SECTION ACS
AUTO CRUISE CONTROL SYSTEM

CONTENTS

SERVICE INFORMATION

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Description

INFOID:0000000002957230

Regarding the information for ASCD system, refer to EC-37 (VQ35DE), EC-659 (VK45DE).

SERVICE INFORMATION

DTC INDEX

C1A00-C1A14

INFOID:0000000003032431

On board display	Items (CONSULT screen terms)	Reference
0	C1A00: CONTROL UNIT	ACS-42, "C1A00 CONTROL UNIT"
1	C1A01: POWER SUPPLY CIR	ACS-42, "C1A01 POWER SUPPLY CIR, C1A02 POWER SUPPLY CIR 2"
2	C1A02: POWER SUPPLY CIR 2	ACS-42, "C1A01 POWER SUPPLY CIR, C1A02 POWER SUPPLY CIR 2"
3	C1A03: VHCL SPEED SE CIRC	ACS-43, "C1A03 VHCL SPEED SE CIRC"
4	C1A04: ABS/TCS/VDC CIRC	ACS-43, "C1A04 ABS/TCS/VDC CIRC"
5	C1A05: BRAKE SW/STOP L SW	ACS-44, "C1A05 BRAKE SW/STOP L SW"
6	C1A06: OPERATION SW CIRC	ACS-47, "C1A06 OPERATION SW CIRC"
12	C1A12: LASER BEAM OFFCNTR	ACS-48, "C1A12 LASER BEAM OFFCNTR"
13	C1A13: STOP LAMP RLY FIX	ACS-49, "C1A13 STOP LAMP RLY FIX"
14	C1A14: ECM CIRCUIT	ACS-54, "C1A14 ECM CIRCUIT"

C1A15-C1A34

INFOID:0000000003032432

On board display	Items (CONSULT screen terms)	Reference
15	C1A15: GEAR POSITION	ACS-54, "C1A15 GEAR POSITION"
16	C1A16: RADAR STAIN	ACS-55, "C1A16 RADAR STAIN"
18	C1A18: LASER AIMING INCMP	ACS-56, "C1A18 LASER AIMING INCMP"
21	C1A21: UNIT HIGH TEMP	ACS-56, "C1A21 UNIT HIGH TEMP"
24	C1A24: NP RANGE	ACS-56, "C1A24 NP RANGE"
26	C1A26: ECD MODE MALF	ACS-57, "C1A26 ECD MODE MALF"
27	C1A27: ECD PWR SUPLY CIR	ACS-58, "C1A27 ECD PWR SUPLY CIR"
33	C1A33: CAN TRANSMISSION ERROR	ACS-58, "C1A33 CAN TRANSMISSION ERROR"
34	C1A34: COMMAND ERROR	ACS-58, "C1A34 COMMAND ERROR"

U0121-U1010

INFOID:0000000003032433

On board display	Items (CONSULT screen terms)	Reference
127	U0121: VDC CAN CIR2	ACS-58, "U0121 VDC CAN CIR2"
120	U0401: ECM CAN CIR1	ACS-59, "U0401 ECM CAN CIR1"
122	U0402: TCM CAN CIR1	ACS-59, "U0402 TCM CAN CIR1"
126	U0415: VDC CAN CIR1	ACS-60, "U0415 VDC CAN CIR1"
100	U1000: CAN COMM CIRCUIT	ACS-60, "U1000 CAN COMM CIRCUIT"
110	U1010: CONTROL UNIT (CAN)	ACS-60, "U1010 CONTROL UNIT (CAN)"

PRECAUTIONS

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

INFOID:0000000003413309

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 “SUPPLEMENTAL RESTRAINT SYSTEM” and “SEAT BELTS” of this Service Manual.

WARNING:

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which 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 the “SUPPLEMENTAL RESTRAINT SYSTEM”.**
- **Do not 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:

- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, DO NOT 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 ICC System Service

INFOID:0000000002957232

- Do not look straight into the laser beam discharger when adjusting laser beam aiming.
- Turn the MAIN switch OFF in conditions similar to driving, such as free rollers or a chassis dynamometer.
- Do not use the ICC sensor integrated unit removing from vehicle. Never disassemble and remodel.
- Erase DTC when replacing parts of ICC system, then check the operation of ICC system after adjusting laser beam aiming if necessary.

PREPARATION

Special Service Tool

INFOID:0000000002957233

The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent - Moore No.) Tool name	Description
KV99110100 (J-45718) ICC target board  PKIA0358J	Uses for laser beam aiming adjustment

DESCRIPTION

Outline

INFOID:0000000002957234

The Intelligent Cruise Control (ICC) system automatically maintains a selected distance from the vehicle ahead according to that vehicle's speed, or at the set speed, if the road ahead is clear.
The ICC function has two cruise control modes and brake assist (with preview function).

VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE

Vehicle-to-vehicle distance control mode, the driver can maintain the same speed as other vehicles without the constant need to adjust the set speed as the driver would with a normal cruise control system.
The system is intended to enhance the operation of the vehicle when following the vehicle traveling in the same lane and direction.
If the ICC sensor integrated unit detects a slower moving vehicle ahead, the system will reduce speed so that the vehicle ahead can be followed at the selected distance.
The system automatically controls the throttle and applies the brakes (up to 25% of vehicle braking power) if necessary.
The detection range of the sensor is approximately 390 ft (120 m) ahead.
Refer to Owner's Manual for Intelligent Cruise Control System operating instructions.

CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE

Conventional (fixed speed) cruise control mode is cruising at preset speeds.
Refer to Owner's Manual for Intelligent Cruise Control System operating instructions.

BRAKE ASSIST (WITH PREVIEW FUNCTION)

When the force applied to brake pedal exceeds a certain level, the Brake Assist is activated and generates a greater braking force than that of a conventional brake booster even with light pedal force.
When the Preview Function identifies the need to apply the sudden brake by sensing the vehicle ahead in the same lane and the distance and relative speed from it, it applies the brake pre-pressure before driver depresses the brake pedal and improves brake response by reducing its free play.
Refer to Owner's Manual for BRAKE ASSIST (WITH PREVIEW FUNCTION) operating instructions.

Functional Diagram

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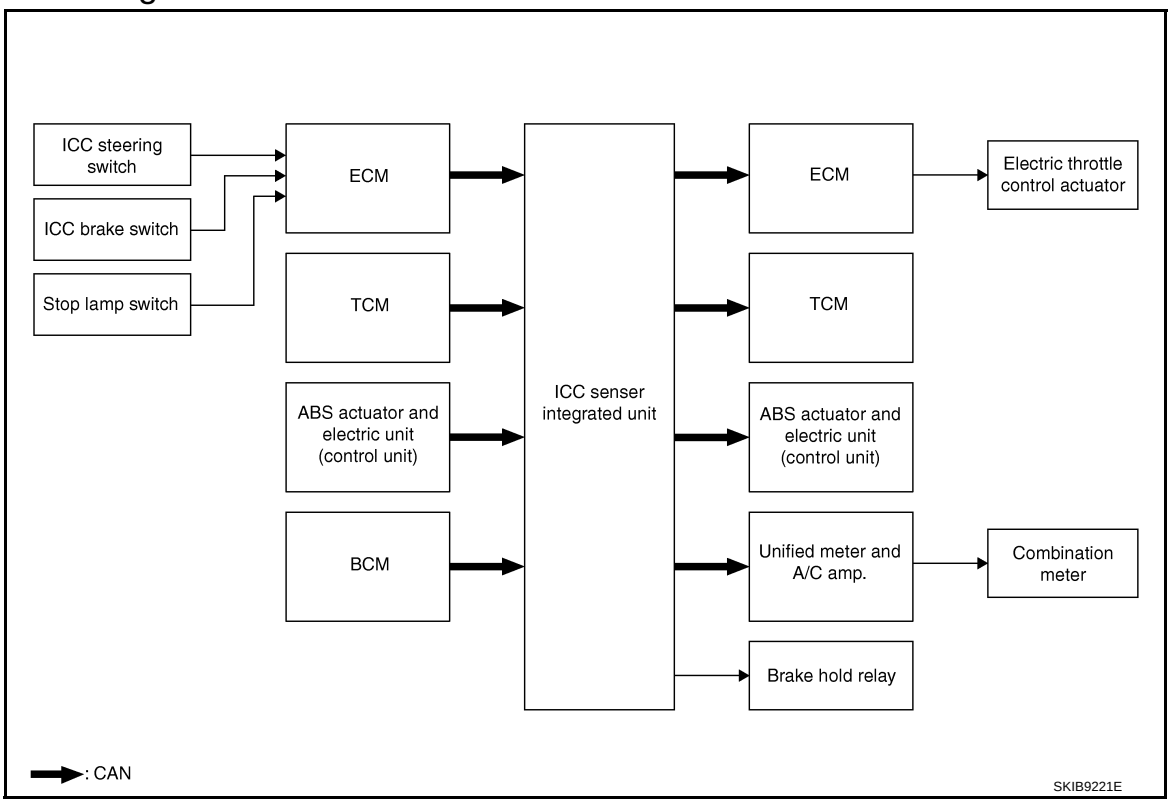

Items of input/output signal to be checked with CONSULT-III

• Items of input signal to be checked with “Data monitor”.

Signal name	CAN	Transmission unit	Monitored Item [unit]	Description
Accelerator pedal position signal	×	ECM	THRTL OPENING [%]	ICC sensor integrated unit receives accelerator pedal position signal from ECM with CAN communication.
ICC steering switch signal	×		MAIN SW [On/Off]	ICC sensor integrated unit receives ICC steering switch signal from ECM with CAN communication.
	×		SET/COAST SW [On/Off]	
	×		CANCEL SW [On/Off]	
	×		RESUME/ACC SW [On/Off]	
	×		DISTANCE SW [On/Off]	
ICC brake switch signal	×		BRAKE SW [On/Off]	ICC sensor integrated unit receives ICC brake switch signal from ECM with CAN communication.
Stop lamp switch signal	×		STOP LAMP SW [On/Off]	ICC sensor integrated unit receives stop lamp switch signal from ECM with CAN communication.
Closed throttle position signal	×		IDLE SW [On/Off]	ICC sensor integrated unit receives closed throttle position signal from ECM with CAN communication.
Engine speed signal	×		ENGINE RPM [rpm]	ICC sensor integrated unit receives engine speed signal from ECM with CAN communication.
Shift position signal	×	TCM	D RANGE SW [On/Off]	ICC sensor integrated unit receives shift position signal from TCM with CAN communication.
	×		NP RANGE SW [On/Off]	ICC sensor integrated unit receives shift position signal from TCM with CAN communication.
Output shaft revolution signal	×		VHCL SPD AT [km/h] or [mph]	ICC sensor integrated unit receives A/T vehicle speed sensor signal (output shaft revolution signal) from TCM with CAN communication.
Current gear position signal	×		GEAR [1, 2, 3, 4, 5]	ICC sensor integrated unit receives current gear position signal from TCM with CAN communication.
Vehicle speed signal	×	ABS actuator and electric unit (control unit)	VHCL SPEED SE [km/h] or [mph]	ICC sensor integrated unit receives vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) with CAN communication.
Front wiper request signal	×	BCM	WIPER SW [Off/Low/High]	ICC sensor integrated unit receives front wiper request signal from BCM with CAN communication.

• Items of output signal to be checked with “Data Monitor”.

Signal name	CAN	Reception unit	Monitored Item [unit]	Description
Meter display signal	×	Combination meter (through unified meter and A/C amp.)	CRUISE LAMP [On/Off]	ICC sensor integrated unit transmits meter display signal to combination meter (through unified meter and A/C amp.) with CAN communication.
	×		OWN VHCL [On/Off]	
	×		VHCL AHEAD [On/Off]	
	×		SET DISP IND [On/Off]	
ICC system warning lamp signal	×		ICC WARNING [On/Off]	ICC sensor integrated unit transmits ICC system warning lamp signal to combination meter (through unified meter and A/C amp.) with CAN communication.
Buzzer output signal	×		BUZZER O/P [On/Off]	ICC sensor integrated unit transmits buzzer output signal to combination meter (through unified meter and A/C amp.) with CAN communication.
ICC brake hold relay drive signal		ICC brake hold relay	STP LMP DRIVE [On/Off]	ICC sensor integrated unit outputs stop lamp drive output signal to ICC brake hold relay.

- Items of output signal to be checked with “Active Test”.

Signal name	CAN	Reception unit	Test Item	Description
Buzzer output signal	×	Combination meter (through unified meter and A/C amp.)	ICC BUZZER	Able to beep the ICC warning chime with a driving signal from ICC sensor integrated unit.
• Meter display signal • ICC system warning lamp signal	×		METER LAMP	Able to illuminate the ICC system warning lamp and the MAIN switch indicator lamp with a driving signal from the ICC sensor integrated unit.
ICC brake hold relay drive signal		ICC brake hold relay	STOP LAMP	Able to turn ON the ICC brake hold relay with a driving signal from the ICC sensor integrated unit.

Components Description

INFOID:0000000002957236

Component	Vehicle-to-vehicle distance control mode	Conventional (fixed speed) cruise control mode	Brake assist (with preview function)	Description
ICC sensor integrated unit	×	×	×	• Controls vehicle distance by operating electric throttle control actuator based on that sensor signals and CAN communication data. • Controls vehicle distance by transmitting deceleration degree commandment value signal to ABS actuator and electric unit (control unit) when deceleration with brake is needed. • Irradiates laser beam, and receives reflected laser beam to measure distance from preceding vehicle.
ECM	×	×	×	Transmits accelerator pedal position signal, ICC brake switch signal, stop lamp switch signal and ICC steering switch signal to ICC sensor integrated unit through CAN communication.
ABS actuator and electric unit (control unit)	×	×	×	• Transmits vehicle speed signal (wheel speed) and stop lamp switch signal to ICC sensor integrated unit through CAN communication. • Receives deceleration degree commandment value signal from ICC sensor integrated unit, and controls brake fluid pressure with the ABS motor.
BCM	×			Transmits front wiper request signal to ICC sensor integrated unit through CAN communication.

Component	Vehicle-to-vehicle distance control mode	Conventional (fixed speed) cruise control mode	Brake assist (with preview function)	Description
TCM	×	×		Transmits gear position signal and output shaft revolution signal to ICC sensor integrated unit through CAN communication.
Unified meter and A/C amp.	×	×	×	Receives meter display signal, ICC warning lamp signal and buzzer output signal from ICC sensor integrated unit through CAN communication.
ICC brake switch	×	×	×	Transmits operating signal to ECM when depressing brake pedal. ICC sensor integrated unit cancels cruise system at driver's brake operation.
Stop lamp switch	×	×	×	Transmits operating signal to ECM and ABS actuator and electric unit (control unit) when depressing brake pedal. ICC sensor integrated unit cancels cruise system at driver's brake operation.

CAN Communication

INFOID:0000000002957237

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electric control units are equipped onto a vehicle, 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 line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

CAN COMMUNICATION UNIT

Refer to LAN-29, "CAN System Specification Chart".

Switch Operation

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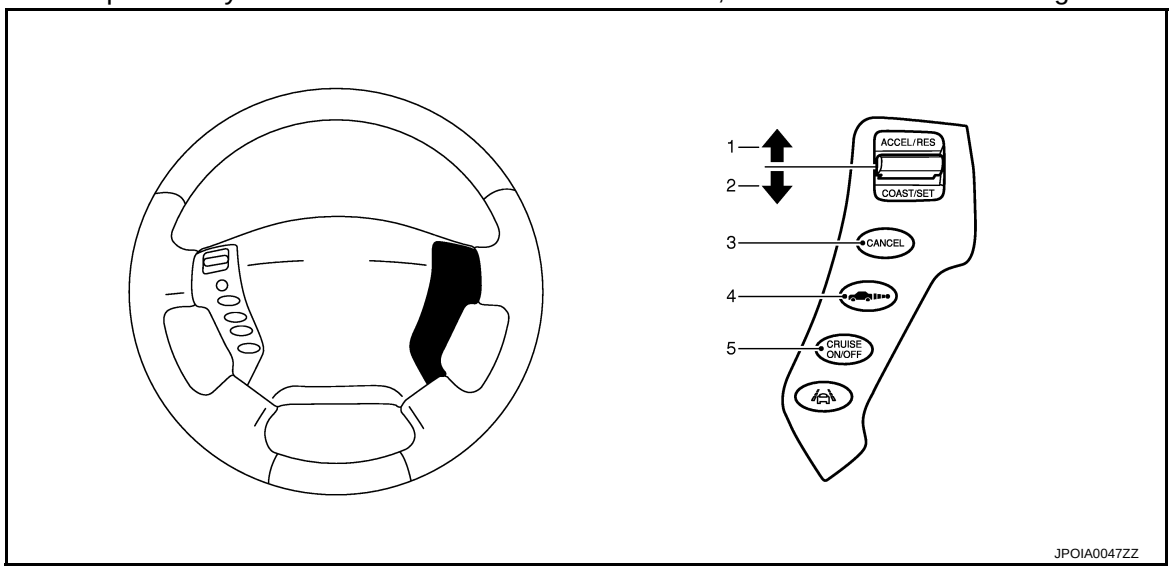
The system is operated by MAIN switch and four control switches, all mounted on the steering wheel.



IN VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE

No.	Switch name	Description
1	RESUME/ACCELERATE switch	Resumes set speed or increases speed incrementally.
2	SET/COAST switch	Sets desired cruise speed, reduces speed incrementally.
3	CANCEL switch	Deactivates system without erasing set speed.
4	DISTANCE switch	Changes the following distance from: Long, Middle, Short.
5	MAIN switch	Master switch to activate the system (press for less than 1.5 seconds)

IN CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE

No.	Switch name	Description
1	RESUME/ACCELERATE switch	Resumes set speed or increases speed incrementally.
2	SET/COAST switch	Sets desired cruise speed, reduces speed incrementally.
3	CANCEL switch	Deactivates system without erasing set speed.
4	DISTANCE switch	Ineffective in this mode
5	MAIN switch	Master switch to activate the system (press for more than 1.5 seconds)

ICC System Display

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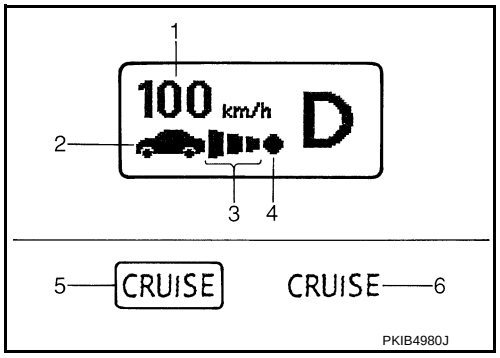
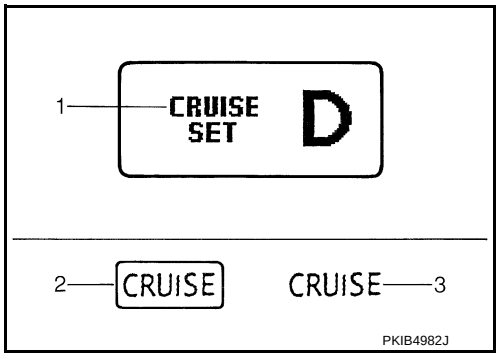
The status of ICC system is displayed by dot matrix LCD, MAIN switch indicator lamp and ICC system warning lamp on the combination meter.

IN VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE



No.	Display items	Description
1	Set vehicle speed indicator	Indicates the set vehicle speed.
2	Vehicle ahead detection indicator	Indicates whether it detects a vehicle ahead.
3	Set distance indicator	Indicates the selected distance between vehicles set with the DISTANCE switch.
4	Own vehicle indicator	Indicates the base vehicle.
5	MAIN switch indicator lamp (Green)	Indicates that the MAIN switch is ON.
6	Intelligent cruise control system warning lamp (Orange)	The light comes on if there is a malfunction in the ICC system.

IN CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE



No.	Display items	Description
1	Set switch indicator	Indicates that the set conventional (fixed speed) cruise control mode is controlled.
2	MAIN switch indicator lamp (Green)	Indicates that the MAIN switch is ON.
3	Intelligent cruise control system warning lamp (Orange)	The light comes on if there is a malfunction in the ICC system.

ACTION TEST

ICC System Running Test

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NOTE:
ICC system can set VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE and CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE when:
- Selector lever is in “D” or “M” position.
- The running speed can be set between 40 km/h (25 MPH) and 144 km/h (90 MPH).

CAUTION:
Never set the cruise speed exceeding the posted speed limit.

VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE

NOTE:
- When there is no vehicle ahead, drive at the set speed steadily.
- When there is a vehicle ahead, control to maintain distance from the vehicle ahead, watching its speed.

Set Checking

1. Press the MAIN switch for less than 1.5 seconds.
2. Drive the vehicle at 40 km/h (25 MPH) or more.
3. Push down the SET/COAST switch.
4. Confirm that the desired speed is set as hand is released from the SET/COAST switch.

NOTE:
The set vehicle speed is displayed on the dot matrix LCD in the combination meter.

Check For Increase Of Cruising Speed

1. Set vehicle-to-vehicle distance control mode at desired speed.
2. Check if the set speed increases by 1 km/h (1 MPH) as RESUME/ACCELERATE switch is pushed up.

NOTE:
The maximum set speed of the vehicle-to-vehicle distance control mode is 144 km/h (90 MPH).

CAUTION:
Never set the cruise speed exceeding the posted speed limit.

Check For Decrease Of Cruising Speed

1. Set vehicle-to-vehicle distance control mode at desired speed.
2. Check if the set speed decreases by 1 km/h (1 MPH) as SET/COAST switch is pushed down.

NOTE:
- Vehicle-to-vehicle distance control mode is automatically cancelled when the driving speed lowers to 32 km/h (20 MPH) due to the deceleration of the vehicle ahead.
- The minimum set speed of the vehicle-to-vehicle distance control mode is 40 km/h (25 MPH).

Check For Cancellation Of Vehicle-To-Vehicle Distance Control Mode (Normal Driving Condition) In The Following Cases:

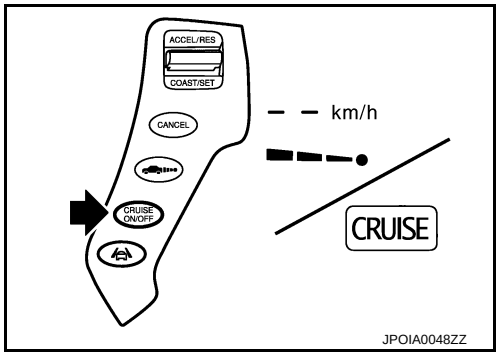
1. When the brake pedal is depressed after the system is turned ON.
2. When the selector lever is shifted to the “N” (Neutral) position.
3. When the MAIN switch is turned OFF.
4. When CANCEL switch is operated.

Check For Restoring Speed That Is Set By Vehicle-To-Vehicle Distance Control Mode Before Cancellation

1. Cancel the system by depressing the brake pedal. Then, check if the speed before cancellation is restored when pushing up RESUME/ACCELERATE switch with 40 km/h (25 MPH) or above.
2. Cancel the system by shifting the selector lever to “N”. Then, check if the speed set before the cancellation is restored when RESUME/ACCELERATE switch is pushed up.
3. Check if the speed previously set is restored when RESUME/ACCELERATE switch is operated with driving 40 km/h (25 MPH), after canceling vehicle-to-vehicle distance control mode by operating the CANCEL switch.

Check For MAIN Switch

1. Start engine. Then, check if the following operations are performed correctly.
2. Vehicle-to-vehicle distance control mode is displayed in combination meter and “CRUISE” is illuminated when MAIN switch is pressed “ON” for less than 1.5 seconds and ready for operation. The illumination goes off when MAIN switch is turned to OFF.
3. “CRUISE” illumination and dot matrix LCD go off when the ignition switch is turned to OFF while MAIN switch is ON (“CRUISE” illumination is ON and vehicle-to-vehicle distance control mode is ready for operation).



Check For RESUME/ACCELERATE, SET/COAST, CANCEL Switches

1. Check if RESUME/ACCELERATE, SET/COAST, CANCEL switches are operated smoothly.
2. Check if switches come up as hand is released from the switches.

Check For Distance Switch

1. Start engine.
2. Press the MAIN switch for less than 1.5 seconds.
3. Press the DISTANCE switch.
4. Check if the set distance indicator changes display in order of: (Long)→(Middle)→(Short).

NOTE:
The set distance indicator shows (Long) immediately after the engine starts.

Distance	Display	Approximate distance at 100 km/h (60 MPH) [m (ft)]
Long	100 km/h	60 (195)
Middle	100 km/h	40 (130)
Short	100 km/h	30 (90)

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CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE

Set Checking

1. Press the MAIN switch for more than 1.5 seconds.
2. Drive the vehicle at 40 km/h (25 MPH) or more.
3. Push down the SET/COAST switch.
4. Confirm that the desired speed is set as hand is released from the SET/COAST switch.

NOTE:
The set vehicle speed is not displayed on the dot matrix LCD in the combination meter.

Check For Increase Of Cruising Speed

1. Set the conventional (fixed speed) cruise control mode at desired speed.
2. Check if the set speed increases by 1.6 km/h (1 MPH) as RESUME/ACCELERATE switch is pushed up.

NOTE:
- If the RESUME/ACCELERATE switch is kept pushing up during cruise control driving, the vehicle speed increases until the switch is released.

• The maximum set speed is 144 km/h (90 MPH).

CAUTION:

Never set the cruise speed exceeding the posted speed limit.

Check For Decrease Of Cruising Speed

1. Set the conventional (fixed speed) cruise control mode at desired speed.
2. Check if the set speed decreases by 1.6 km/h (1 MPH) as SET/COAST switch is pushed down.

NOTE:

• Conventional (fixed speed) cruise control mode is automatically cancelled when the driving speed lowers to 32 km/h (20 MPH).
• The lowest set speed is 40 km/h (25 MPH).

Check For Cancellation Of Conventional (Fixed Speed) Cruise Control Mode (Normal Driving Condition) In The Following Cases:

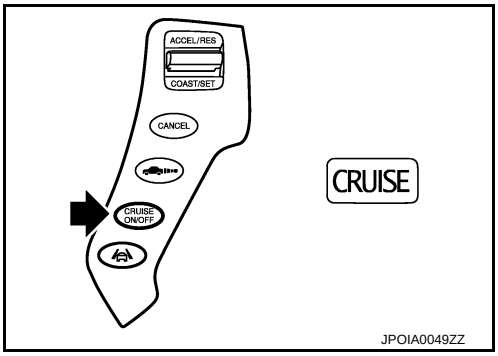
Refer to “Check For Cancellation Of Vehicle-To-Vehicle Distance Control Mode (Normal Driving Condition) In The Following Cases:”.

Check For Restoring Speed That Is Set By Conventional (Fixed Speed) Cruise Control Mode Before ICC Cancellation

Refer to “Check For Restoring Speed That Is Set By Vehicle-To-Vehicle Distance Control Mode Before Cancellation”.

Check For MAIN Switch

1. Start engine. Then, check if the following operations are performed correctly.
2. “CRUISE” lamp illuminates and dot matrix LCD goes off when MAIN switch is pressed “ON” for more than 1.5 seconds, and then ready for operation. The illumination goes off when MAIN switch is turned to OFF.
3. “CRUISE” illumination go off when the ignition switch is turned to OFF while MAIN switch is ON.



Check For RESUME/ACCELERATE, SET/COAST, CANCEL Switches

1. Check if RESUME/ACCELERATE, SET/COAST, CANCEL switches are operated smoothly.
2. Check if switches come up as hand is released from the switches.

LASER BEAM AIMING ADJUSTMENT

Outline

INFOID:0000000002957241

Adjust the laser beam aiming every time the ICC sensor integrated unit is removed or installed.

CAUTION:

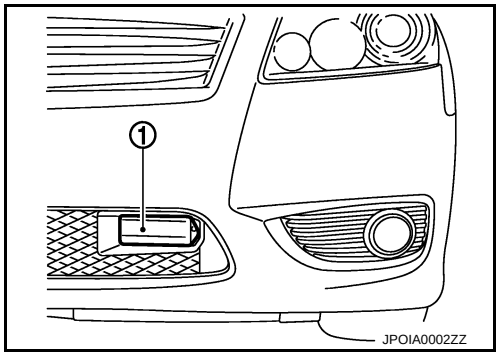
- **Adjust laser beam aiming at a horizontal place as far as 12 m (39 ft) forward the vehicle can be seen.**
- **Adjust laser beam aiming 5 seconds after starting engine.**
- **Never view ICC sensor integrated unit body window directly during laser beam aiming adjustment.**
- **Follow the CONSULT-III when adjusting the laser beam aiming (laser beam aiming adjustment cannot be operated without CONSULT-III).**
- **Never ride on vehicle during laser beam aiming adjustment.**
- **Idle and turn headlamps OFF during laser beam aiming adjustment.**

Preparation

INFOID:0000000002957242

- Adjust the tire pressure to the specified value.
- See that there is no load in the vehicle.
- Fill up the fuel tank full, and check coolant and engine oil are filled up to correct level.
- Shift the selector lever to the “P” position and release the parking brake.
- Clean the ICC sensor integrated unit body window with a soft cloth.

1 : ICC sensor integrated unit



Outline of Adjustment Procedure

INFOID:0000000002957243

1. Set up the ICC target board [KV99110100 (J-45718)].
2. Adjust the sensor following the procedure on CONSULT-III. (Turn manually the screw for up-down position adjustment. ICC sensor integrated unit automatically adjust the right-left position.)

Setting the ICC Target Board

INFOID:0000000002957244

Accurate ICC target board setting is required for the laser beam aiming adjustment.

CAUTION:

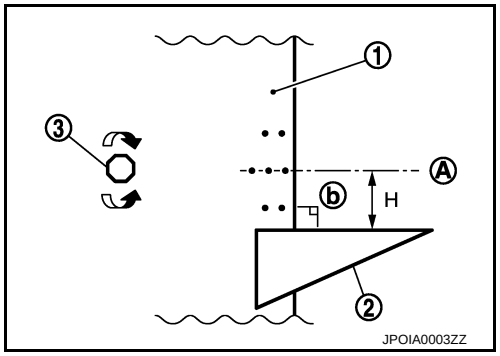
ICC system does not function normally if laser beam aiming is not accurate.

ADJUSTING HEIGHT OF THE TARGET

1. Attach a triangle scale (2) at a position 28 mm (1.10 in) (H) below the center (A) of the ICC target board (1).

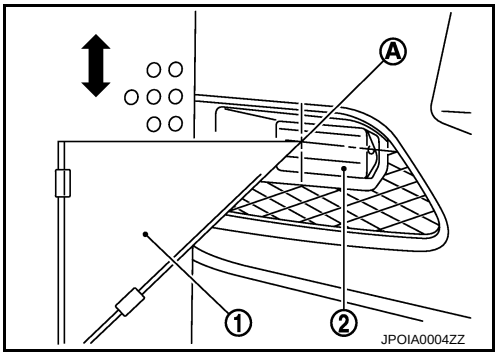
3 : Adjust nut

b : 90°



2. Adjust the height of the ICC target board aligning the upside tip of the triangle scale (1) with the center of laser beam axis (A).

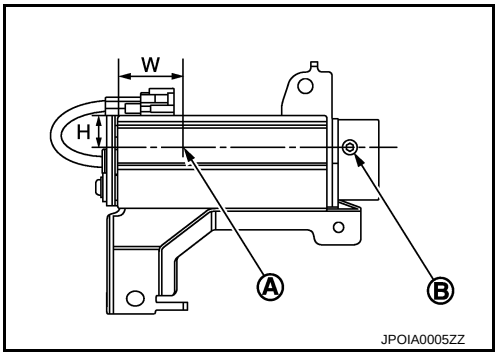
2 : ICC sensor integrated unit



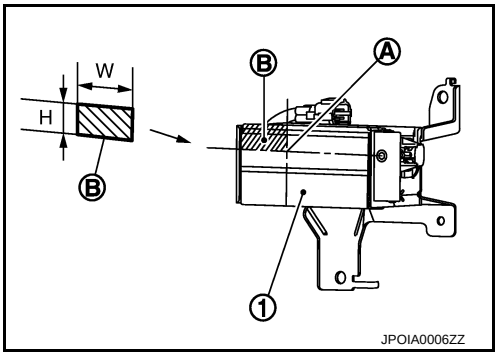
NOTE:

- The center of laser beam axis (A) is located at 38 mm (1.5 in) (W) from the left side and 22 mm (0.87 in) (H) from the top of the ICC sensor integrated unit from a front view of vehicle.

B : Adjusting screw

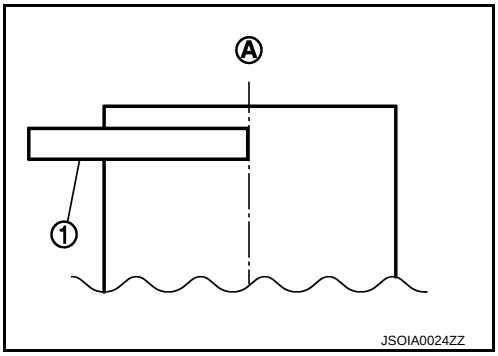


- To identify the center of laser beam axis (A) easily, prepare a piece of paper (B) cut to the size of 38 mm (1.5 in) (W) × 22mm (0.87 in) (H) and attach it on the upper left point of the ICC sensor integrated unit (1).



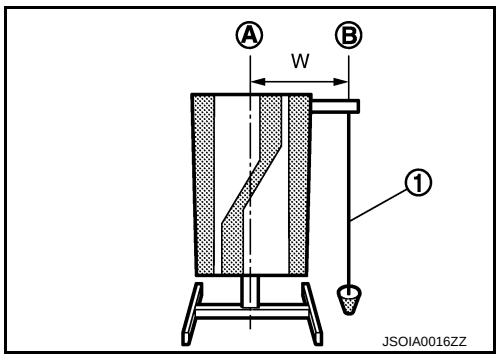
ADJUSTING THE RIGHT-LEFT POSITION OF THE TARGET

1. Attach a ruler (1) or equivalent tool with a length of 350 mm (14 in) or more to the back face of the ICC target board center (A) in the leftward direction.



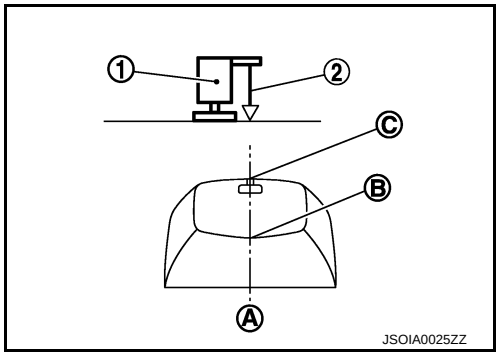
2. Suspend a thread with weight (1) at the point (B) rightward from the ICC target board center (A).

W [mm (in)] : 251 (9.88 in)



SETTING THE TARGET

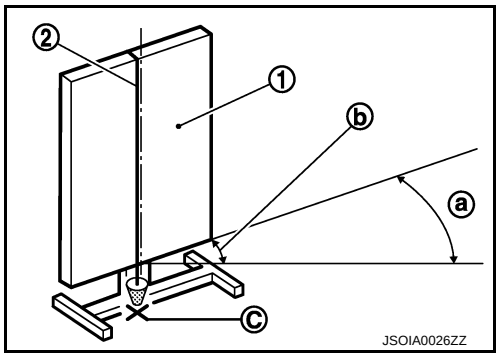
1. Suspend a thread with weight on tip from the center of the front and rear bumpers. Then, mark the center point on the ground as each weight points.
2. Link the front and rear bumpers center points marked on the ground and extend a straight line ahead. Then mark a point 3.9 m (12.8 ft) position ahead of the front bumper. Then, adjust the position of the ICC target board so that the weight come on the top of the marked point [3.9 m (12.8 ft) ahead of the front bumper] and face to the vehicle.
3. Adjust the position of the ICC target board (1) so that the extended line (A) that links the center of the rear window glass (the center of the rear window defogger pattern) (B) and the center of the windshield (the setting part of the room mirror) (C) align with the weight suspended (2) from the ICC target board.



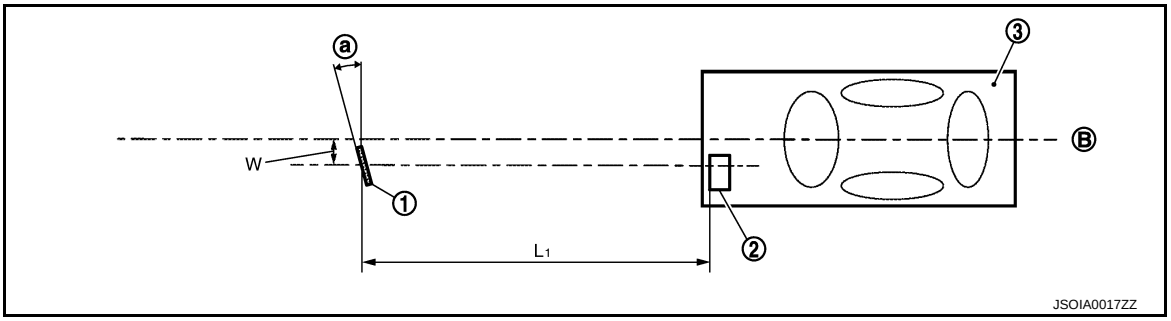
4. Remove the thread suspended to the right side of ICC target board and suspend a thread with weight on tip on the center of the target board. Then mark the point of weight on the ground.
5. Pivot the edge of the target board 25° (a) to either side.

1 : ICC target board
2 : String with a weight
C : ICC target board center marking position

NOTE:
Approx. 90 mm (3.54 in) (b) shift rates the 25° (a) movement.



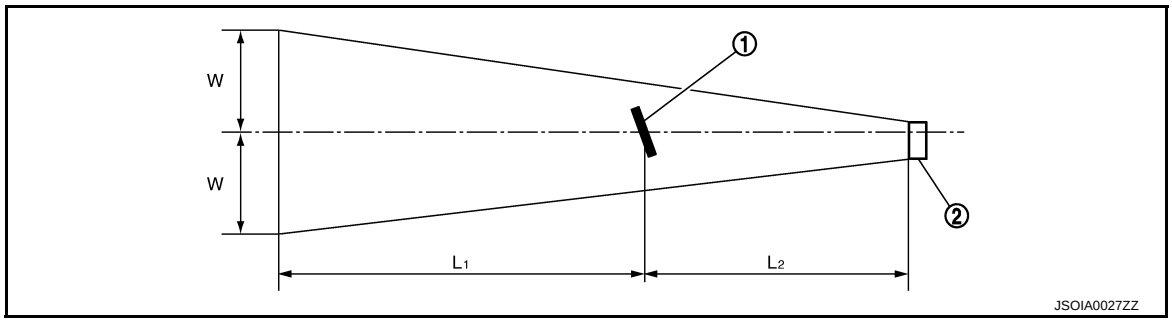
Check that the ICC target board (1) is located as shown in the figure.



1. ICC target board
2. ICC sensor integrated unit
3. Vehicle
B. Vehicle center
L_1. 4.0 m (13.0 ft)
W. 251 mm (9.88 in)
a. 25°

NOTE:
The distance between center of laser beam axis and target board is 4 m (13.0 ft).

6. Do not place anything in the space shown in the figure (view from top).



1. ICC target board
2. ICC sensor integrated unit
L_1. 6.5 m (21.3 ft)
L_2. 4.0 m (13.0 ft)
W. 3.5 m (11.5 ft)

NOTE:
In case the space shown in the figure is not available, cover the side of the target board with a 1400 mm (4.6 ft)-size frosted black board or black cloth.

