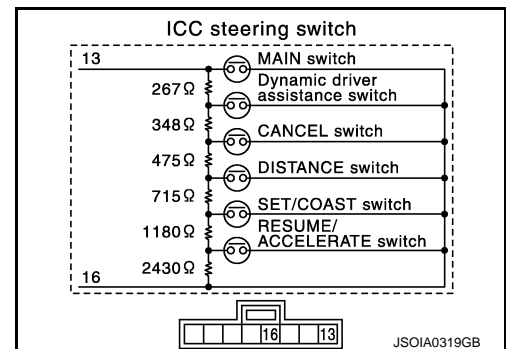
- YES >> Perform self-diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [EC-117. "DTC Index"](#) (VQ37VHR) or [EC-1083. "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651. "DTC Index"](#) (VK56VD for Mexico).
- NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

Component Inspection

INFOID:000000007218506

1.CHECK ICC STEERING SWITCH

Check resistance between ICC steering switch terminals.



# C1A06 OPERATION SW

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

| Terminal | Switch operation                               | Resistance [Ω] |
|----------|--|----------------|
| 13 16    | When pressing MAIN switch                      | Approx. 0      |
|          | When pressing dynamic driver assistance switch | Approx. 267    |
|          | When pressing CANCEL switch                    | Approx. 615    |
|          | When pressing DISTANCE switch                  | Approx. 1090   |
|          | When pressing SET/COAST switch                 | Approx. 1805   |
|          | When pressing RESUME/ACCELERATE switch         | Approx. 2985   |
|          | When all switches are not pressed              | Approx. 5415   |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the ICC steering switch.



C1A14 ECM

DTC Logic

INFOID:000000006886530

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes   |
|---------------------------|------------------------|--------------------------|---|
| C1A14<br>(14)             | ECM CIRCUIT            | If ECM is malfunctioning | <ul style="list-style-type: none"> <li>Accelerator pedal position sensor</li> <li>ECM</li> <li>ADAS control unit</li> </ul> |

**NOTE:**

If DTC "C1A14" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

**1. PERFORM DTC CONFIRMATION PROCEDURE**

- Start the engine.
- Operate the BSI system and drive.  
**CAUTION:**  
**Always drive safely.**
- Stop the vehicle.
- Perform "All DTC Reading" with CONSULT.
- Check if the "C1A14" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A14" detected as the current malfunction?

- YES >> Refer to [DAS-457, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006886531

**1. CHECK SELF-DIAGNOSIS RESULTS**

Check if "U1000" is detected other than "C1A14" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

**2. PERFORM SELF-DIAGNOSIS OF ECM**

Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [EC-117, "DTC Index"](#) (VQ37VHR) or [EC-1083, "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651, "DTC Index"](#) (VK56VD for Mexico).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P



## C1A15 GEAR POSITION

### Description

INFOID:000000006886532

ADAS control unit judges the gear position based on the following signals.

- Current gear position signal transmitted from TCM via CAN communication.
- Value of gear ratio calculated from input speed signal transmitted from TCM via CAN communication.
- Value of gear ratio calculated from the vehicle speed signal transmitted from ABS actuator and electric unit (control unit) via CAN communication.

### DTC Logic

INFOID:000000006886533

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes   |
|---------------------------|------------------------|--|---|
| C1A15<br>(15)             | GEAR POSITION          | A mismatch between an current gear position signal transmitted from TCM via CAN communication and a gear position calculated by the ADAS control unit continues for approximately 11 minutes or more | <ul style="list-style-type: none"> <li>• Input speed sensor</li> <li>• Vehicle speed sensor A/T (output speed sensor)</li> <li>• TCM</li> </ul> |

**NOTE:**

If DTC "C1A15" is detected along with DTC "U1000", "C1A03", or "C1A04", first diagnose the DTC "U1000", "C1A03", or "C1A04".

- Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#) for DTC "U1000".
- Refer to [DAS-447, "DTC Logic"](#) for DTC "C1A03".
- Refer to [DAS-448, "DTC Logic"](#) for DTC "C1A04".

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Drive the vehicle at 10 km/h (6 MPH) or faster for approximately 15 minutes or more.

**CAUTION:**

**Always drive safely.**

4. Stop the vehicle.
5. Perform "All DTC Reading" with CONSULT.
6. Check if "C1A15" is detected as the current malfunction in the "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A15" detected as the current malfunction?

YES >> Refer to [DAS-458, "Diagnosis Procedure"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886534

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "C1A03", "C1A04", or "U1000" is detected other than "C1A15" in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-420, "DTC Index"](#).

NO >> GO TO 2.

#### 2. CHECK VEHICLE SPEED SIGNAL

Check that "VHCL SPEED SE" operates normally in "DATA MONITOR" of "ICC/ADAS".

**CAUTION:**

**Be careful of the vehicle speed.**

Is the inspection result normal?

# C1A15 GEAR POSITION

[BSW & BSI]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 3.
- NO >> GO TO 7.

## 3.CHECK GEAR POSITION

Check that "GEAR" operates normally in "DATA MONITOR" of "ICC/ADAS".

### CAUTION:

**Be careful of the vehicle speed.**

Is the inspection result normal?

- YES >> GO TO 5.
- NO >> GO TO 4.

## 4.CHECK GEAR POSITION SIGNAL

Check that "GEAR" operates normally in "DATA MONITOR" of "TRANSMISSION".

Is the inspection result normal?

- YES >> GO TO 5.
- NO >> GO TO 6.

## 5.CHECK INPUT SPEED SENSOR SIGNAL

Check that "INPUT SPEED" operates normally in "DATA MONITOR" of "TRANSMISSION".

Is the inspection result normal?

- YES >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).
- NO >> GO TO 6.

## 6.CHECK TCM SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading".
2. Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [TM-78. "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

## 7.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading".
2. Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51. "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

&lt; DTC/CIRCUIT DIAGNOSIS &gt;

## C1A24 NP RANGE

## DTC Logic

INFOID:000000006886535

## DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|---------------------------|------------------------|--|--|
| C1A24<br>(24)             | NP RANGE               | A mismatch between a shift position signal transmitted from TCM via CAN communication and an current gear position signal continues for 60 seconds or more | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Transmission range switch</li> </ul> |

**NOTE:**

If DTC "C1A24" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

## DTC CONFIRMATION PROCEDURE

**1. CHECK DTC REPRODUCE (1)**

1. Start the engine.
2. Turn the BSI system ON.
3. Wait for approximately 5 minutes or more after shifting the selector lever to "P" position.
4. Perform "All DTC Reading" with CONSULT.
5. Check if the "C1A24" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A24" detected as the current malfunction?

YES >> Refer to [DAS-460, "Diagnosis Procedure"](#).

NO >> GO TO 2.

**2. CHECK DTC REPRODUCE (2)**

1. Wait for approximately 5 minutes or more after shifting the selector lever to "N" position.
2. Perform "All DTC Reading".
3. Check if the "C1A24" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A24" detected as the current malfunction?

YES >> Refer to [DAS-460, "Diagnosis Procedure"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

## Diagnosis Procedure

INFOID:000000006886536

**1. CHECK SELF-DIAGNOSIS RESULTS**

Check if "U1000" is detected other than "C1A24" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

NO >> GO TO 2.

**2. CHECK NP POSITION SWITCH SIGNAL**

Check that "NP RANGE SW" operates normally in "DATA MONITOR" of "ICC/ADAS".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

**3. CHECK TCM DATA MONITOR**

Check that "SLCT LVR POSI" operates normally in "DATA MONITOR" of "TRANSMISSION".

Is the inspection result normal?

YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

NO >> GO TO 4.

# C1A24 NP RANGE

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## 4.PERFORM TCM SELF-DIAGNOSIS

1. Perform "All DTC Reading".
2. Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

### Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [TM-78, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1A39 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## C1A39 STEERING ANGLE SENSOR

### DTC Logic

INFOID:000000006886537

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                     | Possible causes       |
|---------------------------|------------------------|---|-----------------------|
| C1A39<br>(39)             | STRG SEN CIR           | If the steering angle sensor is malfunction | Steering angle sensor |

#### NOTE:

If DTC "C1A39" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A39" is detected as the current malfunction in self-diagnosis results of "ICC/ADAS".

Is "C1A39" detected as the current malfunction?

- YES >> Refer to [DAS-462, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886538

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A39" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

# C1A50 ADAS CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## C1A50 ADAS CONTROL UNIT

### DTC Logic

INFOID:000000006886539

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition                | Possible cause    |
|-------|------------------------|--|-------------------|
| C1A50 | ADAS MALFUNCTION       | If ADAS control unit is malfunctioning | ADAS control unit |

#### NOTE:

If DTC "C1A50" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477. "ADAS CONTROL UNIT : DTC Logic"](#).

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A50" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "C1A50" detected as the current malfunction?

- YES >> Refer to [DAS-463. "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44. "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886540

#### 1.CHECK LANE CAMERA UNIT SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A50" in "Self Diagnostic Result" of "LANE CAMERA".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-478. "LANE CAMERA UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2.CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-40. "DTC Index"](#).  
NO >> Replace the lane camera unit. Refer to [CCS-170. "Exploded View"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1B00 CAMERA UNIT MALF

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## C1B00 CAMERA UNIT MALF

### ADAS CONTROL UNIT

#### ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886541

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition               | Possible causes  |
|---------------------------|------------------------|---------------------------------------|------------------|
| C1B00<br>(81)             | CAMERA UNIT MALF       | If lane camera unit is malfunctioning | Lane camera unit |

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1B00" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1B00" detected as the current malfunction?

YES >> Refer to [DAS-464, "ADAS CONTROL UNIT : Diagnosis Procedure"](#).

NO >> INSPECTION END

#### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886542

##### 1.CHECK SELF-DIAGNOSIS RESULTS

Check if "C1B00" is detected in "Self Diagnostic Result" of "LANE CAMERA".

Is "C1B00" detected?

YES >> Refer to [DAS-464, "LANE CAMERA UNIT : DTC Logic"](#)

NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

### LANE CAMERA UNIT

#### LANE CAMERA UNIT : DTC Logic

INFOID:000000006886543

#### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition               | Possible causes  |
|-------|------------------------|---------------------------------------|------------------|
| C1B00 | CAMERA UNIT MALF       | If lane camera unit is malfunctioning | Lane camera unit |

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1B00" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "C1B00" detected as the current malfunction?

YES >> Refer to [DAS-464, "LANE CAMERA UNIT : Diagnosis Procedure"](#).

NO >> INSPECTION END

#### LANE CAMERA UNIT : Diagnosis Procedure

INFOID:000000006886544

##### 1.CHECK SELF-DIAGNOSIS RESULTS

Check if any DTC other than "C1B00" is detected in "Self Diagnostic Result" of "LANE CAMERA".

Is any DTC detected?



# C1B00 CAMERA UNIT MALF

[BSW & BSI]

## < DTC/CIRCUIT DIAGNOSIS >

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-431, "DTC Index"](#).
- NO >> Replace the lane camera unit. Refer to [DAS-531, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## C1B01 CAM AIMING INCMP

### ADAS CONTROL UNIT

#### ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886545

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition        | Possible causes  |
|---------------------------|------------------------|--------------------------------|--|
| C1B01<br>(82)             | CAM AIMING INCMP       | Camera aiming is not completed | <ul style="list-style-type: none"> <li>Lane camera aiming is not adjusted</li> <li>Lane camera aiming adjustment has been interrupted</li> </ul> |

#### DTC CONFIRMATION PROCEDURE

### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Operate the BSI system and drive.  
**CAUTION:**  
**Always drive safely.**
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1B01" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1B01" detected as the current malfunction?

- YES >> Refer to [DAS-466, "ADAS CONTROL UNIT : Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

#### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886546

### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "C1B01" is detected in "Self Diagnostic Result" of "LANE CAMERA".

Is "C1B01" detected?