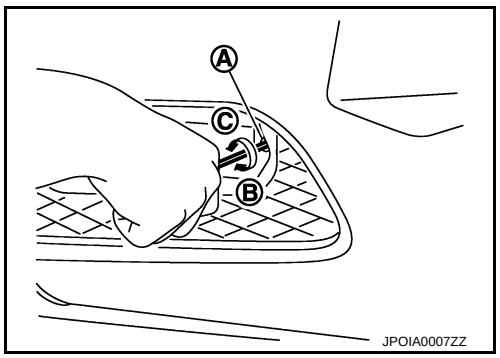
Aiming Adjustment

INFOID:0000000002957245

CAUTION:
Perform all necessary work for laser beam adjustment until the adjustment completes as shown in the procedure. If the procedure does not complete, the ICC system is inoperable.

1. Connect CONSULT-III and select “Work Support” of “ICC”.
2. Select “LASER BEAM ADJUST”.
3. Touch “Start”.
   CAUTION:
   If the adjustment screen does not appear on the CONSULT-III screen in 10 seconds, after touching “LASER BEAM ADJUST” screen, the following causes may be considered:
   - **ICC target is not set accurately.**
   - **There is not enough space beside the ICC target.**
   - **The laser beam aiming adjustment exceeds its proper installation range.**
   - **Deformation of vehicle body.**
   - **Deformation of unit.**
   - **Deformation of bracket.**
   - **The area is not suitable for the adjustment work.**
   - **ICC sensor integrated unit is not clean.**
   - **The ICC system warning lamp illuminates.**
4. After the CONSULT-III displays “ADJUST THE VERTICAL OF LASER BEAM AIMING” turn the up-down direction adjusting screw until “U/D CORRECT” value is set in the range of ±4.
   CAUTION:
   Turn the screw slowly. The value change on display is slower than actual movement of the ICC sensor integrated unit. Wait for 2 seconds every time the screw is turned half a rotation.
   NOTE:

Turning the screw (A) clockwise directs the laser beam downward (B). The laser beam directs upward (C) when turning screw counterclockwise.



5. When “U/D CORRECT” value indicates ±4, confirm that the margin of value remains within ±4 at least for 2 seconds with no equipment or hand touching the ICC sensor integrated unit.
   When “COMPLETED THE VERTICAL AIMING OF LASER BEAM” appears on screen, touch “END”.
   CAUTION:
   Be sure that the margin of “U/D CORRECT” is within ±4 after leaving with ICC sensor integrated unit for 2 seconds or more.
6. Confirm that “ADJUSTING AUTOMATIC HORIZONTAL LASER BEAM AIMING” is on screen and wait for a while (maximum: 10 seconds).
7. Confirm that “Normally Completed” is displayed on CONSULT-III and close the aiming adjustment procedure by touching “End”.
   CAUTION:
   Perform all the procedures once “LASER BEAM ADJUST” mode is entered in CONSULT-III. When the procedure is discontinued, the ICC system is inoperable.

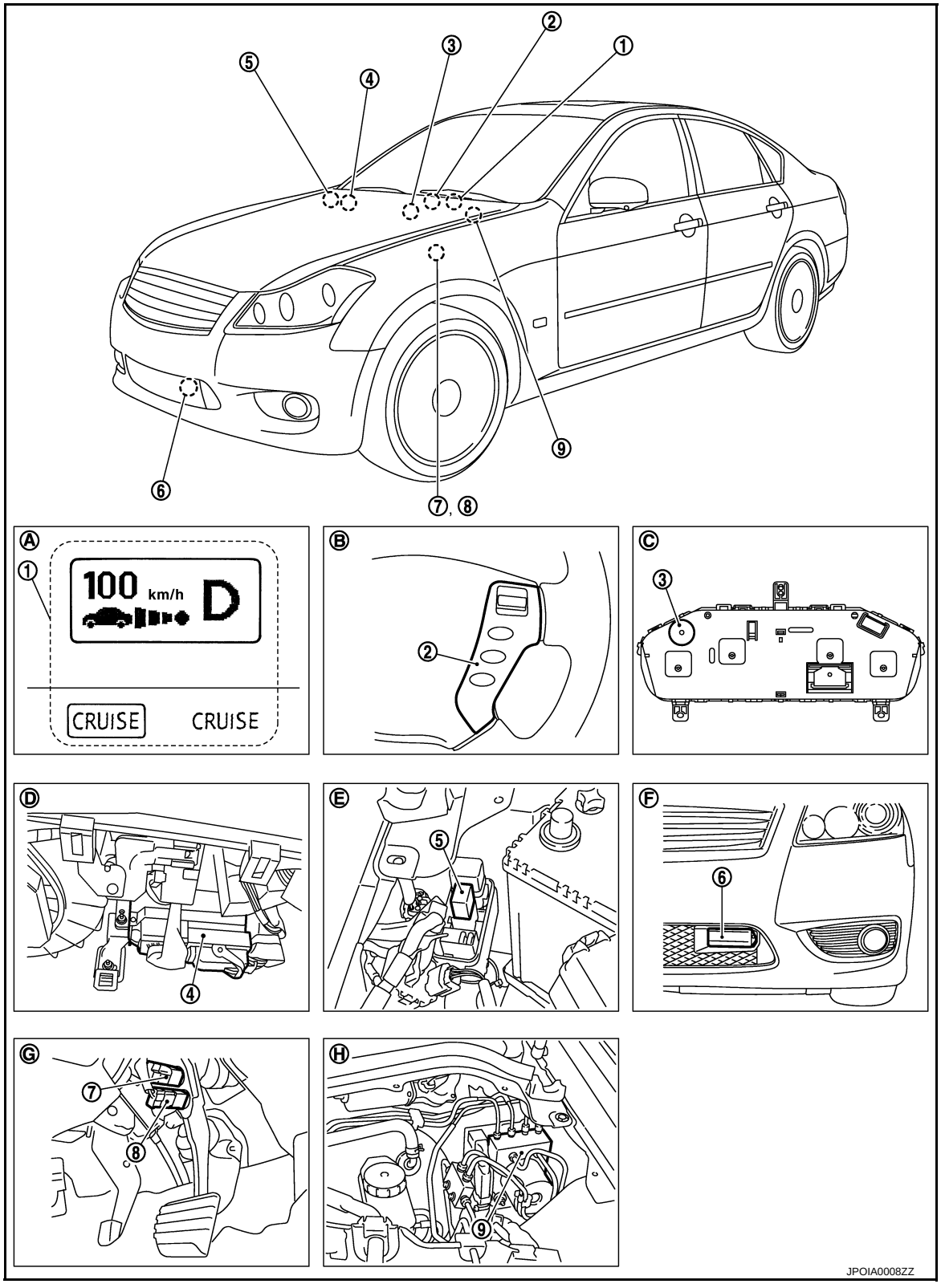
CHECK AFTER THE ADJUSTMENT

Test the ICC system operation by ICC system running test. Refer to ACS-14, "ICC System Running Test".

ELECTRICAL UNITS LOCATION

Component Parts and Harness Connector Location

INFOID:0000000002957246



1. Dot matrix LCD, MAIN switch indicator lamp, ICC system warning lamp
2. ICC steering switch
3. Buzzer
4. ECM
5. ICC brake hold relay
6. ICC sensor integrated unit

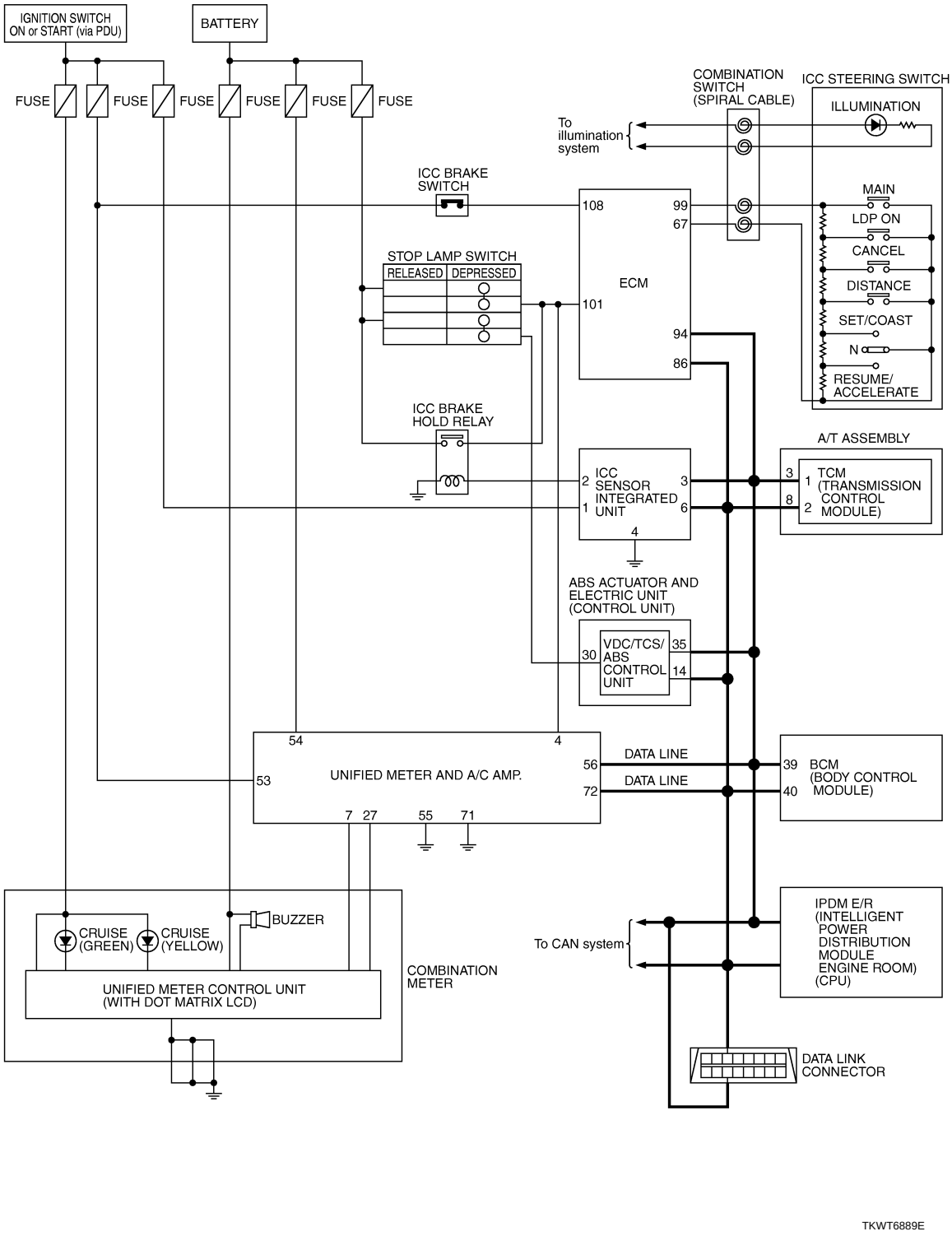
7. Stop lamp switch
8. ICC brake switch
9. ABS actuator and electric unit (Control unit)

A. In combination meter
B. Steering wheel RH
C. Back of combination meter
D. Instrument lower cover removed
E. Rear right of engine room
F. Front bumper LH
G. Brake pedal
H. Rear left of engine room

WIRING DIAGRAM

Schematic

INFOID:0000000002957247



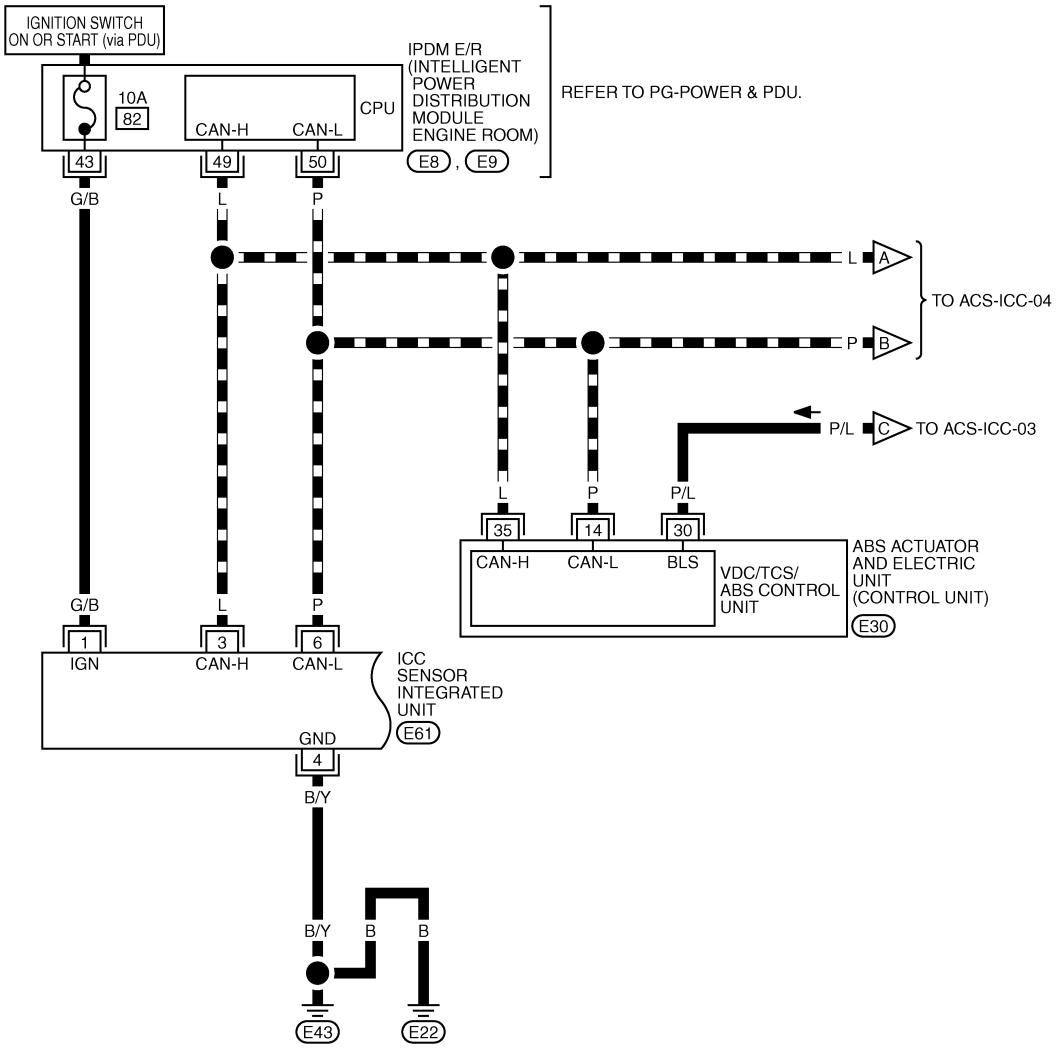
TKWT6889E

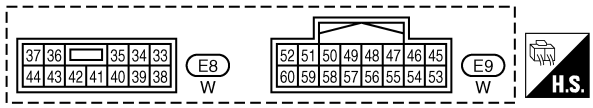
Wiring Diagram - ICC -

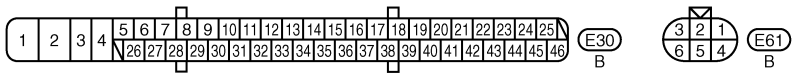
INFOID:0000000002957248

ACS-ICC-01

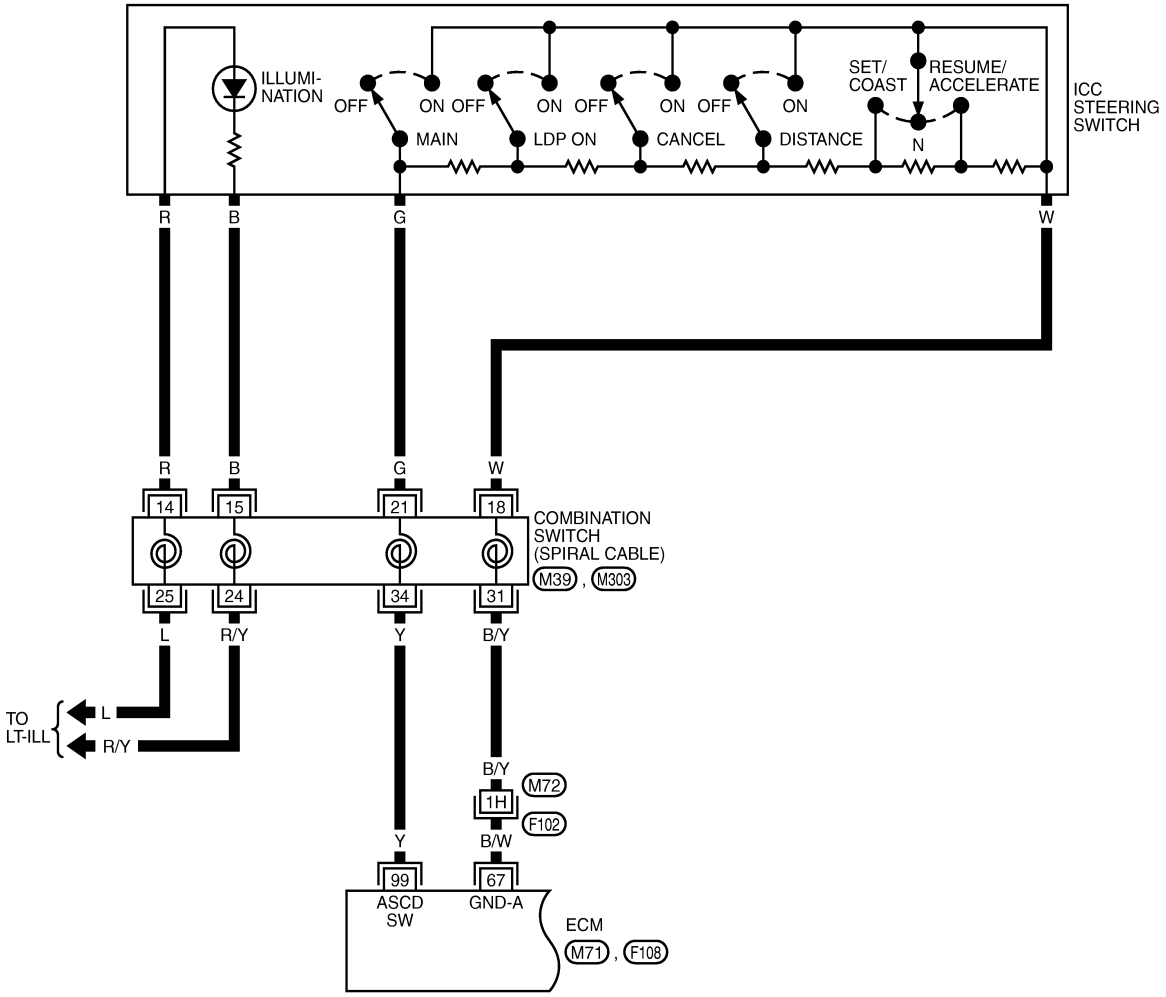
: DATA LINE

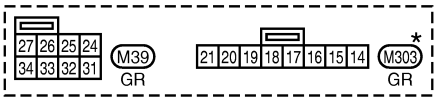






TKWT5302E

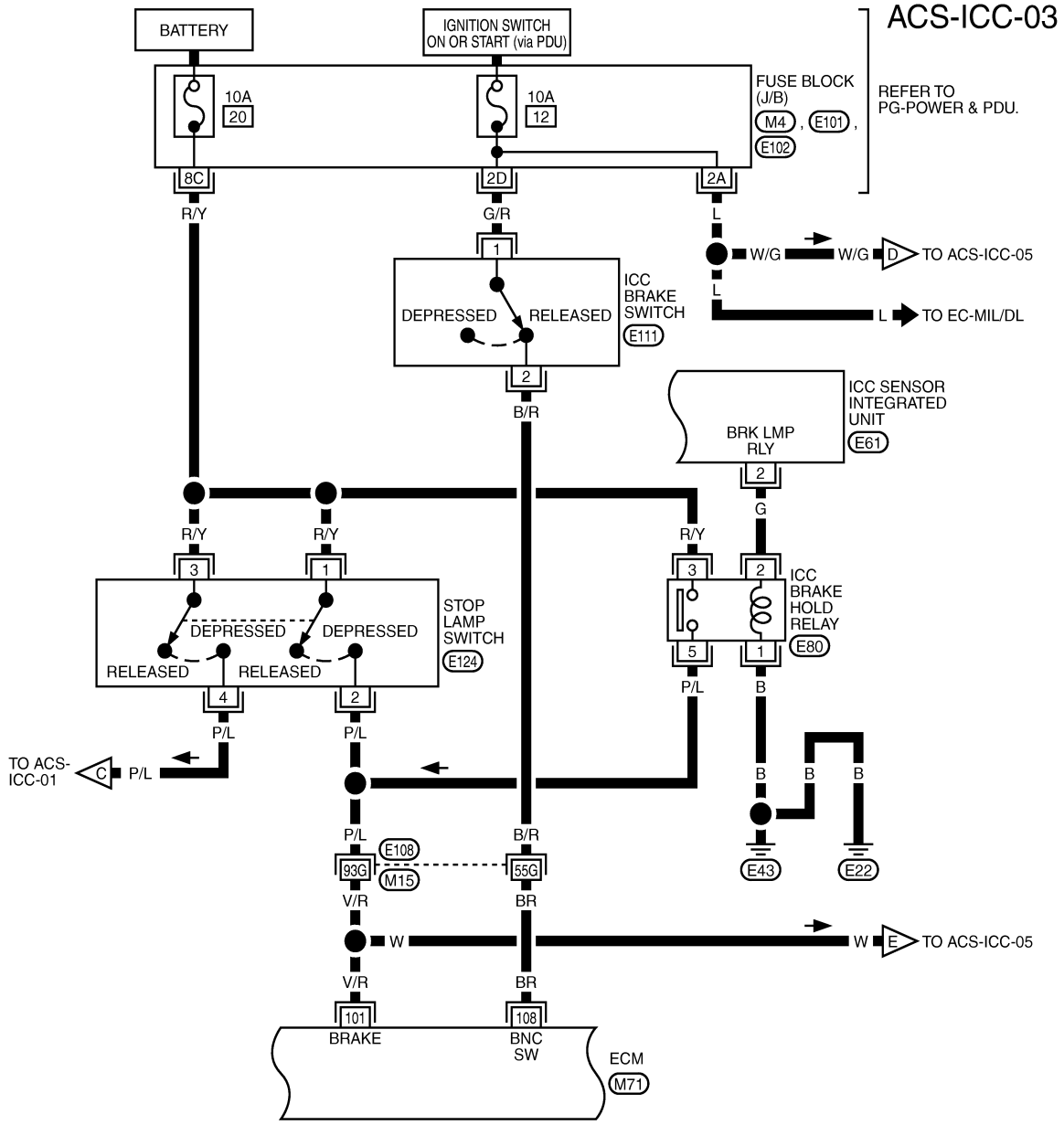




*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

REFER TO THE FOLLOWING.
F102 - SUPER MULTIPLE JUNCTION (SMJ)
M71 , F108 - ELECTRICAL UNITS

TKWT6890E

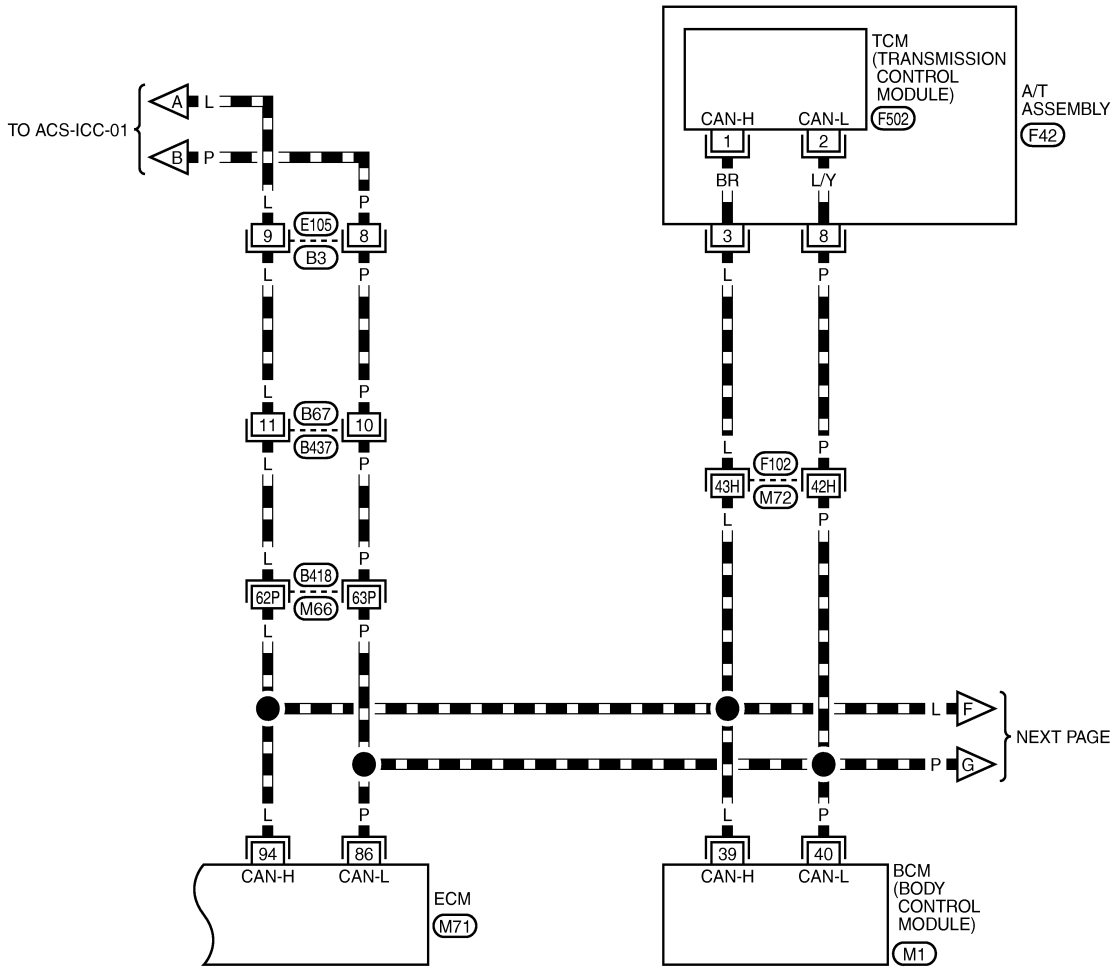


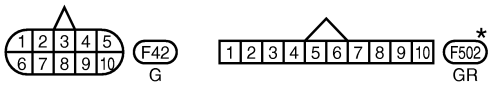
REFER TO THE FOLLOWING.
E108 - SUPER MULTIPLE JUNCTION (SMJ)
M4, E101, E102 - FUSE BLOCK - JUNCTION BOX (J/B)
M71 - ELECTRICAL UNITS

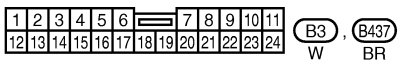
TKWT6891E

ACS-ICC-04

: DATA LINE



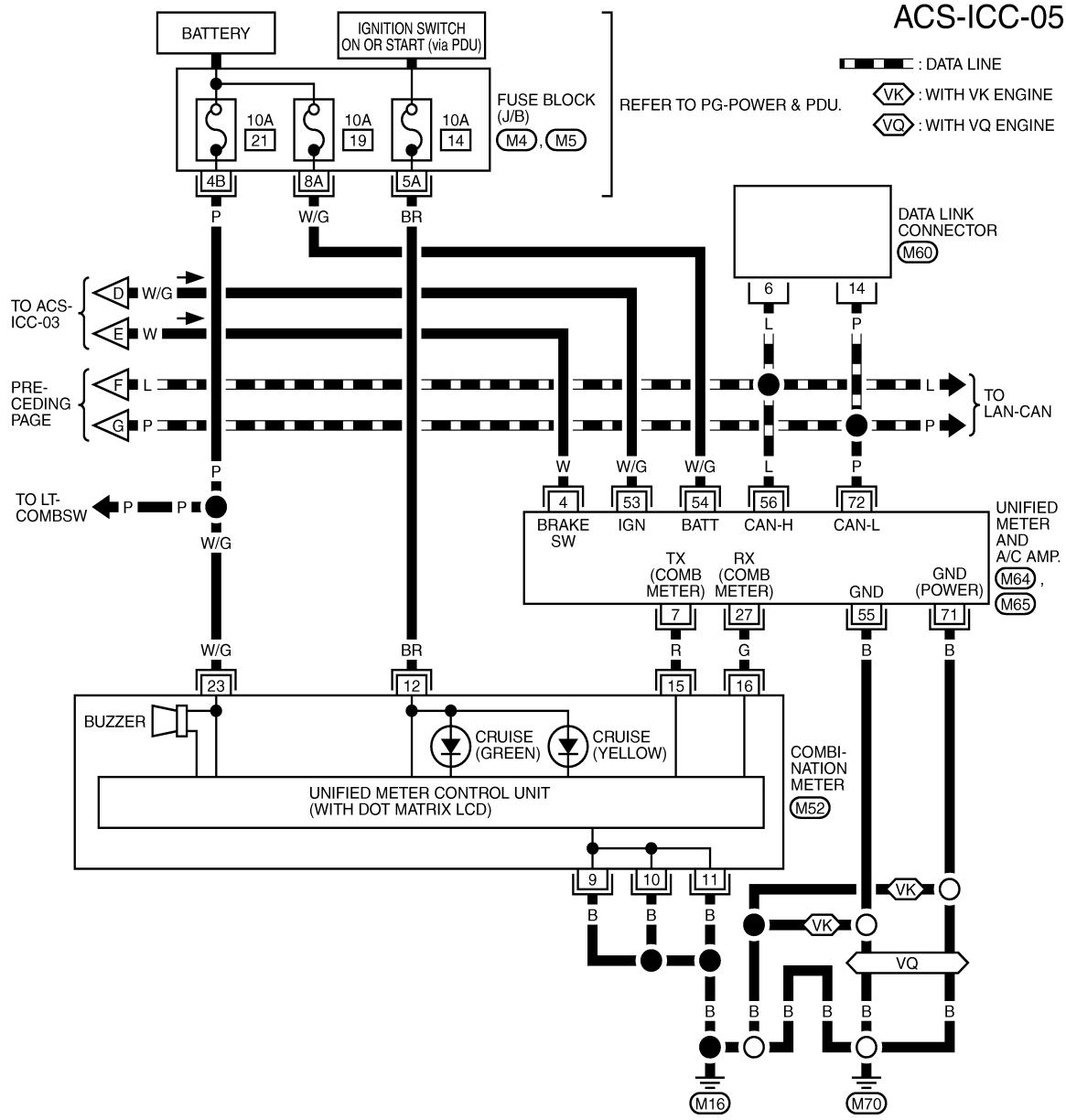




★: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

REFER TO THE FOLLOWING.
F102 , B418 - SUPER MULTIPLE JUNCTION (SMJ)
M1 , M71 - ELECTRICAL UNITS

TKWT6892E


ACS-ICC-05
: DATA LINE
VK : WITH VK ENGINE
VQ : WITH VQ ENGINE
BATTERY
IGNITION SWITCH ON OR START (via PDU)
FUSE BLOCK (J/B) M4, M5
REFER TO PG-POWER & PDU.
10A 21
10A 19
10A 14
4B
8A
5A
P
W/G
BR
DATA LINK CONNECTOR M60
6
14
L
P
TO ACS-ICC-03
D W/G
E W
PRE-CEDING PAGE
F L
G P
TO LAN-CAN
TO LT-COMBSW
W
W/G
W/G
L
P
4
53
54
56
72
BRAKE SW
IGN
BATT
CAN-H
CAN-L
UNIFIED METER AND A/C AMP. M64, M65
TX (COMB METER)
RX (COMB METER)
GND
GND (POWER)
7
27
55
71
R
G
B
B
23
12
15
16
BUZZER
CRUISE (GREEN)
CRUISE (YELLOW)
COMBI-NATION METER M52
UNIFIED METER CONTROL UNIT (WITH DOT MATRIX LCD)
9
10
11
VK
VQ
M16
M70
M52 W
M60 W
REFER TO THE FOLLOWING.
M4, M5 - FUSE BLOCK - JUNCTION BOX (J/B)
M64 W
M65 W
H.S.

TKWT7190E

TERMINALS AND REFERENCE VALUE

Terminal and Reference Value for ICC Sensor Integrated Unit

INFOID:0000000002957249

Terminals (Wire color)		Item	Condition		Voltage (V)
+	–		Ignition switch	Operation	
1 (G/B)	Ground	Ignition switch ON or START	ON	—	Battery voltage
2 (G)		Stop lamp drive output signal	ON	At “STOP LAMP” test on “ACTIVE TEST”	Approx.12
				—	Approx. 0
3 (L)		CAN–H	—	—	—
4 (B/Y)		Ground	ON	—	Approx. 0
6 (P)		CAN–L	—	—	—

TROUBLE DIAGNOSIS - GENERAL DESCRIPTION

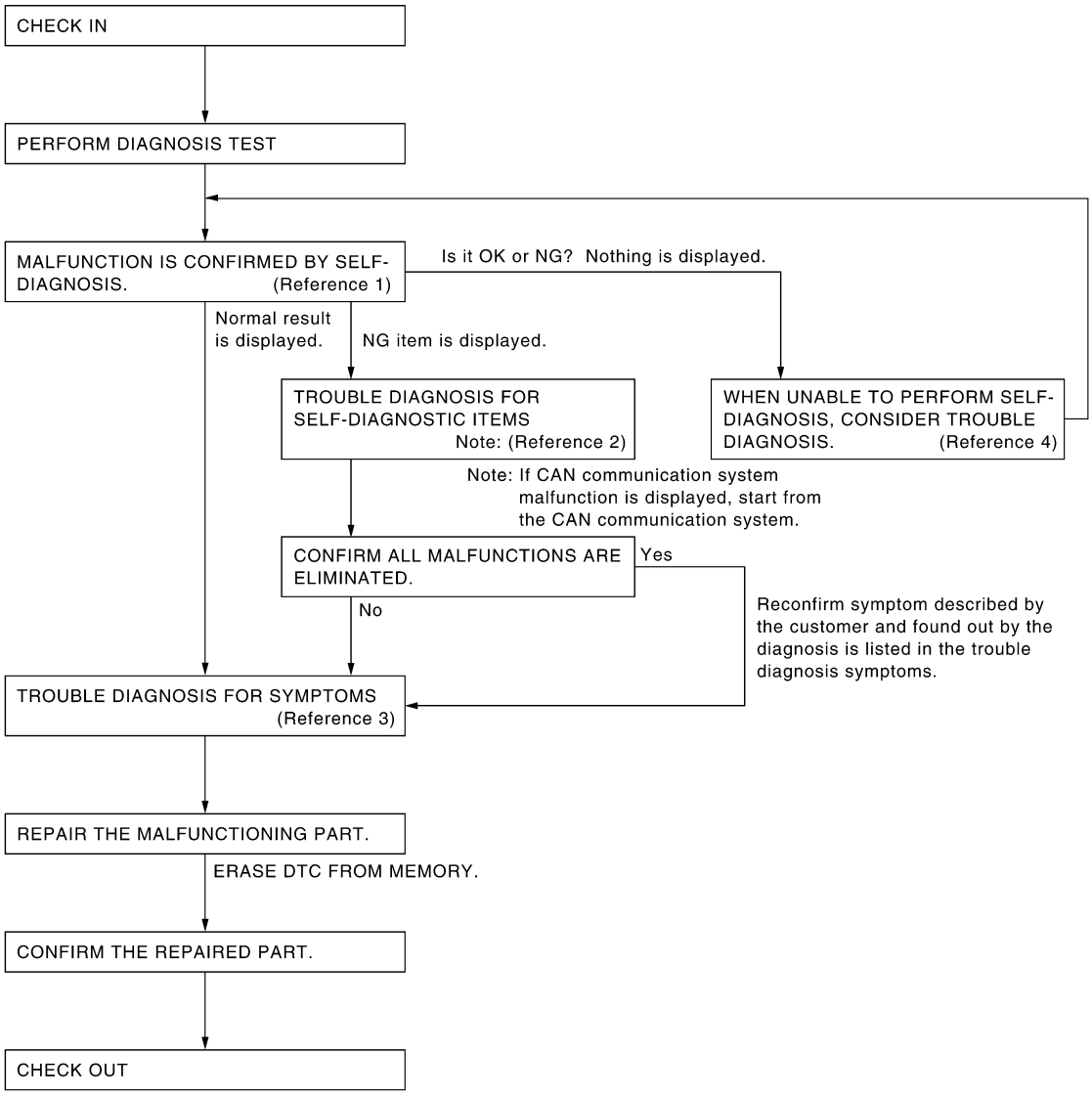
Fail-Safe Function

INFOID:0000000002957250

When a malfunction occurs in ICC system, a chime sounds a beep, the system is released and ICC system warning lamp in combination meter illuminates. System setting is not accepted when malfunction is detected.

Work Flow

INFOID:0000000002957251



SKIA1227E

- Reference 1··· Refer to ACS-35, "Self-Diagnostic Function".
- Reference 2··· Refer to ACS-40, "Diagnostic Trouble Code (DTC) Chart".
- Reference 3··· Refer to ACS-62, "Symptom Chart".
- Reference 4··· Refer to ACS-35, "Self-Diagnostic Function".

CONSULT-III Function (ICC)

INFOID:0000000002957252

DESCRIPTION

CONSULT-III can display each diagnostic item using the diagnostic test modes shown following.

Test mode	Function
Work Support	• Monitors aiming direction to facilitate laser beam aiming operation. • Indicates causes of automatic cancellation of the ICC system.
Self Diagnostic Result	Displays malfunctioning system memorized in ICC sensor integrated unit.
Data Monitor	Displays real-time input/output data of ICC sensor integrated unit.
CAN Diag Support Monitor	The results of transmit/receive diagnosis of CAN communication can be read.
Active Test	Enables operation check of electrical loads by sending driving signal to them.
ECU Identification	Displays part number of ICC sensor integrated unit.

WORK SUPPORT

Work Item

Work support item	Function
CAUSE OF AUTO-CANCEL	Indicates causes of automatic cancellation of the ICC system.
LASER BEAM ADJUST	Outputs laser beam, calculates dislocation of the beam, and indicates adjustment direction.