- YES >> Refer to [DAS-466, "LANE CAMERA UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

### 2. CHECK DATA MONITOR

1. Start the engine.
2. Check that "OK" is indicated for the value of "AIMING RESULT" in "DATA MONITOR" of "LANE CAMERA".

Is "OK" indicated?

- YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).  
 NO >> Replace the lane camera unit. Refer to [DAS-531, "Removal and Installation"](#).

## LANE CAMERA UNIT

#### LANE CAMERA UNIT : DTC Logic

INFOID:000000006886547

#### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition        | Possible causes  |
|-------|------------------------|--------------------------------|--|
| C1B01 | CAM AIMING INCMP       | Camera aiming is not completed | <ul style="list-style-type: none"> <li>Lane camera aiming is not adjusted</li> <li>Lane camera aiming adjustment has been interrupted</li> </ul> |

#### DTC CONFIRMATION PROCEDURE

# C1B01 CAM AIMING INCOMP

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1B01" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "C1B01" detected as the current malfunction?

- YES >> Refer to [DAS-467, "LANE CAMERA UNIT : Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

## LANE CAMERA UNIT : Diagnosis Procedure

INFOID:000000006886548

## 1. CAMERA AIMING ADJUSTMENT

1. Perform the camera aiming. Refer to [DAS-441, "Description"](#).
2. Erase all self-diagnosis results with CONSULT.
3. Perform "All DTC Reading".
4. Check if the "C1B01" is detected in "Self Diagnostic Result" of "LANE CAMERA".

Is "C1B01" detected?

- YES >> Replace the lane camera unit. Refer to [DAS-531, "Removal and Installation"](#).  
NO >> INSPECTION END

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1B03 ABNRML TEMP DETECT

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## C1B03 ABNRML TEMP DETECT

### ADAS CONTROL UNIT

#### ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886549

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition                                 | Possible causes                               |
|---------------------------|------------------------|---|---|
| C1B03<br>(83)             | CAM ABNRML TMP DETCT   | Temperature around lane camera unit is excessively high | Interior room temperature is excessively high |

#### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886550

### 1. CHECK LANE CAMERA UNIT SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the "C1B03" is detected in "Self Diagnostic Result" of "LANE CAMERA"

Is "C1B03" detected?

- YES >> Refer to [DAS-468. "LANE CAMERA UNIT : DTC Logic"](#)  
NO >> GO TO 2.

### 2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

1. Erase All self-diagnosis results with CONSULT.
2. Perform "All DTC Reading".
3. Check if the "C1B03" is detected in "Self Diagnostic Result" of "ICC/ADAS"

Is "C1B03" detected?

- YES >> Replace the ADAS control unit. Refer to [DAS-371. "Removal and Installation"](#).  
NO >> INSPECTION END

### LANE CAMERA UNIT

#### LANE CAMERA UNIT : DTC Logic

INFOID:000000006886551

#### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition                                 | Possible causes                               |
|-------|------------------------|---|---|
| C1B03 | ABNRML TEMP DETECT     | Temperature around lane camera unit is excessively high | Interior room temperature is excessively high |

#### LANE CAMERA UNIT : Diagnosis Procedure

INFOID:000000006886552

### 1. COOLING LANE CAMERA UNIT

1. Wait for 10 minutes or more to cool the lane camera unit.
2. Erase All self-diagnosis results with CONSULT.
3. Perform "All DTC Reading".
4. Check if the "C1B03" is detected in "Self Diagnostic Result" of "LANE CAMERA".

Is "C1B03" detected?

- YES >> Replace the lane camera unit. Refer to [DAS-531. "Removal and Installation"](#).  
NO >> INSPECTION END

# C1B50 SIDE RADAR MALFUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## C1B50 SIDE RADAR MALFUNCTION

### DTC LOGIC

INFOID:000000006886553

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition | Possible causes |
|-------|------------------------|-------------------------|-----------------|
| C1B50 | SIDE RDR MALFUNCTION   | Side radar malfunction  | Side radar      |

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1B50" is detected as the current malfunction in "Self Diagnostic Result" of "SIDE RADAR RIGHT/LEFT".

Is the "C1B50" detected as the current malfunction?

- YES >> Refer to [DAS-469, "Diagnosis Procedure"](#).  
NO >> INSPECTION END

### Diagnosis Procedure

INFOID:000000006886554

#### 1. CHECK SELF-DIAGNOSIS RESULT

Check if any DTC other than "C1B50" is detected in "Self Diagnostic Result" of "SIDE RADAR LEFT/RIGHT"

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunction part. Refer to [DAS-428, "DTC Index"](#) (SIDE RADAR RIGHT) or [DAS-426, "DTC Index"](#) (SIDE RADAR LEFT).  
NO >> Replace the side radar. Refer to [DAS-528, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1B51 BSW/BSI INDICATOR SHORT CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## C1B51 BSW/BSI INDICATOR SHORT CIRCUIT

### DTC Logic

INFOID:000000006886555

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition  | Possible cause  |
|-------|------------------------|--|---|
| C1B51 | BSW/BSI IND SHORT CIR  | Short circuit in BSW/BSI indicator circuit is detected. (Over current is detected) | <ul style="list-style-type: none"><li>• BSW/BSI indicator circuit.</li><li>• BSW/BSI indicator.</li><li>• Side radar.</li></ul> |

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1B51" is detected as the current malfunction in "Self Diagnostic Result" of "SIDE RADAR RIGHT/LEFT".

Is the "C1B51" detected as the current malfunction?

YES >> Refer to [DAS-470, "Diagnosis Procedure"](#).

NO >> INSPECTION END

### Diagnosis Procedure

INFOID:000000006886556

#### 1. CHECK BSW/BSI INDICATOR CIRCUIT FOR SHORT

1. Turn ignition switch OFF.
2. Disconnect side radar harness connector and BSW/BSI indicator harness connector.
3. Check continuity between side radar harness connector and ground.

| Side radar |          | Ground | Continuity  |
|------------|----------|--------|-------------|
| Connector  | Terminal |        |             |
| B52 (LH)   | 6        |        | Continuity  |
| B252 (RH)  |          |        | Not existed |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the harnesses or connectors.

#### 2. REPLACE THE SIDE RADAR

1. Replace the side radar.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1B51" is detected in "Self Diagnostic Result" of "SIDE RADAR RIGHT/LEFT"

Is the DTC "C1B51" detected?

YES >> Replace the side radar. Refer to [DAS-528, "Removal and Installation"](#).

NO >> INSPECTION END

# C1B52 BSW/BSI INDICATOR OPEN CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## C1B52 BSW/BSI INDICATOR OPEN CIRCUIT

### DTC Logic

INFOID:000000006886557

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition                                | Possible cause  |
|-------|------------------------|--|---|
| C1B52 | BSW/BSI IND OPEN CIR   | Open circuit in BSW/BSI indicator circuit is detected. | <ul style="list-style-type: none"><li>BSW/BSI indicator circuit.</li><li>BSW/BSI indicator.</li><li>Side radar.</li></ul> |

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

- Start the engine.
- Perform "All DTC Reading" with CONSULT.
- Check if the "C1B52" is detected as the current malfunction in "Self Diagnostic Result" of "SIDE RADAR RIGHT/LEFT".

Is the "C1B52" detected as the current malfunction?

- YES >> Refer to [DAS-471, "Diagnosis Procedure"](#).  
NO >> INSPECTION END

### Diagnosis Procedure

INFOID:000000006886558

#### 1. CHECK BSW/BSI INDICATOR CIRCUIT FOR OPEN 1

- Turn ignition switch OFF.
- Disconnect side radar harness connector and BSW/BSI indicator harness connector.
- Check continuity between side radar harness connector and BSW/BSI indicator harness connector.

| Side radar |          | BSW/BSI indicator |          | Continuity |
|------------|----------|-------------------|----------|------------|
| Connector  | Terminal | Connector         | Terminal |            |
| B52 (LH)   | 6        | D7 (LH)           | 1        | Existed    |
| B252 (RH)  |          | D37 (RH)          |          |            |

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the harnesses or connectors.

#### 2. CHECK BSW/BSI INDICATOR CIRCUIT FOR OPEN 2

Check continuity between BSW/BSI indicator harness connector and ground.

| BSW/BSI indicator |          | Ground | Continuity |
|-------------------|----------|--------|------------|
| Connector         | Terminal |        |            |
| D7 (LH)           | 4        |        | Existed    |
| D37 (RH)          |          |        |            |

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the harnesses or connectors.

#### 3. CHECK SIDE RADAR VOLTAGE OUTPUT

- Connect side radar harness connector.
- Check voltage between BSW/BSI indicator harness connector and ground.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1B52 BSW/BSI INDICATOR OPEN CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

| BSW/BSI indicator |          | Ground | Condition                                       | Voltage (Approx.) |
|-------------------|----------|--------|---|-------------------|
| Connector         | Terminal |        |   |                   |
| D7 (LH)           | 1        |        | Ignition switch<br>OFF ⇒ ON<br>(Approx. 2 sec.) | 6 V               |
| D37 (RH)          |          |        |   |                   |

Is the inspection result normal?

YES >> Replace BSW/BSI indicator.

NO >> Replace side radar. Refer to [DAS-528. "Removal and Installation"](#).



# C1B53 SIDE RADAR RIGHT MALFUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## C1B53 SIDE RADAR RIGHT MALFUNCTION

### DTC Logic

INFOID:000000006886559

### DTC DETECTION LOGIC

| DTC<br>(On board<br>display) | Trouble diagnosis name | DTC detecting condition   | Possible cause |
|------------------------------|------------------------|---|----------------|
| C1B53<br>(84)                | SIDE RDR R MALF        | ADAS control unit detects that side radar RH has a malfunction. | Side radar RH  |

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1B53" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

#### Is "C1B53" detected as the current malfunction?

- YES >> Refer to [DAS-473, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886560

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1B53" in "Self Diagnostic Result" of "ICC/ADAS".

#### Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "SIDE RADAR RIGHT".

#### Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-426, "DTC Index"](#) (SIDE RADAR LH), [DAS-428, "DTC Index"](#) (SIDE RADAR RH).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# C1B54 SIDE RADAR LEFT MALFUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## C1B54 SIDE RADAR LEFT MALFUNCTION

### DTC Logic

INFOID:000000006886561

### DTC DETECTION LOGIC

| DTC<br>(On board<br>display) | Trouble diagnosis name | DTC detecting condition   | Possible cause |
|------------------------------|------------------------|---|----------------|
| C1B54<br>(85)                | SIDE RDR L MALF        | ADAS control unit detects that side radar LH has a malfunction. | Side radar LH  |

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1B54" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1B54" detected as the current malfunction?

- YES >> Refer to [DAS-474, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886562

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1B54" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "SIDE RADAR LEFT".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-426, "DTC Index"](#) (SIDE RADAR LH), [DAS-428, "DTC Index"](#) (SIDE RADAR RH).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

# C1B55 RADAR BLOCKAGE

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## C1B55 RADAR BLOCKAGE

### DTC Logic

INFOID:000000006886563

### DTC DETECTION LOGIC

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause                           |
|---------|------------------------|-------------------------|--|
| C1B55   | RADAR BLOCKAGE         | Side radar is blocked.  | Stain or foreign materials is deposited. |

#### NOTE:

DTC "C1B55" may be detected under the following conditions except for possible cause. (Explain to the customer about the difference between the contamination detection function and the indication when the malfunction is detected and tell them "This is not malfunction".)

- The side radar may be blocked by temporary ambient conditions such as splashing water, mist or fog.
- The blocked condition may also be caused by objects such as ice, frost or dirt obstructing the side radar.
- Due to the nature of radar technology it is possible to get a blockage warning and not actually be blocked. This is rare and is known as a false blockage warning. A false blocked condition either self-clears or clears after an ignition cycle.

### Diagnosis Procedure

INFOID:000000006886564

#### 1.CHECK THE REAR BUMPER

Check rear bumper near the side radar contaminated with foreign materials.

>> GO TO 2.

#### 2.CHECK THE SIDE RADAR

Check side radar and the side radar outskirts contaminated with foreign materials.

>> GO TO 3.

#### 3.CHECK THE SIDE RADAR INSTALL CONDITION

Check side radar installation condition (installation position, properly tightened, a bent bracket).

>> GO TO 4.

#### 4.INTERVIEW

1. Ask if there is stain or foreign materials.
2. Ask if there is any temporary ambient condition such as splashing water, mist or fog.
3. Ask if there is any object such as ice, frost or dirt obstructing the side radar.

#### Is any of above conditions seen?

- YES >> Explain to the customer about the difference between the blockage detection function and the indication when the malfunction is detected and tell them "This is not malfunction".
- NO >> INSPECTION END

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## U1000 CAN COMM CIRCUIT

### SIDE RADAR LH

#### SIDE RADAR LH : Description

INFOID:000000006886565

#### CAN COMMUNICATION

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control units, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads the required data only.

CAN communication signal chart. Refer to [LAN-35. "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

#### ITS COMMUNICATION

- ITS communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speed by connecting plural units with 2 communication lines.
- ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

#### SIDE RADAR LH : DTC Logic

INFOID:000000006886566

#### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition  | Possible causes          |
|-------|------------------------|--|--------------------------|
| U1000 | CAN COMM CIRCUIT       | If Side radar LH is not transmitting or receiving ITS communication signal for 2 seconds or more | ITS communication system |

#### SIDE RADAR LH : Diagnosis Procedure

INFOID:000000006886567

#### 1. PERFORM THE SELF-DIAGNOSIS

1. Start the engine.
2. Turn the BSI system ON, and then wait for 30 seconds or more.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1000" is detected as the current malfunction in "Self Diagnostic Result" of "SIDE RADAR LEFT".

Is "U1000" detected as the current malfunction?

YES >> Refer to [LAN-25. "Trouble Diagnosis Flow Chart"](#).

NO >> Refer to [GI-44. "Intermittent Incident"](#).

### SIDE RADAR RH

#### SIDE RADAR RH : Description

INFOID:000000006886568

#### CAN COMMUNICATION

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control units, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads the required data only.

CAN communication signal chart. Refer to [LAN-35. "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

#### ITS COMMUNICATION

- ITS communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speed by connecting plural units with 2 communication lines.
- ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

# U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## SIDE RADAR RH : DTC Logic

INFOID:000000006886569

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition  | Possible causes          |
|-------|------------------------|--|--------------------------|
| U1000 | CAN COMM CIRCUIT       | If Side radar RH is not transmitting or receiving ITS communication signal for 2 seconds or more | ITS communication system |

## SIDE RADAR RH : Diagnosis Procedure

INFOID:000000006886570

### 1. PERFORM THE SELF-DIAGNOSIS

1. Start the engine.
2. Turn the BSI system ON, and then wait for 30 seconds or more.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1000" is detected as the current malfunction in "Self Diagnostic Result" of "SIDE RADAR RIGHT".

Is "U1000" detected as the current malfunction?

YES >> Refer to [LAN-25, "Trouble Diagnosis Flow Chart"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

## ADAS CONTROL UNIT

### ADAS CONTROL UNIT : Description

INFOID:000000006886571

#### CAN COMMUNICATION

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control units, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads the required data only.

CAN communication signal chart. Refer to [LAN-35, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

#### ITS COMMUNICATION

- ITS communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speed by connecting control units with 2 communication lines.
- ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

### ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886572

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes   |
|---------------------------|------------------------|--|---|
| U1000<br>(100)            | CAN COMM CIRCUIT       | If ADAS control unit is not transmitting or receiving CAN communication signal or ITS communication signal for 2 seconds or more | <ul style="list-style-type: none"><li>• CAN communication system</li><li>• ITS communication system</li></ul> |

#### NOTE:

If "U1000" is detected, first diagnose the CAN communication system.

## ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886573

### 1. PERFORM THE SELF-DIAGNOSIS

1. Turn the ignition switch ON.
2. Turn the BSI system ON, and then wait for 30 seconds or more.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1000" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

# U1000 CAN COMM CIRCUIT

[BSW & BSI]

< DTC/CIRCUIT DIAGNOSIS >

Is "U1000" detected as the current malfunction?

YES >> Refer to [LAN-25, "Trouble Diagnosis Flow Chart"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

## LANE CAMERA UNIT

### LANE CAMERA UNIT : Description

INFOID:000000006886574

#### ITS COMMUNICATION

- ITS communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speed by connecting control units with 2 communication lines.
- ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

### LANE CAMERA UNIT : DTC Logic

INFOID:000000006886575

#### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes          |
|-------|------------------------|---|--------------------------|
| U1000 | CAN COMM CIRCUIT       | If lane camera unit is not transmitting or receiving ITS communication signal for 2 seconds or more | ITS communication system |

### LANE CAMERA UNIT : Diagnosis Procedure

INFOID:000000006886576

#### 1. PERFORM THE SELF-DIAGNOSIS

1. Turn the ignition switch ON.
2. Turn the BSI system ON, and then wait for 2 seconds or more.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1000" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "U1000" detected as the current malfunction?

YES >> Refer to [LAN-25, "Trouble Diagnosis Flow Chart"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

# U1010 CONTROL UNIT (CAN)

[BSW & BSI]

< DTC/CIRCUIT DIAGNOSIS >

## U1010 CONTROL UNIT (CAN)

### SIDE RADAR LH

#### SIDE RADAR LH : Description

INFOID:000000006886577

CAN controller controls the communication of ITS communication signal and the error detection.

#### SIDE RADAR LH : DTC Logic

INFOID:000000006886578

#### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible cause |
|-------|------------------------|---|----------------|
| U1010 | CONTROL UNIT (CAN)     | If side radar LH detects malfunction by CAN controller initial diagnosis. | Side radar LH  |

#### SIDE RADAR LH : Diagnosis Procedure

INFOID:000000006886579

##### 1.CHECK SELF-DIAGNOSIS RESULT

1. Turn the BSI system ON.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "U1010" is detected as the current malfunction in "Self Diagnostic Result" of "SIDE RADAR LEFT".

Is "U1010" detected as the current malfunction?

YES >> Replace the side radar LH. [DAS-528, "Removal and Installation"](#).

NO >> INSPECTION END

### SIDE RADAR RH

#### SIDE RADAR RH : Description

INFOID:000000006886580

CAN controller controls the communication of ITS communication signal and the error detection.

#### SIDE RADAR RH : DTC Logic

INFOID:000000006886581

#### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible cause |
|-------|------------------------|---|----------------|
| U1010 | CONTROL UNIT (CAN)     | If Side radar RH detects malfunction by CAN controller initial diagnosis. | Side radar RH  |

#### SIDE RADAR RH : Diagnosis Procedure

INFOID:000000006886582

##### 1.CHECK SELF-DIAGNOSIS RESULT

1. Turn the BSI system ON.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "U1010" is detected as the current malfunction in "Self Diagnostic Result" of "SIDE RADAR RIGHT".

Is "U1010" detected as the current malfunction?

YES >> Replace the side radar RH. [DAS-528, "Removal and Installation"](#).

NO >> INSPECTION END

### ADAS CONTROL UNIT

#### ADAS CONTROL UNIT : Description

INFOID:000000006886583

CAN controller controls the communication of CAN communication signal and ITS communication signal, and the error detection.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886584

### DTC DETECTION LOGIC

| DTC<br>(On board<br>display) | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|------------------------------|------------------------|---|-------------------|
| U1010<br>(110)               | CONTROL UNIT (CAN)     | If ADAS control unit detects malfunction by<br>CAN controller initial diagnosis | ADAS control unit |

## ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886585

### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the BSI system ON.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "U1010" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1010" detected as the current malfunction?

- YES >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).  
NO >> INSPECTION END

## LANE CAMERA UNIT

### LANE CAMERA UNIT : Description

INFOID:000000006886586

CAN controller controls the communication of ITS communication signal and the error detection.

### LANE CAMERA UNIT : DTC Logic

INFOID:000000006886587

### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|-------|------------------------|--|------------------|
| U1010 | CONTROL UNIT (CAN)     | If lane camera unit detects malfunction by CAN<br>controller initial diagnosis | Lane camera unit |

## LANE CAMERA UNIT : Diagnosis Procedure

INFOID:000000006886588

### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the BSI system ON.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "U1010" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "U1010" detected as the current malfunction?

- YES >> Replace the lane camera unit. Refer to [DAS-371. "Removal and Installation"](#).  
NO >> INSPECTION END



< DTC/CIRCUIT DIAGNOSIS >

U0104 ADAS CAN 1  
SIDE RADAR

SIDE RADAR : DTC Logic

INFOID:000000006886589

DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition  | Possible cause    |
|-------|------------------------|--|-------------------|
| U0104 | ADAS CAN CIR1          | Side radar detected an error of ITS communication signal that was received from ADAS control unit. | ADAS control unit |

**NOTE:**

If DTC "U0104" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-476. "SIDE RADAR LH : DTC Logic"](#) (SIDE RADAR LH), [DAS-477. "SIDE RADAR RH : DTC Logic"](#) (SIDE RADAR RH).

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the U0104 is detected as the current malfunction in "Self Diagnostic Result" of "SIDE RADAR RIGHT/LEFT".

Is the DTC "U0104" detected?

- YES >> Refer to [DAS-481. "SIDE RADAR : Diagnosis Procedure"](#).
- NO >> Refer to [GI-44. "Intermittent Incident"](#).

SIDE RADAR : Diagnosis Procedure

INFOID:000000006886590

1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0104" in "Self Diagnostic Result" of "SIDE RADAR RIGHT/LEFT".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-476. "SIDE RADAR LH : DTC Logic"](#) (SIDE RADAR LH), [DAS-477. "SIDE RADAR RH : DTC Logic"](#) (SIDE RADAR RH).
- NO >> GO TO 2.

2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-420. "DTC Index"](#).
- NO >> Replace side radar LH or RH. Refer to [DAS-528. "Removal and Installation"](#)

LANE CAMERA UNIT

LANE CAMERA UNIT : DTC Logic

INFOID:000000006886591

DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|-------|------------------------|---|-------------------|
| U0104 | ADAS CAN CIR 1         | If lane camera unit detects an error signal that is received from ADAS control unit via ITS communication | ADAS control unit |

**NOTE:**

If DTC "U0104" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-478. "LANE CAMERA UNIT : DTC Logic"](#).



< DTC/CIRCUIT DIAGNOSIS >

## DTC CONFIRMATION PROCEDURE

### 1. PERFORM DTC CONFIRMATION PROCEDURE

---

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0104" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "U0104" detected as the current malfunction?

YES >> Refer to [DAS-482, "LANE CAMERA UNIT : Diagnosis Procedure"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

## LANE CAMERA UNIT : Diagnosis Procedure

INFOID:000000006886592

### 1. CHECK LANE CAMERA UNIT SELF-DIAGNOSIS RESULTS

---

Check if "U1000" is detected other than "U0104" in "Self Diagnostic Result" of "LANE CAMERA".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.

Refer to [DAS-478, "LANE CAMERA UNIT : DTC Logic"](#).

NO >> GO TO 2.

### 2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

---

Check if any DTC is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to

[DAS-420, "DTC Index"](#).

NO >> Replace the lane camera unit. Refer to [DAS-531, "Removal and Installation"](#).

U0121 VDC CAN 2

DTC Logic

INFOID:000000006886593

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes                               |
|---------------------------|------------------------|--|---|
| U0121<br>(127)            | VDC CAN CIR2           | If ADAS control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication | ABS actuator and electric unit (control unit) |

**NOTE:**

If DTC "U0121" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

**1. PERFORM DTC CONFIRMATION PROCEDURE**

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0121" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0121" detected as the current malfunction?