Cause of Auto-Cancel Display Item List

×: Applicable

Cause of cancellation	Vehicle-to-vehicle distance control mode	Conventional (fixed speed) cruise control mode	Description
OPERATING WIPER	×		Windshield wipers were operated at HI or LO speed operation.
OPERATING ABS	×		ABS function was operated.
OPERATING TCS	×	×	TCS function was operated.
OPERATING VDC	×	×	VDC function was operated.
OPE SW VOLT CIRC	×	×	The ICC steering switch input voltage is not within standard range.
ECM CIRCUIT	×	×	ECM did not permit ICC operation.
LASER SUN BEAM	×		Intense light such as sunlight entered ICC sensor integrated unit light sensing part.
LASER TEMP	×		Temperature around ICC sensor integrated unit became low.
OP SW DOUBLE TOUCH	×	×	ICC steering switches were pressed at the same time.
WHL SPD ELEC NOISE	×	×	Wheel speed sensor signal caught electromagnetic noise.
VDC/TCS OFF SW	×		VDC OFF switch was pressed.
WHEEL SPD UNMATCH	×	×	Wheel speed became different from A/T vehicle speed.
TIRE SLIP	×	×	Wheel slipped.
IGN LOW VOLT	×	×	Power supply voltage became low.
SNOW MODE SW	×		Snow mode switch was pressed.
VHCL SPD DOWN	×	×	Vehicle speed becomes 32 km/h (20 MPH) and under.
VHCL SPD UNMATCH	×	×	Vehicle speed becomes unusual.
CAN COMM ERROR	×	×	ICC sensor integrated unit received an abnormal signal with CAN communication.
ABS/TCS/VDC CIRC	×	×	An abnormal condition occurs in ABS/TCS/VDC system.
ECD CIRCUIT	×		An abnormal condition occurs in ECD system.
ENG SPEED DOWN	×	×	Engine speed became extremely low while controlling ICC system.
ASCD VHCL SPEED DOWN		×	Vehicle speed is detached from set vehicle speed.
ASCD DOUBLE COMD		×	Cancel switch and operation switch are detected simultaneously.
NO RECORD	—	—	—

NOTE:

- Last five cancel (system cancel) causes are displayed.
- “CAUSE OF AUTO-CANCEL” displays times of ignition switch ON/OFF up to 254 maximum. 254 is kept though the number exceeds 254. The number returns to 0 when detecting the same cancellation causes.

Laser Beam Adjust

For details, refer to ACS-17, "Outline".

SELF-DIAGNOSTIC RESULTS

For details, refer to ACS-40, "Diagnostic Trouble Code (DTC) Chart".

DATA MONITOR

Monitored Item

×: Applicable

Monitored Item [unit]	MAIN SIGNALS	Description
MAIN SW [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 [On/Off]	×	Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication).
CANCEL SW [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 [On/Off]	×	Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication).
DISTANCE SW [On/Off]		Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication).
CRUISE OPE [On/Off]	×	Indicates whether controlling or not (ON means “controlling”).
BRAKE SW [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 [On/Off]	×	Indicates [On/Off] status as judged from stop lamp switch signal (ECM transmits stop lamp switch signal through CAN communication).
IDLE SW [On/Off]		Indicates [On/Off] status of idle switch read from ICC sensor integrated unit through CAN communication (ECM transmits ON/OFF status through CAN communication).
SET DISTANCE [Long/Mid/shor]	×	Indicates set distance memorized in ICC sensor integrated unit.
CRUISE LAMP [On/Off]	×	Indicates [On/Off] status of MAIN switch indicator lamp output.
OWN VHCL [On/Off]		Indicates [On/Off] status of own vehicle indicator output.
VHCL AHEAD [On/Off]		Indicates [On/Off] status of vehicle ahead detection indicator output.
ICC WARNING [On/Off]		Indicates [On/Off] status of ICC system warning lamp output.
VHCL SPEED SE [km/h] or [mph]	×	Indicates vehicle speed calculated from ICC sensor integrated unit through CAN communication [ABS actuator and electric unit (control unit) transmits vehicle speed signal (wheel speed) through CAN communication].
SET VHCL SPD [km/h] or [mph]	×	Indicates set vehicle speed memorized in ICC sensor integrated unit.
BUZZER O/P [On/Off]		Indicates [On/Off] status of ICC warning chime output.
THRTL SENSOR [deg]	×	**NOTE:** This item is displayed, but cannot monitor.
ENGINE RPM [rpm]		Indicates engine speed read from ICC sensor integrated unit through CAN communication (ECM transmits engine speed through CAN communication).

Monitored Item [unit]	MAIN SIGNALS	Description
WIPER SW [Off/LOW/HIGH]		Indicates wiper [Off/LOW/HIGH] status (BCM transmits front wiper request signal through CAN communication).
YAW RATE [deg/s]		**NOTE:** This item is displayed, but cannot monitor.
STP LMP DRIVE [On/Off]	×	Indicates [On/Off] status of ICC brake hold relay drive output.
D RANGE SW [On/Off]		Indicates [On/Off] status of “D” and “M” positions read from ICC sensor integrated unit through CAN communication; ON when position “D” and “M” (TCM transmits shift position signal through CAN communication).
NP RANGE SW [On/Off]		Indicates shift position signal read from ICC sensor integrated unit through CAN communication (TCM transmits shift position signal through CAN communication).
PWR SUP MONI [V]	×	Indicates IGN voltage input by ICC sensor integrated unit.
VHCL SPD AT [km/h] or [mph]		Indicates vehicle speed calculated from A/T vehicle speed sensor read from ICC sensor integrated unit through CAN communication (TCM transmits A/T vehicle speed sensor signal through CAN communication).
THRTL OPENING [%]	×	Indicates throttle position read from ICC sensor integrated unit through CAN communication (ECM transmits accelerator pedal position signal through CAN communication).
GEAR [1, 2, 3, 4, 5]		Indicates A/T gear position read from ICC sensor integrated unit through CAN communication (TCM transmits current gear position signal through CAN communication).
NP SW SIG [On/Off]	×	**NOTE:** This item is displayed, but cannot monitor.
CLUTCH SW SIG [On/Off]	×	**NOTE:** This item is displayed, but cannot monitor.
MODE SIG [Off, ICC, ASCD]		Indicates the active mode from ICC or ASCD (conventional (fixed speed) cruise control mode).
SET DISP IND [On/Off]		Indicates [ON/OFF] status of SET switch indicator output.
DISTANCE [m]		Indicates the distance from the vehicle ahead.
RELATIVE SPD [m/s]		Indicates the relative speed of the vehicle ahead.

ACTIVE TEST

CAUTION:

- **Never perform the active test while driving.**
- **“ACTIVE TEST” cannot be started while ICC system warning lamp illuminates.**

ICC BUZZER

Test item	Operation	Description	Buzzer sound
ICC BUZZER	Test Start	Operates ICC warning chime	Beep
	Reset	Stops ICC warning chime	Not activated
	End	Return to a “SELECT TEST ITEM” screen	—

METER LAMP

CAUTION:

Start engine and perform active test.

Test item	Operation	Description	MAIN switch indicator lamp and ICC system warning lamp
METER LAMP	Off	MAIN switch indicator lamp and ICC warning lamp are turned off	Turn OFF
	On	MAIN switch indicator lamp and ICC warning lamp are turned on	Turn ON

STOP LAMP

Test item	Operation	Description	Stop lamp
STOP LAMP	Off	Stops the ICC brake hold relay	OFF
	On	Drives the ICC brake hold relay	ON

Self-Diagnostic Function

INFOID:0000000002957253

WITH CONSULT-III

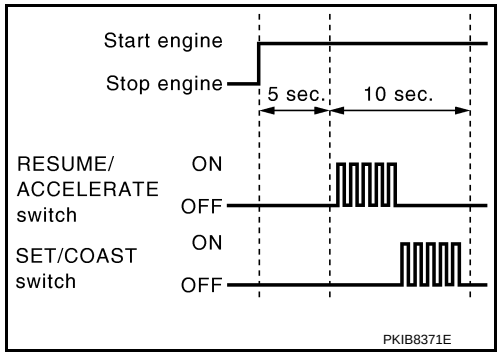
1. Go to operation check after asking the customer for symptom information. Refer to ACS-14.
2. Stop vehicle, turn ignition switch OFF, then connect CONSULT-III to data link connector.
3. With engine started, select “ICC”, “Self Diagnostic Result” on CONSULT-III screen in this order.
4. “DTC RESULTS” and “TIME” are indicated on “SELF-DIAG RESULTS”. “TIME” is used as a reference data of diagnosis. It shows when malfunction is detected.
   NOTE:
   “TIME” shows the following.
   - 0: malfunction is detected at present (from malfunction detection to ignition switch OFF).
     CAN communication (U1000, U1010)
   - 1 ~ 39: Displays when it is normal at present and finds malfunction in the past. It increases like 0→1→2...38→39 after returning to the normal condition whenever IGN OFF→ON. If it is over 39, it is fixed to 39 until the self-diagnostic results are erased. It returns to 0 when malfunction is detected again in the process.
     Other than CAN communication (other than U1000, U1010)
   - 1 ~ 49: Displays when it is normal at present and finds malfunction in the past. It increases like 0→1→2...48→49 after returning to the normal condition whenever IGN OFF→ON. If it is over 49, it is fixed to 49 until the self-diagnostic results are erased. It returns to 0 when malfunction is detected again in the process.

   If “NO DTC...” is shown, check ICC system warning lamp. If any malfunction is indicated, GO TO step 5.
5. According to ACS-40, "Diagnostic Trouble Code (DTC) Chart", perform appropriate check, and repair or replace malfunctioning part as necessary.
6. Turn ignition switch OFF.
7. Start engine and select “ICC”, “Self Diagnostic Result” and “ERASE” on CONSULT-III display in turn to erase the memory.
   CAUTION:
   If the memory does not erase, go to 5.
8. Perform ICC system running test (drive vehicle with ICC system ON), and make sure that ICC system warning lamp does not illuminate.

WITHOUT CONSULT-III

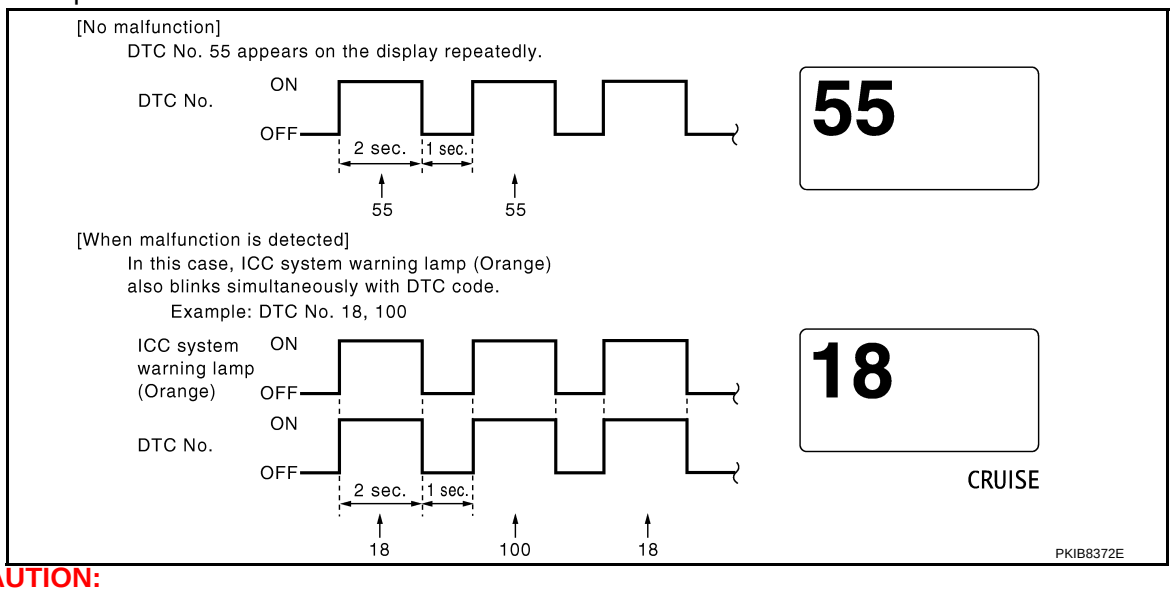
1. Go to operation check after asking the customer for symptom information. Refer to ACS-14.
2. Stop the vehicle and turn ignition switch OFF.
3. Start engine.

4. Wait 5 seconds after starting engine, then within 10 seconds, push up RESUME/ACCELERATE switch 5 times, and push down SET/COAST switch 5 times.



CAUTION:
- **Never turn the MAIN switch ON.**
- **When operation above is not completed within the specified period, go back to procedure 1 and do all over again.**
- **If self-diagnosis mode cannot be started after several attempts, the ICC sensor integrated unit may have had malfunction. Repair or replace it. Refer to "SELF-DIAGNOSIS BY DOT MATRIX LCD WILL NOT RUN".**

5. When self-diagnosis mode is started, DTC are shown on set vehicle speed indicator.

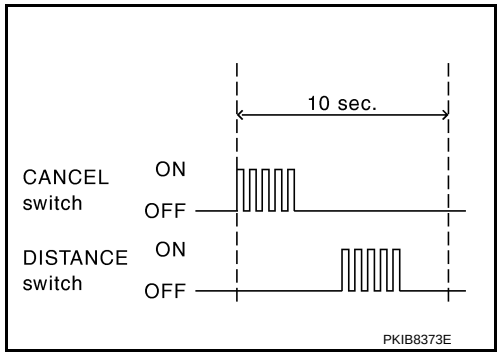


CAUTION:
- **DTC will disappear after 5 minutes.**
- **When more than one malfunction is detected, a maximum of 3 code numbers can be stored; the latest malfunction will be displayed first.**

6. Check ACS-40, "Diagnostic Trouble Code (DTC) Chart", and repair or replace if necessary.
7. After repair, erase DTC stored in the ICC sensor integrated unit.
8. DTC 55 will be shown.
9. Turn ignition switch OFF to exit the diagnosis.
10. Perform ICC system running test (drive vehicle with ICC system ON), and make sure that ICC system warning lamp (Orange) does not illuminate.

Self-Diagnostic Erasing Method

1. Stop the vehicle and turn ignition switch OFF.
2. Start engine and start self-diagnosis.
3. During self-diagnosis mode, press CANCEL switch 5 times, and DISTANCE switch 5 times in this order.



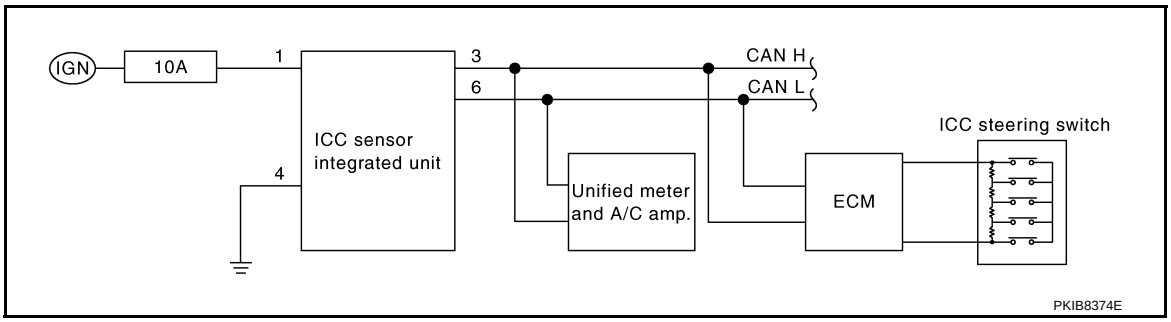
CAUTION:
- **Press them within 10 seconds after pressing CANCEL switch at first.**
- **When operation is not completed within 10 seconds, start again from step 2 above.**

4. DTC 55 will be shown.

CAUTION:
DTC of an existing malfunction will not be erased.

5. Turn ignition switch OFF to exit the diagnosis.
6. Perform ICC system running test (drive vehicle with ICC system ON), and make sure that ICC system warning lamp (Orange) does not illuminate.

SELF-DIAGNOSIS BY DOT MATRIX LCD WILL NOT RUN



Possible Irregular Condition

Open or short lines	Symptoms	Malfunction causes
ICC sensor integrated unit power supply malfunction	No voltage supply from ignition switch	Fuse blown.
		Harness open.
		Harness shorted.
	Ground cable not connected	Harness open.
		Harness shorted.
ICC steering switch malfunction	No signal transmitted	Harness open.
		Harness shorted.
		Spiral cable open.
		Spiral cable shorted.
		ICC steering switch or ECM malfunction.
CAN communication system malfunction	Signal not transmitted	Harness open.
		Harness shorted.
		CAN communication malfunction.
Combination meter system malfunction	Indication not possible	Combination meter malfunction.
		Unified meter and A/C amp. malfunction.
		Dot matrix LCD malfunction.
ICC sensor integrated unit malfunction		ICC sensor integrated unit internal malfunction.

1.CHECK FUSE

Check if the fuse is blown.

Unit	Power source	Fuse No.
ICC sensor integrated unit	Ignition switch ON or START	82

OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

2.CHECK ICC SYSTEM DISPLAY

Check if dot matrix LCD in the combination meter illuminates. Refer to DI-17, "Self-Diagnosis Mode of Combination Meter".

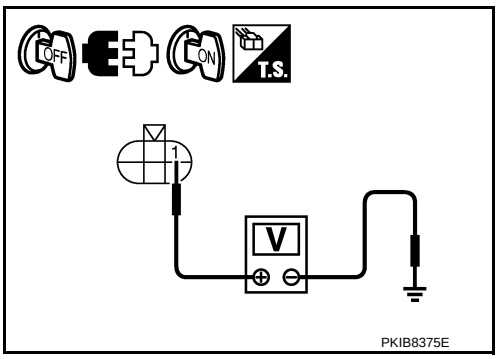
OK or NG

OK >> GO TO 3.
NG >> Check combination meter. Refer to DI-18, "Trouble Diagnosis".

3.CHECK POWER SUPPLY CIRCUIT FOR ICC SENSOR INTEGRATED UNIT

1. Turn ignition switch OFF.

2. Disconnect ICC sensor integrated unit connector.
3. Turn ignition switch ON.
4. Check voltage between ICC sensor integrated unit harness connector and ground.



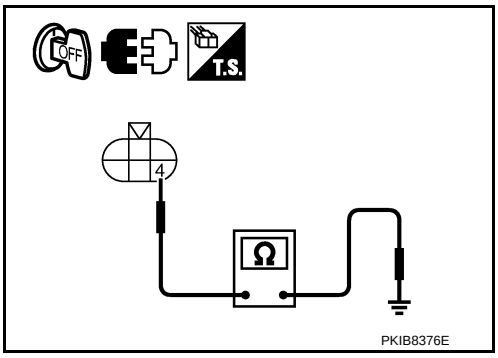
Terminals			Voltage (Approx.)
(+)		(–)	
ICC sensor integrated unit connector	Terminal		
E61	1	Ground	Battery voltage

OK or NG

OK >> GO TO 4.
NG >> Repair or replace ICC sensor integrated unit power supply harness.

4. CHECK GROUND CIRCUIT FOR ICC SENSOR INTEGRATED UNIT

1. Turn ignition switch OFF.
2. Check continuity between ICC sensor integrated unit harness connector and ground.



ICC sensor integrated unit connector	Terminal	Ground	Continuity
E61	4		Yes

OK or NG

OK >> GO TO 5.
NG >> Repair or replace ICC sensor integrated unit ground harness.

5. CHECK CONNECTOR FOR ICC SENSOR INTEGRATED UNIT

1. Check terminals for bend and looseness.
2. Securely connect ICC sensor integrated unit connector again.
3. Perform self-diagnosis without CONSULT-III.

Can self-diagnosis be performed?

YES >> Check connector. (Check connector housing for disconnected, loose, bent, and collapsed terminals. If any malfunction is detected, repair applicable part.)
NO >> GO TO 6.

6. CHECK ICC STEERING SWITCH

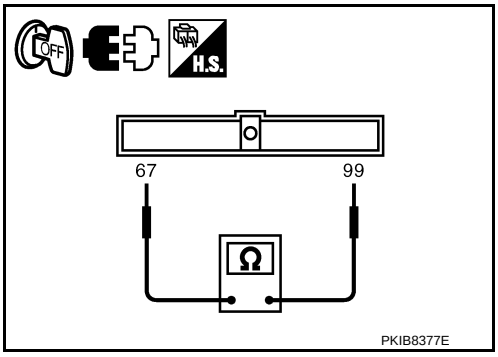
Check ICC steering switch. Refer to ACS-68, "ICC Steering Switch".

OK or NG

OK >> GO TO 7.
NG >> Replace ICC steering switch.

7. CHECK HARNESS BETWEEN ECM AND ICC STEERING SWITCH

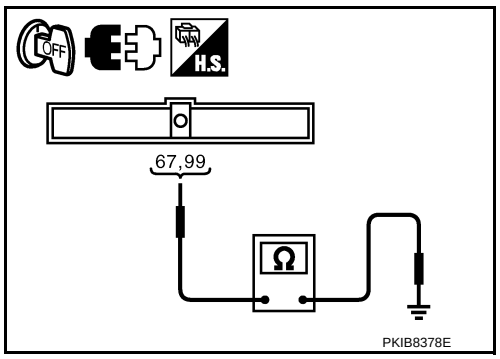
1. Turn ignition switch OFF.
2. Disconnect ECM connector.
3. Check resistance between ECM harness connector.



ECM connector	Terminal	ECM connector	Terminal	Condition	Resistance (Approx.)
F108	67	M71	99	When MAIN switch pressed	0 Ω
				When MAIN switch released	5.5 kΩ

4. Check continuity between ECM harness connector and ground.

ECM connector	Terminal		Continuity
F108	67	Ground	No
M71	99		No



OK or NG

OK >> GO TO 8.
NG >> Repair or replace harness between ECM and ICC steering switch.

8. CHECK CONNECTOR FOR ECM

1. Check terminals for bend and looseness.
2. Securely connect ECM connector again.
3. Perform self-diagnosis without CONSULT-III.

Can self-diagnosis be performed?

YES >> Check connector. (Check connector housing for disconnected, loose, bent, and collapsed terminals. If any malfunction is detected, repair applicable part.)
NO >> GO TO 9.

9. CHECK CAN COMMUNICATION

1. Perform self-diagnosis with CONSULT-III.
2. Check if DTC " CAN COMM CIRCUIT" is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> 1. Perform "ENGINE" self-diagnosis. Refer to EC-116, "CONSULT-III Function (ENGINE)" (for VQ35DE) or EC-741, "CONSULT-III Function" (VK45DE).
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

TROUBLE DIAGNOSIS FOR SELF-DIAGNOSTIC ITEMS

Diagnostic Trouble Code (DTC) Chart

INFOID:0000000002957254

×: Applicable

On board display	CONSULT-III screen terms	ICC system warning lamp	Fail-safe			Malfunctions detected where...	Reference page
			Vehicle-to-vehicle distance control mode	Conventional (fixed speed) cruise control mode	Brake assist (with preview function)		
0	C1A00: CONTROL UNIT	×	×	×	×	ICC sensor integrated unit internal malfunction.	ACS-42
1	C1A01: POWER SUPPLY CIR	×	×	×	×	ICC sensor integrated unit power supply voltage is excessively low (less than 8V).	ACS-42
2	C1A02: POWER SUPPLY CIR 2	×	×	×	×	ICC sensor integrated unit power supply voltage is excessively high (more than 19V).	ACS-42
3	C1A03: VHCL SPEED SE CIRC	×	×	×	×	• Wheel sensor malfunction. • ABS actuator and electric unit (control unit) malfunction. • A/T vehicle speed sensor malfunction. • TCM malfunction. • ICC sensor integrated unit malfunction.	ACS-43
4	C1A04: ABS/TCS/VDC CIRC	×	×	×	×	VDC/TCS/ABS system malfunction.	ACS-43
5	C1A05: BRAKE SW/STOP L SW	×	×	×	×	• Stop lamp switch harness is open or shorted. • Stop lamp switch is stuck to OFF. • ICC brake switch or stop lamp switch is stuck to ON. • ECM malfunction. • ABS actuator and electric unit (control unit) malfunction.	ACS-44
6	C1A06: OPERATION SW CIRC	×	×	×		• ICC steering switch harness or spiral cable is open or shorted. • ICC steering switch malfunction.	ACS-47
12	C1A12: LASER BEAM OFFCNTR	×	×		×	Laser beam of ICC sensor integrated unit is off the aiming point.	ACS-48
13	C1A13: STOP LAMP RLY FIX	×	×		×	• Normally open terminal of ICC brake hold relay is stuck. • Improper installation of ICC brake switch or stop lamp switch. • ICC brake switch malfunction. • ECM malfunction. • ABS actuator and electric unit (control unit) malfunction.	ACS-49

On board display	CONSULT-III screen terms	ICC system warning lamp	Fail-safe			Malfunctions detected where...	Reference page
			Vehicle-to-vehicle distance control mode	Conventional (fixed speed) cruise control mode	Brake assist (with preview function)		
14	C1A14: ECM CIRCUIT	×	×	×	×	• ECM malfunction. • Accelerator pedal position sensor malfunction. • ICC sensor integrated unit malfunction.	ACS-54
15	C1A15: GEAR POSITION	×	×	×		• TCM malfunction. • Input speed sensor malfunction. • A/T vehicle speed sensor malfunction.	ACS-54
16	C1A16: RADAR STAIN	×	×		×	ICC sensor integrated unit body window has contamination.	ACS-55
18	C1A18: LASER AIMING INCMP	×	×		×	Laser beam aiming of ICC sensor integrated unit is not adjusted.	ACS-56
21	C1A21: UNIT HIGH TEMP	×	×	×	×	Temperature around ICC sensor integrated unit is excessively high.	ACS-56
24	C1A24: NP RANGE	×	×	×		• Transmission range switch malfunction. • TCM malfunction.	ACS-56
25	C1A25: SHIFT RANGE IND	×	×	×		TCM malfunction.	ACS-57
26	C1A26: ECD MODE MALF	×	×	×	×	• ABS actuator and electric unit (control unit) malfunction. • ICC sensor integrated unit malfunction.	ACS-57
27	C1A27: ECD PWR SUPLY CIR	×	×	×	×	• ABS actuator and electric unit (control unit) power supply voltage is excessively low. • ABS actuator and electric unit (control unit) malfunction.	ACS-58
33	C1A33: CAN TRANSMISSION ERROR	×	×	×	×	ICC sensor integrated unit malfunction.	ACS-58
34	C1A34: COMMAND ERROR	×	×	×	×	ICC sensor integrated unit malfunction.	ACS-58
55	NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED.					No malfunction item has been detected.	—
100	U1000: CAN COMM CIRCUIT	×	×	×	×	ICC sensor integrated unit detects CAN communication malfunction.	ACS-60
110	U1010: CONTROL UNIT (CAN)	×	×	×	×	ICC sensor integrated unit detects malfunction by CAN initial diagnosis.	ACS-60
120	U0401: ECM CAN CIR1	×	×	×	×	ECM malfunction.	ACS-59
122	U0402: TCM CAN CIR1	×	×	×	×	TCM malfunction.	ACS-59

On board display	CONSULT-III screen terms	ICC system warning lamp	Fail-safe			Malfunctions detected where...	Reference page
			Vehicle-to-vehicle distance control mode	Conventional (fixed speed) cruise control mode	Brake assist (with preview function)		
126	U0415: VDC CAN CIR1	×	×	×	×	ABS actuator and electric unit (control unit) malfunction.	ACS-60
127	U0121: VDC CAN CIR2	×	×	×	×	ABS actuator and electric unit (control unit) malfunction.	ACS-58

C1A00 CONTROL UNIT

INFOID:0000000002957255

1. PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if any item other than “C1A00: CONTROL UNIT” (DTC 0) is indicated on self-diagnosis display.

Is any indicated?

YES >> 1. Repair or replace applicable item. Refer to ACS-40, "Diagnostic Trouble Code (DTC) Chart".
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

C1A01 POWER SUPPLY CIR, C1A02 POWER SUPPLY CIR 2

INFOID:0000000002957256

1. CHECK CONNECTOR ICC SENSOR INTEGRATED UNIT

1. Turn ignition switch OFF.
2. Disconnect ICC sensor integrated unit connector, and connect it securely again.
3. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
4. Check if “C1A01: POWER SUPPLY CIR” (DTC 1) or “C1A02: POWER SUPPLY CIR 2” (DTC 2) is indicated in self-diagnosis item in the display.

Is malfunction indicated?

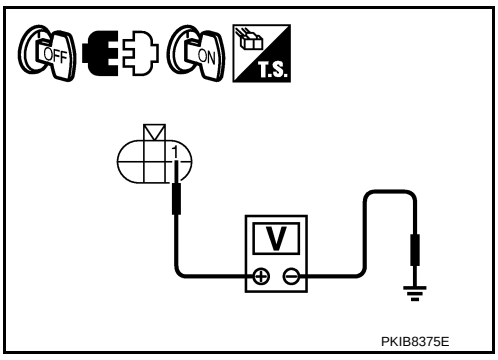
YES >> GO TO 2.

NO >> Poor connector connection
1. Check connector. (Check connector housing for disconnected, loose, bent, and collapsed terminals. If any malfunction is detected, repair applicable part.)
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

2. CHECK POWER SUPPLY CIRCUIT FOR ICC SENSOR INTEGRATED UNIT

1. Turn ignition switch OFF.
2. Disconnect ICC sensor integrated unit connector.
3. Turn ignition switch ON.
4. Check voltage between ICC sensor integrated unit harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(–)	
ICC sensor integrated unit connector	Terminal		
E61	1	Ground	Battery voltage



OK or NG

OK >> GO TO 3.

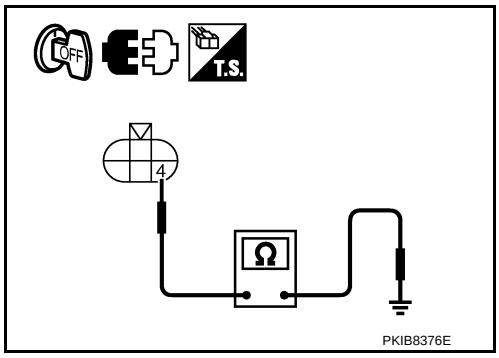
NG >> 1. Repair or replace ICC sensor integrated unit power supply harness or fuse.

2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

3.CHECK GROUND CIRCUIT FOR ICC SENSOR INTEGRATED UNIT

1. Turn ignition switch OFF.
2. Check continuity between ICC sensor integrated unit harness connector and ground.

ICC sensor integrated unit connector	Terminal	Ground	Continuity
E61	4		Yes



OK or NG

OK >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NG >> 1. Repair or replace ICC sensor integrated unit ground harness.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

C1A03 VHCL SPEED SE CIRC

INFOID:0000000002957257

1.PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if “C1A04: ABS/TCS/VDC CIRC” (DTC 4) or “U1000: CAN COMM CIRCUIT” (DTC 100) other than “C1A03: VHCL SPEED SE CIRC” (DTC 3) is indicated in self-diagnosis item in the display.

Is any indicated?

YES >> 1. Repair or replace applicable item. Refer to ACS-40, "Diagnostic Trouble Code (DTC) Chart".
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

2.CHECK A/T VEHICLE SPEED SENSOR

With CONSULT-III

With “ICC” “Data Monitor”, check if “VHCL SPD AT” operates normally.

OK or NG

OK >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NG >> 1. Perform “TRANSMISSION” self-diagnosis. Refer to AT-85, "CONSULT-III Function (TRANSMISSION)".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

C1A04 ABS/TCS/VDC CIRC

INFOID:0000000002957258

1.PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” (DTC100) other than “C1A04: ABS/TCS/VDC CIRC” (DTC 4) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

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

With CONSULT-III

1. Perform “ABS” self-diagnosis. Refer to BRC-30, "CONSULT-III Function (ABS)".
2. Check if malfunction is indicated.

Is malfunction indicated?

YES >> 1. Repair or replace applicable item.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

C1A05 BRAKE SW/STOP L SW

INFOID:0000000002957259

1. PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” (DTC 100) other than “C1A05: BRAKE SW/STOP L SW” (DTC 5) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

2. CHECK ICC BRAKE SWITCH WITH ICC DATA MONITOR

With CONSULT-III

With “ICC” “Data Monitor”, check if “BRAKE SW” operates normally.

OK or NG

OK >> GO TO 3.
NG >> GO TO 6.

3. CHECK STOP LAMP SWITCH WITH ABS DATA MONITOR

With CONSULT-III

With “ABS” “Data Monitor”, check if “STOP LAMP SW” operates normally.

OK or NG

OK >> GO TO 4.
NG >> GO TO 11.

4. PERFORM ECM SELF-DIAGNOSIS

With CONSULT-III

1. Perform “ENGINE” self-diagnosis. Refer to EC-116, "CONSULT-III Function (ENGINE)" (for VQ35DE) or EC-741, "CONSULT-III Function" (for VK45DE).
2. Check if malfunction is indicated.

Is malfunction indicated?

YES >> 1. Repair or replace applicable item.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 5.

5. PERFORM ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS

With CONSULT-III

1. Perform “ABS” self-diagnosis. Refer to BRC-30, "CONSULT-III Function (ABS)".
2. Check if malfunction is indicated.

Is malfunction indicated?

YES >> 1. Repair or replace applicable item.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.

2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

6. CHECK ICC BRAKE SWITCH INSTALLATION AND ADJUSTMENT

Check ICC brake switch for proper installation, and adjust the switch if necessary. Refer to BR-6.

OK or NG

OK >> GO TO 7.
NG >> 1. Adjust ICC brake switch.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

7. CHECK ICC BRAKE SWITCH

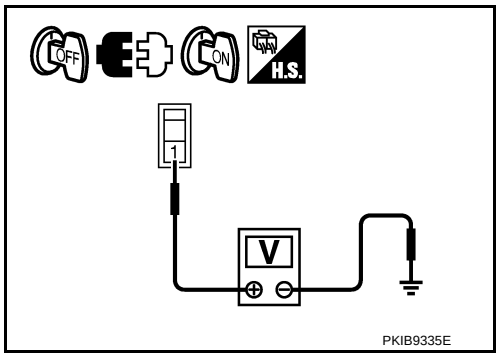
Check ICC brake switch. Refer to ACS-68, "ICC Brake Switch and Stop Lamp Switch".

OK or NG

OK >> GO TO 8.
NG >> 1. Replace ICC brake switch.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

8. CHECK ICC BRAKE SWITCH POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ICC brake switch connector.
3. Turn ignition switch ON.
4. Check voltage between ICC brake switch harness connector and ground.



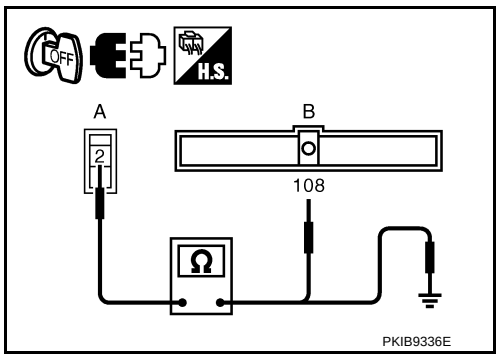
Terminals			Voltage (Approx.)
(+)		(–)	
ICC brake switch connector	Terminal		
E111	1	Ground	Battery voltage

OK or NG

OK >> GO TO 9.
NG >> 1. Repair or replace harness or fuse.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

9. CHECK HARNESS BETWEEN ICC BRAKE SWITCH AND ECM

1. Turn ignition switch OFF.
2. Disconnect ECM connector.
3. Check continuity between ICC brake switch harness connector (A) and ECM harness connector (B).



A		B		Continuity
Connector	Terminal	Connector	Terminal	
E111	2	M71	108	Yes

4. Check continuity between ICC brake switch harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
E111	2		No

OK or NG

OK >> GO TO 10.
NG >> 1. Repair or replace harness between ICC brake switch and ECM.

2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

10. PERFORM ECM SELF-DIAGNOSIS

With CONSULT-III

1. Perform “ENGINE” self-diagnosis. Refer to EC-116, "CONSULT-III Function (ENGINE)" (for VQ35DE) or EC-741, "CONSULT-III Function" (for VK45DE).
2. Check if malfunction is indicated.

Is malfunction indicated?

YES >> 1. Repair or replace applicable item.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

11. CHECK STOP LAMP SWITCH INSTALLATION AND ADJUSTMENT

Check stop lamp switch for proper installation, and adjust the switch if necessary. Refer to BR-6.

OK or NG

OK >> GO TO 12.

NG >> 1. Adjust stop lamp switch.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

12. CHECK STOP LAMP SWITCH

Check stop lamp switch. Refer to ACS-68, "ICC Brake Switch and Stop Lamp Switch".

OK or NG

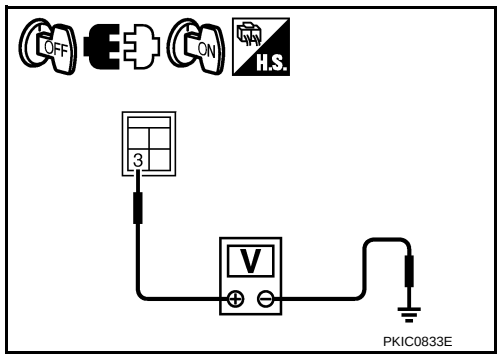
OK >> GO TO 13.

NG >> 1. Replace stop lamp switch.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

13. CHECK STOP LAMP SWITCH POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect stop lamp switch connector.
3. Turn ignition switch ON.
4. Check voltage between stop lamp switch harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(–)	
Stop lamp switch connector	Terminal		
E124	3	Ground	Battery voltage



OK or NG

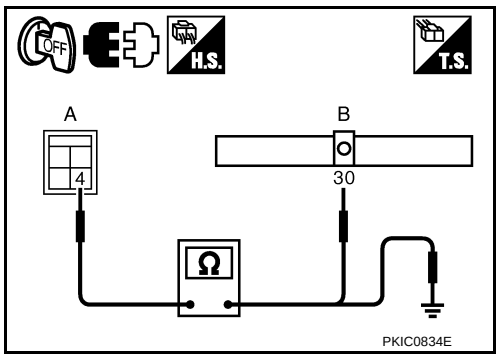
OK >> GO TO 14.

NG >> 1. Repair or replace harness or fuse.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

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

1. Turn ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) connector.

3. Check continuity between stop lamp switch harness connector (A) and ABS actuator and electric unit (control unit) harness connector (B).



A		B		Continuity
Connector	Terminal	Connector	Terminal	
E124	4	E30	30	Yes

4. Check continuity between stop lamp switch harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
E124	4		No

OK or NG

OK >> 1. Perform “ABS” self-diagnosis. Refer to BRC-30, "CONSULT-III Function (ABS)".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NG >> 1. Repair or replace harness between stop lamp switch and ABS actuator and electric unit (control unit).
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

C1A06 OPERATION SW CIRC

INFOID:0000000002957260

1. PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” (DTC 100) other than “C1A06: OPERATION SW CIRC” (DTC 6) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

2. CHECK CONNECTOR FOR ECM

1. Turn ignition switch OFF.
2. Disconnect ECM connector, and connect it securely again.
3. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
4. Check if “C1A06: OPERATION SW CIRC” (DTC 6) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> GO TO 3.

NO >> Poor connector connection
1. Check connector. (Check connector housing for disconnected, loose, bent, and collapsed terminals. If any malfunction is detected, repair applicable part.)
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

3. CHECK ICC STEERING SWITCH

1. Turn ignition switch OFF.
2. Check ICC steering switch. Refer to ACS-68, "ICC Steering Switch".

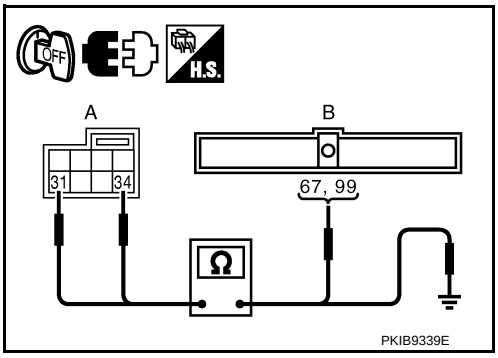
OK or NG

OK >> GO TO 4.

NG >> 1. Replace ICC steering switch.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

4.CHECK ICC STEERING SWITCH SIGNAL CIRCUIT

1. Disconnect spiral cable connector and ECM connector.
2. Check continuity between spiral cable harness connector (A) and ECM harness connector (B).



A		B		Continuity
Connector	Terminal	Connector	Terminal	
M39	31	F108	67	Yes
	34	M71	99	

3. Check continuity between spiral cable harness connector (A) and ground.

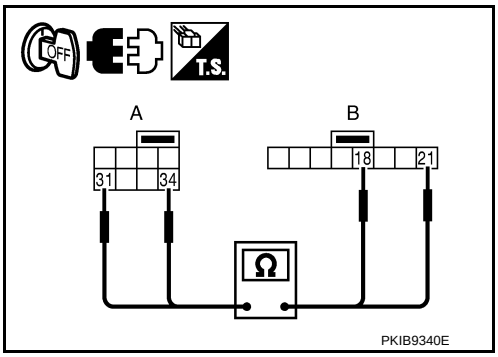
A		Ground	Continuity
Connector	Terminal		
M39	31		No
	34		

OK or NG

OK >> GO TO 5.
NG >> 1. Repair or replace harness between spiral cable and ECM.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

5.CHECK COMBINATION SWITCH (SPIRAL CABLE)

Check continuity between spiral cable terminals.



A	B	Continuity
Terminal	Terminal	
31	18	Yes
34	21	

OK or NG

OK >> 1. Perform “ENGINE” self-diagnosis. Refer to EC-116, "CONSULT-III Function (ENGINE)" (for VQ35DE) or EC-741, "CONSULT-III Function" (for VK45DE).
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
NG >> 1. Replace spiral cable.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

C1A12 LASER BEAM OFFCNTR

INFOID:0000000002957261

1.ADJUST LASER BEAM AIMING

1. Adjust laser beam aiming. Refer to ACS-17, "Outline".
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
3. Check if “C1A12: LASER BEAM OFFCNTR” (DTC 12) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
NO >> INSPECTION END

C1A13 STOP LAMP RLY FIX

INFOID:0000000002957262

1. PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” (DTC 100) other than “C1A13: STOP LAMP RLY FIX” (DTC 13) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

2. CHECK CONNECTOR FOR ECM

1. Turn ignition switch OFF.
2. Disconnect ECM connector, and connect it securely again.
3. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
4. Check if “C1A13: STOP LAMP RLY FIX” (DTC 13) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> GO TO 3.

NO >> Poor connector connection
1. Check connector. (Check connector housing for disconnected, loose, bent, and collapsed terminals. If any malfunction is detected, repair applicable part.)
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

3. CHECK STOP LAMP SWITCH WITH ICC DATA MONITOR

With CONSULT-III

With “ICC” “Data Monitor”, check if “STOP LAMP SW” operates normally.

OK or NG

OK >> GO TO 11.

NG >> GO TO 4.

4. CHECK STOP LAMP SWITCH INSTALLATION AND ADJUSTMENT

Check stop lamp switch for proper installation, and adjust the switch if necessary. Refer to BR-6.

OK or NG

OK >> GO TO 5.

NG >> 1. Adjust stop lamp switch.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

5. CHECK STOP LAMP SWITCH

Check stop lamp switch. Refer to ACS-68, "ICC Brake Switch and Stop Lamp Switch".

OK or NG

OK >> GO TO 6.

NG >> 1. Replace stop lamp switch.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

6. CHECK STOP LAMP ILLUMINATION

1. Turn ignition switch OFF.
2. Disconnect ICC brake hold relay.
3. Connect stop lamp switch connector.
4. Check if stop lamp is turned ON when depressing brake pedal.

OK or NG

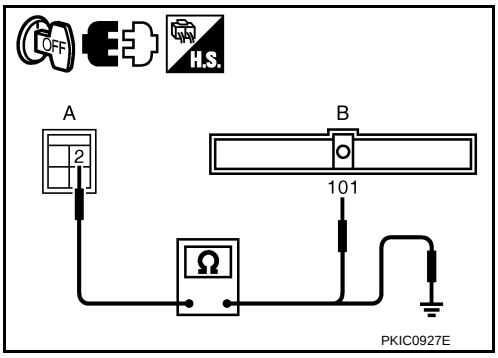
OK >> GO TO 7.

NG >> 1. Repair or replace stop lamp circuit.

2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

7. CHECK HARNESS BETWEEN STOP LAMP SWITCH AND ECM

1. Disconnect stop lamp switch connector and ECM connector.
2. Check continuity between stop lamp switch harness connector (A) and ECM harness connector (B).



A		B		Continuity
Connector	Terminal	Connector	Terminal	
E124	2	M71	101	Yes

3. Check continuity between stop lamp switch harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
E124	2		No

OK or NG

OK >> GO TO 8.
NG >> 1. Repair or replace harness between stop lamp switch and ECM.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

8. CHECK ICC BRAKE HOLD RELAY CIRCUIT

1. Connect ICC brake hold relay and ECM connector.
2. When brake pedal is not depressed, make sure that stop lamp does not illuminate.

OK or NG

OK >> GO TO 10.
NG >> GO TO 9.

9. CHECK ICC BRAKE HOLD RELAY

1. Disconnect ICC brake hold relay.
2. Check ICC brake hold relay. Refer to ACS-68, "ICC Brake Hold Relay".

OK or NG

OK >> GO TO 10.
NG >> 1. Replace ICC brake hold relay.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

10. PERFORM ECM SELF-DIAGNOSIS

With CONSULT-III

1. Perform “ENGINE” self-diagnosis. Refer to EC-116, "CONSULT-III Function (ENGINE)" (for VQ35DE) or EC-741, "CONSULT-III Function" (for VK45DE).
2. Check if malfunction is indicated.

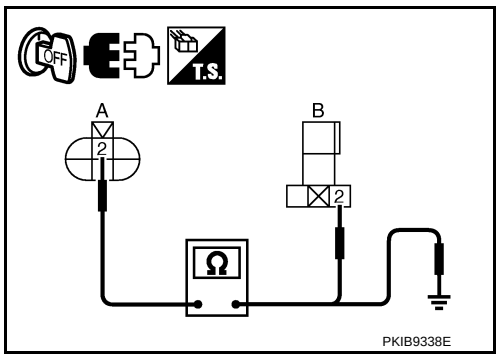
Is malfunction indicated?

YES >> 1. Repair or replace applicable item.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

11. CHECK HARNESS BETWEEN ICC SENSOR INTEGRATED UNIT AND ICC BRAKE HOLD RELAY

1. Turn ignition switch OFF.
2. Disconnect ICC sensor integrated unit connector and ICC brake hold relay.

3. Check continuity between ICC sensor integrated unit harness connector (A) and ICC brake hold relay harness connector (B).



A		B		Continuity
Connector	Terminal	Connector	Terminal	
E61	2	E80	2	Yes

4. Check continuity between ICC sensor integrated unit harness connector (A) and ground.

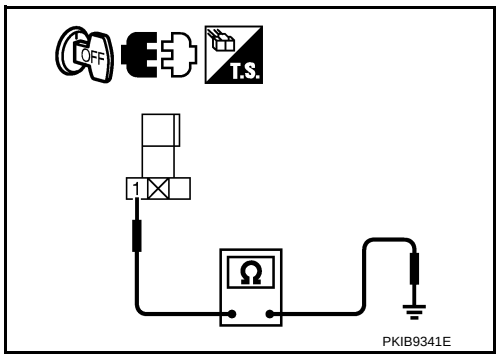
A		Ground	Continuity
Connector	Terminal		
E61	2		No

OK or NG

OK >> GO TO 12.
NG >> 1. Repair harness between ICC sensor integrated unit and ICC brake hold relay.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

12. CHECK ICC BRAKE HOLD RELAY GROUND CIRCUIT

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



ICC brake hold relay connector	Terminal	Ground	Continuity
E80	1		Yes

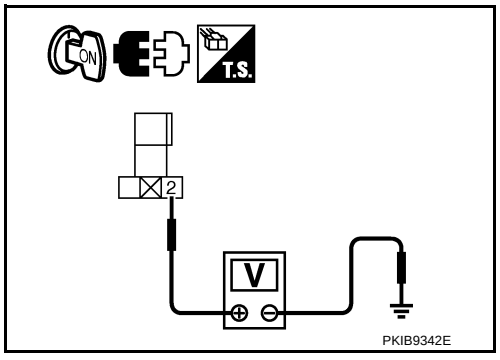
OK or NG

OK >> GO TO 13.
NG >> 1. Repair or replace harness between ICC brake hold relay and ground.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

13. CHECK ICC SENSOR INTEGRATED UNIT STANDARD VOLTAGE

With CONSULT-III

1. Connect ICC sensor integrated unit connector.
2. Turn ignition switch ON.
3. Perform “Active Test” (“STOP LAMP”: “STP LMP DRIVE ON”) with CONSULT-III, check voltage between ICC brake hold relay harness connector and ground.



Terminals			Condition	Voltage (Approx.)
(+)		(–)		
ICC brake hold relay connector	Terminal			
E80	2	Ground	During “ACTIVE TEST”	12 V

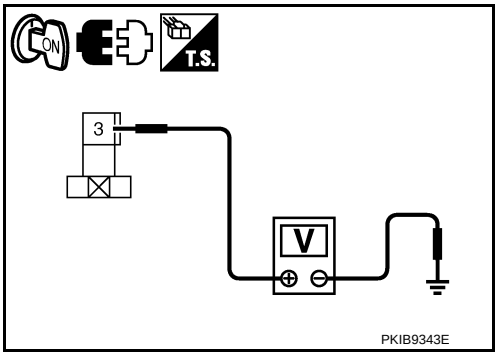
OK or NG

OK >> GO TO 14.
NG >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

14. CHECK ICC BRAKE HOLD RELAY POWER SUPPLY CIRCUIT

1. Turn ignition switch ON.

2. Check voltage between ICC brake hold relay harness connector and ground.



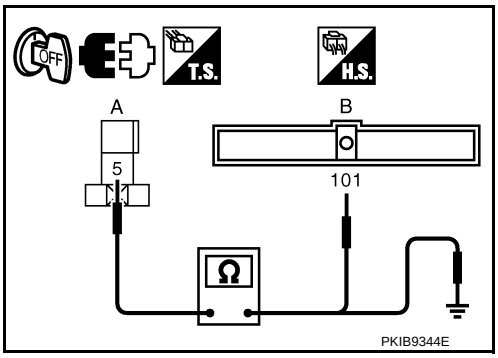
Terminals			Voltage (Approx.)
(+)		(–)	
ICC brake hold relay connector	Terminal		
E80	3	Ground	Battery voltage

OK or NG

OK >> GO TO 15.
NG >> 1. Repair or replace harness or fuse.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

15. CHECK HARNESS BETWEEN ICC BRAKE HOLD RELAY AND ECM

1. Turn ignition switch OFF.
2. Disconnect ECM connector.
3. Check continuity between ICC brake hold relay harness connector (A) and ECM harness connector (B).



A		B		Continuity
Connector	Terminal	Connector	Terminal	
E80	5	M71	101	Yes

4. Check continuity between ICC brake hold relay harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
E80	5		No

OK or NG

OK >> GO TO 16.
NG >> 1. Repair harness between ICC brake hold relay and ECM.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

16. CHECK ICC BRAKE HOLD RELAY

With CONSULT-III

1. Connect ECM connector and ICC brake hold relay.
2. Disconnect stop lamp switch connector.
3. Perform “Active Test” (“STOP LAMP”) with CONSULT-III, and make sure that stop lamp is illuminated.

OK or NG

OK >> GO TO 17.
NG >> 1. Replace ICC brake hold relay.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

17. CHECK STOP LAMP SWITCH WITH ABS DATA MONITOR

With CONSULT-III

With “ABS” “Data Monitor”, check if “STOP LAMP SW” are operates normally.

OK or NG

OK >> GO TO 18.
NG >> GO TO 20.

18. PERFORM ECM SELF-DIAGNOSIS

With CONSULT-III

1. Perform “ENGINE”self-diagnosis. Refer to EC-116, "CONSULT-III Function (ENGINE)" (for VQ35DE) or EC-741, "CONSULT-III Function" (for VK45DE).
2. Check if malfunction is indicated.

Is malfunction indicated?

YES >> 1. Repair or replace applicable item.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 19.

19. PERFORM ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS

With CONSULT-III

1. Perform “ABS” self-diagnosis. Refer to BRC-30, "CONSULT-III Function (ABS)".
2. Check if malfunction is indicated.

Is malfunction indicated?

YES >> 1. Repair or replace applicable item.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

20. CHECK STOP LAMP SWITCH INSTALLATION AND ADJUSTMENT

Check stop lamp switch for proper installation, and adjust the switch if necessary. Refer to BR-6.

OK or NG

OK >> GO TO 21.

NG >> 1. Adjust stop lamp switch.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

21. CHECK STOP LAMP SWITCH

Check stop lamp switch. Refer to ACS-68, "ICC Brake Switch and Stop Lamp Switch".

OK or NG

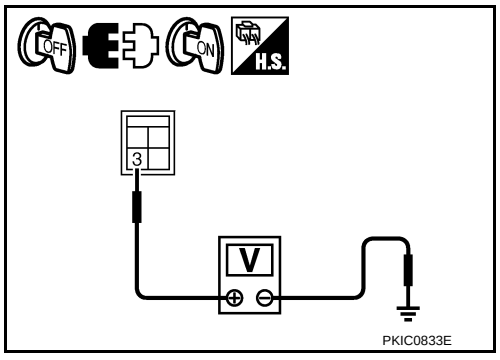
OK >> GO TO 22.

NG >> 1. Replace stop lamp switch.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

22. CHECK STOP LAMP SWITCH POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect stop lamp switch connector.
3. Turn ignition switch ON.
4. Check voltage between stop lamp switch harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(–)	
Stop lamp switch connector	Terminal		
E124	3	Ground	Battery voltage



OK or NG

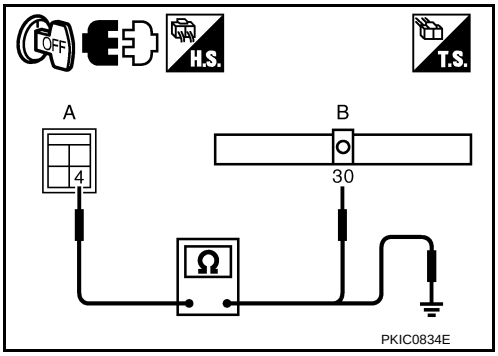
OK >> GO TO 23.

NG >> 1. Repair or replace harness or fuse.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

23. CHECK HARNESS BETWEEN STOP LAMP SWITCH AND ABS ACTUATOR AND ELECTRIC UNIT

(CONTROL UNIT)

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



A		B		Continuity
Connector	Terminal	Connector	Terminal	
E124	4	E30	30	Yes

4. Check continuity between stop lamp switch harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
E124	4		No

OK or NG

OK >> 1. Perform “ABS” self-diagnosis. Refer to BRC-30, "CONSULT-III Function (ABS)".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NG >> 1. Repair or replace harness between stop lamp switch and ABS actuator and electric unit (control unit).
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

C1A14 ECM CIRCUIT

INFOID:0000000002957263

1.PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” (DTC 100) other than “C1A14: ECM CIRCUIT” (DTC 14) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

2.PERFORM ECM SELF-DIAGNOSIS

With CONSULT-III

1. Perform “ENGINE” self-diagnosis. Refer to EC-116, "CONSULT-III Function (ENGINE)" (for VQ35DE) or EC-741, "CONSULT-III Function" (for VK45DE).
2. Check if malfunction is indicated.

Is malfunction indicated?

YES >> 1. Repair or replace applicable item.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

C1A15 GEAR POSITION

INFOID:0000000002957264

1.PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.

2. Check if “C1A03: VHCL SPEED SE CIRC” (DTC 3), “C1A04: ABS/TCS/VDC CIRC” (DTC 4) or “U1000: CAN COMM CIRCUIT” (DTC100) other than “C1A15: GEAR POSITION” (DTC 15) is indicated in self-diagnosis item in the display.

Is any indicated?

YES >> 1. Repair or replace applicable item. Refer to ACS-40, "Diagnostic Trouble Code (DTC) Chart".
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

2.CHECK VEHICLE SPEED SIGNAL

With CONSULT-III

With “ICC” “Data Monitor”, check if “VHCL SPEED SE” operates normally.

OK or NG

OK >> GO TO 3.

NG >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

3.CHECK SHIFT GEAR POSITION

Check if gear positions are correct in A/T.

OK or NG

OK >> GO TO 5.

NG >> GO TO 4.

4.CHECK TCM GEAR POSITION SIGNAL

With CONSULT-III

With “TRANSMISSION” “Data Monitor”, check if gear positions are correct.

OK or NG

OK >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NG >> 1. Perform “TRANSMISSION” self-diagnosis. Refer to AT-85, "CONSULT-III Function (TRANSMISSION)".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

5.CHECK TCM INPUT SPEED

With CONSULT-III

With TCM diagnosis, check if input speed sensor is normal. Refer to AT-106.

OK or NG

OK >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NG >> 1. Perform “TRANSMISSION” self-diagnosis. Refer to AT-85, "CONSULT-III Function (TRANSMISSION)".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

C1A16 RADAR STAIN

INFOID:0000000002957265

1.VISUAL INSPECTION 1

Check ICC sensor integrated unit body window for contamination and foreign materials.

Is it found?

YES >> 1. If any, remove them.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

2.VISUAL INSPECTION 2

Check ICC sensor integrated unit body window for cracks and scratches.

Is it found?

YES >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 3.

3.ASKING COMPLAINTS

1. Ask if there is any trace of contamination or foreign material on ICC sensor integrated unit.
2. Ask if vehicle was driven in snow or ICC sensor integrated unit was frosted.
3. Ask if ICC sensor integrated unit was fogged temporarily. (Front window glass may have also tended to be fogged.)

Is there any symptom?

YES >> Explain difference in displays between contamination detection result and current indication to customer, and tell them “This is not malfunction”.

NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

C1A18 LASER AIMING INCMP

INFOID:0000000002957266

1.ADJUST LASER BEAM AIMING

1. Adjust laser beam aiming. Refer to ACS-17, "Outline".
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
3. Check if “C1A18: LASER AIMING INCMP” (DTC 18) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> INSPECTION END

C1A21 UNIT HIGH TEMP

INFOID:0000000002957267

1.CHECK SYMPTOM

Check if cooling system malfunctions.

Does it malfunction?

YES >> 1. Repair cooling system.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

C1A24 NP RANGE

INFOID:0000000002957268

1.PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” (DTC100) other than “C1A24: NP RANGE” (DTC 24) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

2.CHECK TCM DATA MONITOR

With CONSULT-III

With “TRANSMISSION” “Data Monitor” check if gear positions are correct.

OK or NG

OK >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NG >> 1. Perform “TRANSMISSION” self-diagnosis. Refer to AT-85, "CONSULT-III Function (TRANSMISSION)".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

C1A25 SHIFT RANGE IND

INFOID:0000000002957269

1. PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” (DTC 100) other than “C1A25: SHIFT RANGE IND” (DTC 25) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

2. CHECK TCM DATA MONITOR

With CONSULT-III

With “TRANSMISSION” “Data Monitor”, check if gear positions are correct.

OK or NG

OK >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NG >> 1. Perform “TRANSMISSION” self-diagnosis. Refer to AT-85, "CONSULT-III Function (TRANSMISSION)".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

C1A26 ECD MODE MALF

INFOID:0000000002957270

1. PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” (DTC 100) other than “C1A26: ECD MODE MALF” (DTC 26) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

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

With CONSULT-III

1. Perform “ABS” self-diagnosis. Refer to BRC-30, "CONSULT-III Function (ABS)".
2. Check if malfunction is indicated.

Is malfunction indicated?

YES >> 1. Repair or replace applicable item.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.

2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

C1A27 ECD PWR SUPLY CIR

INFOID:0000000002957271

1. PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” (DTC 100) other than “C1A27: ECD PWR SUPLY CIR” (DTC 27) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

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

With CONSULT-III

Check ABS actuator and electric unit (control unit) power supply circuit. Refer to BRC-42, "ABS Actuator and Electric Unit (Control Unit) Power Supply and Ground Circuit".

OK or NG

OK >> 1. Perform “ABS” self-diagnosis. Refer to BRC-30, "CONSULT-III Function (ABS)".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NG >> 1. Repair or replace applicable item.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

C1A33 CAN TRANSMISSION ERROR

INFOID:0000000003032405

1. PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” (DTC 100) other than “C1A33: CAN TRANSMISSION ERROR” (DTC 33) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

C1A34 COMMAND ERROR

INFOID:0000000003032406

1. PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” (DTC 100) other than “C1A34: COMMAND ERROR” (DTC 34) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

U0121 VDC CAN CIR2

INFOID:0000000003032408

1. PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” (DTC 100) other than “U0121: VDC CAN CIR2” (DTC 127) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

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

With CONSULT-III

1. Perform “ABS” self-diagnosis. Refer to BRC-30, "CONSULT-III Function (ABS)".
2. Check if malfunction is indicated.

Is malfunction indicated?

YES >> 1. Repair or replace applicable item.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

U0401 ECM CAN CIR1

INFOID:0000000003032409

1.PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” (DTC 100) other than “U0401: ECM CAN CIR1” (DTC 120) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

2.PERFORM ECM SELF-DIAGNOSIS

With CONSULT-III

1. Perform “ENGINE” self-diagnosis. Refer to EC-116, "CONSULT-III Function (ENGINE)" (for VQ35DE) or EC-741, "CONSULT-III Function" (for VK45DE).
2. Check if malfunction is indicated.

Is malfunction indicated?

YES >> 1. Repair or replace applicable item.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

U0402 TCM CAN CIR1

INFOID:0000000003032410

1.PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” (DTC 100) other than “U0402: TCM CAN CIR1” (DTC 122) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

2.PERFORM TCM SELF-DIAGNOSIS

With CONSULT-III
1. Perform “TRANSMISSION” self-diagnosis. Refer to AT-85, "CONSULT-III Function (TRANSMISSION)".
2. Check if malfunction is indicated.

Is malfunction indicated?

YES >> 1. Repair or replace applicable item.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

U0415 VDC CAN CIR1

INFOID:0000000003032411

1.PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” (DTC 100) other than “U0415: VDC CAN CIR1” (DTC 126) is indicated in self-diagnosis item in the display.

Is it indicated?

YES >> 1. CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

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

With CONSULT-III
1. Perform “ABS” self-diagnosis. Refer to BRC-30, "CONSULT-III Function (ABS)".
2. Check if malfunction is indicated.

Is malfunction indicated?

YES >> 1. Repair or replace applicable item.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

U1000 CAN COMM CIRCUIT

INFOID:0000000002957272

1.PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Check “Self Diagnostic Result”.

Is “CAN COMM CIRCUIT” displayed?

YES >> Go to “LAN system”. Refer to LAN-29, "CAN System Specification Chart".
NO >> Refer to GI-26, "How to Perform Efficient Diagnosis for an Electrical Incident".

U1010 CONTROL UNIT (CAN)

INFOID:0000000002957273

1.PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

With CONSULT-III
1. Perform self-diagnosis.
2. Erase DTC and perform ICC running test. Then perform self-diagnosis of ICC system again.
3. Check if “U1010: CONTROL UNIT (CAN)” (DTC 110) is indicated in self-diagnosis item in the display.

Is malfunction indicated?

YES >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> INSPECTION END

TROUBLE DIAGNOSIS FOR SYMPTOMS

Symptom Chart

INFOID:0000000002957274

Symptoms		Reference page
Operation	MAIN switch does not turn ON.	Symptom 1 ACS-62
	MAIN switch does not turn OFF.	Symptom 1 ACS-62
	Cruise does not function for setting (powering functions).	Symptom 2 ACS-63
	CANCEL switch does not function.	Symptom 3 ACS-64
	Resume does not function.	Symptom 3 ACS-64
	Set speed does not increase.	Symptom 3 ACS-64
	Set distance to the vehicle ahead cannot be changed.	Symptom 3 ACS-64
	ICC is not cancelled when the A/T selector lever is in other than “D” and “M”.	Symptom 4 ACS-64
Display/Chime	Dot matrix LCD does not appear.	Check combination meter. Refer to DI-18, "Trouble Diagnosis".
	Chime does not function.	Symptom 5 ACS-65
Control	Driving force is hunting.	Symptom 6 ACS-66
Function to detect the vehicle ahead	System frequently cannot detect the vehicle ahead.	Symptom 7 ACS-66
	Distance to detect the vehicle ahead is short.	Symptom 7 ACS-66
	System misidentifies a vehicle even though there is no vehicle ahead.	• Refer to ACS-17. • Refer to ACS-14, "ICC System Running Test".
	System misidentifies a vehicle in the next lane.	• Refer to ACS-17. • Refer to ACS-14, "ICC System Running Test".
	System does not detect a vehicle at all.	Symptom 8 ACS-67

Symptom 1 MAIN Switch Does Not Turn ON*1, MAIN Switch Does Not Turn OFF*2

INFOID:0000000002957275

NOTE:
- *1: The MAIN switch indicator lamp in the combination meter does not illuminate.
- *2: The MAIN switch indicator lamp in the combination meter remains powered.

1.CHECK MAIN SWITCH

With CONSULT-III

With “ICC” “Data Monitor”, check if “MAIN SW” and “CRUISE LAMP” operate normally.

OK or NG

OK >> GO TO 2.
NG >> GO TO 4.

2.CHECK UNIFIED METER AND A/C AMP.

With CONSULT-III
With “METER/M&A” “Data Monitor”, check if “CRUISE IND” operates normally.

OK or NG

OK >> 1. Perform “METER/M&A”self-diagnosis. Refer to DI-18, "CONSULT-III Function (METER/M&A)".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NG >> GO TO 3.

3. CHECK CONNECTOR ICC SENSOR INTEGRATED UNIT

1. Turn ignition switch OFF.
2. Disconnect ICC sensor integrated unit connector, and connect it securely again.
3. Check if the malfunction is improved.

Is it improved?

YES >> Poor connector connection
1. Check connector. (Check connector housing for disconnected, loose, bent, and collapsed terminals. If any malfunction is detected, repair applicable part.)
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 4.

4. PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

With CONSULT-III
1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” is indicated.

Is it indicated?

YES >> CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
NO >> ICC steering switch inspection. Refer to ACS-47, "C1A06 OPERATION SW CIRC".

Symptom 2 ICC System Cannot Be Set (MAIN Switch Turns ON/OFF)

INFOID:0000000002957276

The ICC system cannot be set in the following cases.
- When the vehicle speed is not in range of approx. 40 km/h (25 MPH) to 144 km/h (90 MPH).
- When the A/T selector lever is in “N”.
- When A/T mode switch is at the snow mode position.
- While the brake is in operation.
- When wiper switch is at LOW/HI position.

1. CHECK CAUSE OF AUTOMATIC CANCELLATION

With CONSULT-III
With “CAUSE OF AUTO-CANCEL” in “WORK SUPPORT” at “ICC”, check if any cause of cancellation is found.

Is any cause found?

YES >> Cancel with appropriate cause, and go to specified diagnosis.
- “OPE SW VOLT CIRC”: Refer to ACS-47, "C1A06 OPERATION SW CIRC".
- “VHCL SPD UNMATCH”: Refer to ACS-43, "C1A03 VHCL SPEED SE CIRC".
- “IGN LOW VOLT”: Refer to ACS-42, "C1A01 POWER SUPPLY CIR, C1A02 POWER SUPPLY CIR 2".
- “ECM CIRCUIT”: Refer to ACS-54, "C1A14 ECM CIRCUIT".

NO >> GO TO 2.

2. PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

With CONSULT-III
Perform self-diagnosis to check for malfunctioning items.

Is malfunction indicated?

YES >> 1. Repair or replace applicable item. Refer to ACS-40, "Diagnostic Trouble Code (DTC) Chart".
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 3.

3.CHECK SWITCHES AND VEHICLE SPEED SIGNAL

With CONSULT-III

With “ICC” “Data Monitor”, check if switches and vehicle speed signal operate normally. Refer to ACS-31, "CONSULT-III Function (ICC)".

- VHCL SPEED SE
- D RANGE SW
- BRAKE SW
- SET/COAST SW

OK or NG

OK >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and Perform ICC system running test. Then perform self-diagnosis of ICC system again.

NG >> Check items which do not function normally.
- VHCL SPEED SE. Refer to ACS-43, "C1A03 VHCL SPEED SE CIRC".
- D RANGE SW. Refer to ACS-64, "Symptom 4 ICC System Is Not Cancelled When the A/T Selector Lever Is In Other Than "D" and "M"".
- BRAKE SW. Refer to ACS-44, "C1A05 BRAKE SW/STOP L SW".
- SET/COAST SW. Refer to ACS-47, "C1A06 OPERATION SW CIRC".

Symptom 3 ICC System Cannot Be Operated by CANCEL Switch, RESUME/ACCEL-ERATE Switch or DISTANCE Switch

INFOID:0000000002957277

RESUME does not function in the following cases.
- When MAIN switch is turned off once.
- When the vehicle speed is less than 40 km/h (25 MPH).

1.CHECK SWITCHES

With CONSULT-III

With “ICC” “Data Monitor”, check if switches operate normally.
- “RESUME/ACC SW”
- “CANCEL SW”
- “DISTANCE SW”

OK or NG

OK >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NG >> GO TO 2.

2.PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

With CONSULT-III

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” is indicated.

Is it indicated?

YES >> CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
NO >> ICC steering switch inspection. Refer to ACS-47, "C1A06 OPERATION SW CIRC".

Symptom 4 ICC System Is Not Cancelled When the A/T Selector Lever Is In Other Than "D" and "M"

INFOID:0000000002957278

1.CHECK D RANGE SWITCH

With CONSULT-III

With “ICC” “Data Monitor”, check if “D RANGE SW” and “NP RANGE SW” operate normally.

OK or NG

OK >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NG >> GO TO 2.

2. PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

With CONSULT-III

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” is indicated.

Is it indicated?

YES >> CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
NO >> GO TO 3.

3. CHECK D RANGE SWITCH

With CONSULT-III

With “TRANSMISSION” “Data Monitor”, check if “SLCT LVR POSI” operates normally.

OK or NG

OK >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NG >> 1. Perform “TRANSMISSION” self-diagnosis. Refer to AT-85, "CONSULT-III Function (TRANSMISSION)".
2. After repairing or replacing applicable item, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

Symptom 5 Chime Does Not Sound

INFOID:0000000002957279

The chime may not sound occasionally in the following cases even if the distance from the vehicle ahead is short:

- When the speed difference from that of the vehicle ahead is small (both vehicles driving at similar speed).
- When the vehicle ahead drives at faster speed (the actual distance is increasing).
- When depressing the accelerator pedal.
- Chime does not sound when the vehicle ahead is not driving.
- 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 ACS-66, "Symptom 7 ICC System Frequently Cannot Detect the Vehicle Ahead/ Detection Zone Is Short").

1. CHECK ICC WARNING CHIME

With CONSULT-III

With “ICC” “Active Test”, check if “ICC BUZZER” operates normally.

OK or NG

OK >> 1. Determine preceding vehicle detection status when malfunction occurred. If chime should have sounded: after replacing ICC sensor integrated unit and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test, and then perform self-diagnosis of ICC system again.

NG >> GO TO 2.

2. PERFORM ICC SENSOR INTEGRATED UNIT SELF-DIAGNOSIS

With CONSULT-III

1. Perform self-diagnosis.
2. Check if “U1000: CAN COMM CIRCUIT” is indicated.

Is it indicated?

YES >> CAN communication inspection. Refer to ACS-60, "U1000 CAN COMM CIRCUIT".
NO >> GO TO 3.

3. CHECK UNIFIED METER AND A/C AMP.

With CONSULT-III

Perform “METER/M&A” self-diagnosis. Refer to DI-27, "CONSULT-III Function (METER/M&A)".

Is malfunction indicated?

YES >> 1. Repair or replace applicable item.

2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 4.

4.CHECK CHIME OPERATION

With CONSULT-III

1. Select “BUZZER” on “BCM”.
2. With “BUZZER” “Active Test”, check if “IGN KEY WARN ALM” and “LIGHT WARN ALM” operate normally.

Does chime sound?

YES >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> 1. Replace combination meter.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

Symptom 6 Driving Force Is Hunting

INFOID:0000000002957280

1.PERFORM ECM SELF-DIAGNOSIS

With CONSULT-III

Perform “ENGINE” self-diagnosis. Refer to EC-116, "CONSULT-III Function (ENGINE)" (for VQ35DE) or EC-741, "CONSULT-III Function" (for VK45DE).

Is malfunction indicated?

YES >> 1. Repair or replace applicable item.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> Refer to ACS-66, "Symptom 7 ICC System Frequently Cannot Detect the Vehicle Ahead/ Detection Zone Is Short".

Symptom 7 ICC System Frequently Cannot Detect the Vehicle Ahead/ Detection Zone Is Short

INFOID:0000000002957281

The detection function may become unstable in the following cases.

- When the reflector of the vehicle ahead is deficient/ not clean enough to reflect the radar.
- When driving a road with extremely sharp corners.
- When the sensor cannot detect the reflector of the vehicle ahead as the vehicle ahead is passing a hill or passing the peak.

1.VISUAL CHECK 1

Check ICC sensor integrated unit body window for contamination and foreign materials.

Is it found?

YES >> 1. If any, remove them.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 2.

2.VISUAL CHECK 2

Check ICC sensor integrated unit body window for cracks and scratches.

Is it found?

YES >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

NO >> GO TO 3.

3.ADJUST LASER BEAM AIMING

1. Adjust laser beam aiming. Refer to ACS-17.
2. Perform ICC system running test. Check if preceding vehicle detection performance has been improved.

Is it improved?

YES >> INSPECTION END
NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

Symptom 8 the System Does Not Detect the Vehicle Ahead at All

INFOID:0000000002957282

1.CHECK DISPLAY

Check if dot matrix LCD in the combination meter illuminate. Refer to DI-17, "Self-Diagnosis Mode of Combination Meter".

OK or NG

OK >> GO TO 2.
NG >> Check combination meter. Refer to DI-18, "Trouble Diagnosis"

2. VISUAL CHECK 1

Check ICC sensor integrated unit body window for contamination and foreign materials.

Is it found?

YES >> 1. If any, remove them.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
NO >> GO TO 3.

3.VISUAL CHECK 2

Check ICC sensor integrated unit body window for cracks and scratches.

Is it found?

YES >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
NO >> GO TO 4.

4.ADJUST LASER BEAM AIMING

1. Adjust laser beam aiming. Refer to ACS-17.
2. Perform ICC system running test. Check if preceding vehicle detection performance has been improved.

Is it improved?

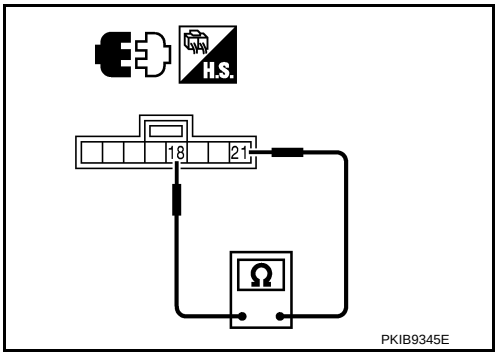
YES >> INSPECTION END
NO >> 1. Replace ICC sensor integrated unit, and adjust laser beam aiming.
2. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

ELECTRICAL COMPONENT INSPECTION

ICC Steering Switch

INFOID:0000000002957283

1. Disconnect ICC steering switch.
2. Check resistance between terminals by pressing each switch.

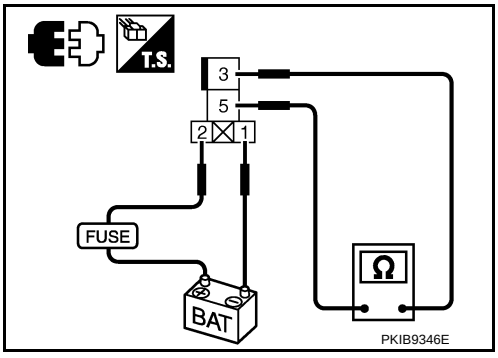


Terminals		Switch	Condition	Resistance [kΩ]
18	21	MAIN	Pressed	Approx. 0
			Released	Approx. 5.5
		LDP	Pressed	Approx. 0.3
			Released	Approx. 5.5
		CANCEL	Pressed	Approx. 0.6
			Released	Approx. 5.5
		DISTANCE	Pressed	Approx. 1.1
			Released	Approx. 5.5
		SET/COAST	Pressed	Approx. 1.8
			Released	Approx. 5.5
		RESUME/ACCELERATE	Pressed	Approx. 3.0
			Released	Approx. 5.5

ICC Brake Hold Relay

INFOID:0000000002957284

Check continuity between ICC brake hold relay terminals.

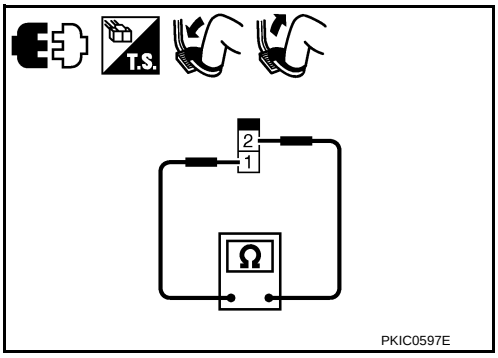


terminals		condition	Continuity
3	5	Applying battery voltage to between terminals 1 and 2	Yes
		No battery voltage	No

ICC Brake Switch and Stop Lamp Switch

INFOID:0000000002957285

- Check continuity between ICC brake switch terminals.

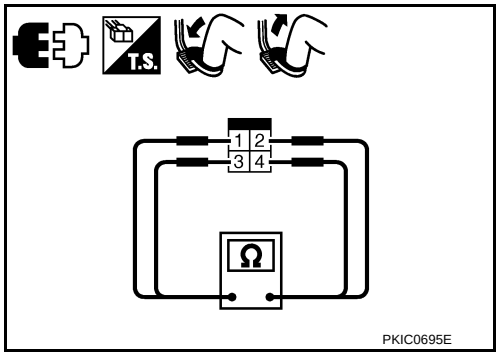


terminals		Condition	Continuity
1	2	When brake pedal is depressed	No
		When brake pedal is released	Yes

• Check continuity between stop lamp switch terminals.

terminals		Condition	Continuity
1	2	When brake pedal is depressed	Yes
		When brake pedal is released	No
3	4	When brake pedal is depressed	Yes
		When brake pedal is released	No

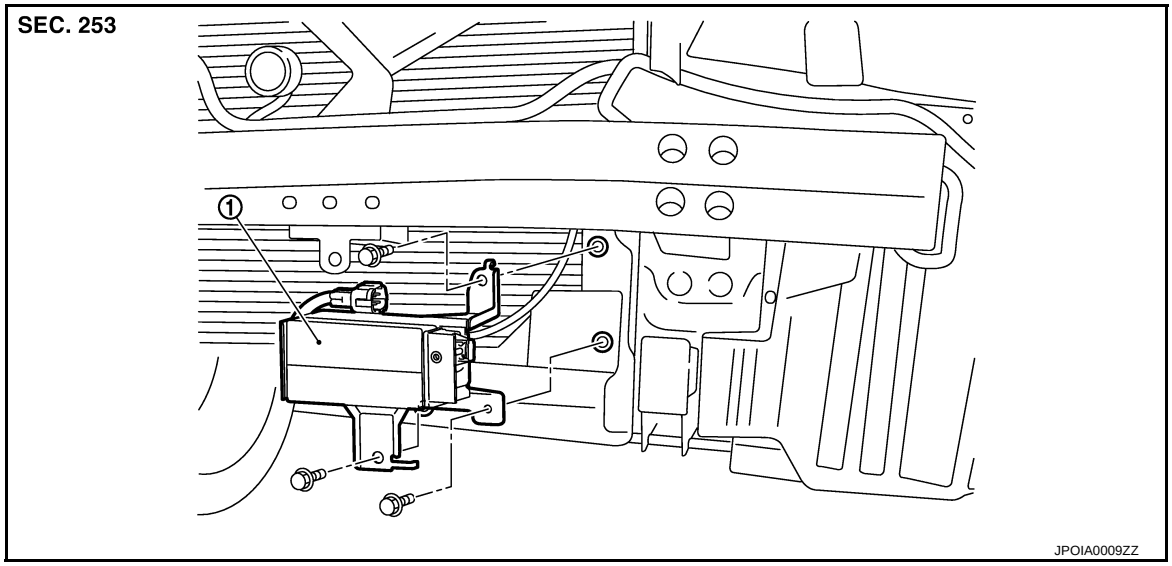
Check each switch after adjusting brake pedal, refer to BR-6.