- YES >> Refer to [DAS-483, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006886594

**1. CHECK SELF-DIAGNOSIS RESULTS**

Check if "U1000" is detected other than "U0121" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

**2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS**

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



# U0126 STRG SEN CAN 1

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## U0126 STRG SEN CAN 1

### ADAS CONTROL UNIT

#### ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886595

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes       |
|---------------------------|------------------------|--|-----------------------|
| U0126<br>(130)            | STRG SEN CAN CIR1      | If ADAS control unit detects an error signal that is received from steering angle sensor via CAN communication | Steering angle sensor |

#### NOTE:

If DTC "U0126" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

#### DTC CONFIRMATION PROCEDURE

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0126" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

##### Is "U0126" detected as the current malfunction?

- YES >> Refer to [DAS-484, "ADAS CONTROL UNIT : Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

#### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886596

##### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0126" in "Self Diagnostic Result" of "ICC/ADAS".

##### Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

##### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

##### Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

## LANE CAMERA UNIT

#### LANE CAMERA UNIT : DTC Logic

INFOID:000000006886597

#### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes       |
|-------|------------------------|---|-----------------------|
| U0126 | STRG SEN CAN CIR1      | If lane camera unit detects an error signal that is received from steering angle sensor via ADAS control unit | Steering angle sensor |

#### NOTE:

If DTC "U0126" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-478, "LANE CAMERA UNIT : DTC Logic"](#).

## DTC CONFIRMATION PROCEDURE

### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0126" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "U0126" detected as the current malfunction?

YES >> Refer to [DAS-485, "LANE CAMERA UNIT : Diagnosis Procedure"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

## LANE CAMERA UNIT : Diagnosis Procedure

INFOID:000000006886598

### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0126" in "Self Diagnostic Result" of "LANE CAMERA".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-478, "LANE CAMERA UNIT : DTC Logic"](#).

NO >> GO TO 2.

### 2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).

NO >> Replace the lane camera unit. Refer to [DAS-371, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

U0401 ECM CAN 1

DTC Logic

INFOID:000000006886599

DTC DETECTION LOGIC

| DTC<br>(On board<br>display) | Trouble diagnosis name | DTC detecting condition  | Possible causes |
|------------------------------|------------------------|--|-----------------|
| U0401<br>(120)               | ECM CAN CIR1           | If ADAS control unit detects an error signal that is received from ECM via CAN communication | ECM             |

**NOTE:**

If DTC "U0401" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

**1**.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0401" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0401" detected as the current malfunction?

- YES >> Refer to [DAS-486, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006886600

**1**.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

**2**.CHECK ECM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [EC-117, "DTC Index"](#) (VQ37VHR) or [EC-1083, "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651, "DTC Index"](#) (VK56VD for Mexico).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

# U0402 TCM CAN 1

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## U0402 TCM CAN 1

### DTC Logic

INFOID:000000006886601

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes |
|---------------------------|------------------------|--|-----------------|
| U0402<br>(122)            | TCM CAN CIRC1          | If ADAS control unit detects an error signal that is received from TCM via CAN communication | TCM             |

#### NOTE:

If DTC "U0402" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0402" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0402" detected as the current malfunction?

- YES >> Refer to [DAS-487, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886602

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0402" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

#### 2. CHECK TCM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [TM-78, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## U0405 ADAS CAN 2 SIDE RADAR

### SIDE RADAR : DTC Logic

INFOID:000000006886603

#### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition  | Possible cause     |
|-------|------------------------|--|--------------------|
| U0405 | ADAS CAN CIR2          | Side radar detected an error of ITS communication signal that was received from ADAS control unit. | ADAS control unit. |

**NOTE:**

If DTC "U0405" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-476, "SIDE RADAR LH : DTC Logic"](#) (SIDE RADAR LH), [DAS-477, "SIDE RADAR RH : DTC Logic"](#) (SIDE RADAR RH).

#### DTC CONFIRMATION PROCEDURE

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0405" is detected as the current malfunction in "Self Diagnostic Result" of "SIDE RADAR RIGHT/LEFT".

Is the DTC "U0405" detected?

- YES >> Refer to [DAS-488, "SIDE RADAR : Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### SIDE RADAR : Diagnosis Procedure

INFOID:000000006886604

##### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0405" in "Self Diagnostic Result" of "SIDE RADAR RIGHT/LEFT".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-476, "SIDE RADAR LH : DTC Logic"](#) (SIDE RADAR LH), [DAS-477, "SIDE RADAR RH : DTC Logic"](#) (SIDE RADAR RH).  
 NO >> GO TO 2.

##### 2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-420, "DTC Index"](#).  
 NO >> Replace side radar LH or RH. Refer to [DAS-528, "Removal and Installation"](#).

## LANE CAMERA UNIT

### LANE CAMERA UNIT : DTC Logic

INFOID:000000006886605

#### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|-------|------------------------|---|-------------------|
| U0405 | ADAS CAN CIR 2         | If lane camera unit detects an error signal that is received from ADAS control unit via ITS communication | ADAS control unit |

**NOTE:**

If DTC "U0405" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-478, "LANE CAMERA UNIT : DTC Logic"](#).



< DTC/CIRCUIT DIAGNOSIS >

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0405" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "U0405" detected as the current malfunction?

- YES >> Refer to [DAS-489, "LANE CAMERA UNIT : Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

LANE CAMERA UNIT : Diagnosis Procedure

INFOID:000000006886606

1. CHECK LANE CAMERA UNIT SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0405" in "Self Diagnostic Result" of "LANE CAMERA".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
 Refer to [DAS-478, "LANE CAMERA UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-420, "DTC Index"](#).  
 NO >> Replace the lane camera unit. Refer to [DAS-531, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## U0415 VDC CAN 1

### DTC Logic

INFOID:000000006886607

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes                               |
|---------------------------|------------------------|--|---|
| U0415<br>(126)            | VDC CAN CIR1           | If ADAS control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication | ABS actuator and electric unit (control unit) |

**NOTE:**

If DTC "U0415" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

#### DTC CONFIRMATION PROCEDURE

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0415" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0415" detected as the current malfunction?

- YES >> Refer to [DAS-490, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

#### Diagnosis Procedure

INFOID:000000006886608

##### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0415" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

##### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

## U0428 STRG SEN CAN 2

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

### U0428 STRG SEN CAN 2

#### ADAS CONTROL UNIT

#### ADAS CONTROL UNIT : DTC Logic

INFOID:000000006886609

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes       |
|---------------------------|------------------------|--|-----------------------|
| U0428<br>(131)            | STRG SEN CAN CIR2      | If ADAS control unit detects an error signal that is received from steering angle sensor via CAN communication | Steering angle sensor |

#### NOTE:

If DTC "U0428" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

#### DTC CONFIRMATION PROCEDURE

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0428" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

##### Is "U0428" detected as the current malfunction?

- YES >> Refer to [DAS-491, "ADAS CONTROL UNIT : Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

#### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000006886610

##### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0428" in "Self Diagnostic Result" of "ICC/ADAS".

##### Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
NO >> GO TO 2.

##### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

##### Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).  
NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

#### LANE CAMERA UNIT

#### LANE CAMERA UNIT : DTC Logic

INFOID:000000006886611

#### DTC DETECTION LOGIC

| DTC   | Trouble diagnosis name | DTC detecting condition   | Possible causes       |
|-------|------------------------|---|-----------------------|
| U0428 | STRG SEN CAN CIR2      | If lane camera unit detects an error signal that is received from steering angle sensor via ADAS control unit | Steering angle sensor |

#### NOTE:

If DTC "U0428" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-478, "LANE CAMERA UNIT : DTC Logic"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## DTC CONFIRMATION PROCEDURE

**1**.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0428" is detected as the current malfunction in "Self Diagnostic Result" of "LANE CAMERA".

Is "U0428" detected as the current malfunction?

YES >> Refer to [DAS-492, "LANE CAMERA UNIT : Diagnosis Procedure"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

## LANE CAMERA UNIT : Diagnosis Procedure

INFOID:000000006886612

**1**.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0428" in "Self Diagnostic Result" of "LANE CAMERA".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [DAS-478, "LANE CAMERA UNIT : DTC Logic"](#).

NO >> GO TO 2.

**2**.CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-420, "DTC Index"](#).

NO >> Replace the lane camera unit. Refer to [DAS-531, "Removal and Installation"](#).

## U1500 CAM CAN 2

### DTC Logic

INFOID:000000006886613

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes  |
|---------------------------|------------------------|---|------------------|
| U1500<br>(145)            | CAM CAN CIRC 2         | ADAS control unit detects an error signal that is received from lane camera via ITS communication | Lane camera unit |

**NOTE:**

If DTC "U1500" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1500" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1500" detected as the current malfunction?

- YES >> Refer to [DAS-493, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886614

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1500" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK LANE CAMERA UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "LANE CAMERA".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-431, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



## U1501 CAM CAN 1

### DTC Logic

INFOID:000000006886615

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes  |
|---------------------------|------------------------|---|------------------|
| U1501<br>(145)            | CAM CAN CIRC 1         | ADAS control unit detects an error signal that is received from lane camera via ITS communication | Lane camera unit |

**NOTE:**

If DTC "U1501" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1501" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1501" detected as the current malfunction?

- YES >> Refer to [DAS-494, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886616

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1501" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK LANE CAMERA UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "LANE CAMERA".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-431, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

U1503 SIDE RDR L CAN 2

DTC Logic

INFOID:000000006886617

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U1503<br>(150)            | SIDE RDR L CAN CIR 2   | ADAS control unit detects an error signal that is received from side radar LH via ITS communication | Side radar LH   |

**NOTE:**

If DTC "U1503" is detected along with DTC "U1000", or "U1508", first diagnose the DTC "U1000" or "U1508".

- Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#) for DTC "U1000".
- Refer to [DAS-500, "DTC Logic"](#) for DTC "U1508".

DTC CONFIRMATION PROCEDURE

**1.** PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1503" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1503" detected as the current malfunction?

- YES >> Refer to [DAS-495, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006886618

**1.** CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" or "U1508" is detected other than "U1503" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" or "U1508" detected?

- YES-1 >> U1000 detected: Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
 YES-2 >> U1508 detected: Refer to [DAS-500, "DTC Logic"](#).  
 NO >> GO TO 2.

**2.** CHECK SIDE RADAR LH SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "SIDE RADAR LEFT".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-426, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



## U1504 SIDE RDR L CAN 1

### DTC Logic

INFOID:000000006886619

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U1504<br>(151)            | SIDE RDR L CAN CIR 1   | ADAS control unit detects an error signal that is received from side radar LH via ITS communication | Side radar LH   |

**NOTE:**

If DTC "U1504" is detected along with DTC "U1000", or "U1508", first diagnose the DTC "U1000" or "U1508".

- Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#) for DTC "U1000".
- Refer to [DAS-500, "DTC Logic"](#) for DTC "U1508".

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1504" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1504" detected as the current malfunction?

- YES >> Refer to [DAS-496, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886620

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" or "U1508" is detected other than "U1504" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" or "U1508" detected?

- YES-1 >> U1000 detected: Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
 YES-2 >> U1508 detected: Refer to [DAS-500, "DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK SIDE RADAR LH SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "SIDE RADAR LEFT".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-426, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



U1505 SIDE RDR R CAN 2

DTC Logic

INFOID:000000006886621

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U1505<br>(152)            | SIDE RDR R CAN CIR 2   | ADAS control unit detects an error signal that is received from side radar RH via ITS communication | Side radar RH   |

**NOTE:**

If DTC "U1505" is detected along with DTC "U1000", or "U1507", first diagnose the DTC "U1000" or "U1507".

- Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#) for DTC "U1000".
- Refer to [DAS-499, "DTC Logic"](#) for DTC "U1507".

DTC CONFIRMATION PROCEDURE

**1.** PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1505" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1505" detected as the current malfunction?

- YES >> Refer to [DAS-497, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006886622

**1.** CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" or "U1507" is detected other than "U1505" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" or "U1507" detected?

- YES-1 >> U1000 detected: Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
 YES-2 >> U1507 detected: Refer to [DAS-500, "DTC Logic"](#).  
 NO >> GO TO 2.

**2.** CHECK SIDE RADAR RH SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "SIDE RADAR RIGHT".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-426, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



## U1506 SIDE RDR R CAN 1

### DTC Logic

INFOID:000000006886623

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U1506<br>(153)            | SIDE RDR R CAN CIR 1   | ADAS control unit detects an error signal that is received from side radar RH via ITS communication | Side radar RH   |

**NOTE:**

If DTC "U1506" is detected along with DTC "U1000", or "U1507", first diagnose the DTC "U1000" or "U1507".

- Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#) for DTC "U1000".
- Refer to [DAS-500, "DTC Logic"](#) for DTC "U1507".

#### DTC CONFIRMATION PROCEDURE

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1506" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1506" detected as the current malfunction?

- YES >> Refer to [DAS-496, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

#### Diagnosis Procedure

INFOID:000000006886624

##### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" or "U1507" is detected other than "U1506" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" or "U1507" detected?

- YES-1 >> U1000 detected: Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
 YES-2 >> U1507 detected: Refer to [DAS-500, "DTC Logic"](#).  
 NO >> GO TO 2.

##### 2. CHECK SIDE RADAR RH SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "SIDE RADAR RIGHT".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-426, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

# U1507 LOST COMM(SIDE RDR R)

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## U1507 LOST COMM(SIDE RDR R)

### DTC Logic

INFOID:000000006886625

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|---------------------------|------------------------|--|--|
| U1507<br>(154)            | LOST COMM(SIDE RDR R)  | ADAS control unit cannot receive ITS communication signal from side radar RH for 2 seconds or more | <ul style="list-style-type: none"><li>Side radar RH right/left switching signal circuit</li><li>ITS communication system</li><li>Side radar RH</li></ul> |

#### NOTE:

DTC "U1507" is detected along with DTC "U1000", first diagnose the DTC "U1507".

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1507" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

#### Is "U1507" detected as the current malfunction?

- YES >> Refer to [DAS-499, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886626

#### 1. CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check right/left switching signal circuit. Refer to [DAS-514, "Diagnosis Procedure"](#).

#### Is the inspection result normal?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
Refer to [LAN-25, "Trouble Diagnosis Flow Chart"](#).  
NO >> Repair right/left switching signal circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# U1508 LOST COMM(SIDE RDR L)

[BSW & BSI]

< DTC/CIRCUIT DIAGNOSIS >

## U1508 LOST COMM(SIDE RDR L)

### DTC Logic

INFOID:000000006886627

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|---------------------------|------------------------|--|--|
| U1508<br>(155)            | LOST COMM(SIDE RDR L)  | ADAS control unit cannot receive ITS communication signal from side radar LH for 2 seconds or more | <ul style="list-style-type: none"><li>• Side radar LH harness connector</li><li>• ITS communication system</li><li>• Side radar LH</li></ul> |

#### NOTE:

DTC "U1508" is detected along with DTC "U1000", first diagnose the DTC "U1508".

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1508" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

#### Is "U1508" detected as the current malfunction?

- YES >> Refer to [DAS-500, "Diagnosis Procedure"](#).  
NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886628

#### 1. CHECK SIDE RADAR HARNESS CONNECTOR

1. Turn the ignition switch OFF.
2. Check the terminals and connectors of the side radar LH for damage, bend and short (unit side and connector side).

#### Is the inspection result normal?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [LAN-25, "Trouble Diagnosis Flow Chart"](#).  
NO >> Repair the terminal or connector.

## U1512 HVAC CAN 3

### DTC Logic

INFOID:000000006886629

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U1512<br>(162)            | HVAC CAN CIRC 3        | ADAS control unit detects an error signal that is received from A/C auto amp. via CAN communication | A/C auto amp.   |

**NOTE:**

If DTC "U1512" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1512" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1512" detected as the current malfunction?

- YES >> Refer to [DAS-501, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886630

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1512" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK A/C AUTO AMP. SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "HVAC".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [HAC-62, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



## U1513 METER CAN 3

### DTC Logic

INFOID:000000006886631

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes   |
|---------------------------|------------------------|---|-------------------|
| U1513<br>(163)            | METER CAN CIRC 3       | ADAS control unit detects an error signal that is received from combination meter via CAN communication | Combination meter |

**NOTE:**

If DTC "U1513" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1513" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1513" detected as the current malfunction?

- YES >> Refer to [DAS-502, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886632

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1513" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK COMBINATION METER SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "METER/M&A".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

## U1514 STRG SEN CAN 3

### DTC Logic

INFOID:000000006886633

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes       |
|---------------------------|------------------------|---|-----------------------|
| U1514<br>(164)            | STRG SEN CAN CIRC 3    | ADAS control unit detects an error signal that is received from steering angle sensor via CAN communication | Steering angle sensor |

**NOTE:**

If DTC "U1514" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1514" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1514" detected as the current malfunction?

- YES >> Refer to [DAS-503, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886634

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1514" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



## U1516 CAM CAN 3

### DTC Logic

INFOID:000000006886635

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition  | Possible causes  |
|---------------------------|------------------------|--|------------------|
| U1516<br>(166)            | CAM CAN CIRC 3         | ADAS control unit detects an error signal that is received from lane camera unit via ITS communication | Lane camera unit |

**NOTE:**

If DTC "U1516" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

#### DTC CONFIRMATION PROCEDURE

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1516" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1516" detected as the current malfunction?

- YES >> Refer to [DAS-504, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

#### Diagnosis Procedure

INFOID:000000006886636

##### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1516" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

##### 2. CHECK LANE CAMERA UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "LANE CAMERA".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-431, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).



U1518 SIDE RDR L CAN 3

DTC Logic

INFOID:000000006886637

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U1518<br>(168)            | SIDE RDR L CAN CIRC 3  | ADAS control unit detects an error signal that is received from side radar LH via ITS communication | Side radar LH   |

**NOTE:**

If DTC "U1518" is detected along with DTC "U1000", or "U1508", first diagnose the DTC "U1000" or "U1508".

- Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#) for DTC "U1000".
- Refer to [DAS-500, "DTC Logic"](#) for DTC "U1508".

DTC CONFIRMATION PROCEDURE

**1.** PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1518" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1518" detected as the current malfunction?

- YES >> Refer to [DAS-505, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006886638

**1.** CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" or "U1508" is detected other than "U1518" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" or "U1508" detected?

- YES-1 >> U1000 detected: Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).
- YES-2 >> U1508 detected: Refer to [DAS-505, "DTC Logic"](#).
- NO >> GO TO 2.

**2.** CHECK SIDE RADAR LH SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "SIDE RADAR LEFT".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-426, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P



## U1519 SIDE RDR R CAN 3

### DTC Logic

INFOID:000000006886639

#### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U1519<br>(169)            | SIDE RDR R CAN CIRC 3  | ADAS control unit detects an error signal that is received from side radar RH via ITS communication | Side radar RH   |

**NOTE:**

If DTC "U1519" is detected along with DTC "U1000", or "U1507", first diagnose the DTC "U1000" or "U1507".

- Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#) for DTC "U1000".
- Refer to [DAS-499, "DTC Logic"](#) for DTC "U1507".

#### DTC CONFIRMATION PROCEDURE

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1519" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1519" detected as the current malfunction?

- YES >> Refer to [DAS-506, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

#### Diagnosis Procedure

INFOID:000000006886640

##### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" or "U1507" is detected other than "U1519" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" or "U1507" detected?

- YES-1 >> U1000 detected: Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
 YES-2 >> U1507 detected: Refer to [DAS-499, "DTC Logic"](#).  
 NO >> GO TO 2.

##### 2. CHECK SIDE RADAR RH SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "SIDE RADAR RIGHT".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-428, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

## U150B ECM CAN 3

### DTC Logic

INFOID:000000006886641

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U150B<br>(157)            | ECM CAN CIRC 3         | ADAS control unit detects an error signal that is received from ECM via CAN communication | ECM             |

**NOTE:**

If DTC "U150B" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U150B" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U150B" detected as the current malfunction?

- YES >> Refer to [DAS-507, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886642

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U150B" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK ECM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [EC-117, "DTC Index"](#) (VQ37VHR) or [EC-1083, "DTC Index"](#) (VK56VD for USA and Canada) or [EC-1651, "DTC Index"](#) (VK56VD for Mexico).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

DAS

## U150C VDC CAN 3

### DTC Logic

INFOID:000000006886643

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes                               |
|---------------------------|------------------------|---|---|
| U150C<br>(158)            | VDC CAN CIRC 3         | ADAS control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication | ABS actuator and electric unit (control unit) |

**NOTE:**

If DTC "U150C" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U150C" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U150C" detected as the current malfunction?

- YES >> Refer to [DAS-508, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886644

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U150C" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

U150D TCM CAN 3

DTC Logic

INFOID:000000006886645

DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U150D<br>(159)            | TCM CAN CIRC 3         | ADAS control unit detects an error signal that is received from TCM via CAN communication | TCM             |

**NOTE:**

If DTC "U150D" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U150D" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U150D" detected as the current malfunction?

- YES >> Refer to [DAS-509, "Diagnosis Procedure"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006886646

1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U150D" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).
- NO >> GO TO 2.

2. CHECK TCM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).
- NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

DAS

## U150E BCM CAN 3

### DTC Logic

INFOID:000000006886647

### DTC DETECTION LOGIC

| DTC<br>(On board display) | Trouble diagnosis name | DTC detecting condition   | Possible causes |
|---------------------------|------------------------|---|-----------------|
| U150E<br>(160)            | BCM CAN CIRC 3         | ADAS control unit detects an error signal that is received from BCM via CAN communication | BCM             |

**NOTE:**

If DTC "U150E" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSI system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U150E" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U150E" detected as the current malfunction?

- YES >> Refer to [DAS-510, "Diagnosis Procedure"](#).  
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

### Diagnosis Procedure

INFOID:000000006886648

#### 1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U150E" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.  
 Refer to [DAS-477, "ADAS CONTROL UNIT : DTC Logic"](#).  
 NO >> GO TO 2.

#### 2. CHECK BCM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "BCM".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-51, "DTC Index"](#).  
 NO >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

# POWER SUPPLY AND GROUND CIRCUIT

[BSW & BSI]

< DTC/CIRCUIT DIAGNOSIS >

## POWER SUPPLY AND GROUND CIRCUIT ADAS CONTROL UNIT

### ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000007219011

#### 1. CHECK FUSES

Check if any of the following fuses are blown:

| Signal name           | Fuse No. |
|-----------------------|----------|
| Ignition power supply | 46       |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

#### 2. CHECK ADAS CONTROL UNIT POWER SUPPLY CIRCUIT

Check voltage between ADAS control unit harness connector and ground.

| Terminal          |          | Condition          | Voltage<br>(Approx.) |
|-------------------|----------|--------------------|----------------------|
| (+)               | (-)      |                    |                      |
| ADAS control unit |          | Ignition<br>switch | 0 V                  |
| Connector         | Terminal |                    |                      |
| B50               | 16       | OFF                | 0 V                  |
|                   |          | ON                 | Battery volt-<br>age |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the ADAS control unit power supply circuit.

#### 3. CHECK ADAS CONTROL UNIT GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the ADAS control unit connector.
3. Check for continuity between ADAS control unit harness connector and ground.

| ADAS control unit |          | Ground | Continuity |
|-------------------|----------|--------|------------|
| Connector         | Terminal |        |            |
| B50               | 6        |        | Existed    |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair the ADAS control unit ground circuit.