REMOVAL AND INSTALLATION

ICC Sensor Integrated Unit

INFOID:0000000002957286



1. ICC sensor integrated unit

REMOVAL

1. Remove the front bumper. Refer to EI-12.
2. Disconnect ICC sensor integrated unit connector.
3. Remove mounting bolts from ICC sensor integrated unit.
4. Remove ICC sensor integrated unit (1).

INSTALLATION

Installation is the reverse order of removal.

CAUTION:

Adjust the laser beam aiming every time the ICC sensor integrated unit is removed or installed. Refer to ACS-17.

ICC Steering Switch

INFOID:0000000002957287

Refer to SRS-33.

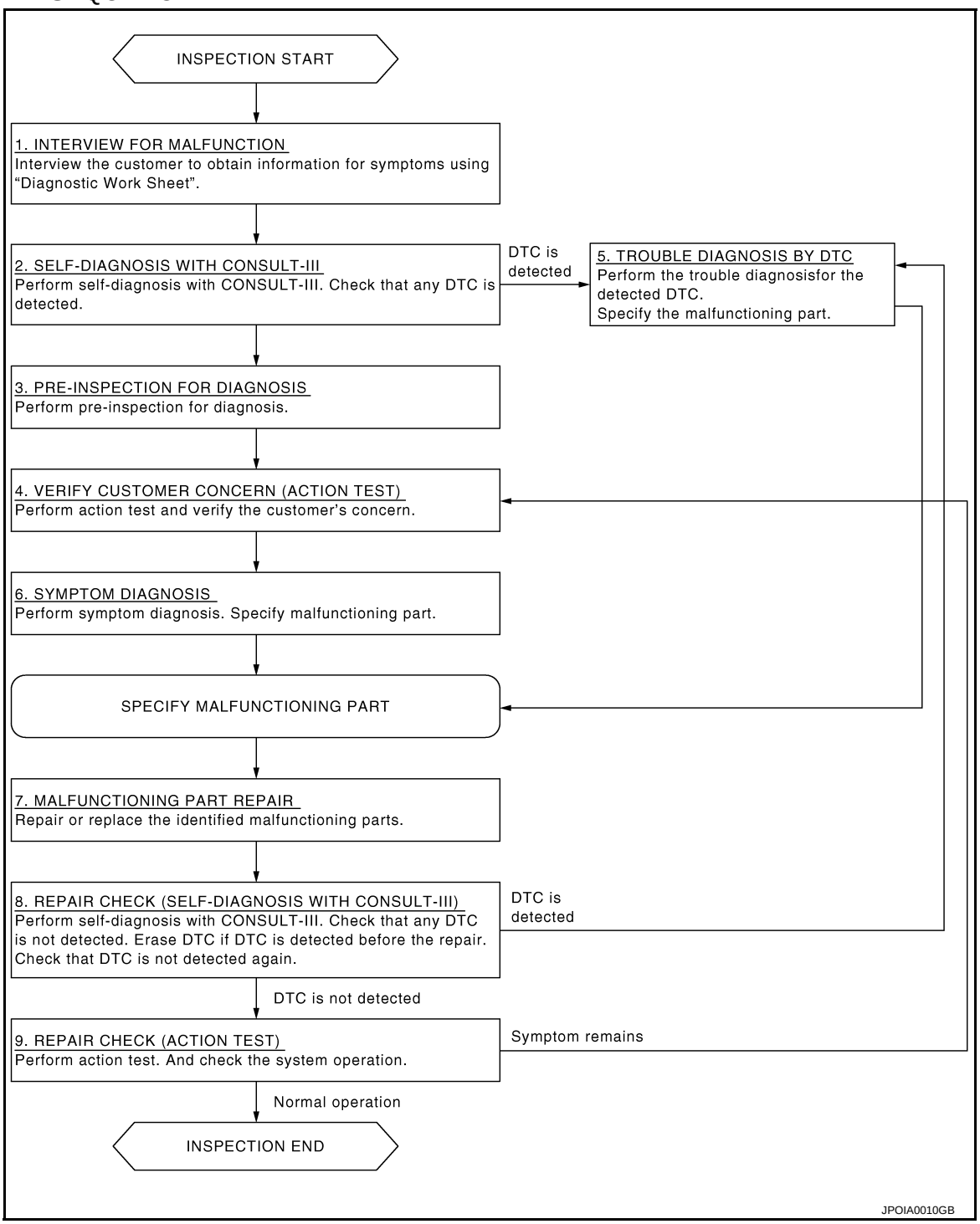
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000003035011

OVERALL SEQUENCE



DETAILED FLOW

1.INTERVIEW FOR MALFUNCTION

Interview the customer to obtain information about symptoms using “Diagnostic Work Sheet”. (Refer to ACS-72, "Diagnostic Work Sheet".)

>> GO TO 2.

2.SELF-DIAGNOSIS WITH CONSULT-III

Perform self-diagnosis with CONSULT-III. Check if any DTC is detected.

Is any DTC detected?

YES >> GO TO 5.
NO >> GO TO 3.

3.PRE-INSPECTION FOR DIAGNOSIS

Perform pre-inspection for diagnosis. Refer to ACS-74, "Inspection Procedure".

>> GO TO 4.

4.VERIFY CUSTOMER CONCERN (ACTION TEST)

Perform action test and verify the customer's information. Refer to ACS-75, "Description".

>> GO TO 6.

5.TROUBLE DIAGNOSIS BY DTC

Perform trouble diagnosis for the detected DTC. Specify a malfunctioning part. Refer to ACS-146, "DTC Index" (Lane camera unit) and/or ACS-160, "DTC No. Index" [ABS actuator and electric unit (control unit)].

>> GO TO 7.

6.SYMPTOM DIAGNOSIS

Perform symptom diagnosis. Specify malfunctioning part. Refer to ACS-162, "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-III)

Perform self-diagnosis with CONSULT-III. 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 action test. Also check the system operation.

Does it operate normally?

YES >> INSPECTION END
NO >> GO TO 4.

Diagnostic Work Sheet

INFOID:0000000003096925

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.
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

Symptoms				
Indcator/Warning lamps	☐ Lane departure warning lamp	☐ Stays ON ☐ Turned ON occasionally	☐ Stays OFF ☐ Others ( )	☐ Blinks
	☐ LDW ON indicator	☐ Stays ON	☐ Stays OFF ☐ Others ( )	☐ Blinks
	☐ LDP ON indicator lamp	☐ Stays ON ☐ Turned ON occasionally	☐ Stays OFF ☐ Others ( )	☐ Blinks
	☐ Other lamps ( )	☐ Stays ON ☐ Turned ON occasionally	☐ Stays OFF ☐ Others ( )	☐ Blinks
Functions	☐ When using LDW ☐ When using LDP			
	☐ All functions do not operate. ☐ Warning function does not operate. (☐ No sound ☐ No indicator) ☐ Yawing function does not operate. (Warning function is operated.) ☐ Functions when changing the course in the turn signal direction. ☐ Functions are untimely. ☐ Does not function when driving on lane markers. ☐ Functions when driving in a lane. ☐ Functions in a different position from the actual position. ☐ Others ( )			

Conditions			
Frequency	☐ Continuously	☐ Intermittently	
Light conditions	☐ Not affected ☐ In the daytime ☐ Direct light	☐ At night ☐ Backlight	☐ Sunrise/sunset (Strong light) ☐ Others ( )
Driving conditions	☐ Not affected ☐ Vehicle speed	MPH (km/h)	☐ Vehicle is stopped
Weather conditions	☐ Not affected ☐ Fine ☐ Clouding	☐ Raining	☐ Snowing ☐ Others ( )
Road conditions	☐ Not affected ☐ Highway ☐ Uneven roads	☐ In town ☐ Winding roads	☐ Others ( )
Lane maker conditions	☐ Not affected ☐ Clear	☐ Unclear	☐ Others ( )
Other conditions			

JPOIA0029GB

PRE-INSPECTION FOR DIAGNOSIS

Inspection Procedure

INFOID:0000000003035015

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 ACS-77, "CAMERA AIMING ADJUSTMENT : Description".

3.CHECK VEHICLE HEIGHT

Check vehicle height. Refer to FSU-17, "Wheelarch Height (Unladen*)" (2WD) or FSU-35, "Wheelarch Height (Unladen*)" (AWD).

Is vehicle height appropriate?

OK >> INSPECTION END
NG >> Repair vehicle to appropriate height.

ACTION TEST

Description

INFOID:0000000003035020

- 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 ACS-166, "Precaution for LDW/LDP System Service".**
- **System description for LDW: Refer to ACS-82, "System Description".**
- **System description for LDP: Refer to ACS-87, "System Description".**
- **Normal operating condition: Refer to ACS-164, "Description".**

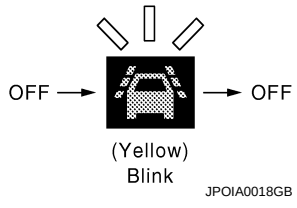
Inspection Procedure

INFOID:0000000003035022

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 ACS-166, "Precaution for LDW/LDP System Service".**
- **System description for LDW: Refer to ACS-82, "System Description".**
- **System description for LDP: Refer to ACS-87, "System Description".**
- **Normal operating condition: Refer to ACS-164, "Description".**

1. ACTION TEST FOR LDW

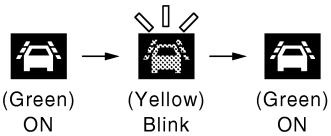
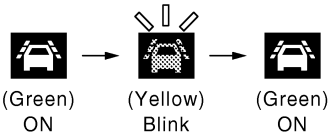
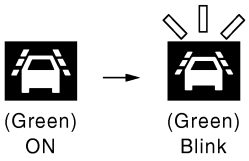
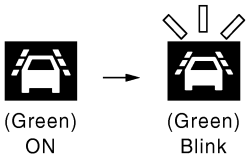
1. Drive the vehicle.
2. Turn LDW switch ON (LDW ON indicator is ON).
   NOTE:
   LDP system is OFF.
3. Check the LDW operation according to the following table.

Input		Output			
Vehicle speed [Km/h (MPH)]	Vehicle condition/ Driver's operation	Action	LDW ON indicator	Indication on the combination meter	Buzzer
Less than 64 (40)	Close to lane marker	No action	ON	OFF	—
72 (45) or more	Close to lane marker	Warning • Buzzer sounds • Warning lamp blinks	ON		Short continuous beeps
	• Close to lane marker • Turn signal ON (Deviate side)	No action	ON	OFF	—

>> GO TO 2.

2. ACTION TEST FOR LDP

1. Turn LDP ON switch ON (LDP ON indicator lamp is ON).
   NOTE:
   LDW system is OFF.
2. Check the LDP operation according to the following table.

Input		Output		
Vehicle speed [Km/h (MPH)]	Vehicle condition/ Driver's operation	Action	Indication on the combination meter	Buzzer
Less than 64 (40)	Close to lane marker	No action	 (Green) ON JPOIA0021GB	—
72 (45) or more	Close to lane marker	Warning and yawing • Buzzer sounds • Warning lamp blinks • Brake control	 (Green) ON (Yellow) Blink (Green) ON JPOIA0022GB	Short continuous beeps
	• Close to lane marker • Turn signal ON (Deviate side)	No action	 (Green) ON JPOIA0021GB	—
	Close to lane marker with soft braking	Warning • Buzzer sounds • Warning lamp blinks	 (Green) ON (Yellow) Blink (Green) ON JPOIA0022GB	Short continuous beeps
	VDC OFF switch: OFF ⇒ ON	Cancellation • Buzzer sounds • Indicator lamp blinks **NOTE:** When LDP ON switch is ON ⇒ OFF, indicator lamp is turned OFF.	 (Green) ON (Green) Blink JPOIA0023GB	Beep
	Snow mode switch: OFF ⇒ ON (If equipped)	Cancellation • Buzzer sounds • Indicator lamp blinks **NOTE:** When LDP ON switch is ON ⇒ OFF, indicator lamp is turned OFF.	 (Green) ON (Green) Blink JPOIA0023GB	Beep

>> WORK END

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (LANE CAMERA UNIT)

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (LANE CAMERA UNIT) : Description

INFOID:0000000003035012

Always perform the camera aiming adjustment after replacing the lane camera unit.

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (LANE CAMERA UNIT) : Special Repair Requirement

INFOID:0000000003035013

1. CAMERA AIMING ADJUSTMENT

Perform the camera aiming adjustment with CONSULT-III. Refer to ACS-77, "CAMERA AIMING ADJUSTMENT : Description".

>> GO TO 2.

2. PERFORM SELF-DIAGNOSIS

Perform the self-diagnosis of lane camera unit with CONSULT-III. Check if any DTC is detected.

Is any DTC detected?

YES >> Perform the trouble diagnosis for the detected DTC. Refer to ACS-146, "DTC Index".
NO >> GO TO 3.

3. LDW/LDP SYSTEM ACTION TEST

1. Perform the LDW/LDP system action test. Refer to ACS-75, "Description".
2. Check that the LDW/LDP system operates normally.

>> WORK END

CAMERA AIMING ADJUSTMENT

CAMERA AIMING ADJUSTMENT : Description

INFOID:0000000003035014

OUTLINE

Perform the camera aiming every time the lane camera unit is removed and installed.

CAUTION:

- **Place the vehicle on level ground when the camera aiming adjustment is operated.**
- **Follow the CONSULT-III when performing the camera aiming. (Camera aiming adjustment cannot be operated without CONSULT-III.)**

CAMERA AIMING ADJUSTMENT : Special Repair Requirement (Preparation)

INFOID:0000000003035016

1. PERFORM SELF-DIAGNOSIS

Perform self-diagnosis of lane camera unit.

Is any DTC detected?

Except “C1B01”>>Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to ACS-146, "DTC Index".
“C1B01” or no DTC>>GO TO 2.

2. PREPARATION BEFORE CAMERA AIMING ADJUSTMENT

1. Adjust the tire pressure to the specified pressure value.
2. Maintain no-load in vehicle.
3. Check if coolant and Engine oil are filled up to correct level and fuel tank is full.
4. Shift the selector lever to “P” position and release the parking brake.
5. Clean the windshield.

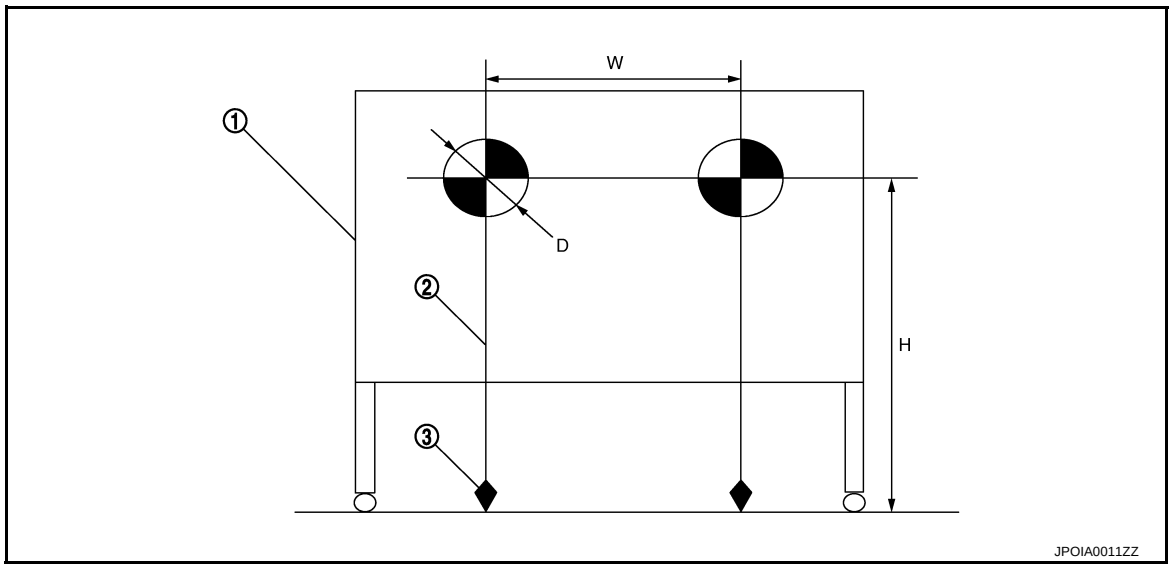
6. Completely clear off the instrument panel.

>> 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 SM. Refer to ACS-81, "CAMERA AIMING ADJUSTMENT : Special Repair Requirement (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.



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 ACS-78, "CAMERA AIMING ADJUSTMENT : Special Repair Requirement (Target Setting)".

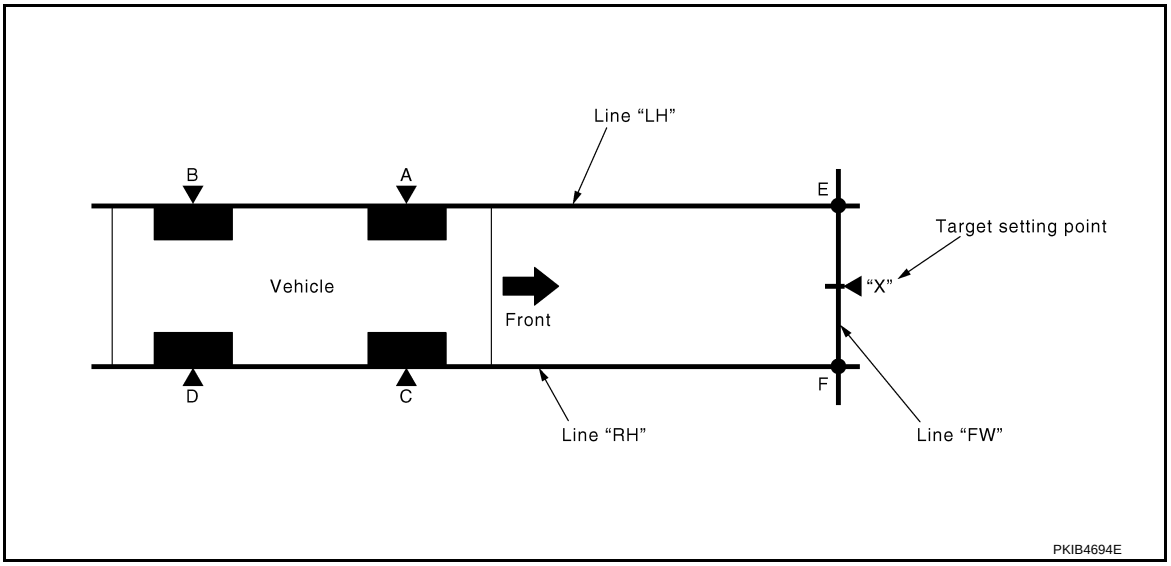
CAMERA AIMING ADJUSTMENT : Special Repair Requirement (Target Setting)

INFOID:0000000003035017

CAUTION:

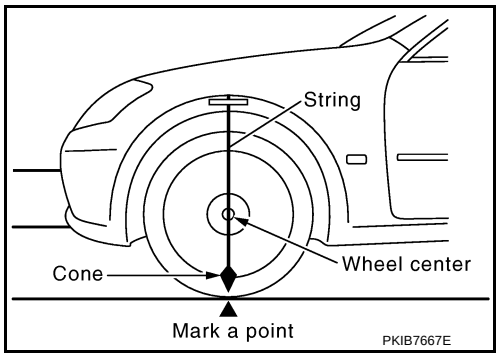
- **Perform this operation in a horizontal position where there is a clear view for 5 m (16.4 ft) forward and 3 m (9.84 ft) wide.**
- **Place the target in a well-lighted location. (Poor lighting may make it hard to adjust.)**
- **The target may not be detected when there is a light source within 1.5 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

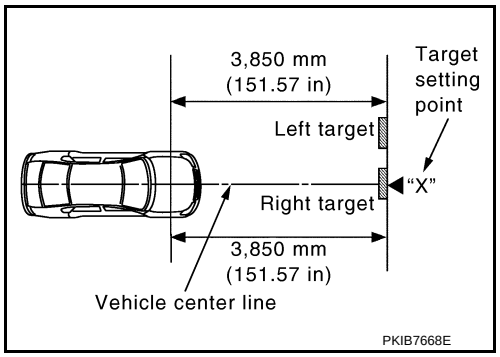


“A” – “E” (“C” – “F”) : 3850 mm (151.57 in)

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.
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 ACS-79, "CAMERA AIMING ADJUSTMENT : Special Repair Requirement (Camera Aiming Adjustment)".



CAMERA AIMING ADJUSTMENT : Special Repair Requirement (Camera Aiming Adjustment)

INFOID:0000000003035018

CAUTION:
Perform the adjustment under unloaded vehicle condition.

1.CHECK VEHICLE HEIGHT

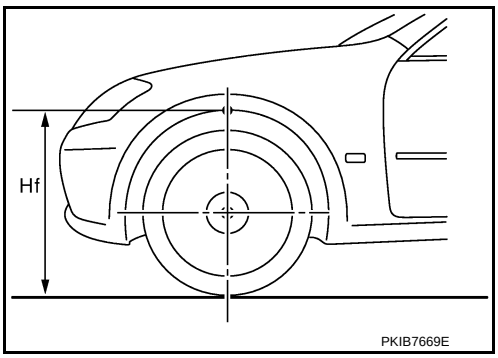
Measure the wheelarch height. Calculate “Dh”.

Dh [mm] = (Hfl + Hfr) ÷ 2 – 731

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

CONSULT-III WORK SUPPORT

CAUTION:

Operate CONSULT-III outside the vehicle, and close all the doors. (To retain vehicle attitude appropriately)

1. Select “Work Support” on “LANE CAM” with CONSULT-III.
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.

5. Input “Dh”, and then select “Start”.

CAUTION:

Never change “Ht” and “Dt”.

6. Confirm the displayed item.

- “Normally Completed”: Select “Completion”.
- “SUSPENSION” or “ABNORMALLY COMPLETED”: Perform the following services.

Displayed item		Service procedure
SUSPENSION	00H Routine not activated	Position the target appropriately again. Perform the aiming again. Refer to ACS-78, "CAMERA AIMING ADJUSTMENT : Special Repair Requirement (Target Setting)".
	10H Writing error	
ABNORMALLY COMPLETED	—	

NOTE:

Replace camera unit if “SUSPENSION” is 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-III.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to ACS-146, "DTC Index".

NO >> GO TO 4.

4.ACTION TEST

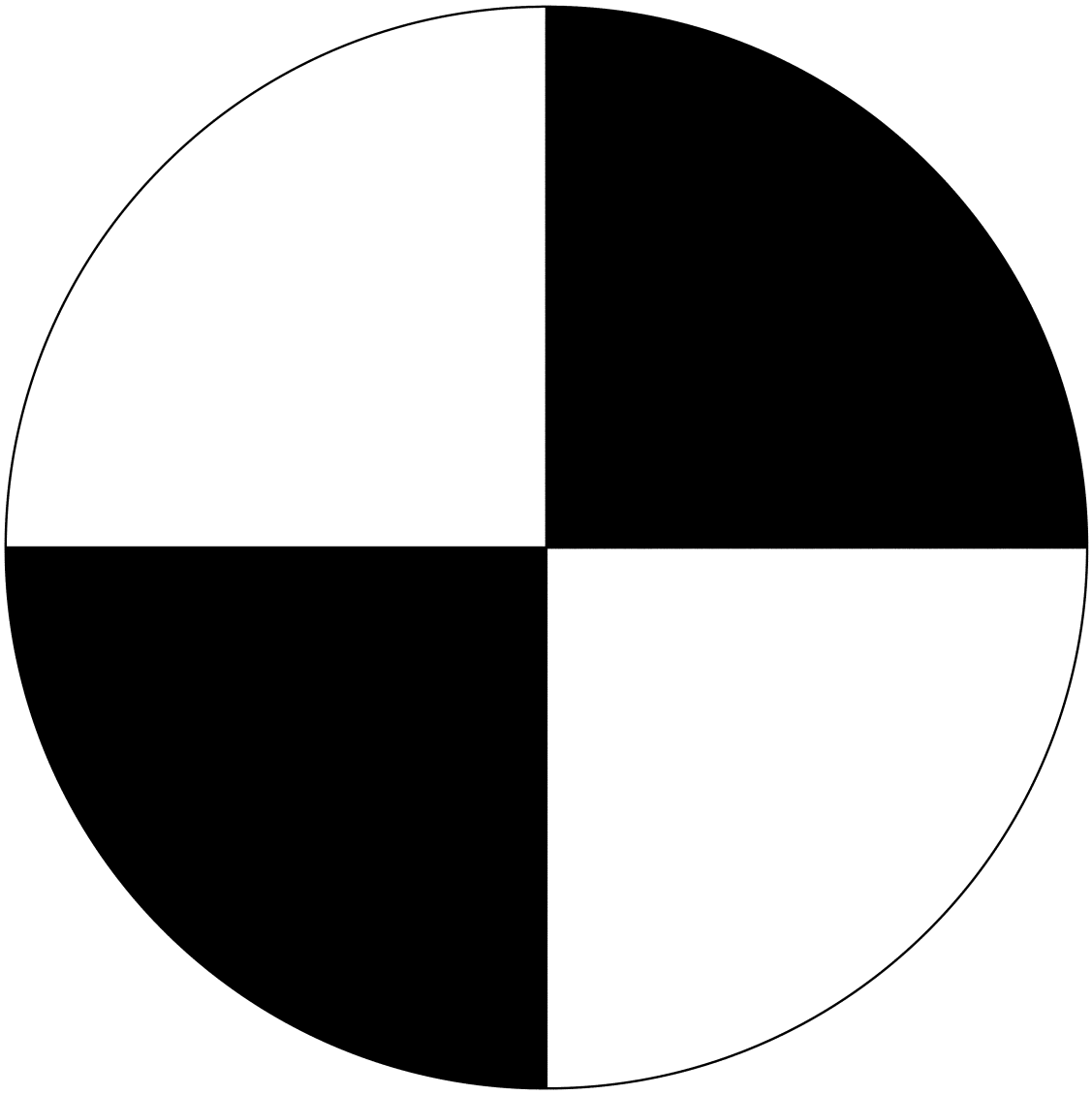
Test the LDW/LDP system operation by action test. Refer to ACS-75, "Description".

>> WORK END

CAMERA AIMING ADJUSTMENT : Special Repair Requirement (Target Mark Sample)

INFOID:0000000003035019

NOTE:
Print this illustration so that the diameter of the circle is 200 mm (7.87 in).



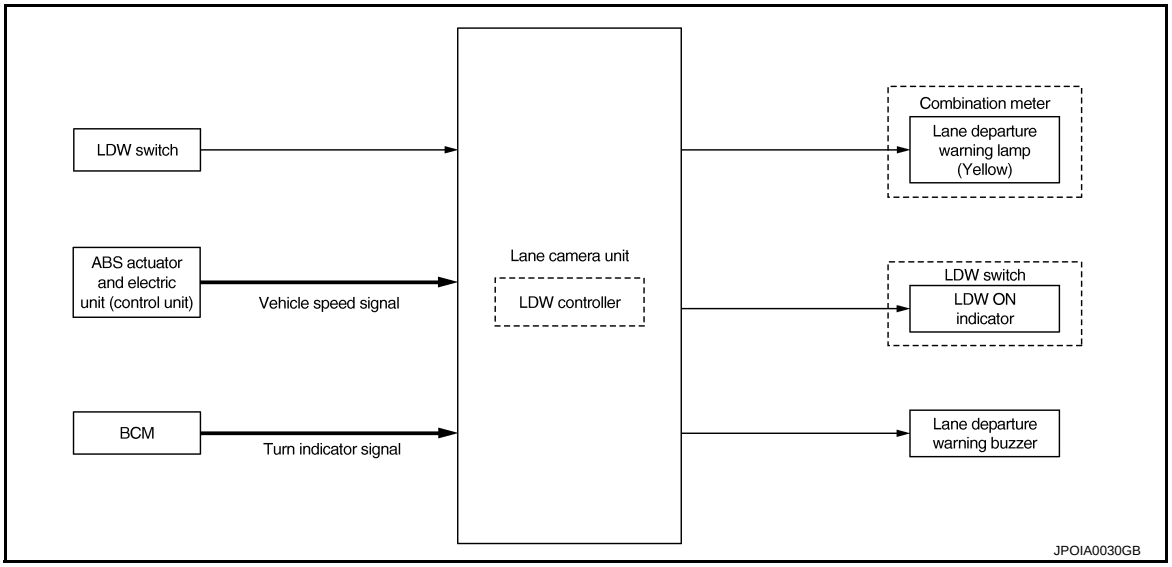
PGIA0105J

FUNCTION DIAGNOSIS

LANE DEPARTURE WARNING (LDW) SYSTEM

System Diagram

INFOID:0000000003229749

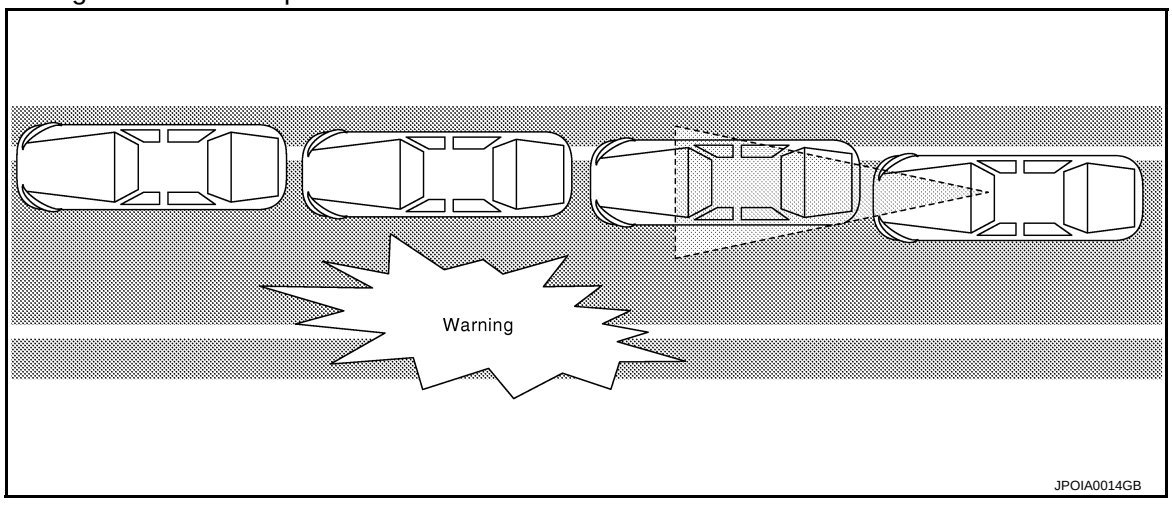


System Description

INFOID:0000000003229750

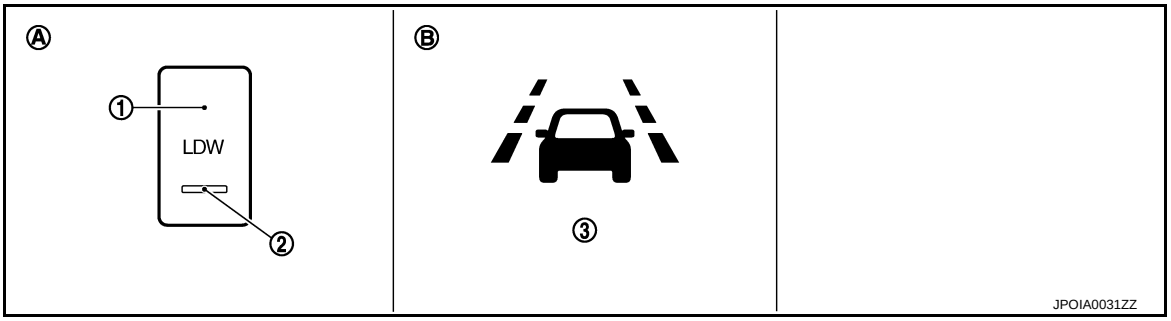
OUTLINE

- Lane Departure Warning (LDW) system provides a lane departure warning function when the vehicle is driven at speeds of approximately 72 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 function will stop when the vehicle returns inside of the lane markers.



BASIC OPERATIONS

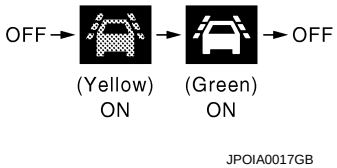
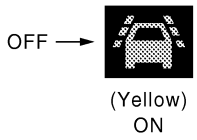
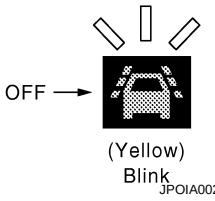
Switches And Indicator/Warning Lamps



1. LDW switch
2. LDW ON indicator
3. Lane departure warning lamp (Yellow)

A. On the instrument driver lower panel B. On the combination meter

Bulb Check Action and Fail-safe Indication

Vehicle condition/ Driver's operation	LDW ON indicator	Indication on the combination meter
Ignition switch: OFF ⇒ ON	2 sec. ON	
When DTC is detected (Except “C1B01” or “C1B03”)	ON	
Camera aiming is not completed (“C1B01” is detected)	ON	
Temporary disabled status at high temperature (“C1B03” is detected)	Blink	OFF

LDW INITIAL STATE CHANGE

CAUTION:

Never change LDW initial state “ON” ⇒ “OFF” without the consent of the customer.

LDW initial state can be changed.

- LDW initial ON* - LDW function is automatically turned ON, when the ignition switch OFF ⇒ ON.
- LDW initial OFF - LDW function is still OFF when the ignition switch OFF ⇒ ON.

*: Factory setting

How to change LDW initial state

1. Turn ignition switch ON.
2. Switch LDW and LDP functions to OFF.
3. Push and hold LDW switch for more than 4 seconds.
4. Buzzer sounds and blinking of the lane departure warning lamp informs that the LDW initial state change is completed.

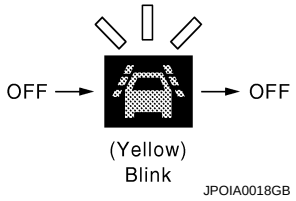
LDW SYSTEM CONTROL DESCRIPTION

- LDW system is controlled by lane camera unit.
- Lane camera unit monitors lane markers of the traveling lane.
- When the lane camera unit judges vehicle deviation from the traveling lane, it controls the lane departure warning lamp and the lane departure warning buzzer to alert the driver.

LDW OPERATING CONDITION

- LDW ON indicator: ON
  NOTE:
  LDP ON indicator lamp is OFF.
- Vehicle speed: approximately 72 km/h (45 MPH) or more

NOTE:
For details of LDW system operating conditions, refer to normal operating condition ACS-164, "Description".

Input		Output			
Vehicle speed (Approx.) [km/h (MPH)]	Vehicle condition/ Driver's operation	Action	LDW ON indictor	Indication on the combination meter	Buzzer
Less than 64 (40)	Close to lane marker	No action	ON	OFF	—
72 (45) or more	Close to lane marker	Warning • Buzzer sounds • Warning lamp blinks	ON		Short continuous beeps
	• Close to lane marker • Turn signal ON (Deviate side)	No action	ON	OFF	—

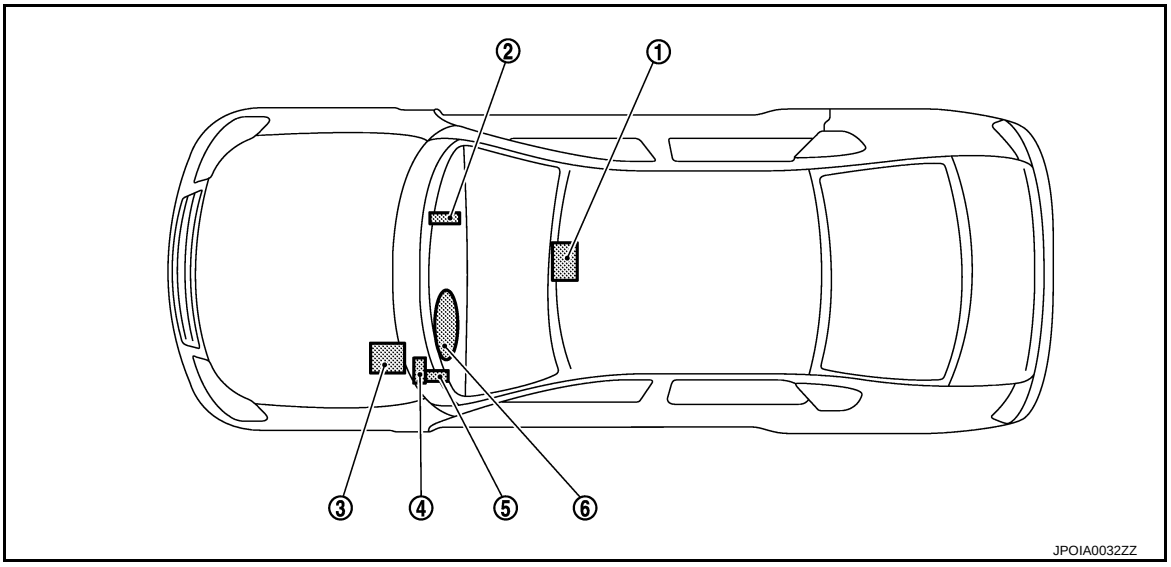
SIGNAL INPUT/OUTPUT BY CAN COMMUNICATION

Lane camera unit receives signals via CAN communication. It also detects vehicle conditions that are necessary for LDW control.