## SIDE RADAR LH

### SIDE RADAR LH : Diagnosis Procedure

INFOID:0000000006886650

#### 1. CHECK FUSES

Check if any of the following fuses are blown:

| Signal name           | Fuse No. |
|-----------------------|----------|
| Ignition power supply | 46       |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N

DAS

P

# POWER SUPPLY AND GROUND CIRCUIT

[BSW & BSI]

< DTC/CIRCUIT DIAGNOSIS >

## 2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the side radar LH connector.
3. Check voltage between side radar LH harness connector and ground.

| Terminals     |          | Condition       | Voltage (Approx.) |
|---------------|----------|-----------------|-------------------|
| (+)           | (-)      |                 |                   |
| Side radar LH |          | Ignition switch | 0 V               |
| Connector     | Terminal |                 |                   |
| B52           | 5        | OFF             | 0 V               |
|               |          | ON              | Battery voltage   |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the side radar LH power supply circuit.

## 3.CHECK GROUND CIRCUIT

Check continuity between side radar LH harness connectors and ground.

| Side radar LH |          | Ground | Continuity |
|---------------|----------|--------|------------|
| Connector     | Terminal |        |            |
| B52           | 2        |        | Existed    |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair the side radar LH ground circuit.

## SIDE RADAR RH

### SIDE RADAR RH : Diagnosis Procedure

INFOID:000000006886651

## 1.CHECK FUSES

Check if any of the following fuses are blown:

| Signal name           | Fuse No. |
|-----------------------|----------|
| Ignition power supply | 46       |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

## 2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the side radar RH connector.
3. Check voltage between side radar RH harness connector and ground.

| Terminals     |          | Condition       | Voltage (Approx.) |
|---------------|----------|-----------------|-------------------|
| (+)           | (-)      |                 |                   |
| Side radar RH |          | Ignition switch | 0 V               |
| Connector     | Terminal |                 |                   |
| B252          | 5        | OFF             | 0 V               |
|               |          | ON              | Battery voltage   |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the side radar RH power supply circuit.



# POWER SUPPLY AND GROUND CIRCUIT

[BSW & BSI]

< DTC/CIRCUIT DIAGNOSIS >

## 3.CHECK GROUND CIRCUIT

Check continuity between side radar RH harness connectors and ground.

| Side radar RH |          | Ground | Continuity |
|---------------|----------|--------|------------|
| Connector     | Terminal |        |            |
| B252          | 2        |        | Existed    |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair the side radar RH ground circuit.

## LANE CAMERA UNIT

### LANE CAMERA UNIT : Diagnosis Procedure

INFOID:000000007219012

## 1.CHECK FUSES

Check if any of the following fuses are blown:

| Signal name           | Fuse No. |
|-----------------------|----------|
| Ignition power supply | 46       |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

## 2.CHECK LANE CAMERA UNIT POWER SUPPLY CIRCUIT

Check voltage between lane camera unit harness connector and ground.

| Terminal         |          | Condition       | Voltage (Approx.) |
|------------------|----------|-----------------|-------------------|
| (+)              | (-)      |                 |                   |
| Lane camera unit |          | Ignition switch | 0 V               |
| Connector        | Terminal |                 |                   |
| R8               | 7        | OFF             |                   |
|                  |          | ON              | Battery voltage   |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the lane camera unit power supply circuit.

## 3.CHECK LANE CAMERA UNIT GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the lane camera unit connector.
3. Check for continuity between lane camera unit harness connector and ground.

| Lane camera unit |          | Ground | Continuity |
|------------------|----------|--------|------------|
| Connector        | Terminal |        |            |
| R8               | 1        |        | Existed    |
|                  | 5        |        |            |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair the lane camera unit ground circuit.

# RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

### Diagnosis Procedure

INFOID:000000006886653

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the terminals and connectors of the side radar RH for damage, bend and short (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal or connector.

#### 2. CHECK CONTINUITY RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

1. Disconnect side radar RH connector.
2. Check continuity between side radar RH harness connectors and ground.

| Side radar RH |          | Ground | Continuity |
|---------------|----------|--------|------------|
| Connector     | Terminal |        |            |
| B252          | 1        |        | Existed    |

Is the inspection result normal?

- YES >> INSPECTION END  
NO >> Repair harness or connector.

# WARNING SYSTEMS SWITCH CIRCUIT

[BSW & BSI]

< DTC/CIRCUIT DIAGNOSIS >

## WARNING SYSTEMS SWITCH CIRCUIT

### Component Function Check

INFOID:000000007218516

#### 1.CHECK WARNING SYSTEMS SWITCH INPUT SIGNAL

1. Turn the ignition switch ON.
2. Select the DATA MONITOR item "WARN SYS SW" of "ICC/ADAS" with CONSULT.
3. With operating the warning systems switch, check the monitor status.

| Monitor item | Condition                             | Monitor status |
|--------------|---------------------------------------|----------------|
| WARN SYS SW  | Warning systems switch is pressed     | On             |
|              | Warning systems switch is not pressed | OFF            |

Is the inspection result normal?

- YES >> Warning systems switch circuit is normal.  
NO >> Refer to [DAS-515. "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000007218517

#### 1.CHECK WARNING SYSTEMS SWITCH SIGNAL INPUT

1. Turn the ignition switch ON.
2. Check voltage between ADAS control unit harness connector and ground.

| Terminals         |          | Condition              | Voltage (Approx.) |
|-------------------|----------|------------------------|-------------------|
| (+)               | (-)      |                        |                   |
| ADAS control unit |          | Warning systems switch |                   |
| Connector         | Terminal |                        |                   |
| B50               | 1        | Pressed                |                   |
|                   |          | Released               | 12 V              |

Is the inspection result normal?

- YES >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).  
NO >> GO TO 2.

#### 2.CHECK WARNING SYSTEMS SWITCH

1. Turn ignition switch OFF.
2. Remove warning systems switch.
3. Check warning systems switch. Refer to [DAS-516. "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Replace the warning systems switch. Refer to [DAS-533. "Removal and Installation"](#).

#### 3.CHECK WARNING SYSTEMS SWITCH GROUND CIRCUIT

Check continuity between triple switch harness connector terminal and the ground.

| Triple switch |          | Ground | Continuity |
|---------------|----------|--------|------------|
| Connector     | Terminal |        |            |
| M183          | 5        |        | Existed    |

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Repair harness or connector.

#### 4.CHECK WARNING SYSTEMS SWITCH SIGNAL INPUT CIRCUIT FOR OPEN

1. Disconnect the ADAS control unit connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# WARNING SYSTEMS SWITCH CIRCUIT

[BSW & BSI]

< DTC/CIRCUIT DIAGNOSIS >

2. Check continuity between the ADAS control unit harness connector and triple switch harness connector.

| ADAS control unit |          | Triple switch |          | Continuity |
|-------------------|----------|---------------|----------|------------|
| Connector         | Terminal | Connector     | Terminal |            |
| B50               | 1        | M183          | 1        | Existed    |

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

## 5.CHECK WARNING SYSTEMS SWITCH SIGNAL INPUT CIRCUIT FOR SHORT

Check continuity between the ADAS control unit harness connector and ground.

| ADAS control unit |          | Ground | Continuity  |
|-------------------|----------|--------|-------------|
| Connector         | Terminal |        |             |
| B50               | 1        |        | Not existed |

Is the inspection result normal?

YES >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).

NO >> Repair the harnesses or connectors.

## Component Inspection

INFOID:000000007218518

## 1.CHECK WARNING SYSTEMS SWITCH

Check continuity of warning systems switch.

| Terminal |   | Condition                               | Continuity  |
|----------|---|---|-------------|
| 1        | 5 | When warning systems switch is pressed  | Existed     |
|          |   | When warning systems switch is released | Not existed |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace warning systems switch.

# WARNING SYSTEMS ON INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## WARNING SYSTEMS ON INDICATOR CIRCUIT

### Component Function Check

INFOID:000000007218519

#### 1. CHECK WARNING SYSTEMS ON INDICATOR

1. Turn the ignition switch ON.
2. Select the active test item "WARNING SYSTEM IND" of "ICC/ADAS" with CONSULT.
3. With operating the test item, check the operation.

**On** : Warning systems ON indicator illuminates

**Off** : Warning systems ON indicator is turned OFF

Is the inspection result normal?

YES >> INSPECTION END

NO >> Refer to [DAS-517, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000007218520

#### 1. CHECK WARNING ON INDICATOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect triple switch connector.
3. Turn ignition switch ON.
4. Check voltage between triple switch harness connector and ground.

| Terminals     |          | Voltage<br>(Approx.) |
|---------------|----------|----------------------|
| (+)           | (-)      |                      |
| Triple switch |          | Ground               |
| Connector     | Terminal |                      |
| M183          | 9        |                      |
|               |          | Battery voltage      |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the warning systems ON indicator power supply circuit.

#### 2. CHECK WARNING SYSTEMS ON INDICATOR SIGNAL FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect the ADAS control unit harness connector.
3. Check continuity between the ADAS control unit harness connector and triple switch harness connector.

| ADAS control unit |          | Triple switch |          | Continuity |
|-------------------|----------|---------------|----------|------------|
| Connector         | Terminal | Connector     | Terminal |            |
| B50               | 4        | M183          | 12       | Existed    |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

#### 3. CHECK WARNING SYSTEMS ON INDICATOR SIGNAL CIRCUIT FOR SHORT

Check continuity between the ADAS control unit harness connector and ground.

| ADAS control unit |          | Ground | Continuity  |
|-------------------|----------|--------|-------------|
| Connector         | Terminal |        |             |
| B50               | 4        |        | Not existed |

Is the inspection result normal?

YES >> GO TO 4.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# WARNING SYSTEMS ON INDICATOR CIRCUIT

[BSW & BSI]

< DTC/CIRCUIT DIAGNOSIS >

NO >> Repair the harnesses or connectors.

## 4.CHECK WARNING SYSTEMS ON INDICATOR

Check the warning systems ON indicator. Refer to [DAS-518, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).

NO >> Replace warning systems switch. [DAS-533, "Removal and Installation"](#).

## Component Inspection

INFOID:000000007218521

## 1.CHECK WARNING SYSTEMS ON INDICATOR

Apply battery voltage to warning systems switch terminals 9 and 12, and then check if the warning systems ON indicator illuminates.

| Terminals |     | Condition                               | Warning systems ON indicator |
|-----------|-----|---|------------------------------|
| (+)       | (-) |   |                              |
| 9         | 12  | When the battery voltage is applied     | On                           |
|           |     | When the battery voltage is not applied | Off                          |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the warning systems switch. Refer to [DAS-533, "Removal and Installation"](#).

# WARNING BUZZER CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW & BSI]

## WARNING BUZZER CIRCUIT

### Component Function Check

INFOID:000000007218522

#### 1. CHECK WARNING BUZZER

1. Turn the ignition switch ON.
2. Select the active test item "LDP BUZZER" of "ICC/ADAS" with CONSULT.
3. With operating the test item, check the operation.

**On** : Warning buzzer is activated.

**Off** : Warning buzzer is not activated.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Refer to [DAS-519, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000007218523

#### 1. CHECK WARNING BUZZER POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the warning buzzer connector.
3. Turn ignition switch ON.
4. Check voltage between the warning buzzer harness connector and ground.

| Terminals      |          | Voltage<br>(Approx.)      |
|----------------|----------|---------------------------|
| (+)            | (-)      |                           |
| Warning buzzer |          | Ground<br>Battery voltage |
| Connector      | Terminal |                           |
| M45            | 1        |                           |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the warning buzzer power supply circuit.

#### 2. CHECK WARNING BUZZER GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between the warning buzzer harness connector and ground.

| Warning buzzer |          | Ground | Continuity |
|----------------|----------|--------|------------|
| Connector      | Terminal |        |            |
| M45            | 3        |        | Existed    |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

#### 3. CHECK WARNING BUZZER SIGNAL CIRCUIT FOR OPEN

1. Disconnect the ADAS control unit connector.
2. Check continuity between the ADAS control unit harness connector and warning buzzer harness connector.

| ADAS control unit |          | Warning buzzer |          | Continuity |
|-------------------|----------|----------------|----------|------------|
| Connector         | Terminal | Connector      | Terminal |            |
| B50               | 12       | M45            | 2        | Existed    |

Is the inspection result normal?

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# WARNING BUZZER CIRCUIT

[BSW & BSI]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 4.  
NO >> Repair the harnesses or connectors.

## 4.CHECK WARNING BUZZER SIGNAL CIRCUIT FOR SHORT

Check continuity between the ADAS control unit harness connector and ground.

| ADAS control unit |          | Ground | Continuity  |
|-------------------|----------|--------|-------------|
| Connector         | Terminal |        |             |
| B50               | 12       |        | Not existed |

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Repair the harnesses or connectors.

## 5.CHECK WARNING BUZZER OPERATION

1. Connect the warning buzzer connector.
2. Turn ignition switch ON.
3. Apply ground to warning buzzer terminal 2.
4. Check condition of the warning buzzer.

Does warning buzzer sound?

- YES >> Replace the ADAS control unit. Refer to [DAS-55, "Removal and Installation"](#).  
NO >> Replace the warning buzzer. Refer to [DAS-532, "Removal and Installation"](#).



## SYMPTOM DIAGNOSIS

### BSW & BSI SYSTEM SYMPTOMS

#### Symptom Table

INFOID:000000007219014

**NOTE:**

- Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.
- Refer to the following the operation condition of the BSW/BSI system.
  - BSW system: [DAS-380, "BLIND SPOT WARNING \(BSW\) SYSTEM : System Description"](#).
  - BSI system: [DAS-385, "BLIND SPOT INTERVENTION \(BSI\) SYSTEM : System Description"](#).

| Symptom   | Possible cause  | Inspection item/Reference page  |   |
|---|---|---|---|
| Indicator/warning lamps do not illuminate when ignition switch OFF ⇒ ON | BSW/BSI warning lamp (Yellow) does not illuminate   | <ul style="list-style-type: none"> <li>• BSW/BSI warning lamp signal (CAN)</li> <li>- Combination meter</li> <li>- ADAS control unit</li> <li>• BSW/BSI warning lamp (combination meter)</li> </ul> | <ul style="list-style-type: none"> <li>• ADAS control unit Active test "BSW/BSI WARNING LAMP" and "BSI ON INDICATOR". Refer to <a href="#">DAS-398, "CONSULT Function (ICC/ADAS)"</a>.</li> </ul> |
|   | BSI ON indicator (Green) does not illuminate  | <ul style="list-style-type: none"> <li>• BSI ON indicator lamp signal (CAN)</li> <li>- Combination meter</li> <li>- ADAS control unit</li> <li>• BSI ON indicator (combination meter)</li> </ul>    | <ul style="list-style-type: none"> <li>• ADAS control unit Data monitor "BSW/BSI WARN LMP" and "BSI ON IND". Refer to <a href="#">DAS-398, "CONSULT Function (ICC/ADAS)"</a></li> </ul>           |
|   | BSI ON indicator (Green) and BSW/BSI warning lamp (Yellow) do not illuminate  | <ul style="list-style-type: none"> <li>• Combination meter</li> <li>• ADAS control unit</li> </ul>  | <ul style="list-style-type: none"> <li>• Combination meter Data monitor "BSW W/L" and "BSI IND" Refer to <a href="#">MWI-31, "CONSULT Function"</a></li> </ul>                                    |
|   | All of indicator/warning lamps do not illuminate;<br><ul style="list-style-type: none"> <li>• BSW/BSI warning lamp</li> <li>• BSI ON indicator</li> <li>• Warning systems ON indicator</li> </ul> | <ul style="list-style-type: none"> <li>• Power supply and ground circuit of ADAS control unit</li> <li>• ADAS control unit</li> <li>• Combination meter</li> </ul>                                  | Power supply and ground circuit of ADAS control unit. Refer to <a href="#">DAS-511, "ADAS CONTROL UNIT : Diagnosis Procedure"</a>   |
|   | Warning systems ON indicator (on the warning systems switch) does not illuminate  | <ul style="list-style-type: none"> <li>• Harness between ADAS control unit and warning systems switch</li> <li>• Warning systems switch</li> <li>• ADAS control unit</li> </ul>                     | Warning systems ON indicator circuit. Refer to <a href="#">DAS-517, "Diagnosis Procedure"</a>   |
|   | BSW/BSI indicator does not turn ON  | <ul style="list-style-type: none"> <li>• Harness between side radar and BSW/BSI indicator</li> <li>• Side radar LH/RH</li> <li>• BSW/BSI indicator</li> </ul>                                       | Perform self-diagnosis of side radar. Refer to <a href="#">DAS-409, "CONSULT Function (SIDE RADAR LEFT)"</a> or <a href="#">DAS-410, "CONSULT Function (SIDE RADAR RIGHT)"</a> .                  |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N

P

# BSW & BSI SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[BSW & BSI]

| Symptom   | Possible cause  | Inspection item/Reference page  |  |
|---|---|---|--|
| BSW system is not activated<br>(Indicator/warning lamps illuminate when ignition switch OFF ⇒ ON)   | <ul style="list-style-type: none"> <li>• Warning systems ON indicator is not turned ON ⇔ OFF when operating warning systems switch</li> </ul> | <ul style="list-style-type: none"> <li>• Harness between ADAS control unit and warning systems switch</li> <li>• Harness between warning systems switch and ground</li> <li>• ADAS control unit</li> <li>• Warning systems switch</li> </ul>                | <ul style="list-style-type: none"> <li>• Warning systems switch circuit. Refer to <a href="#">DAS-515. "Diagnosis Procedure"</a>.</li> <li>• BSW system setting cannot be turned ON/OFF on the navigation screen. Refer to <a href="#">DAS-525. "Description"</a></li> </ul>               |
|   | Buzzer is not sounding  | <ul style="list-style-type: none"> <li>• Buzzer power supply circuit</li> <li>• Harness between ADAS control unit and warning buzzer</li> <li>• Harness between warning buzzer and ground</li> <li>• Warning buzzer</li> <li>• ADAS control unit</li> </ul> | Warning buzzer circuit. Refer to <a href="#">DAS-519. "Diagnosis Procedure"</a>  |
| BSI system is not activated<br>(BSW system is functioning normally)   | BSI ON indicator is not turned ON ⇔ OFF when operating dynamic driver assistance switch   | <ul style="list-style-type: none"> <li>• Dynamic driver assistance switch</li> <li>• Combination meter</li> <li>• ADAS control unit</li> </ul>  | <ul style="list-style-type: none"> <li>• Dynamic driver assistance switch does not turn ON/OFF. Refer to <a href="#">DAS-523. "Description"</a></li> <li>• BSI system setting cannot be turned ON/OFF on the navigation screen. Refer to <a href="#">DAS-525. "Description"</a></li> </ul> |
|   | Warning is functioning but yawing is not functioning  | —   | <ul style="list-style-type: none"> <li>• Check "Cause of auto-cancel2". Refer to <a href="#">DAS-398. "CONSULT Function (ICC/ADAS)"</a></li> <li>• Check normal operating condition. Refer to <a href="#">DAS-526. "Description"</a></li> </ul>  |
| BSI functions are not timely (BSW system is functioning normally)<br>(Example) <ul style="list-style-type: none"> <li>• Does not function when approaching a lane marker while BSW/BSI indicator lamp is illuminated</li> <li>• Functions when driving in the middle of lane</li> </ul> | <ul style="list-style-type: none"> <li>• Camera aiming adjustment</li> <li>• Lane camera unit</li> </ul>                                      | Camera aiming adjustment. Refer to <a href="#">DAS-441. "Work Procedure"</a> .  |  |

# SWITCH DOES NOT TURN ON / SWITCH DOES NOT TURN OFF

< SYMPTOM DIAGNOSIS >

[BSW & BSI]

## SWITCH DOES NOT TURN ON / SWITCH DOES NOT TURN OFF

### Description

INFOID:000000007219015

The switch does not turn ON

- When the BSI system setting is ON, the BSI ON indicator does not illuminate even if the dynamic driver assistance switch is depressed.

The switch does not turn OFF

- The BSI ON indicator does not turn off even if the dynamic driver assistance switch is pressed when the BSI ON indicator illuminates.

### Diagnosis Procedure

INFOID:000000007219016

#### 1. CHECK BSI SYSTEM SETTING

1. Start the engine.
2. After starting the engine wait for 5 seconds or more.
3. Check that BSI system setting on the navigation screen is ON.

Is BSI system setting ON?

- YES >> GO TO 2.  
NO >> Enable the BSI system setting.

#### 2. DYNAMIC DRIVER ASSISTANCE SWITCH INSPECTION

1. Start the engine.
2. Check that "DYNA ASIST SW" operates normally in "DATA MONITOR" of "ICC/ADAS" with CONSULT.

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> GO TO 5.

#### 3. CHECK BSI ON INDICATOR CIRCUIT

1. Start the engine.
2. Select the active test item "BSI ON IND" of "ICC/ADAS" with CONSULT.
3. Check if the BSI system switch indicator illuminates when the test item is operated.

Is the inspection result normal?

- YES >> GO TO 6.  
NO >> GO TO 4.

#### 4. PERFORM THE SELF-DIAGNOSIS OF COMBINATION METER

1. Perform "All DTC Reading" with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "METER/M&A". Refer to [MWI-44, "DTC Index"](#).

Is the inspection result normal?

- YES >> GO TO 7.  
NO >> GO TO 6.

#### 5. CHECK STEERING SWITCH CIRCUIT

Check the steering switch circuit. Refer to [DAS-454, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 6.  
NO >> GO TO 7.

#### 6. PERFORM THE SELF-DIAGNOSIS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "ICC/ADAS". Refer to [DAS-420, "DTC Index"](#).

Is any DTC detected?

- YES >> GO TO 7.  
NO >> GO TO 8.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## SWITCH DOES NOT TURN ON / SWITCH DOES NOT TURN OFF

< SYMPTOM DIAGNOSIS >

[BSW & BSI]

---

### 7. REPAIR OR REPLACE MALFUNCTIONING PARTS.

---

Repair or replace malfunctioning parts.

>> GO TO 8.

### 8. CHECK BSI SYSTEM

---

1. Erase "self-diagnosis result", and then perform "All DTC Reading" again after performing the action test. (Refer to [DAS-442](#), "Description" for action test.)
2. Check that the BSI system is normal.

>> INSPECTION END

# BSW/BSI SYSTEM SETTINGS CANNOT BE TURNED ON/OFF ON THE NAVIGATION SCREEN

< SYMPTOM DIAGNOSIS >

[BSW & BSI]

## BSW/BSI SYSTEM SETTINGS CANNOT BE TURNED ON/OFF ON THE NAVIGATION SCREEN

### Description

INFOID:000000007219017

- BSW system setting is not selectable on the navigation screen.
- BSI system setting is not selectable on the navigation screen.

#### NOTE:

- When the ignition switch is in ACC position, BSW or BSI system settings cannot be changed.
- "Blind Spot Warning" or "Blind Spot Intervention" is not indicated on the navigation screen.
- The switching between ON and OFF cannot be performed by operating the navigation system.
- The item "Blind Spot Warning" or "Blind Spot Intervention" on the navigation screen is not active.
- The BSW or BSI system setting differs from the one set at the previous driving.

#### NOTE:

Turn OFF the ignition switch and wait for 5 seconds or more.

### Diagnosis Procedure

INFOID:000000007219018

#### 1. CHECK BSI SYSTEM SETTING

1. Start the engine.
2. Check that the BSI system settings is selectable on the navigation screen.

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> GO TO 2.

#### 2. PERFORM THE SELF-DIAGNOSIS

1. Perform self-diagnosis with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "ICC/ADAS", "MULTI AV" and "METER/M&A". Refer to the following.
  - ICC/ADAS: [DAS-420. "DTC Index"](#)
  - MULTI AV: [AV-168. "DTC Index"](#)
  - METER/M&A: [MWI-44. "DTC Index"](#)

Is any DTC detected?

- YES >> Repair or replace malfunctioning parts.
- NO >> INSPECTION END

#### 3. CHECK DATA MONITOR OF ADAS CONTROL UNIT

Check that "BSI SELECT" operates normally in "DATA MONITOR" of "ICC/ADAS" with CONSULT.