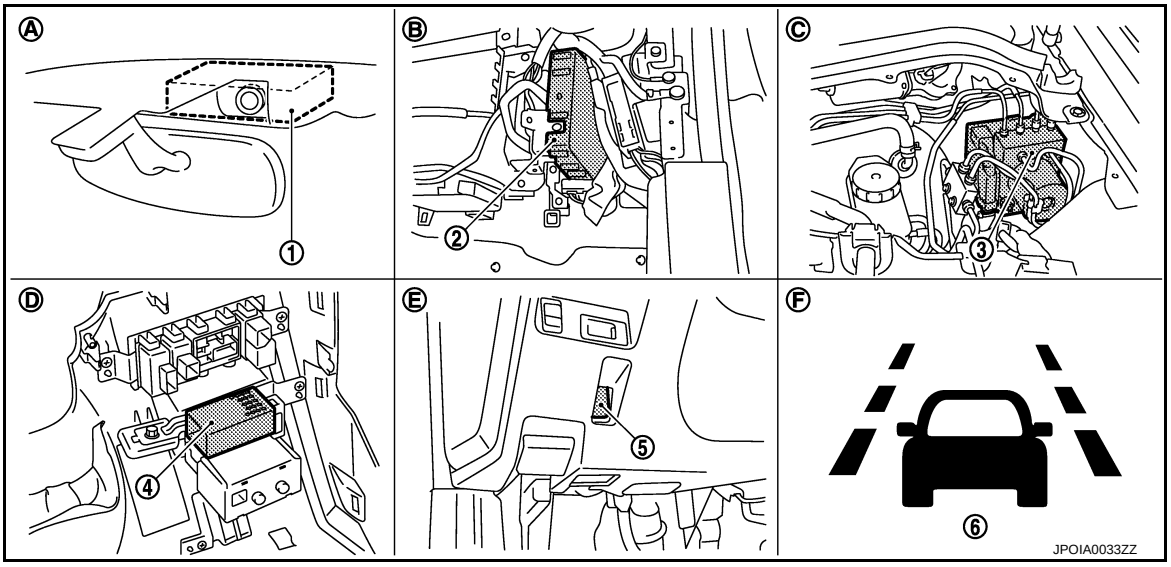
Reception Unit	Signal Name	Transmission Unit	Description
Lane camera unit	Vehicle speed signal	ABS actuator and electric unit (control unit)	Detects the vehicle speed
	Turn indicator signal	BCM	Detects operation of turn signals

Component Parts Location

INFOID:0000000003229751



1. Lane camera unit
2. BCM
3. ABS actuator and electric unit (control unit)
4. Lane departure warning buzzer
5. LDW switch
6. Combination meter [Lane departure warning lamp (Yellow)]



1. Lane camera unit
2. BCM
3. ABS actuator and electric unit (control unit)
4. Lane departure warning buzzer
5. LDW switch
6. Lane departure warning lamp (Yellow)

A. Inside the map lamp cover
B. Behind the glove box
C. Inside the brake master cylinder cover
D. Behind the instrument driver lower panel
E. Instrument driver lower panel (LH)
F. On the combination meter

Component Description

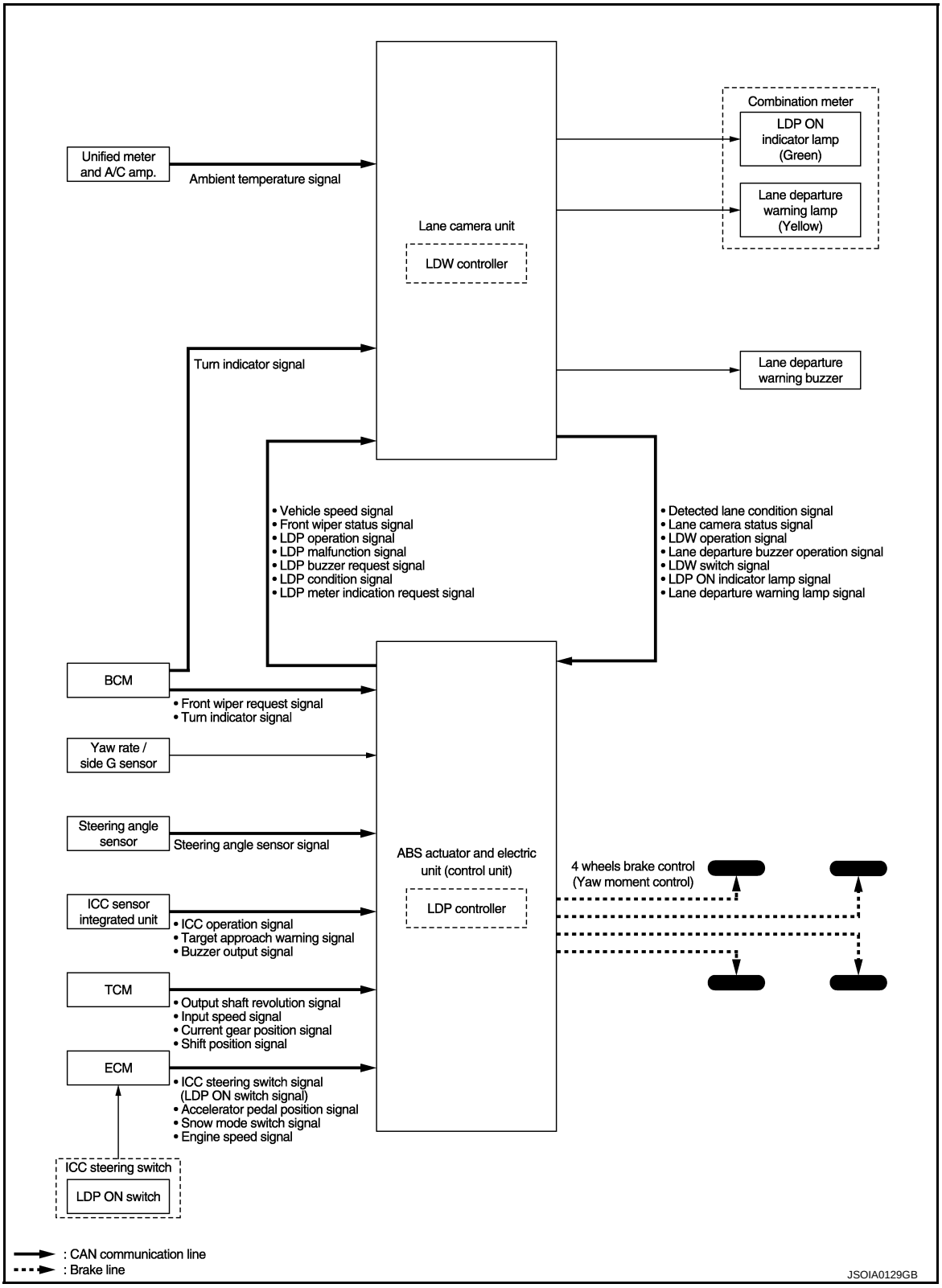
INFOID:0000000003229752

Component	Description
Lane camera unit (LDW controller)	• Detects the lane marker by the built-in camera. • Judges the lane departure depending on the lane detection result and each signals. • Controls the lane departure warning buzzer, lane departure warning lamp and LDW ON indicator.
ABS actuator and electric unit (control unit)	Transmits vehicle speed signal to lane camera unit via CAN communication.
LDW switch	Inputs the switch signal to lane camera unit.
LDW ON indicator (On the LDW ON switch)	Indicates LDW system status.
Lane departure warning buzzer	Gives a warning according to the direction from lane camera unit.
Lane departure warning lamp (Yellow)	• Blinks when LDW is functioning to alert the driver. • Stays ON when LDW system is malfunctioning.
BCM	Transmits turn indicator signal to lane camera unit via CAN communication.

LANE DEPARTURE PREVENTION (LDP) SYSTEM

System Diagram

INFOID:0000000003035023

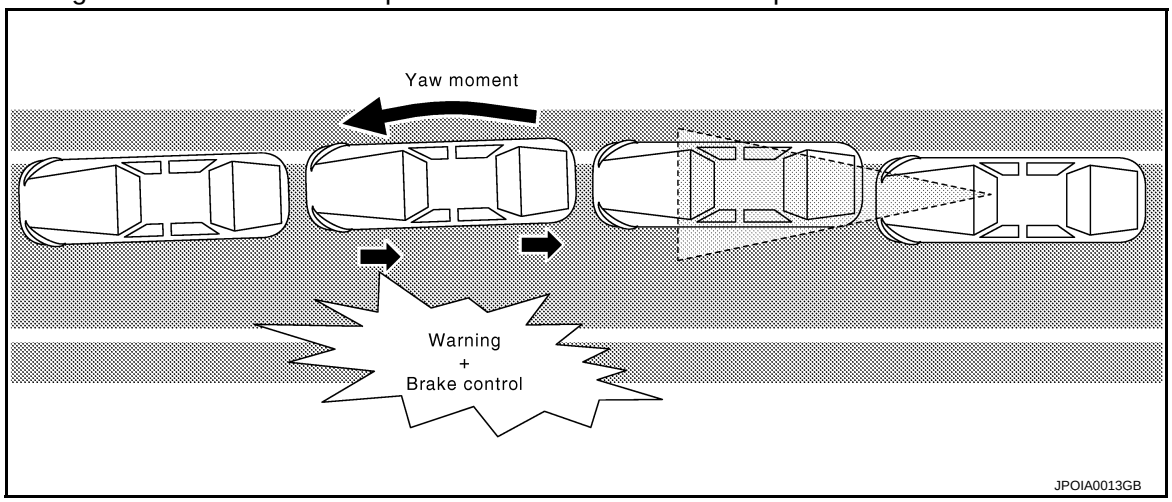


System Description

INFOID:0000000003035024

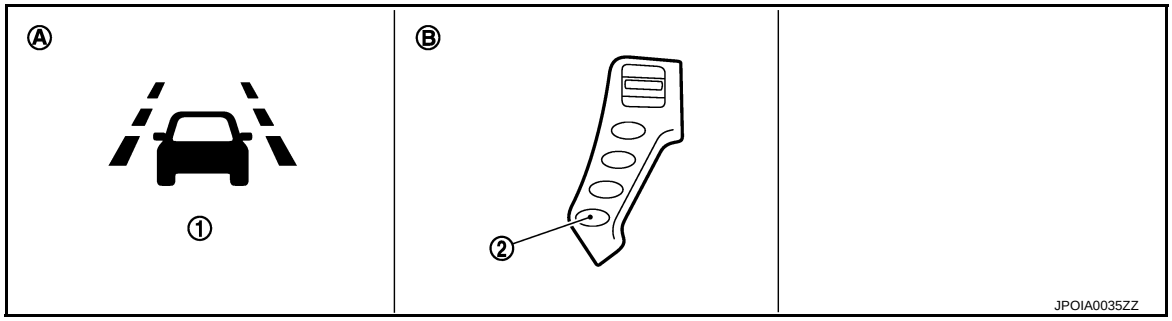
OUTLINE

- Lane Departure Prevention (LDP) system provides a lane departure warning and brake control assistance when the vehicle is driven at speeds of approximately 72 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.
- The warning and assist functions stop when the vehicle returns to a position inside of the lane marker.



BASIC OPERATIONS

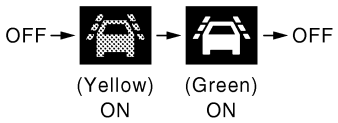
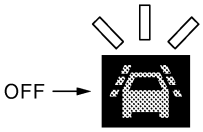
Switches And Indicator/Warning Lamps



1. • LDP ON indicator lamp (Green)
   • Lane departure warning lamp (Yellow)
2. LDP ON switch

A. On the combination meter B. On the ICC steering switch

Bulb Check Action and Fail-safe Indication

Vehicle condition/ Driver's operation	Indication on the combination meter
Ignition switch: OFF ⇒ ON	 JPOIA0017GB
When DTC is detected (Except “C1B01”“C1B03”)	 JPOIA0019GB
Camera aiming is not completed (“C1B01” is detected)	 JPOIA0020GB
Temporary disabled status at high temperature (“C1B03” is detected)	 JPOIA0036GB

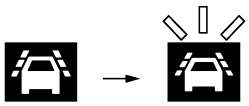
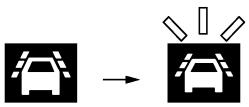
LDP SYSTEM CONTROL DESCRIPTION

- LDP system is controlled by lane camera unit and LDP controller [ABS actuator and electric unit (control unit)].
  NOTE:
  LDP controller is integrated in the ABS actuator and electric unit (control unit).
- Lane camera unit monitors lane markers of the traveling lane. It transmits the detected lane condition signal to ABS actuator and electric unit (control unit) via CAN communication.
- ABS actuator and electric unit (control unit) detects vehicle conditions depending on each signal.
- When ABS actuator and electric unit (control unit) judges vehicle deviation from the traveling lane, it controls following actions.
- Requests warning to the lane camera unit via CAN communication. And then lane camera unit controls the lane departure warning lamp and the lane departure warning buzzer to alert the driver.
- Calculates the necessary yaw moment. And then it controls the brake pressure of each wheel individually to generate the intended movement.

LDP OPERATING CONDITION

- LDP ON indicator lamp: ON
  NOTE:
  LDW ON indicator is OFF.
- Vehicle speed: approximately 72 km/h (45 MPH) or more

NOTE:
For details of LDP system operating conditions, refer to normal operating condition ACS-164, "Description".

Input		Output		
Vehicle speed (Approx.) [km/h (MPH)]	Vehicle condition/ Driver's operation	Action	Indication on the combination meter	Buzzer
Less than 64 (40)	Close to lane marker	No action	 (Green) ON JPOIA0021GB	—
72 (45) or more	Close to lane marker	Warning and yawing • Buzzer sounds • Warning lamp blinks • Brake control	 (Green) ON (Yellow) Blink (Green) ON JPOIA0022GB	Short continuous beeps
	• Close to lane marker • Turn signal ON (Deviate side)	No action	 (Green) ON JPOIA0021GB	—
	Close to lane with soft braking	Warning • Buzzer sounds • Warning lamp blinks	 (Green) ON (Yellow) Blink (Green) ON JPOIA0022GB	Short continuous beeps
	VDC OFF switch: OFF ⇒ ON	Cancellation • Buzzer sounds • Indicator lamp blinks **NOTE:** When LDP ON switch is ON ⇒ OFF, indicator lamp is turned OFF.	 (Green) ON (Green) Blink JPOIA0023GB	Beep
	SNOW MODE switch: OFF ⇒ ON (If equipped)	Cancellation • Buzzer sounds • Indicator lamp blinks **NOTE:** When LDP ON switch is ON ⇒ OFF, indicator lamp is turned OFF.	 (Green) ON (Green) Blink JPOIA0023GB	Beep

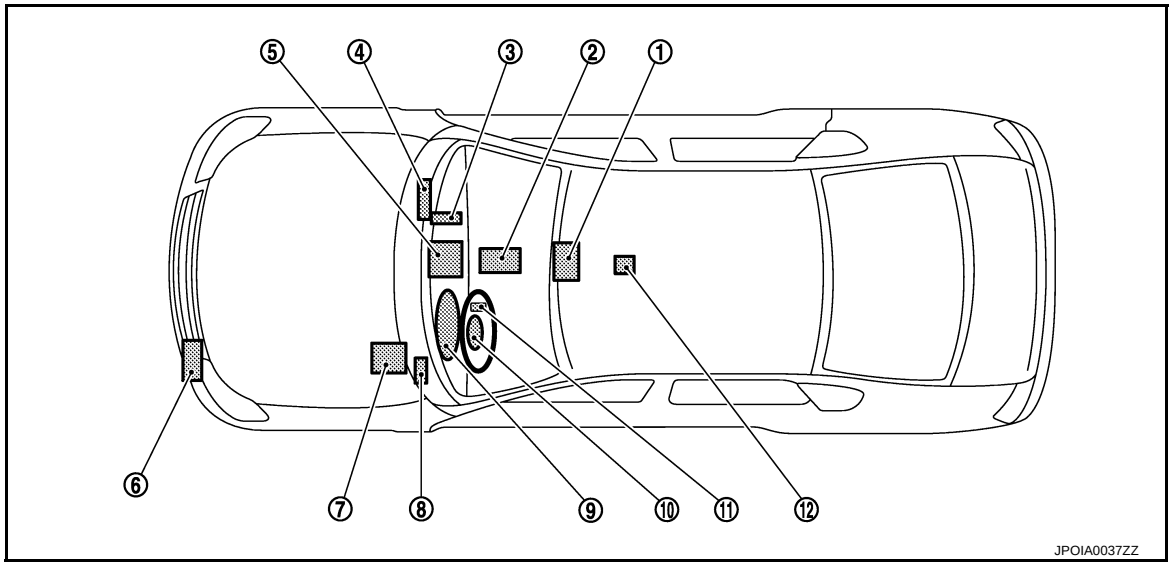
SIGNAL INPUT/OUTPUT BY CAN COMMUNICATION

The lane camera unit and ABS actuator and electric unit (control unit) transmit/receive each signals via CAN communication. They also detect the vehicle conditions necessary for LDP control.

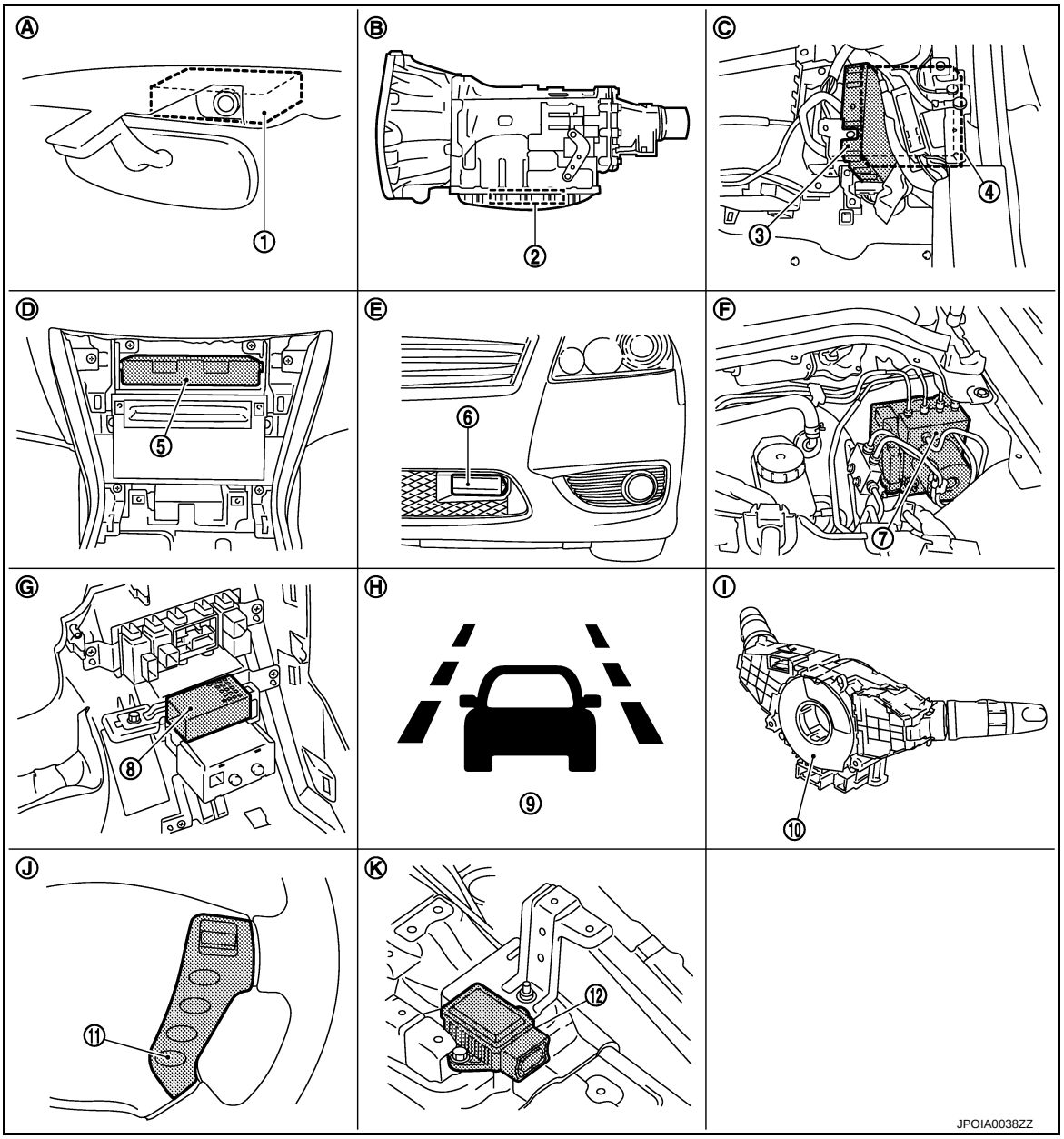
Reception Unit	Signal Name	Transmission Unit	Description (Reception unit uses...)
Lane camera unit	LDP operation signal	ABS actuator and electric unit (control unit)	Detects the LDP operating condition
	LDP condition signal		Detects the LDP conditions
	LDP buzzer request signal		Controls the lane departure warning buzzer according to the request
	LDP meter indication request signal		Controls the LDP ON indicator lamp and lane departure warning lamp according to the request
	Vehicle speed signal		Detects the vehicle speed
	Front wiper status signal		Detects operation of the front wiper
	Turn indicator signal	BCM	Detects operation of turn signals
	Ambient temperature signal	Unified meter and A/C amp. (Auto amp.)	Detects the ambient temperature
ABS actuator and electric unit (control unit)	Detected lane condition signal	Lane camera unit	Detects the lane marker condition
	Lane camera status signal		Detects the lane camera status
	LDW operation signal		Detects the LDW operation
	Lane departure buzzer operation signal		Detects the lane departure warning buzzer operation
	LDW switch signal		Detects LDW switch status
	LDP ON indicator lamp signal		Detects the LDP ON indicator lamp condition
	Lane departure warning lamp signal		Detects the lane departure warning lamp condition
	Snow mode switch signal	ECM	Detects the snow mode status
	ICC steering switch signal (LDP ON switch signal)		Detects LDP ON switch status
	Accelerator pedal position signal		Detects vehicle conditions to calculate the acceleration/deceleration of the vehicle
	Engine speed signal		
	Shift position signal	TCM	Detects the transmission conditions
	Output shaft revolution signal		
	Input speed signal		
	Current gear position signal		
	Steering angle sensor signal	Steering angle sensor	Detects the steering angle
	ICC operation signal	ICC sensor integrated unit	Detects ICC system conditions
	Target approach warning signal		
	Buzzer output signal		
	Turn indicator signal	BCM	Detects operation of the front wiper
	Front wiper request signal		Detects operation of turn signals

Component Parts Location

INFOID:0000000003035025



1. Lane camera unit
2. TCM
3. BCM
4. ECM
5. Unified meter and A/C amp.
6. ICC sensor integrated unit
7. ABS actuator and electric unit (control unit)
8. Lane departure warning buzzer
9. • LDP ON indicator lamp (Green)
   • Lane departure warning lamp (Yellow)
10. Steering angle sensor
11. LDP ON switch
12. Yaw rate/side G sensor



1. Lane camera unit
2. TCM
3. BCM
4. ECM
5. Unified meter and A/C amp.
6. ICC sensor integrated unit
7. ABS actuator and electric unit (control unit)
8. Lane departure warning buzzer
9. • LDP ON indicator lamp (Green)
   • Lane departure warning lamp (Yellow)
10. Steering angle sensor
11. LDP ON switch
12. Yaw rate/side G sensor

A. Inside the map lamp cover
B. Integrated in the A/T assembly
C. Behind the glove box
D. Behind the cluster lid C
E. Front bumper LH
F. Inside brake master cylinder cover
G. Behind the instrument driver lower panel
H. On the combination meter
I. Integrated in the combination switch assembly
J. On the ICC steering switch
K. Under the center console

Component Description

INFOID:0000000003035026

Component	Description
Lane camera unit	• Detects the lane marker by the built-in camera. • Judges the lane departure depending on the lane detection result and each signal. • Transmits the detected lane conditions to ABS actuator and electric unit (control unit) via CAN communication. • Controls the lane departure warning buzzer, lane departure warning lamp, LDW ON indicator and LDP ON indicator lamp.
ABS actuator and electric unit (control unit)	• Transmits vehicle speed signal to lane camera unit via CAN communication. • Judges necessary yaw moment depending on each signal. • Controls the brake pressure of each wheel individually to generate the intended movement.
Lane departure warning buzzer	Gives a warning according to the direction from lane camera unit.
LDP ON switch (On the ICC steering switch)	Inputs the switch signal to ECM.
LDP ON indicator lamp (Green)	Indicates LDP system status.
Lane departure warning lamp (Yellow)	• Blinks when LDP is functioning to alert the driver. • Stays ON when LDW/LDP system is malfunctioning.
BCM	• Transmits turn indicator signal to lane camera unit via CAN communication. • Transmits vehicle conditions to ABS actuator and electric unit (control unit) via CAN communication.
ECM	Transmits vehicle conditions and ICC steering switch signal (LDP ON switch signal) to ABS actuator and electric unit (control unit) via CAN communication.
Unified meter and A/C amp.	Transmits ambient temperature signal to lane camera unit via CAN communication.
Steering angle sensor	Transmits steering angle sensor signal to ABS actuator and electric unit (control unit) via CAN communication.
TCM	Transmits vehicle conditions to ABS actuator and electric unit (control unit) via CAN communication.
ICC sensor integrated unit	Transmits ICC system conditions to ABS actuator and electric unit (control unit) via CAN communication.
Yaw rate/side G sensor	Inputs detected yaw rate signal to ABS actuator and electric unit (control unit).

DIAGNOSIS SYSTEM (LANE CAMERA UNIT)

CONSULT-III Function (LANE CAMERA)

INFOID:0000000003035027

DESCRIPTION

CONSULT-III performs the following functions by communicating with the lane camera unit.

Select diag mode	Function
Work support	• Performs the camera aiming. • Displays causes of automatic cancellation of the LDP function.
Self Diagnostic Result	Displays memorized DTC in the lane camera unit.
Data Monitor	Displays real-time data of lane camera unit.
Active Test	Enables operation check of electrical loads by sending driving signal to them.
Ecu Identification	Displays part number of lane camera unit.

WORK SUPPORT

Work support item	Function
CAUSE OF AUTO-CANCEL	Indicates causes of automatic cancellation of the LDP.
AUTO AIM	Outputs camera unit, calculates dislocation of the camera, and displays adjustment direction. Refer to ACS-77, "CAMERA AIMING ADJUSTMENT : Description".
AIM CHECK	**NOTE:** The item is indicated, but not used.

Cause of Auto-Cancel Display Item List

- Last five cancel (system cancel) causes are displayed.
- “CAUSE OF AUTO-CANCEL” displays the number of times of ignition switch ON/OFF up to a maximum of “39”. “39” is kept even when the number exceeds “39”. The number returns to 0 when detecting the same cancellation causes are detected.

Cause of cancellation	Description
NO RECORD	—
Operating VDC/ABS	VDC or ABS function was operated.
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 was activated.
VDC OFF SW	VDC OFF switch was pressed.
CURVATURE	Road curve was more than the specified value.
Steering angle large	Steering angle was more than the specified value.
ICC main SW hold ON	ICC MAIN switch was held ON for more than a certain period.
Brake is operated	Brake pedal was operated.
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.
Bank	Road bank angle was more than the specified value.
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.).

SELF DIAGNOSTIC RESULT

Displays memorized DTC in lane camera unit. Refer to ACS-146, "DTC Index".

DATA MONITOR

Monitored Item [unit]		Description
LDW SW	[On/Off]	Switch status judged from LDW switch signal
LDW ON LAMP	[On/Off]	Signal output status of LDW ON indicator
LDP ON IND	[On/Off]	Signal output status of LDP ON indicator lamp
LANE DPRT W/L	[On/Off]	Signal output status of lane departure warning lamp
BUZZER OUTPUT	[On/Off]	Signal output status of lane departure warning buzzer
LC INACCURAT	[On/Off]	Lane camera unit status
CAM HIGH TEMP	[On/Off]	Status of lane camera unit high temperature judgment
VHCL SPD SE	[km/h] or [mph]	Vehicle speed received from ABS actuator and electric unit (control unit) via CAN communication
TURN SIGNAL	[Off/LH/RH]	Status of “Turn signal” determined from BCM via CAN 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
AIMING DONE	[OK/NG]	Status that camera aiming is done
AIMING RESULT	[OK/NOK]	Result of camera aiming
XOFFSET	[pixel]	Lane camera unit installation condition
CHK AIM YAW	[deg]	Check result of camera aiming
CHK AIM ROLL	[deg]	Check result of camera aiming
CHK AIM 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
FCTRY AIM PIT	[deg]	Lane camera unit installation condition

ACTIVE TEST

CAUTION:

- **Never perform the active test while driving.**
- **Active test cannot be started while the lane departure warning lamp is illuminated.**

Active test item	Operation	Description
BUZZER DRIVE	On	Outputs the voltage to sound the lane departure warning buzzer.
	Off	Stops the voltage to sound the lane departure warning buzzer.

Active test item	Operation	Description
LDW ON IND	On	Outputs the voltage to illuminate the LDW ON indicator (on the LDW switch).
	Off	Stops the voltage to illuminate the LDW ON indicator.
LDP ON IND	On	Outputs the voltage to illuminate the LDP ON indicator lamp [on the combination meter (Green)].
	Off	Stops the voltage to illuminate the LDP ON indicator lamp.
LANE DEPARTURE W/L	On	Outputs the voltage to illuminate the lane departure warning lamp [on the combination meter (Yellow)].
	Off	Stops the voltage to illuminate the lane departure warning lamp.

NOTE:

“Active test” of indicator/warning lamp cannot be performed when applicable indicator/warning lamp is turned ON.

DIAGNOSIS SYSTEM [ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)]

CONSULT-III Function (ABS)

INFOID:0000000003104134

FUNCTION

CONSULT-III can display each diagnostic item using the diagnostic test modes shown below.

Diagnostic test mode	Function
Work support	This mode enables a technician to adjust some devices faster and more accurately by following the indications on CONSULT-III.
Self-diagnostic results	Self-diagnostic results can be read and erased quickly.
Data monitor	Input/Output data in ABS actuator and electric unit (control unit) can be read.
Active test	CONSULT-III drives some actuators apart from ABS actuator and electric unit (control unit) and also shifts some parameters in a specified range.
ECU part number	ABS actuator and electric unit (control unit) part number can be read.

WORK SUPPORT

CAUTION:

Erase DTC memory of the lane camera unit after implementing work support. Refer to ACS-95, "CONSULT-III Function (LANE CAMERA)".

Item	Description
ST ANG SEN ADJUSTMENT	Adjusts the neutral position of the steering angle sensor.

SELF-DIAG RESULTS MODE

Operation Procedure

Before performing the self-diagnosis, start engine and drive vehicle at 30 km/h (19 MPH) or more for approximately 1 minute.

How to Erase Self-diagnosis Results

After erasing DTC memory, start engine and drive vehicle at 30 km/h (19 MPH) or more for approximately 1 minute as the final inspection, and make sure that ABS warning lamp, VDC OFF indicator lamp, SLIP indicator lamp and brake warning lamp turn OFF.

CAUTION:

If memory cannot be erased, perform applicable diagnosis.

NOTE:

- When the wheel sensor malfunctions, after inspecting the wheel sensor system, ABS warning lamp, VDC OFF indicator lamp, SLIP indicator lamp and brake warning lamp will not turn OFF even when the system is normal unless the vehicle is driven at approximately 30 km/h (19 MPH) or more for approximately 1 minute.
- Brake warning lamp will turn ON in case of parking brake operation (when switch is ON) or in case of brake fluid level switch operation (when brake fluid is insufficient).
- VDC OFF switch should not stay in “ON” position.

Display Item List

Code	Display item	Malfunction detecting condition	Check item
C1101	RR RH SENSOR-1	Circuit of rear RH wheel sensor is open. Or when the sensor power voltage is outside the standard.	BRC-40, "Wheel Sensor Circuit" (Note 1)
C1102	RR LH SENSOR-1	Circuit of rear LH wheel sensor is open. Or when the sensor power voltage is outside the standard.	
C1103	FR RH SENSOR-1	Circuit of front RH wheel sensor is open. Or when the sensor power voltage is outside the standard.	
C1104	FR LH SENSOR-1	Circuit of front LH wheel sensor is open. Or when the sensor power voltage is outside the standard.	
C1105	RR RH SENSOR-2	When the circuit in the rear RH wheel sensor is short-circuited. Or when the distance between the wheel sensor and sensor rotor is too large and the sensor pulse cannot be recognized by the control unit.	
C1106	RR LH SENSOR-2	When the circuit in the rear LH wheel sensor is short-circuited. Or when the distance between the wheel sensor and sensor rotor is too large and the sensor pulse cannot be recognized by the control unit.	
C1107	FR RH SENSOR-2	When the circuit in the front RH wheel sensor is short-circuited. Or when the distance between the wheel sensor and sensor rotor is too large and the sensor pulse cannot be recognized by the control unit.	
C1108	FR LH SENSOR- 2	When the circuit in the front LH wheel sensor is short-circuited. Or when the distance between the wheel sensor and sensor rotor is too large and the sensor pulse cannot be recognized by the control unit.	
C1109	BATTERY VOLTAGE [ABNORMAL]	When the ABS actuator and electric unit (control unit) power supply voltage is lower than normal.	BRC-42, "ABS Actuator and Electric Unit (Control Unit) Power Supply and Ground Circuit"
C1110	CONTROLLER FAILURE	When there is an internal malfunction in the ABS actuator and electric unit (control unit).	BRC-42, "ABS Actuator and Electric Unit (Control Unit)"
C1111	PUMP MOTOR	During the actuator motor operating with ON, when the actuator motor turns OFF, or when the control line for actuator motor relay is open.	BRC-43, "ABS Motor and Motor Relay Circuit"
		During the actuator motor operating with OFF, when the actuator motor turns ON, or when the control line for relay is shorted to ground.	
C1114	MAIN RELAY	During the actuator relay operating with OFF, when the actuator relay turns ON, or when the control line for the relay is shorted to the ground.	BRC-44, "Solenoid, VDC Change-Over Valve and Actuator Relay Circuit"
		During the actuator relay operating with ON, when the actuator relay turns OFF, or when the control line for the relay is open.	
C1115	ABS SENSOR [ABNORMAL SIGNAL]	When wheel sensor input signal is malfunctioning.	BRC-40, "Wheel Sensor Circuit" (Note 1)
C1116	STOP LAMP SW	When stop lamp switch circuit is open.	BRC-48, "Stop Lamp Switch Circuit"

Code	Display item	Malfunction detecting condition	Check item
C1120	FR LH IN ABS SOL	When the control unit detects a malfunction in the front left inlet solenoid circuit.	BRC-44, "Solenoid, VDC Change-Over Valve and Actuator Relay Circuit"
C1121	FR LH OUT ABS SOL	When the control unit detects a malfunction in the front left outlet solenoid circuit.	
C1122	FR RH IN ABS SOL	When the control unit detects a malfunction in the front right inlet solenoid circuit.	
C1123	FR RH OUT ABS SOL	When the control unit detects a malfunction in the front right outlet solenoid circuit.	
C1124	RR LH IN ABS SOL	When the control unit detects a malfunction in the rear left inlet solenoid circuit.	
C1125	RR LH OUT ABS SOL	When the control unit detects a malfunction in the rear left outlet solenoid circuit.	
C1126	RR RH IN ABS SOL	When the control unit detects a malfunction in the rear right inlet solenoid circuit.	
C1127	RR RH OUT ABS SOL	When the control unit detects a malfunction in the rear right outlet solenoid circuit.	
C1130	ENGINE SIGNAL 1	Major engine components are malfunctioning.	BRC-41, "Engine System"
C1131	ENGINE SIGNAL 2		
C1132	ENGINE SIGNAL 3		
C1133	ENGINE SIGNAL 4		
C1136	ENGINE SIGNAL 6		
C1137	RAS CIRCUIT	When RAS control unit is malfunctioning.	BRC-51, "RAS Control Unit Circuit (With RAS)"
C1142	PRESS SEN CIRCUIT	Pressure sensor signal line is open or shorted, or pressure sensor is malfunctioning.	BRC-45, "Pressure Sensor Circuit"
C1143	ST ANG SEN CIRCUIT	Neutral position of steering angle sensor is dislocated, or the steering angle sensor is malfunctioning.	BRC-47, "Steering Angle Sensor Circuit"
C1144	ST ANG SEN SIGNAL	Neutral position correction of steering angle sensor is not finished.	BRC-8, "Adjustment of Steering Angle Sensor Neutral Position"
C1145	YAW RATE SENSOR	Yaw rate sensor is malfunctioning, or the yaw rate sensor signal line is open or shorted.	BRC-48, "Yaw Rate/Side G Sensor Circuit"
C1146	SIDE G-SEN CIRCUIT	Side G sensor is malfunctioning, or circuit of side G sensor is open or shorted.	
C1147	USV LINE [FL-RR]	VDC switch-over solenoid valve (USV1) on the primary side is open circuit or shorted, or the control line is open or shorted to the power supply or the ground.	BRC-44, "Solenoid, VDC Change-Over Valve and Actuator Relay Circuit"
C1148	USV LINE [FR-RL]	VDC switch-over solenoid valve (USV2) on the secondary side is open circuit or shorted, or the control line is open or shorted to the power supply or the ground.	
C1149	HSV LINE [FL-RR]	VDC switch-over solenoid valve (HSV1) on the primary side is open circuit or shorted, or the control line is open or shorted to the power supply or the ground.	
C1150	HSV LINE [FR-RL]	VDC switch-over solenoid valve (HSV2) on the secondary side is open circuit or shorted, or the control line is open or shorted to the power supply or the ground.	
C1153	EMERGENCY BRAKE	When ABS actuator and electric unit (control unit) is malfunctioning. (Pressure increase is too much or too little)	BRC-42, "ABS Actuator and Electric Unit (Control Unit)"

Code	Display item	Malfunction detecting condition	Check item
C1155	BR FLUID LEVEL LOW	Brake fluid level is low or communication line between the ABS actuator and electric unit (control unit) and brake fluid level switch is open or shorted.	BRC-50, "Brake Fluid Level Switch Circuit"
C1156	ST ANG SEN COM CIR	CAN communication circuit or steering angle sensor is malfunctioning.	BRC-52, "CAN Communication Circuit"
C1170	VARIANT CODING	In a case where VARIANT CODING is different.	BRC-42, "ABS Actuator and Electric Unit (Control Unit)"
C1185	ACC CONT	ICC sensor integrated unit internal malfunction.	BRC-52, "ICC Sensor Integrated Unit Circuit (With ICC)"
C1B00	LDP) CAMERA MALF	ACS-118, "DTC Logic"	
C1B04	LDP) ICC STG SW MALF	ACS-119, "DTC Logic"	
C1B05	LDP) APP SEN MALF	ACS-120, "DTC Logic"	
C1B06	LDP) TCM MALF	ACS-121, "DTC Logic"	
U0100	LDP) ECM CAN CIR2	ACS-122, "DTC Logic"	
U0101	LDP) TCM CAM CAN CIR2	ACS-123, "DTC Logic"	
U0104	LDP) ICC CAM CAN CIR2	ACS-124, "DTC Logic"	
U0405	LDP) ICC CAM CAN CIR1	ACS-125, "DTC Logic"	
U1000	CAN COMM CIRCUIT	When ABS actuator and electric unit (control unit) is not transmitting or receiving CAN communication signal for 2 seconds or more.	BRC-52, "CAN Communication Circuit" (Note 2)
U1002	SYSTEM COMM (CAN)	When ABS actuator and electric unit (control unit) is not transmitting or receiving CAN communication signal for 2 seconds or less.	
U1100	ACC COMM CIRCUIT	When there is a malfunction in the CAN communication circuit or ICC sensor integrated unit.	BRC-52, "CAN Communication Circuit"
U1500	LDP) CAM CAN CIR1	ACS-126, "DTC Logic"	
U1501	LDP) CAM CAN CIR2	ACS-127, "DTC Logic"	

Note 1: After completing repairs of shorted sensor circuit, when ignition switch is turned ON, ABS warning lamp turns on. Make sure that ABS warning lamp turns off while driving vehicle at 30 km/h (19 MPH) or more for approximately 1 minute according to self-diagnosis procedure. In addition, if wheel sensor 2 is displayed for wheels, check wheel sensor circuit and also check control unit power voltage.

Note 2: When malfunctions are detected in several systems, including CAN communication circuit [U1000], troubleshoot CAN communication circuit. Refer to BRC-52, "CAN Communication Circuit".

DATA MONITOR MODE

Display Item List

×: Applicable ▼: Optional item

Monitor item (Unit)	SELECT MONITOR ITEM		Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	
FR LH SENSOR [km/h (MPH)]	×	×	Wheel speed
FR RH SENSOR [km/h (MPH)]	×	×	
RR LH SENSOR [km/h (MPH)]	×	×	
RR RH SENSOR [km/h (MPH)]	×	×	

Monitor item (Unit)	SELECT MONITOR ITEM		Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	
STOP LAMP SW (ON/OFF)	×	×	Stop lamp switch signal status (Brake pedal operation)
BATTERY VOLT (V)	×	×	Battery voltage supplied to ABS actuator and electric unit (control unit)
GEAR	×	×	Gear position determined by TCM
STOP LAMP SW (On/Off)	×	×	Stop lamp switch signal status
SLCT LVR POSI	×	×	A/T selector lever position
OFF SW (On/Off)	×	×	VDC OFF switch
YAW RATE SEN (d/s)	×	×	Yaw rate detected by yaw rate/side G sensor
ACCEL POS SIG (%)	×	▼	Throttle actuator opening/closing is displayed (Linked with accelerator pedal)
SIDE G-SENSOR (m/s^2)	×	▼	Transverse G detected by yaw rate/side G sensor
STR ANGLE SIG (°)	×	▼	Steering angle detected by steering angle sensor
PRESS SENSOR (bar)	×	▼	Brake fluid pressure detected by pressure sensor
ENGINE RPM (rpm)	×	▼	Engine speed (With engine running)
FLUID LEV SW (On/Off)	×	▼	Brake fluid level switch (signal status)
PARK BRAKE SW (On/Off)	×	▼	Parking brake switch (signal status)
FR RH IN SOL (On/Off)	▼	×	Operation status of each solenoid valve
FR RH OUT SOL (On/Off)	▼	×	
FR LH IN SOL (On/Off)	▼	×	
FR LH OUT SOL (On/Off)	▼	×	
RR RH IN SOL (On/Off)	▼	×	
RR RH OUT SOL (On/Off)	▼	×	
RR LH IN SOL (On/Off)	▼	×	
RR LH OUT SOL (On/Off)	▼	×	
MOTOR RELAY (On/Off)	▼	×	Motor and motor relay operation
ACTUATOR RLY (On/Off)	▼	×	Actuator relay operation
ABS WARN LAMP (On/Off)	▼	×	ABS warning lamp
OFF LAMP (On/Off)	▼	×	VDC OFF indicator lamp

Monitor item (Unit)	SELECT MONITOR ITEM		Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	
SLIP LAMP (On/Off)	▼	×	SLIP indicator lamp
BST OPER SIG	▼	▼	Not applied but displayed.
EBD SIGNAL (On/Off)	▼	▼	EBD operation
ABS SIGNAL (On/Off)	▼	▼	ABS operation
TCS SIGNAL (On/Off)	▼	▼	TCS operation
VDC SIGNAL (On/Off)	▼	▼	VDC operation
EBD FAIL SIG (On/Off)	▼	▼	EBD fail-safe signal
ABS FAIL SIG (On/Off)	▼	▼	ABS fail-safe signal
TCS FAIL SIG (On/Off)	▼	▼	TCS fail-safe signal
VDC FAIL SIG (On/Off)	▼	▼	VDC fail-safe signal
CRANKING SIG (On/Off)	▼	▼	Crank operation
USV [FR-RL] (On/Off)	▼	▼	VDC switch-over valve
USV [FL-RR] (On/Off)	▼	▼	
HSV [FR-RL] (On/Off)	▼	▼	
HSV [FL-RR] (On/Off)	▼	▼	
V/R OUTPUT (On/Off)	▼	▼	Solenoid valve relay activated
M/R OUTPUT (On/Off)	▼	▼	Actuator motor and motor relay activated
LDP) APP SEN (%)	×	×	Accelerator pedal position sensor status received from ECM via CAN communication
LDP) Yaw order (×100Nm)	▼	×	Calculated target yaw moment
LDP) Shift position (OFF/P/R/N/D/MM 1st – MM 6th)	×	×	Shift position received from TCM via CAN communication
LDP) ICC main SW (On/Off)	×	×	ICC main switch status received from ECM via CAN communication
LDP) LDP ON SW (On/Off)	×	×	LDP ON switch status received from ECM via CAN communication
LDP) Wiper signal (Stop/PRTCT/1low/1high/ Low/High)	×	×	Front wiper operating condition received from BCM via CAN communication
LDP) Turn signal (Off/LH/RH/LH&RH)	×	×	Turn signal operating condition received from BCM via CAN communication
LDP) BRAKE SW (On/Off))	×	×	Brake switch signal status

Monitor item (Unit)	SELECT MONITOR ITEM		Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	
LDP) STOP LMP SW (On/Off)	×	×	Stop lamp switch signal status
LDP) WARN REQ (On/Off)	▼	×	Status of warning request that transmits to lane camera unit via CAN communication
LDP) WARN control (On/Off)	▼	×	Status of warning main controller for LDP
LDP) READY signal (On/Off)	▼	×	Status of internal judgment by LDP controller [ABS actuator and electric unit (control unit)]
LDP) STATUS signal (STANDBY/WARN/ MASK/Off)	▼	×	Status of internal judgment by LDP controller [ABS actuator and electric unit (control unit)]
LDP) LDW SW (On/Off)	×	×	LDW switch status received from lane camera unit via CAN communication
LDP) Camera lost (Detect/Deviate/Both)	▼	×	Lane marker detected condition received from lane camera unit via CAN communication
LDP) Lane unclear (On/Off)	▼	×	Lane marker condition received from lane camera unit via CAN communication

ACTIVE TEST MODE

CAUTION:

- **Do not perform active test while driving vehicle.**
- **Make sure to completely bleed air from brake system.**
- **The active test cannot be started when ABS warning lamp, VDC OFF indicator lamp, SLIP indicator lamp and brake warning lamp are ON.**
- **ABS warning lamp, VDC OFF indicator lamp, SLIP indicator lamp and brake warning lamp are ON during active test.**
- **Erase memory of ICC system after implementing active test. Refer to ACS-35, "Self-Diagnostic Function".**
- **Erase memory of the lane camera unit after implementing active test. Refer to ACS-95, "CONSULT-III Function (LANE CAMERA)".**

NOTE:

- When active test is performed while depressing the pedal, the pedal depression amount will change. This is normal. (Only solenoid valve and ABS motor.)
- “TEST IS STOPPED” is displayed 10 seconds after start of operation.
- After “TEST IS STOPPED” is displayed, perform test again.

Test Item

ABS SOLENOID VALVE

- Touch “Up”, “Keep” and “Down”. Then use screen monitor to check that solenoid valve operates as shown in the table below.

Test item	Display item (Note)	Display		
		Up	Keep	Down
FR RH SOL	FR RH IN SOL	Off	On	On
	FR RH OUT SOL	Off	Off	On*
	USV [FR-RL]	Off	Off	Off
	HSV [FR-RL]	Off	Off	Off
FR LH SOL	FR LH IN SOL	Off	On	On
	FR LH OUT SOL	Off	Off	On*
	USV [FL-RR]	Off	Off	Off
	HSV [FL-RR]	Off	Off	Off

Test item	Display item (Note)	Display		
		Up	Keep	Down
RR RH SOL	RR RH IN SOL	Off	On	On
	RR RH OUT SOL	Off	Off	On*
	USV [FL-RR]	Off	Off	Off
	HSV [FL-RR]	Off	Off	Off
RR LH SOL	RR LH IN SOL	Off	On	On
	RR LH OUT SOL	Off	Off	On*
	USV [FR-RL]	Off	Off	Off
	HSV [FR-RL]	Off	Off	Off

*: On for 1 to 2 seconds after the touching, and then Off.

NOTE:

A brief moment of On/Off condition occurs every 20 seconds after ignition switch is turned ON. This is not a malfunction because it is an operation for checking.

ABS SOLENOID VALVE (ACT)

- Touch “Up”, “ACT UP” and “ACT KEEP”. Then use screen monitor to check that solenoid valve operates as shown in the table below.

Test item	Display item (Note)	Display		
		Up	ACT UP	ACT KEEP
FR RH ABS SOLENOID (ACT)	FR RH IN SOL	Off	Off	Off
	FR RH OUT SOL	Off	Off	Off
	USV [FR-RL]	Off	On	On
	HSV [FR-RL]	Off	On*	Off
FR LH ABS SOLENOID (ACT)	FR LH IN SOL	Off	Off	Off
	FR LH OUT SOL	Off	Off	Off
	USV [FL-RR]	Off	On	On
	HSV [FL-RR]	Off	On*	Off
RR RH ABS SOLENOID (ACT)	RR RH IN SOL	Off	Off	Off
	RR RH OUT SOL	Off	Off	Off
	USV [FL-RR]	Off	On	On
	HSV [FL-RR]	Off	On*	Off
RR LH ABS SOLENOID (ACT)	RR LH IN SOL	Off	Off	Off
	RR LH OUT SOL	Off	Off	Off
	USV [FR-RL]	Off	On	On
	HSV [FR-RL]	Off	On*	Off

*: On for 1 to 2 seconds after the touching, and then Off.

NOTE:

A brief moment of On/Off condition occurs every 20 seconds after ignition switch is turned ON. This is not a malfunction because it is an operation for checking.

ABS MOTOR

- Touch “On” and “Off” on screen. Make sure that motor relay and actuator relay operate as shown in table below.

Test item	Display item	Display	
		On	Off
ABS MOTOR	MOTOR RELAY	On	Off
	ACTUATOR RLY (Note)	On	On

NOTE:

A brief moment of On/Off condition occurs every 20 seconds after ignition switch is turned ON. This is not a malfunction because it is an operation for checking.

ECU PART NUMBER

ABS actuator and electric unit (control unit) part number can be read.

COMPONENT DIAGNOSIS

C1B00 CAMERA UNIT MALF

DTC Logic

INFOID:0000000003035029

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B00	CAMERA UNIT MALF	Lane camera unit internal malfunction	Erase DTC with CONSULT-III	Lane camera unit

Diagnosis Procedure

INFOID:0000000003035030

1.ERASE DTC

Erase DTC memory of lane camera unit with self-diagnosis of CONSULT-III.

Is the DTC “C1B00” erased?

YES >> INSPECTION END
NO >> Replace the lane camera unit.

C1B01 CAM AIMING INCMP

DTC Logic

INFOID:0000000003035031

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B01	CAM AIMING INCMP	Camera aiming is not completed.	Camera aiming is completed.	• Lane camera aiming is not adjusted. • Lane camera unit

Diagnosis Procedure

INFOID:0000000003035032

1.CAMERA AIMING

Perform the camera aiming. Refer to ACS-77, "CAMERA AIMING ADJUSTMENT : Description".

>> GO TO 2.

2.PERFORM SELF-DIAGNOSIS OF LANE CAMERA UNIT

Perform the self-diagnosis of lane camera unit with CONSULT-III.

Is the DTC “C1B01” detected?

YES >> Replace the lane camera unit.
NO >> INSPECTION END

C1B02 VHCL SPD DATA MALF

DTC Logic

INFOID:0000000003035033

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B02	VHCL SPD DATA MALF	Lane camera unit detected vehicle speed signal error from ABS actuator and electric unit (control unit).	Erase DTC with CONSULT-III	• Vehicle speed signal • ABS actuator and electric unit (control unit) • Lane camera unit

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of lane camera unit with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition ON.
2. Drive at 40 km/h or more.
3. Stop the vehicle.
4. Perform the self-diagnosis of lane camera unit with CONSULT-III.

Is the DTC “C1B02” detected?

YES >> Refer to ACS-109, "Diagnosis Procedure".
NO >> Refer to GI-26, "How to Perform Efficient Diagnosis for an Electrical Incident".

Diagnosis Procedure

INFOID:0000000003035034

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

Perform self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is any DTC detected?

YES >> Perform trouble diagnosis of ABS actuator and electric unit (control unit). Refer to ACS-160, "DTC No. Index".
NO >> Replace the lane camera unit.

C1B03 ABNRML TEMP DETECT

DTC Logic

INFOID:0000000003035035

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B03	ABNRML TEMP DETECT	Temperature around lane camera unit is excessively high.	Erase DTC with CONSULT-III	Interior room temperature is excessively high.

Diagnosis Procedure

INFOID:0000000003035036

1.COOLING LANE CAMERA UNIT

Cooling the lane camera unit.

>> GO TO 2.

2.ERASE DTC

Erase DTC memory of the lane camera unit with self-diagnosis of CONSULT-III.

Is the DTC “C1B03” erased?

YES >> INSPECTION END
NO >> Replace the lane camera unit.

C1B07 ABS DIAGNOSIS

DTC Logic

INFOID:0000000003035037

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B07	ABS DIAGNOSIS	• Lane camera unit received that ABS actuator and electric unit (control unit) is detecting any DTC. • Lane camera unit received that ABS actuator and electric unit (control unit) is performing “Work support” or “Active test” with CONSULT-III.	Erase DTC with CONSULT-III	ABS actuator and electric unit (control unit)

Diagnosis Procedure

INFOID:0000000003304335

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

Perform self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is any DTC detected?

YES >> Perform trouble diagnosis of ABS actuator and electric unit (control unit). Refer to ACS-160, "DTC No. Index".

NO >> GO TO 2.

2.ERASE DTC

Erase DTC memory of the lane camera unit with self-diagnosis of CONSULT-III.

Is the DTC “C1B07” erased?

YES >> INSPECTION END

NO >> Replace the lane camera unit.

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000003304354

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-line, CAN L-line) 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-30, "CAN Communication Signal Chart".

DTC Logic

INFOID:0000000003035040

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U1000	CAN COMM CIRCUIT	When lane camera unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	Erase DTC with CONSULT-III	CAN communication

Diagnosis Procedure

INFOID:0000000003035041

1.ERASE DTC

Erase DTC memory of the lane camera unit with self-diagnosis of CONSULT-III.

>> GO TO 2.

2.PERFORM SELF-DIAGNOSIS OF LANE CAMERA UNIT

Perform the self-diagnosis of the lane camera unit with CONSULT-III.

Is “U1000” displayed?

YES >> Refer to LAN-20, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-26, "How to Perform Efficient Diagnosis for an Electrical Incident".

U1010 CONTROL UNIT (CAN)

DTC Logic

INFOID:0000000003035042

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U1010	CONTROL UNIT (CAN)	Lane camera unit detected internal CAN communication circuit malfunction.	Erase DTC with CONSULT-III	Lane camera unit

Diagnosis Procedure

INFOID:0000000003035043

1.ERASE DTC

Erase DTC memory of lane camera unit with self-diagnosis of CONSULT-III.

Is the DTC “U1010” erased?

YES >> INSPECTION END
NO >> Replace the lane camera unit.

U0122 VDC CAN CIR1 (LDP)

DTC Logic

INFOID:0000000003304340

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U0122	VDC CAN CIR1 (LDP)	Lane camera unit detected an error of CAN communication signal that was received from ABS actuator and electric unit (control unit).	Erase DTC with CONSULT-III	• ABS actuator and electric unit (control unit) • Lane camera unit

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of lane camera unit with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform the self-diagnosis of lane camera unit with CONSULT-III.

Is the DTC “U0122” detected?

YES >> Refer to ACS-114, "Diagnosis Procedure".
NO >> Refer to GI-26, "How to Perform Efficient Diagnosis for an Electrical Incident".

Diagnosis Procedure

INFOID:0000000003304341

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

Perform self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 4.

2.ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) TROUBLE DIAGNOSIS

Perform trouble diagnosis of ABS actuator and electric unit (control unit). Refer to ACS-160, "DTC No. Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of lane camera unit with self-diagnosis of CONSULT-III.

Is the DTC “U0122” erased?

YES >> INSPECTION END
NO >> Replace the lane camera unit.

4.PROVISIONAL REPLACEMENT OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Remove ABS actuator and electric unit (control unit). Install the normal ABS actuator and electric unit (control unit).

>> GO TO 5.

5.ERASE DTC

Erase DTC memory of lane camera unit with self-diagnosis of CONSULT-III.

Is the DTC “U0122” erased?

YES >> Replace ABS actuator and electric unit (control unit).

NO >> Replace the lane camera unit.

U0416 VDC CAN CIR2 (LDP)

DTC Logic

INFOID:0000000003304344

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U0416	VDC CAN CIR2 (LDP)	Lane camera unit detected an error of CAN communication signal that was received from ABS actuator and electric unit (control unit).	Erase DTC with CONSULT-III	• ABS actuator and electric unit (control unit) • Lane camera unit

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of lane camera unit with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform the self-diagnosis of lane camera unit with CONSULT-III.

Is the DTC “U0416” detected?

YES >> Refer to ACS-116, "Diagnosis Procedure".
NO >> Refer to GI-26, "How to Perform Efficient Diagnosis for an Electrical Incident".

Diagnosis Procedure

INFOID:0000000003304649

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

Perform self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 4.

2.ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) TROUBLE DIAGNOSIS

Perform trouble diagnosis of ABS actuator and electric unit (control unit). Refer to ACS-160, "DTC No. Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of lane camera unit with self-diagnosis of CONSULT-III.

Is the DTC “U0416” erased?

YES >> INSPECTION END
NO >> Replace the lane camera unit.

4.PROVISIONAL REPLACEMENT OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Remove ABS actuator and electric unit (control unit). Install the normal ABS actuator and electric unit (control unit).

>> GO TO 5.

5.ERASE DTC

Erase DTC memory of lane camera unit with self-diagnosis of CONSULT-III.

Is the DTC “U0416” erased?

YES >> Replace ABS actuator and electric unit (control unit).

NO >> Replace the lane camera unit.

C1B00 LDP) CAMERA MALF

DTC Logic

INFOID:0000000003188105

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B00	LDP) CAMERA MALF	ABS actuator and electric unit (control unit) received that lane camera unit is detecting “C1B00” (Lane camera unit internal malfunction).	Erase DTC with CONSULT-III	Lane camera unit

Diagnosis Procedure

INFOID:0000000003188106

1.LANE CAMERA UNIT TROUBLE DIAGNOSIS

Perform trouble diagnosis of the lane camera unit for “C1B00 CAMERA UNIT MALF”. Refer to ACS-107, "DTC Logic".

>> GO TO 2.

2.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “C1B00” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

C1B04 LDP) ICC STG SW MALF

DTC Logic

INFOID:0000000003035046

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B04	LDP) ICC STG SW MALF	ABS actuator and electric unit (control unit) received ICC steering switch malfunction from ECM.	Erase DTC with CONSULT-III	• ICC steering switch circuit • ICC steering switch • ECM • ABS actuator and electric unit (control unit)

Diagnosis Procedure

INFOID:0000000003035047

1.ECM TROUBLE DIAGNOSIS

Perform trouble diagnosis of ECM for “P1564 ICC STEERING SWITCH”. Refer to EC-493, "Component Description" (VQ35DE) or EC-1126, "Component Description" (VK45DE).

>> GO TO 2.

2.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “C1B04” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

C1B05 LDP) APP SEN MALF

DTC Logic

INFOID:0000000003035048

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B05	LDP) APP SEN MALF	ABS actuator and electric unit (control unit) detects that accelerator pedal position sensor signal is malfunctioning.	Erase DTC with CONSULT-III	• Accelerator pedal position sensor • Accelerator pedal position sensor circuit • ECM • ABS actuator and electric unit (control unit)

Diagnosis Procedure

INFOID:0000000003035049

1.ECM TROUBLE DIAGNOSIS

Perform trouble diagnosis of ECM for “P2122, P2123 APP SENSOR and P2127, P2128 APP SENSOR”. Refer to the following items;

VQ35DE
- P2122, P2123 APP SENSOR: EC-550, "Component Description"
- P2127, P2128 APP SENSOR: EC-555, "Component Description"

VK45DE
- P2122, P2123 APP SENSOR: EC-1188, "Component Description"
- P2127, P2128 APP SENSOR: EC-1193, "Component Description"

>> GO TO 2.

2.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “C1B05” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

C1B06 LDP) TCM MALF

DTC Logic

INFOID:0000000003035050

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B06	LDP) TCM MALF	ABS actuator and electric unit (control unit) detects that TCM has a malfunction.	Erase DTC with CONSULT-III	• Any of A/T system components • TCM • ABS actuator and electric unit (control unit)

Diagnosis Procedure

INFOID:0000000003035051

1.PERFORM SELF-DIAGNOSIS OF TCM

Perform self-diagnosis of TCM with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> Replace ABS actuator and electric unit (control unit).

2.TCM TROUBLE DIAGNOSIS

Perform trouble diagnosis of TCM. Refer to AT-5, "DTC No. Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “C1B06” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

U0100 LDP) ECM CAN CIR2

DTC Logic

INFOID:0000000003035052

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U0100	LDP) ECM CAN CIR2	ABS actuator and electric unit (control unit) detected an error of CAN communication signal that was received from ECM.	Erase DTC with CONSULT-III	• ECM • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of ABS actuator and electric unit (control unit) with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform the self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is the DTC “U0100” detected?

YES >> Refer to ACS-122, "Diagnosis Procedure".
NO >> Refer to GI-26, "How to Perform Efficient Diagnosis for an Electrical Incident".

Diagnosis Procedure

INFOID:0000000003035053

1.PERFORM SELF-DIAGNOSIS OF ECM

Perform self-diagnosis of ECM with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 4.

2.ECM TROUBLE DIAGNOSIS

Perform trouble diagnosis of ECM. Refer to AT-5, "DTC No. Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U0100” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

4.PROVISIONAL REPLACEMENT OF ECM

Remove ECM. Install a normal ECM.

>> GO TO 5.

5.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U0100” erased?

YES >> Replace ECM.
NO >> Replace ABS actuator and electric unit (control unit).

U0101 LDP) TCM CAM CAN CIR2

DTC Logic

INFOID:0000000003229806

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U0101	LDP) TCM CAN CIR2	ABS actuator and electric unit (control unit) detected an error of CAN communication signal that was received from TCM.	Erase DTC with CONSULT-III	• TCM • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of ABS actuator and electric unit (control unit) with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform the self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is the DTC “U0101” detected?

YES >> Refer to ACS-123, "Diagnosis Procedure".
NO >> Refer to GI-26, "How to Perform Efficient Diagnosis for an Electrical Incident".

Diagnosis Procedure

INFOID:0000000003229807

1.PERFORM SELF-DIAGNOSIS OF TCM

Perform self-diagnosis of TCM with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 4.

2.TCM TROUBLE DIAGNOSIS

Perform trouble diagnosis of TCM. Refer to AT-5, "DTC No. Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U0101” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

4.PROVISIONAL REPLACEMENT OF TCM

Remove TCM. Install a normal TCM.

>> GO TO 5.

5.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U0101” erased?

YES >> Replace TCM.
NO >> Replace ABS actuator and electric unit (control unit).

U0104 LDP) ICC CAM CAN CIR2

DTC Logic

INFOID:0000000003229808

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U0104	LDP) ICC CAM CAN CIR1	ABS actuator and electric unit (control unit) detected an error of CAN communication signal that was received from ICC sensor integrated unit.	Erase DTC with CONSULT-III	• ICC sensor integrated unit • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of ABS actuator and electric unit (control unit) with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform the self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is the DTC “U0104” detected?

YES >> Refer to ACS-124, "Diagnosis Procedure".
NO >> Refer to GI-26, "How to Perform Efficient Diagnosis for an Electrical Incident".

Diagnosis Procedure

INFOID:0000000003229809

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

Perform ICC sensor integrated unit self-diagnosis with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 4.

2.ICC SENSOR INTEGRATED UNIT TROUBLE DIAGNOSIS

Perform trouble diagnosis of ICC sensor integrated unit. Refer to AT-5, "DTC No. Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U0104” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

4.PROVISIONAL REPLACEMENT OF ICC SENSOR INTEGRATED UNIT

Remove ICC sensor integrated unit. Install a normal ICC sensor integrated unit.

>> GO TO 5.

5.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U0104” erased?

YES >> Replace ICC sensor integrated unit.
NO >> Replace ABS actuator and electric unit (control unit).

U0405 LDP) ICC CAM CAN CIR1

DTC Logic

INFOID:0000000003229810

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U0405	LDP) ICC CAM CAN CIR1	ABS actuator and electric unit (control unit) detected an error of CAN communication signal that was received from ICC sensor integrated unit.	Erase DTC with CONSULT-III	• ICC sensor integrated unit • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of ABS actuator and electric unit (control unit) with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform the self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is the DTC “U0405” detected?

YES >> Refer to ACS-125, "Diagnosis Procedure".
NO >> Refer to GI-26, "How to Perform Efficient Diagnosis for an Electrical Incident".

Diagnosis Procedure

INFOID:0000000003229811

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

Perform ICC sensor integrated unit self-diagnosis with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 4.

2.ICC SENSOR INTEGRATED UNIT TROUBLE DIAGNOSIS

Perform trouble diagnosis of ICC sensor integrated unit. Refer to AT-5, "DTC No. Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U0405” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

4.PROVISIONAL REPLACEMENT OF ICC SENSOR INTEGRATED UNIT

Remove ICC sensor integrated unit. Install a normal ICC sensor integrated unit.

>> GO TO 5.

5.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U0405” erased?

YES >> Replace ICC sensor integrated unit.
NO >> Replace ABS actuator and electric unit (control unit).

U1500 LDP) CAM CAN CIR1

DTC Logic

INFOID:0000000003229812

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U1500	LDP) CAM CAN CIR1	ABS actuator and electric unit (control unit) detected an error of CAN communication signal that was received from the lane camera unit.	Erase DTC with CONSULT-III	• Lane camera unit • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of ABS actuator and electric unit (control unit) with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform the self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is the DTC “U1500” detected?

YES >> Refer to ACS-126, "Diagnosis Procedure".
NO >> Refer to GI-26, "How to Perform Efficient Diagnosis for an Electrical Incident".

Diagnosis Procedure

INFOID:0000000003229813

1.PERFORM SELF-DIAGNOSIS OF LANE CAMERA UNIT

Perform self-diagnosis of lane camera unit with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 4.

2.LANE CAMERA UNIT TROUBLE DIAGNOSIS

Perform trouble diagnosis of the lane camera unit. Refer to AT-5, "DTC No. Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U1500” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

4.PROVISIONAL REPLACEMENT OF LANE CAMERA UNIT

Remove the lane camera unit. Install a normal lane camera unit.

>> GO TO 5.

5.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U1500” erased?

YES >> Replace the lane camera unit.
NO >> Replace ABS actuator and electric unit (control unit).

U1501 LDP) CAM CAN CIR2

DTC Logic

INFOID:0000000003247988

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U1501	LDP) CAM CAN CIR2	ABS actuator and electric unit (control unit) detected an error of CAN communication signal that was received from the lane camera unit.	Erase DTC with CONSULT-III	• Lane camera unit • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of ABS actuator and electric unit (control unit) with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform the self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is the DTC “U1501” detected?

YES >> Refer to ACS-127, "Diagnosis Procedure".
NO >> Refer to GI-26, "How to Perform Efficient Diagnosis for an Electrical Incident".

Diagnosis Procedure

INFOID:0000000003247989

1.PERFORM SELF-DIAGNOSIS OF LANE CAMERA UNIT

Perform self-diagnosis of lane camera unit with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 4.

2.LANE CAMERA UNIT TROUBLE DIAGNOSIS

Perform trouble diagnosis of the lane camera unit. Refer to AT-5, "DTC No. Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U1501” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

4.PROVISIONAL REPLACEMENT OF LANE CAMERA UNIT

Remove lane camera unit. Install a normal lane camera unit.

>> GO TO 5.

5.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U1501” erased?

YES >> Replace the lane camera unit.
NO >> Replace ABS actuator and electric unit (control unit).

POWER SUPPLY AND GROUND CIRCUIT
LANE CAMERA UNIT

LANE CAMERA UNIT : Diagnosis Procedure

INFOID:0000000003035064

1.FUSE INSPECTION

Check that the following fuses are not fusing.

Signal name	Connection position	Fuse No.	Capacity
Ignition power supply	FUSE BLOCK (J/B)	12	10 A

Is the fuse fusing?

YES >> Replace the blown fuse after repairing the affected circuit.
NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between the lane camera unit harness connector and ground.

Terminals			Condition	Voltage (Approx.)
(+)		(–)		
Lane camera unit		Ground	Ignition switch	
Connector	Terminal			
M182	1		OFF	0 V
			ON	Battery voltage

Is the measurement value normal?

YES >> GO TO 3.
NO >> Check harness between lane camera unit and fuse.

3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the lane camera unit connector.
3. Check continuity between the lane camera unit harness connectors and ground.

Lane camera unit		Ground	Continuity
Connector	Terminal		
M182	6		Existed
	12		

Does continuity exist?

YES >> Power supply and ground circuit are normal.
NO >> Repair harness or connector.

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) : ABS Actuator and Electric Unit (Control Unit) Power Supply and Ground Circuit

INFOID:0000000003188202

INSPECTION PROCEDURE

1.CHECK SELF-DIAGNOSIS RESULTS

Check self-diagnosis results.

Self-diagnosis results
BATTERY VOLTAGE [ABNORMAL]

Is the above displayed on the self-diagnosis display?

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

2.CHECK CONNECTOR

1. Turn ignition switch OFF and disconnect ABS actuator and electric unit (control unit) connector E30, check terminal for deformation, disconnection, looseness, etc. If any malfunction is found, repair or replace terminal.
2. Reconnect connector and perform self-diagnosis.

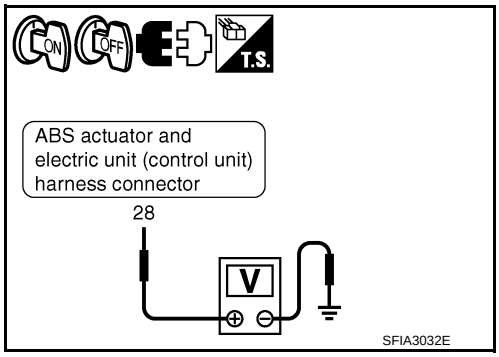
OK or NG

OK >> INSPECTION END
NG >> GO TO 3.

3.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) POWER SUPPLY CIRCUIT AND GROUND CIRCUIT

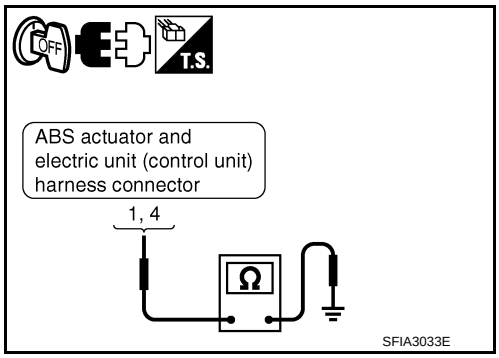
1. Turn ignition switch OFF and disconnect ABS actuator and electric unit (control unit) connector E30.
2. Turn ignition switch ON or OFF and check voltage between ABS actuator and electric unit (control unit) harness connector E30 terminal 28 and ground.

ABS actuator and electric unit (control unit)	Ground	Condition	Voltage
28	—	Ignition switch ON	Battery voltage (Approx. 12 V)
		Ignition switch OFF	Approx. 0 V



3. Turn ignition switch OFF and check continuity between ABS actuator and electric unit (control unit) harness connector E30 terminals 1, 4 and ground.

ABS actuator and electric unit (control unit)	Ground	Continuity
1, 4	—	Yes



OK or NG

OK >> • Check battery for terminal looseness, low voltage, etc. If any malfunction is found, repair malfunctioning parts.
• Perform the self-diagnosis, and make sure that the result shows “NO DTC IS DETECTED”.

NG >> • Repair or replace malfunctioning components.
• Perform the self-diagnosis, and make sure that the result shows “NO DTC IS DETECTED”.

LDW SWITCH CIRCUIT

Component Function Check

INFOID:0000000003035065

1.CHECK LDW SWITCH SIGNAL BY CONSULT-III

CONSULT-III DATA MONITOR
1. Turn the ignition switch ON.
2. Select “LDW SW” of “LANE CAM” data monitor item.
3. With operating the LDW switch, check the monitor status.

Monitor item	Condition		Monitor status
LDW SW	LDW switch	Pressed ⇔ Released	On ⇔ Off

Is the item status normal?

YES >> LDW switch circuit is normal.
NO >> Refer to ACS-130, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003035066

1.CHECK LDW SWITCH SIGNAL INPUT

1. Turn the ignition switch ON.
2. With operating the LDW switch, check the voltage between the lane camera unit harness connector and the ground.

Terminals			Condition	Voltage (Approx.)
(+)		(–)		
Lane camera unit		Ground	LDW switch	
Connector	Terminal			
M182	9		Pressed	0 V
			Released	5 V

Is the measurement value normal?

YES >> Replace the lane camera unit.
NO >> GO TO 2.

2.CHECK LDW SWITCH

1. Turn ignition switch OFF.
2. Remove LDW switch.
3. Check LDW switch. Refer to ACS-131, "Component Inspection".

Is the LDW switch normal?

YES >> GO TO 3.
NO >> Replace LDW switch.

3.CHECK LDW SWITCH GROUND CIRCUIT

Check continuity between LDW switch harness connector terminal and the ground.

LDW switch		Ground	Continuity
Connector	Terminal		
M49	6		Existed

Does continuity exist?

YES >> GO TO 4.
NO >> Repair harness or connector.

4.CHECK LDW SWITCH SIGNAL INPUT CIRCUIT FOR OPEN

1. Disconnect the lane camera unit connector.

2. Check continuity between the lane camera unit harness connector and LDW switch harness connector.

Lane camera unit		LDW switch		Continuity
Connector	Terminal	Connector	Terminal	
M182	9	M49	7	Existed

Does continuity exist?

YES >> GO TO 5.
NO >> Repair the harnesses or connectors.

5. CHECK LDW SWITCH SIGNAL INPUT CIRCUIT FOR SHORT

Check continuity between the lane camera unit harness connector and ground.

Lane camera unit		Ground	Continuity
Connector	Terminal		
M182	9		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.
NO >> Replace the lane camera unit.

Component Inspection

INFOID:0000000003035067

1. CHECK LDW SWITCH

Check continuity of LDW switch.

LDW switch		Condition	Continuity
Terminal		LDW switch	
6	7	Pressed	Existed
		Released	Not existed

Is the check result normal?

YES >> LDW switch is normal.
NO >> Replace LDW switch.

LDW ON INDICATOR CIRCUIT

Component Function Check

INFOID:0000000003035068

1.CHECK LDW ON INDICATOR BY CONSULT-III

CONSULT-III ACTIVE TEST
1. Turn the ignition switch ON.
2. Select “LDW ON IND” of “LANE CAM” active test item.
3. With operating the test item, check the operation.

On : LDW ON indicator illuminates.
Off : LDW ON indicator is turned OFF.

Does the LDW ON indicator illuminate?

YES >> LDW ON indicator circuit is normal.
NO >> Refer to ACS-132, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003035069

1.CHECK LDW ON INDICATOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect LDW switch connector.
3. Turn ignition switch ON.
4. Check voltage between LDW switch harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(–)	
LDW switch		Ground	
Connector	Terminal		
M49	3		Battery voltage

Is the measurement value normal?

YES >> GO TO 2.
NO >> Check harness between fuse and LDW switch.

2.CHECK LDW ON INDICATOR SIGNAL FOR OPEN

Check continuity between the lane camera unit harness connector and LDW switch harness connector.

Lane camera unit		LDW switch		Continuity
Connector	Terminal	Connector	Terminal	
M182	4	M49	2	Existed

Does continuity exist?

YES >> GO TO 3.
NO >> Repair the harnesses or connectors.

3.CHECK LDW ON INDICATOR SIGNAL CIRCUIT FOR SHORT

Check continuity between the lane camera unit harness connector and ground.

Lane camera unit		Ground	Continuity
Connector	Terminal		
M182	4		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.
NO >> GO TO 4.

4. CHECK LDW ON INDICATOR

1. Connect LDW switch connector.
2. Turn ignition switch ON.
3. Apply ground to LDW switch terminal 2.
4. Check condition of the LDW ON indicator.

Does LDW ON indicator illuminate?

YES >> Replace the lane camera unit.
NO >> Replace LDW switch.

LANE DEPARTURE WARNING BUZZER CIRCUIT

Component Function Check

INFOID:0000000003035070

1.CHECK LANE DEPARTURE WARNING BUZZER BY CONSULT-III

CONSULT-III ACTIVE TEST
1. Turn the ignition switch ON.
2. Select “BUZZER DRIVE” of “LANE CAM” active test item.
3. With operating the test item, check the operation.

On : Lane departure warning buzzer is activated.
Off : Lane departure warning buzzer is not activated.

Is the lane departure warning buzzer activated?

YES >> Lane departure warning buzzer circuit is normal.
NO >> Refer to ACS-134, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003035071

1.CHECK LANE DEPARTURE WARNING BUZZER POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the lane departure warning buzzer connector.
3. Turn ignition switch ON.
4. Check voltage between the lane departure warning buzzer harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(–)	
Lane departure warning buzzer		Ground	
Connector	Terminal		
M58	1		Battery voltage

Is the measurement value normal?

YES >> GO TO 2.
NO >> Check harness between fuse and lane departure warning buzzer.

2.CHECK LANE DEPARTURE WARNING BUZZER GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between lane departure warning buzzer harness connector and ground.

Lane departure warning buzzer		Ground	Continuity
Connector	Terminal		
M58	3		Existed

Does continuity exist?

YES >> GO TO 3.
NO >> Repair the harnesses or connectors.

3.CHECK LANE DEPARTURE WARNING BUZZER SIGNAL CIRCUIT FOR OPEN

1. Disconnect the lane camera unit connector.
2. Check continuity between the lane camera unit harness connector and lane departure warning buzzer harness connector.

Lane camera unit		Lane departure warning buzzer		Continuity
Connector	Terminal	Connector	Terminal	
M182	3	M58	2	Existed

Does continuity exist?

YES >> GO TO 4.
NO >> Repair the harnesses or connectors.

4. CHECK LANE DEPARTURE WARNING BUZZER SIGNAL CIRCUIT FOR SHORT

Check continuity between the lane camera unit harness connector and ground.

Lane camera unit		Ground	Continuity
Connector	Terminal		
M182	3		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.
NO >> GO TO 5.

5. CHECK LANE DEPARTURE WARNING BUZZER OPERATION

1. Connect lane departure warning buzzer connector.
2. Turn ignition switch ON.
3. Apply ground to lane departure warning buzzer terminal 2.
4. Check condition of the lane departure warning buzzer.

Does lane departure warning buzzer sound?

YES >> Replace the lane camera unit.
NO >> Replace lane departure warning buzzer.

LANE DEPARTURE WARNING LAMP CIRCUIT

Component Function Check

INFOID:0000000003035072

1.CHECK LANE DEPARTURE WARNING LAMP BY CONSULT-III

CONSULT-III ACTIVE TEST
1. Turn the ignition switch ON.
2. Select “LANE DEPARTURE W/L” of “LANE CAM” active test item.
3. With operating the test item, check the operation.

On : Lane departure warning lamp illuminates.
Off : Lane departure warning lamp is turned OFF.