Is the inspection result normal?

- YES >> Refer to [AV-141. "On Board Diagnosis Function"](#).
- NO >> GO TO 4.

#### 4. CHECK MULTIFUNCTION SWITCH

Operate the multifunction switch to check that the audio, navigation system, and air conditioner operate properly.

Is the inspection result normal?

- YES >> Replace the ADAS control unit. Refer to [DAS-55. "Removal and Installation"](#).
- NO >> Repair or replace malfunctioning parts.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

# NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[BSW & BSI]

## NORMAL OPERATING CONDITION

### Description

INFOID:00000000688667

#### BSW & BSI

##### **CAUTION:**

- The BSW and BSI systems are not a replacement for proper driving procedure and are not designed to prevent contact with vehicles or objects. When changing lanes, always use the side and rear mirrors and turn and look in the direction driver will move to ensure it is safe to change lanes. Never rely solely on the BSW or BSI system.
- Using the BSI system under some road, lane marker or weather conditions could lead to improper system operation. Always rely on driver's own steering and braking operation to avoid accidents.
- The BSW and BSI systems may not provide a warning or brake control for vehicles that pass through the detection zone quickly.
- Do not use the BSW or BSI systems when towing a trailer.
- Excessive noise (e.g. audio system volume, open vehicle window) will interfere with the chime sound, and it may not be heard.
- The side radar may not be able to detect and activate BSI/BSW when certain objects are present such as:
  - Pedestrians, bicycles, animals.
  - Several types of vehicles such as motorcycles.
  - Oncoming vehicles.
  - Vehicles remaining in the detection zone when driver accelerate from a stop.
  - A vehicle merging into an adjacent lane at a speed approximately the same as vehicle.
  - A vehicle approaching rapidly from behind.
  - A vehicle which vehicle overtakes rapidly.
- Severe weather or road spray conditions may reduce the ability of the radar to detect other vehicles.
- The side radar detection zone is designed based on a standard lane width. When driving in a wider lane, the side radar may not detect vehicles in an adjacent lane. When driving in a narrow lane, the side radar may detect vehicles driving two lanes away.
- The side radar are designed to ignore most stationary objects, however objects such as guardrails, walls, foliage and parked vehicles may occasionally be detected. This is a normal operating condition.

#### BSI

##### **CAUTION:**

- Do not use the BSI system under the following conditions because the system may not function properly.
  - During bad weather (e.g. rain, fog, snow, wind, etc.)
  - When driving on slippery roads, such as on ice or snow, etc.
  - When driving on winding or uneven roads.
  - When there is a lane closure due to road repairs.
  - When driving in a makeshift lane.
  - When driving on roads where the lane width is too narrow.
  - When driving with a tire that is not within normal tire conditions (e.g. tire wear, low tire pressure, installation of spare tire, tire chains, non-standard wheels).
  - When the vehicle is equipped with non-original brake parts or suspension parts.
- The camera may not detect lane markers in the following situations and the BSI system may not operate properly.
  - On roads where there are multiple parallel lane markers; lane markers that are faded or not painted clearly; yellow painted lane markers; nonstandard lane markers; lane markers covered with water, dirt, snow, etc.
  - On roads where discontinued lane markers are still detectable.
  - On roads where there are sharp curves.
  - On roads where there are sharply contrasting objects, such as shadows, snow, water, wheel ruts, seams or lines remaining after road repairs.
  - On roads where the traveling lane merges or separates.
  - When the vehicle is traveling direction does not align with the lane markers.
  - When traveling close to the vehicle in front of driver, which obstructs the lane camera unit detection range.
  - When rain, snow or dirt adheres to the windshield in front of a lane camera unit.

## NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[BSW & BSI]

- When the headlights are not bright due to dirt on the lens or if aiming is not adjusted properly.
- When strong light enters a lane camera unit. (e.g. light directly shines on the front of the vehicle at sunrise or sunset.)
- When a sudden change in brightness occurs. (e.g. when the vehicle enters or exits a tunnel or under a bridge.)
- The BSI system will not operate if your vehicle is on a lane marker when another vehicle enters the detection zone. In this case only the BSW system operates.
- BSI braking will not operate or will stop operating and only a warning chime will sound under the following conditions.
  - When the brake pedal is depressed.
  - When the accelerator pedal is depressed while brake control assist is provided.
  - When steering quickly.
  - When the ICC, DCA, FCW or IBA warnings sound.
  - When the hazard warning flashers are operated.
  - When driving on a curve at a high speed.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DAS

P

# SIDE RADAR

< REMOVAL AND INSTALLATION >

[BSW & BSI]

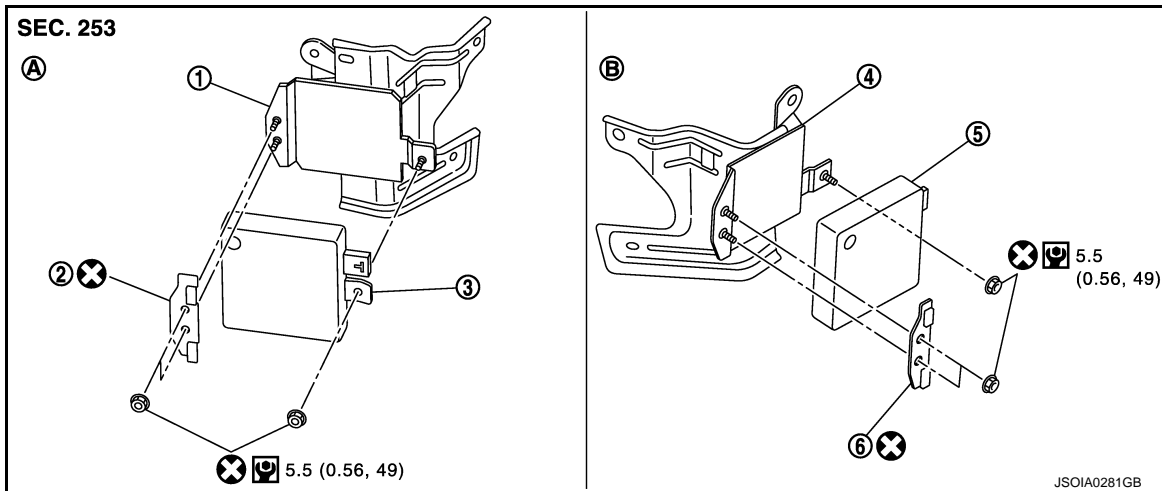
## REMOVAL AND INSTALLATION

### SIDE RADAR

#### Removal and Installation

INFOID:000000006886668

#### EXPLODED VIEW



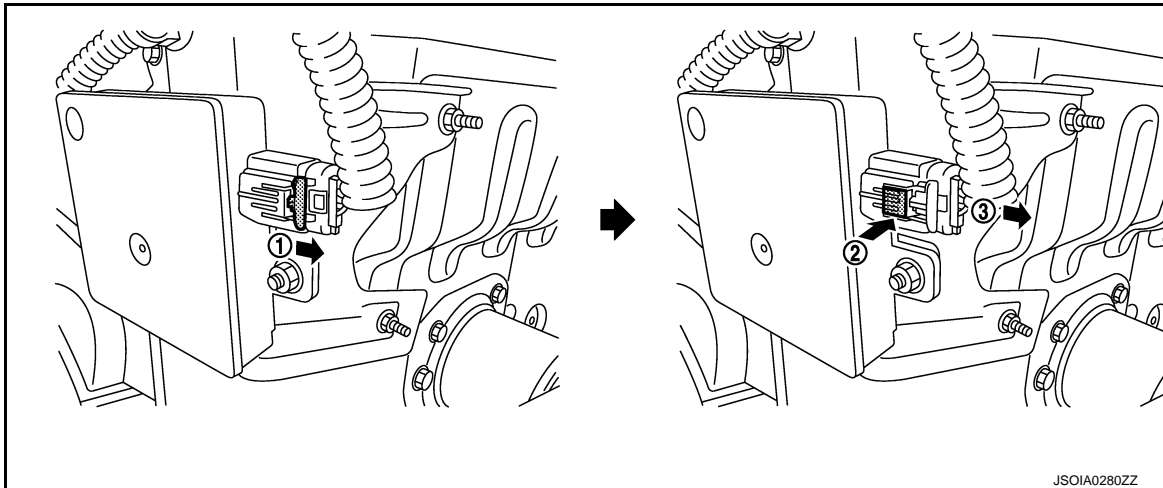
- |            |                  |                  |
|------------|------------------|------------------|
| 1. Bracket | 2. Bracket       | 3. Side radar LH |
| 4. Bracket | 5. Side radar RH | 6. Bracket       |
| A. LH side | B. RH side       |                  |

Refer to [GI-4, "Components"](#) for symbol makes in the figure.

#### REMOVAL AND INSTALLATION

##### Removal

1. Remove the rear bumper fascia.
2. Remove the side radar connector.



3. Remove the mounting nut.
4. Remove the side radar RH/LH.

##### Installation

Note the following, and install in the reverse order of removal.

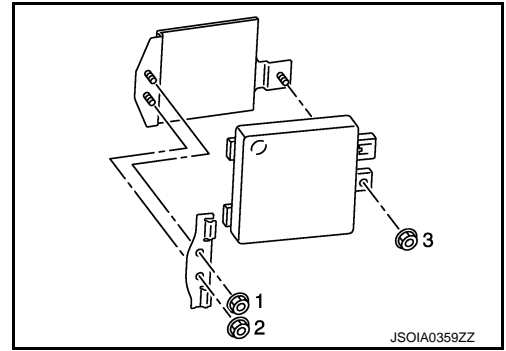


# SIDE RADAR

[BSW & BSI]

## < REMOVAL AND INSTALLATION >

- Tighten mounting nuts in the numerical order as shown in the figure.
- Always lock the side radar connector.



A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## BSW/BSI INDICATOR

### Removal and Installation

INFOID:000000006886669

#### REMOVAL AND INSTALLATION

##### Removal

1. Remove the front door sash inner cover. Refer to [INT-24, "Exploded View"](#).
2. Remove the BSW/BSI indicator.

##### Installation

Install in the reverse order of removal.

## LANE CAMERA UNIT

### Removal and Installation

INFOID:000000007218510

#### REMOVAL

1. Remove headlining assembly. Refer to [INT-46. "Removal and Installation"](#).
2. Remove the bolts.
3. Remove lane camera unit.

#### INSTALLATION

Install in the reverse order of removal.

#### **CAUTION:**

- Remove the camera lens cap for replacement.
- Never give an impact to the lane camera unit.
- Perform the camera aiming every time the lane camera unit is removed and installed. Refer to [DAS-307. "Description"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## WARNING BUZZER

### Removal and Installation

INFOID:000000007218513

#### REMOVAL

1. Remove the AV control unit. Refer to [AV-263, "Removal and Installation"](#).
2. Remove the screw.
3. Remove warning buzzer.

#### INSTALLATION

Install in the reverse order of removal.

# WARNING SYSTEMS SWITCH

< REMOVAL AND INSTALLATION >

[BSW & BSI]

## WARNING SYSTEMS SWITCH

### Removal and Installation

INFOID:000000007218511

#### REMOVAL

1. Remove the instrument lower panel LH. Refer to [IP-13. "Removal and Installation"](#).
2. Remove warning systems switch from instrument lower panel LH.

#### **NOTE:**

Warning systems switch and VDC OFF switch are integrated.

#### INSTALLATION

Install in the reverse order of removal.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
P

DAS

## DYNAMIC DRIVER ASSISTANCE SWITCH

< REMOVAL AND INSTALLATION >

[BSW & BSI]

---

### DYNAMIC DRIVER ASSISTANCE SWITCH

#### Exploded View

INFOID:000000007218512

Dynamic driver assistance switch is integrated in the ICC steering switch. Refer to [ST-31. "Exploded View"](#).