Does the lane departure warning lamp illuminate?

YES >> Lane departure warning lamp circuit is normal.
NO >> Refer to ACS-136, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003035073

1.CHECK LANE DEPARTURE WARNING LAMP SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect the lane camera unit and combination meter connector.
3. Check continuity between the lane camera unit harness connector and combination meter harness connector.

Lane camera unit		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
M182	8	M52	8	Existed

Does continuity exist?

YES >> GO TO 2.
NO >> Repair the harnesses or connectors.

2.CHECK LANE DEPARTURE WARNING LAMP SIGNAL CIRCUIT FOR SHORT

Check continuity between the lane camera unit harness connector and ground.

Lane camera unit		Ground	Continuity
Connector	Terminal		
M182	8		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.
NO >> GO TO 3.

3.CHECK LANE DEPARTURE WARNING LAMP OPERATION

1. Connect combination meter connector.
2. Turn ignition switch ON.
3. Apply ground to combination meter terminal 8.
4. Check condition of the lane departure warning lamp.

Does lane departure warning lamp illuminate?

YES >> Replace the lane camera unit.
NO >> Replace combination meter.

LDP ON INDICATOR LAMP CIRCUIT

Component Function Check

INFOID:0000000003035074

1.CHECK LDP ON INDICATOR LAMP BY CONSULT-III

CONSULT-III ACTIVE TEST
1. Turn the ignition switch ON.
2. Select “LDP ON IND” of “LANE CAM” active test item.
3. With operating the test item, check the operation.

On : LDP ON indicator illuminates.
Off : LDP ON indicator is turned OFF.

Does the LDP ON indicator illuminate?

YES >> LDP ON indicator circuit is normal.
NO >> Refer to ACS-137, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003035075

1.CHECK LDP ON INDICATOR LAMP SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect the lane camera unit and combination meter connector.
3. Check continuity between the lane camera unit harness connector and combination meter harness connector.

Lane camera unit		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
M182	2	M52	7	Existed

Does continuity exist?

YES >> GO TO 2.
NO >> Repair the harnesses or connectors.

2.CHECK LDP ON INDICATOR LAMP SIGNAL CIRCUIT FOR SHORT

Check continuity between the lane camera unit harness connector and ground.

Lane camera unit		Ground	Continuity
Connector	Terminal		
M182	2		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.
NO >> GO TO 3.

3.CHECK LDP ON INDICATOR LAMP OPERATION

1. Connect combination meter connector.
2. Turn ignition switch ON.
3. Apply ground to combination meter terminal 7.
4. Check condition of the LDP ON indicator lamp.

Does LDP ON indicator lamp illuminate?

YES >> Replace the lane camera unit.
NO >> Replace the combination meter.

ECU DIAGNOSIS

LANE CAMERA UNIT

Reference Value

INFOID:0000000003035076

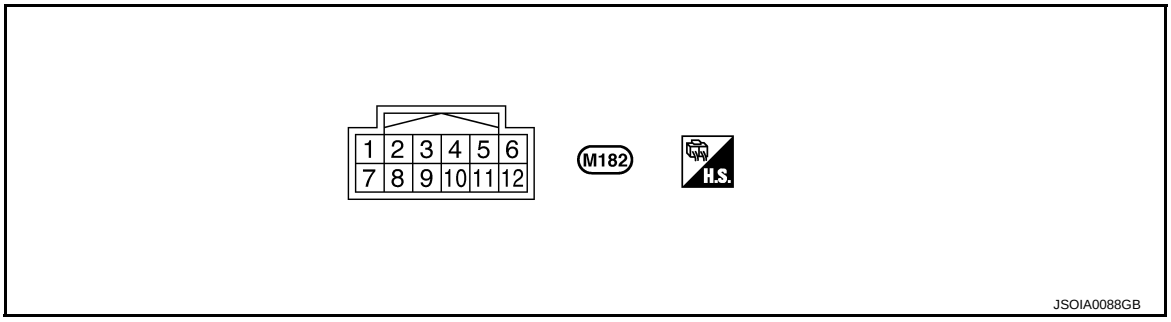
VALUES ON THE DIAGNOSIS TOOL

CONSULT-III MONITOR ITEM

Monitor Item	Condition	Value/Status
LDW SW	LDW switch is ON. (LDW ON indicator illuminates.)	On
	LDW switch is OFF. (LDW ON indicator OFF.)	Off
LDW ON LAMP	LDW ON indicator illuminates.	On
	LDW ON indicator OFF	Off
LDP ON IND	LDP ON indicator lamp illuminates.	On
	LDP ON indicator lamp OFF	Off
LANE DPRT W/L	Lane departure warning lamp illuminates.	On
	Lane departure warning lamp OFF	Off
BUZZER OUTPUT	Lane departure warning buzzer is sounding.	On
	Lane departure warning buzzer is not sounding.	Off
LC INACCURAT	Lane camera malfunction	On
	Lane camera normal	Off
VHCL SPD SE	While driving	Approximately equivalent to speed-ometer 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
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

Monitor Item	Condition	Value/Status
XOFFSET	Camera aiming is completed.	Approx. 180 pixel
CHK AIM YAW	**NOTE:** The item is indicated, but not used.	—
CHK AIM ROLL	**NOTE:** The item is indicated, but not used.	—
CHK AIM PITCH	**NOTE:** The item is indicated, but not used.	—
FCTRY AIM YAW	Camera aiming is not completed.	+12.0 deg
	Camera aiming is completed.	0 ± 5.0 deg
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.	+12.0 deg
	Camera aiming is completed.	0 ± 5.0 deg

TERMINAL LAYOUT



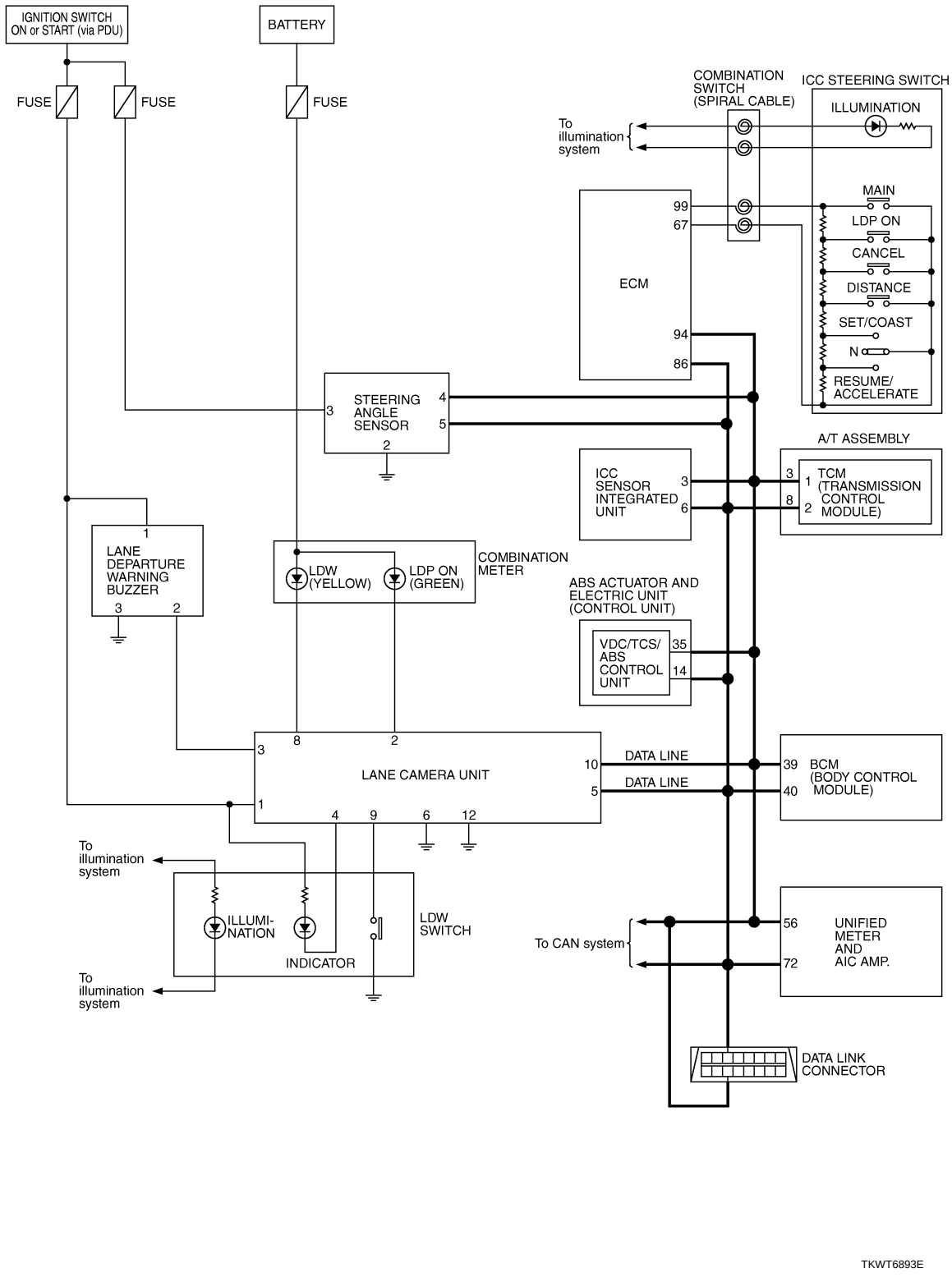
PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
1 (B/R)	Ground	Ignition power supply	Input	Ignition switch ON		Battery voltage
2 (L/Y)	Ground	LDP ON indicator lamp	Output	LDP ON indicator lamp	Illuminated	0 V
					OFF	12 V
3 (R/W)	Ground	Lane departure warning buzzer	Output	Lane departure warning buzzer	Sounding	0 V
					Not sounding	12 V
4 (V)	Ground	LDW ON indicator	Output	LDW ON indicator	Illuminated	0 V
					OFF	12 V
5 (P)	Ground	CAN-L	—	—		—
6 (B)	Ground	Ground	—	—		0 V
8 (G/W)	Ground	Lane departure warning lamp	Output	Lane departure warning lamp	Illuminated	0 V
					OFF	12 V
9 (GR)	Ground	LDW switch	Input	LDW switch	Pressed	0 V
					Released	5 V

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	–	Signal name	Input/ Output		
10 (L)	Ground	CAN-H	—	—	—
12 (B)	Ground	Ground	—	—	0 V

Schematic

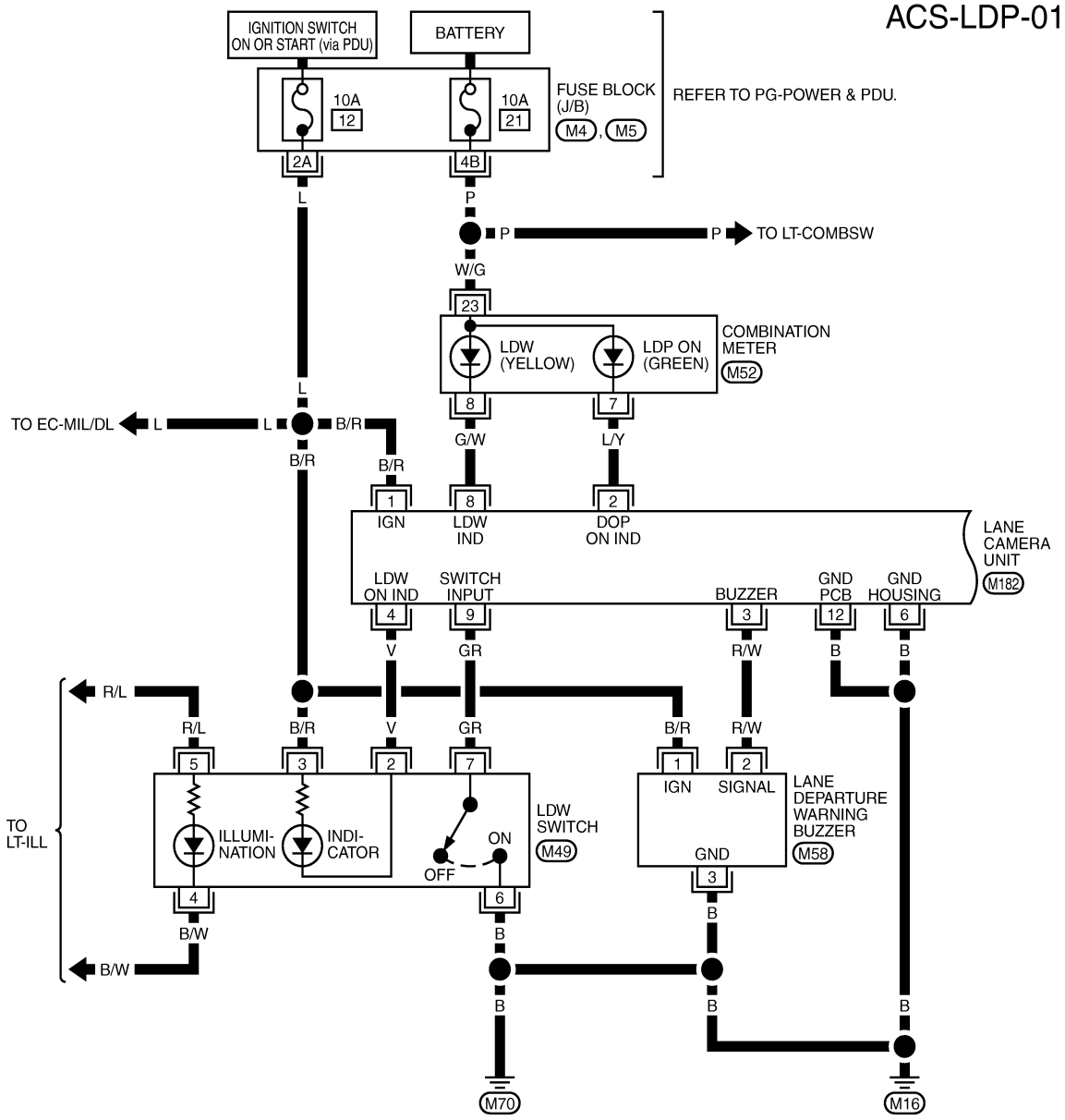
INFOID:0000000003502927

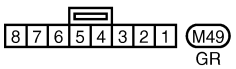


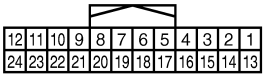
Wiring Diagram - LDW & LDP -

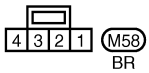
INFOID:0000000003035077

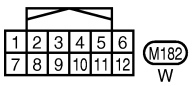
ACS-LDP-01







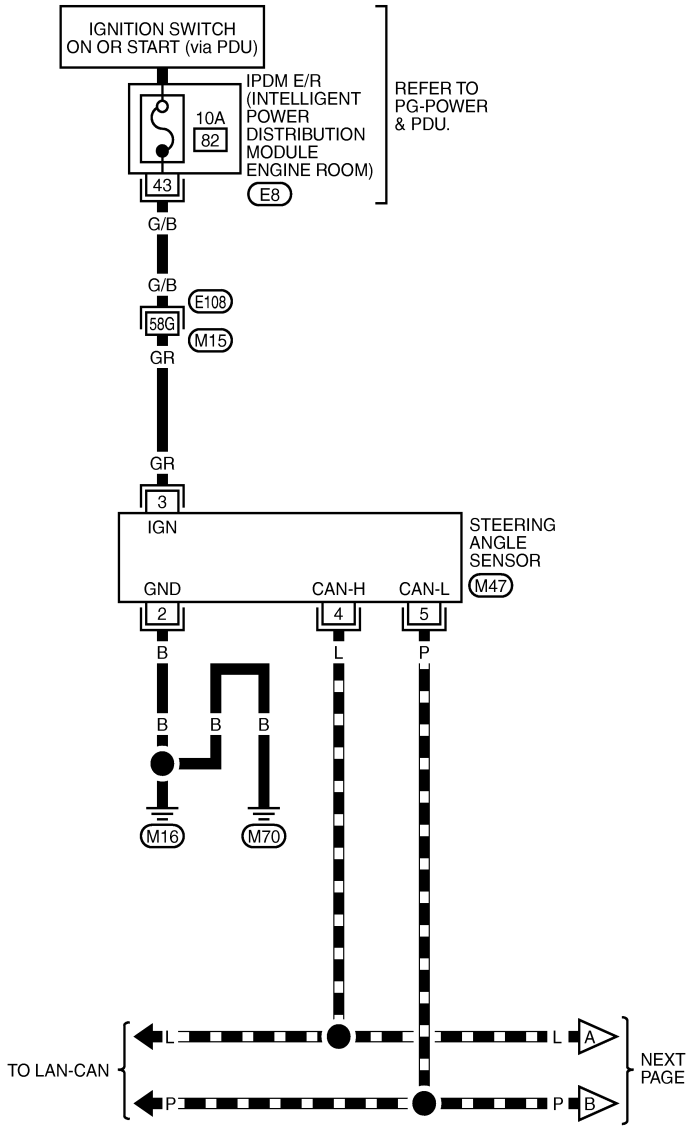


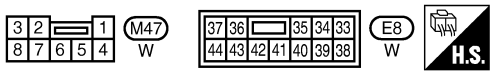


REFER TO THE FOLLOWING.
M4, M5 - FUSE BLOCK - JUNCTION BOX (J/B)

TKWT6894E

ACS-LDP-02

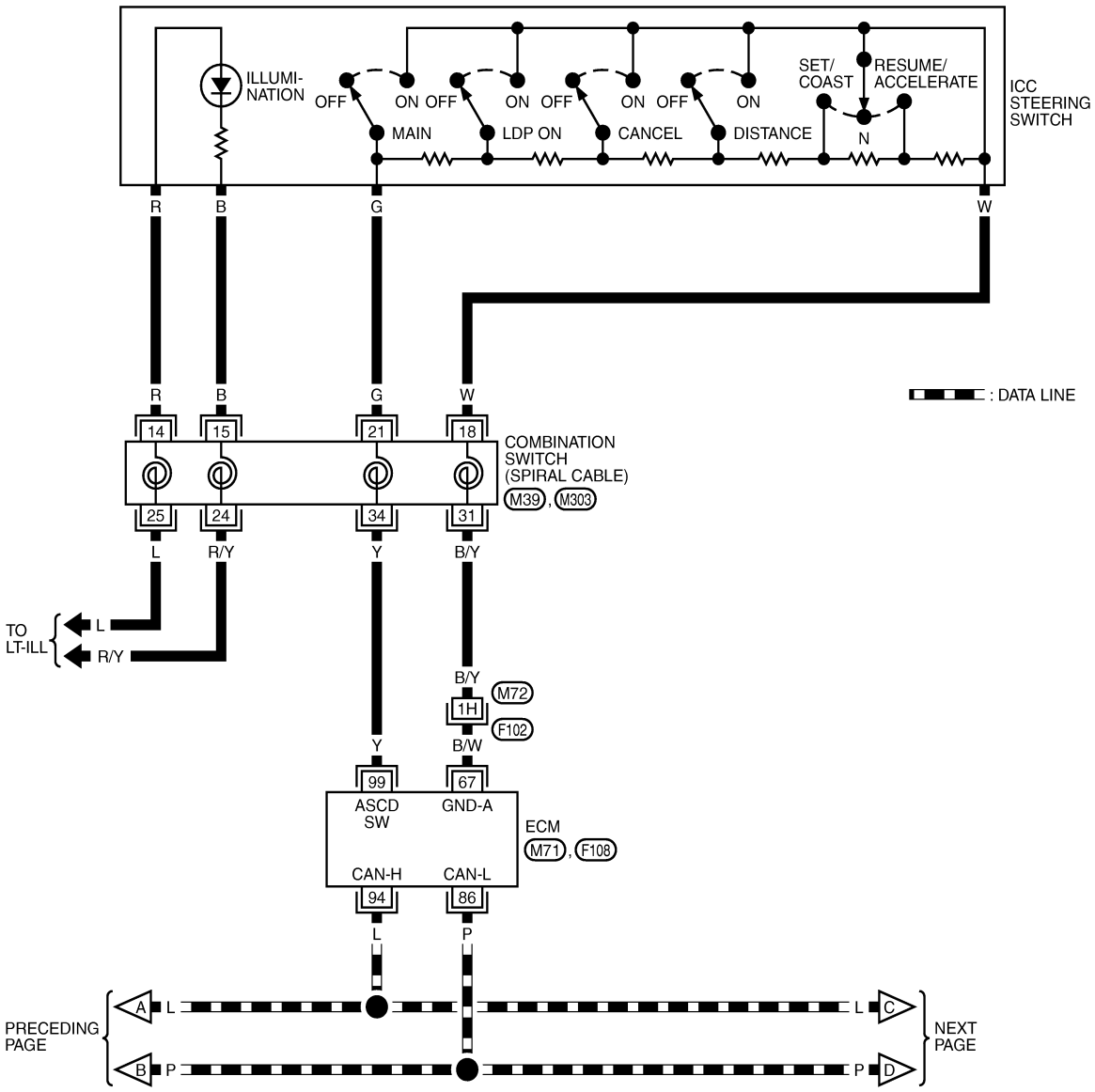


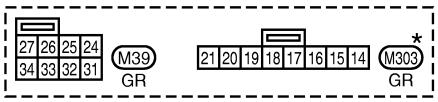


REFER TO THE FOLLOWING.
E108 - SUPER MULTIPLE JUNCTION (SMJ)

TKWT6895E

ACS-LDP-03



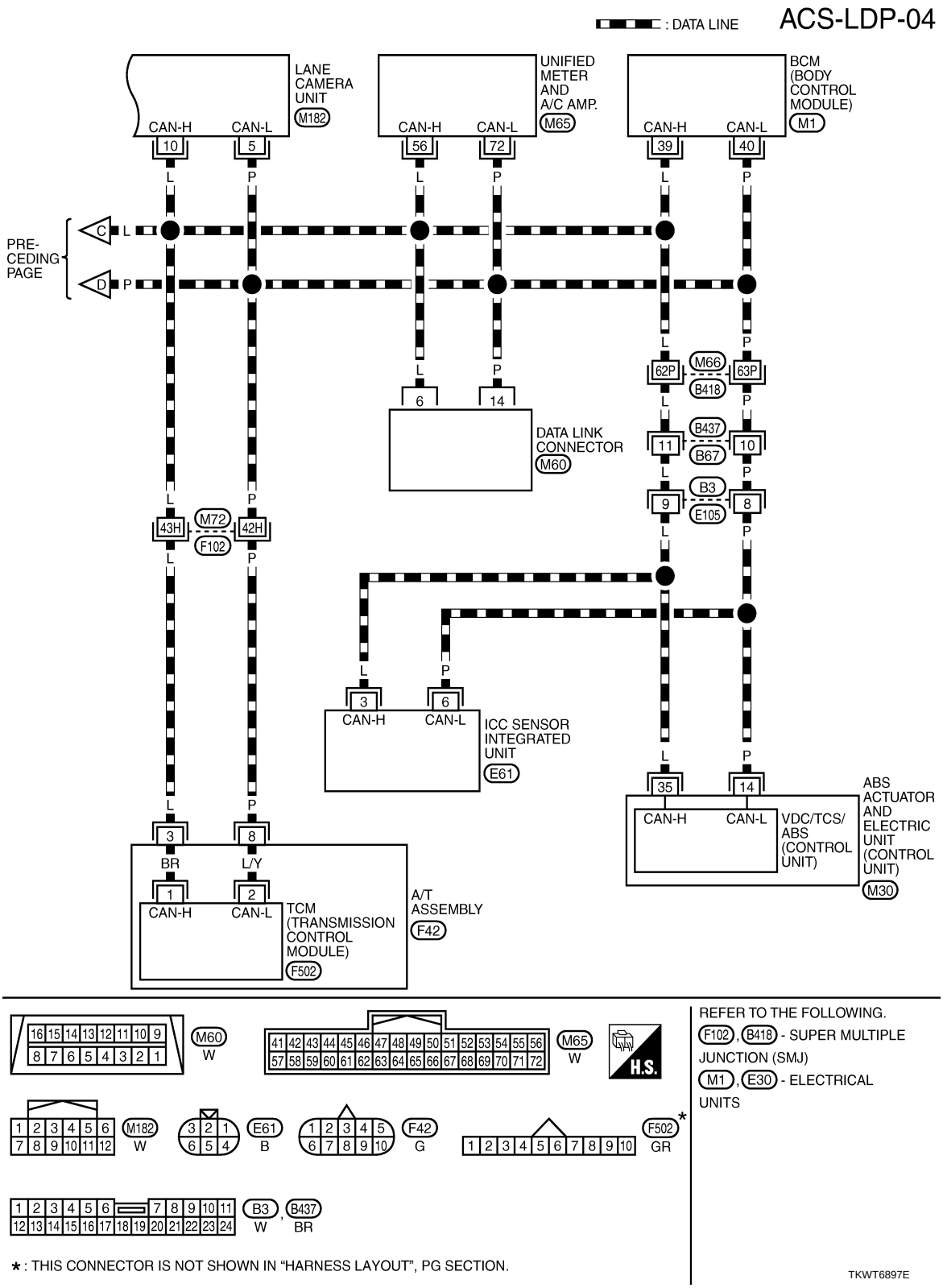


*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

REFER TO THE FOLLOWING.
F102 - SUPER MULTIPLE JUNCTION (SMJ)
M71, F108 - ELECTRICAL UNITS

TKWT6896E

ACS-LDP-04



Fail-safe

INFOID:0000000003035078

FAIL-SAFE CONTROL BY DTC

When any DTC is detected, the LDW/LDP systems do not operate.

TEMPORARY DISABLED STATUS AT HIGH TEMPERATURE

When using LDW

- If the vehicle is parked in direct sunlight under high temperature conditions [approximately over 104°F (40°C)] and then started, the system may sound a buzzer and cancel automatically. In this case LDW ON indicator will blink.
- When the interior temperature is reduced, LDW ON indicator is turned ON.

When using LDP
- If the vehicle is parked in direct sunlight under high temperature conditions [approximately over 104°F (40°C)] and then started, the system may sound a buzzer and cancel automatically. In this case LDP ON indicator lamp will blink.
- When the interior temperature is reduced, LDP ON indicator lamp is turned ON.

DTC Inspection Priority Chart

INFOID:0000000003035079

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	• U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)
2	• U0122: VDC CAN CIR1(LDP) • U0416: VDC CAN CIR2(LDP)
3	C1B00: CAMERA UNIT MALF
4	• C1B01: CAM AIMING INCMP • C1B02: VHCL SPD DATA MALF • C1B03: ABNRML TEMP DETECT • C1B07: ABS DIAGNOSIS

DTC Index

INFOID:0000000003035080

×: Applicable

DTC		Lane departure warning lamp	LDW ON indicator	LDP ON indicator lamp	Fail-safe	Reference page
C1B00	CAMERA UNIT MALF	ON	—	—	×	ACS-107
C1B01	CAM AIMING INCMP	Blink	—	—	×	ACS-108
C1B02	VHCL SPD DATA MALF	ON	—	—	×	ACS-109
C1B03	ABNRML TEMP DETECT	—	Blink (When using LDW)	Blink (When using LDP)	×	ACS-110
C1B07	ABS DIAGNOSIS	ON	—	—	×	ACS-111
U1000	CAN COMM CIRCUIT	ON	—	—	×	ACS-112
U1010	CONTROL UNIT (CAN)	ON	—	—	×	ACS-113
U0122	VDC CAN CIR1(LDP)	ON	—	—	×	ACS-114
U0416	VDC CAN CIR2(LDP)	ON	—	—	×	ACS-116

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Reference Value

INFOID:0000000003106533

VALUES ON THE DIAGNOSIS TOOL

CAUTION:

The display shows the control unit calculation data, so a normal value might be displayed even in the event that the output circuit (harness) is open or short-circuited.

CONSULT-III MONITOR ITEM

Monitor item	Display content	Data monitor	
		Condition	Reference value in normal operation
FR LH SENSOR	Wheel speed	Vehicle stopped	0 [km/h (MPH)]
		Vehicle running (Note 1)	Nearly matches the speedometer display (± 10% or less)
FR RH SENSOR	Wheel speed	Vehicle stopped	0 [km/h (MPH)]
		Vehicle running (Note 1)	Nearly matches the speedometer display (± 10% or less)
RR LH SENSOR	Wheel speed	Vehicle stopped	0 [km/h (MPH)]
		Vehicle running (Note 1)	Nearly matches the speedometer display (± 10% or less)
RR RH SENSOR	Wheel speed	Vehicle stopped	0 [km/h (MPH)]
		Vehicle running (Note 1)	Nearly matches the speedometer display (± 10% or less)
STOP LAMP SW	Stop lamp switch signal status	When brake pedal is depressed	On
		When brake pedal is not depressed	Off
BATTERY VOLT	Battery voltage is supplied to ABS actuator and electric unit (control unit)	Ignition switch ON	10 – 16 V
GEAR	Gear position determined by TCM	First gear (1GR) Second gear (2GR) Third gear (3GR) Fourth gear (4GR) Fifth gear (5GR)	1 2 3 4 5
SLCT LVR POSI	A/T selector lever position	P position R position N position D position	P R N D
OFF SW	VDC OFF switch ON/OFF	VDC OFF switch ON (When VDC OFF indicator lamp is ON)	On
		VDC OFF switch OFF (When VDC OFF indicator lamp is OFF)	Off
YAW RATE SEN	Yaw rate detected by yaw rate/side G sensor	Vehicle stopped	Approx. 0 d/s
		Turning right	Negative value
		Turning left	Positive value
4WD MODE MON (Note 2)	AWD activated	Engine running	AUTO
ACCEL POS SIG	Throttle actuator opening/closing is displayed (linked with accelerator pedal)	Accelerator pedal is not depressed (ignition switch ON)	0 %
		Depress accelerator pedal (ignition switch ON)	0 - 100 %

Monitor item	Display content	Data monitor	
		Condition	Reference value in normal operation
SIDE G-SENSOR	Transverse G detected by side G sensor	Vehicle stopped	Approx. 0 m/s^2
		Turning right	Negative value (m/s^2)
		Turning left	Positive value (m/s^2)
STR ANGLE SIG	Steering angle detected by steering angle sensor	Straight-ahead	±2.5°
		Turn 90° to right	Approx. +90°
		Turn 90° to left	Approx. –90°
PRESS SENSOR	Brake fluid pressure detected by pressure sensor	With ignition switch turned ON and brake pedal released	Approx. 0 bar
		With ignition switch turned ON and brake pedal depressed	–40 to 300 bar
ENGINE RPM	With engine running	With engine stopped	0 [tr/min (rpm)]
		Engine running	Almost in accordance with tachometer display
FLUID LEV SW	Brake fluid level switch signal status	When brake fluid level switch is ON	On
		When brake fluid level switch is OFF	Off
PARK BRAKE SW	Parking brake switch signal status	Parking brake switch is active	On
		Parking brake switch is inactive	Off
LDP) APP SEN	Accelerator pedal position sensor status	Accelerator pedal is not depressed (ignition switch ON)	0 %
		Depress accelerator pedal (ignition switch ON)	0 - 100 %
LDP) Yaw order	Calculated target yaw moment status	LDP is controlling to right side deviation	Negative value
		LDP is controlling to left side deviation	Positive value
FR RH IN SOL	Operation status of each solenoid valve	Actuator (solenoid valve) is active (“ACTIVE TEST” with CONSULT-III) or actuator relay is inactive (in fail-safe mode)	On
		When the actuator (solenoid valve) is not active and actuator relay is active (ignition switch ON)	Off
FR RH OUT SOL	Operation status of each solenoid valve	Actuator (solenoid valve) is active (“ACTIVE TEST” with CONSULT-III) or actuator relay is inactive (in fail-safe mode)	On
		When the actuator (solenoid valve) is not active and actuator relay is active (ignition switch ON)	Off
FR LH IN SOL	Operation status of each solenoid valve	Actuator (solenoid valve) is active (“ACTIVE TEST” with CONSULT-III) or actuator relay is inactive (in fail-safe mode)	On
		When the actuator (solenoid valve) is not active and actuator relay is active (ignition switch ON)	Off
FR LH OUT SOL	Operation status of each solenoid valve	Actuator (solenoid valve) is active (“ACTIVE TEST” with CONSULT-III) or actuator relay is inactive (in fail-safe mode)	On
		When the actuator (solenoid valve) is not active and actuator relay is active (ignition switch ON)	Off

Monitor item	Display content	Data monitor	
		Condition	Reference value in normal operation
RR RH IN SOL	Operation status of each solenoid valve	Actuator (solenoid valve) is active (“ACTIVE TEST” with CONSULT-III) or actuator relay is inactive (in fail-safe mode)	On
		When the actuator (solenoid valve) is not active and actuator relay is active (ignition switch ON)	Off
RR RH OUT SOL	Operation status of each solenoid valve	Actuator (solenoid valve) is active (“ACTIVE TEST” with CONSULT-III) or actuator relay is inactive (in fail-safe mode)	On
		When the actuator (solenoid valve) is not active and actuator relay is active (ignition switch ON)	Off
RR LH IN SOL	Operation status of each solenoid valve	Actuator (solenoid valve) is active (“ACTIVE TEST” with CONSULT-III) or actuator relay is inactive (in fail-safe mode)	On
		When the actuator (solenoid valve) is not active and actuator relay is active (ignition switch ON)	Off
RR LH OUT SOL	Operation status of each solenoid valve	Actuator (solenoid valve) is active (“ACTIVE TEST” with CONSULT-III) or actuator relay is inactive (in fail-safe mode)	On
		When the actuator (solenoid valve) is not active and actuator relay is active (ignition switch ON)	Off
MOTOR RELAY	Motor and motor relay operation	When the motor relay and motor are operating	On
		When the motor relay and motor are not operating	Off
ACTUATOR RLY (Note 3)	Actuator relay operation	When the actuator relay is operating	On
		When the actuator relay is not operating	Off
ABS WARN LAMP	ABS warning lamp (Note 4)	When ABS warning lamp is ON	On
		When ABS warning lamp is OFF	Off
OFF LAMP	VDC OFF indicator lamp (Note 4)	When VDC OFF indicator lamp is ON	On
		When VDC OFF indicator lamp is OFF	Off
SLIP LAMP	SLIP indicator lamp (Note 4)	When SLIP indicator lamp is ON	On
		When SLIP indicator lamp is OFF	Off
BST OPER SIG	Not applied but displayed	—	Off
EBD SIGNAL	EBD operation	EBD is active	On
		EBD is inactive	Off
ABS SIGNAL	ABS operation	ABS is active	On
		ABS is inactive	Off
TCS SIGNAL	TCS operation	TCS is active	On
		TCS is inactive	Off
VDC SIGNAL	VDC operation	VDC is active	On
		VDC is inactive	Off
EBD FAIL SIG	EBD fail-safe signal	In EBD fail-safe	On
		EBD is normal	Off

Monitor item	Display content	Data monitor	
		Condition	Reference value in normal operation
ABS FAIL SIG	ABS fail-safe signal	In ABS fail-safe	On
		ABS is normal	Off
TCS FAIL SIG	TCS fail-safe signal	In TCS fail-safe	On
		TCS is normal	Off
VDC FAIL SIG	VDC fail-safe signal	In VDC fail-safe	On
		VDC is normal	Off
CRANKING SIG	Crank operation	Crank is active	On
		Crank is inactive	Off
USV [FL-RR] (Note 3)	VDC switch-over valve	When actuator (switch-over valve) is active (“ACTIVE TEST” with CONSULT-III) or actuator relay is inactive (when in fail-safe mode)	On
		When actuator (switch-over valve) is not active and actuator relay is active (ignition switch ON)	Off
USV [FR-RL] (Note 3)	VDC switch-over valve	When actuator (switch-over valve) is active (“ACTIVE TEST” with CONSULT-III) or actuator relay is inactive (when in fail-safe mode)	On
		When actuator (switch-over valve) is not active and actuator relay is active (ignition switch ON)	Off
HSV [FL-RR] (Note 3)	VDC switch-over valve	When actuator (switch-over valve) is active (“ACTIVE TEST” with CONSULT-III) or actuator relay is inactive (when in fail-safe mode)	On
		When actuator (switch-over valve) is not active and actuator relay is active (ignition switch ON)	Off
HSV [FR-RL] (Note 3)	VDC switch-over valve	When actuator (switch-over valve) is active (“ACTIVE TEST” with CONSULT-III) or actuator relay is inactive (when in fail-safe mode)	On
		When actuator (switch-over valve) is not active and actuator relay is active (ignition switch ON)	Off
V/R OUTPUT (Note 3)	Solenoid valve relay activated	When the solenoid valve relay is active (ignition switch OFF)	On
		When the solenoid valve relay is not active (in the fail-safe mode)	Off
M/R OUTPUT	Actuator motor and motor relay activated	When the actuator motor and motor relay are active (“ACTIVE TEST” with CONSULT-III)	On
		When the actuator motor and motor relay are inactive	Off
LDP) Shift position	Shift position	Shift position is not received	Off
		Selector lever position	P/R/N/D
		When using manual mode	MM 1st – MM 6th
LDP) ICC main SW	ICC main switch	ICC main switch is ON	On
		ICC main switch is OFF	Off

Monitor item	Display content	Data monitor	
		Condition	Reference value in normal operation
LDP) LDP ON SW	LDP ON switch	LDP ON switch is ON	On
		LDP ON switch is OFF	Off
LDP) Wiper signal	Front wiper operation	Front wiper is OFF.	Stop
		Front wiper stops at fail-safe operation	PRTCT
		Front wiper INT is operating.	1low
		Front wiper LO is operating.	Low
		Front wiper HI is operating.	High
LDP) Turn signal	Turn signal operation	Turn signal is OFF.	Off
		Turn signal lamp RH is blinking.	LH
		Turn signal lamp LH is blinking.	RH
		Turn signal lamp LH and RH are blinking.	LH&RH
LDP) STOP LMP SW	Stop lamp switch signal status	When brake pedal is depressed	On
		When brake pedal is not depressed	Off
LDP) BRAKE SW	Brake switch signal status	When brake pedal is not depressed	On
		When brake pedal is depressed	Off
LDP) BA warning	IBA (Intelligent Brake Assist) warning condition	**NOTE:** The item is indicated, but not monitored.	Off
LDP) ICC warning	ICC (Intelligent Cruise Control) warning condition	ICC warning is operating	On
		ICC warning is not operating	Off
LDP) WARN REQ	Lane departure warning request status	Lane departure warning is operating. (When using LDP)	On
		Lane departure warning is not operating.	Off
LDP) WARN control	Warning main controller status	When using LDP	On
		When using LDW	Off
LDP) READY signal	LDP ready status	LDP control is ready.	On
		LDP control is not ready.	Off
LDP) STATUS signal	LDP control status	LDP control is standby.	STANDBY
		Lane departure warning is operating. (When using LDP)	WARN
		LDP control is stopped.	MASK
		LDP control is OFF.	Off
LDP) LDW SW	LDW switch condition	LDW switch is ON (LDW ON indicator is ON)	On
		LDW switch is OFF (LDW ON indicator is OFF)	Off
LDP) Camera lost	Lane marker detected condition	Both side lane markers are detected.	Detect
		Deviate side lane marker is lost.	Deviate
		Both side lane markers are lost.	Both
LDP) Lane unclear	Lane marker condition	Lane marker is unclear.	On
		Lane marker is clear.	Off

NOTE:

- 1: Confirm that tire pressure is normal.
- 2: Only AWD models
- 3: A brief moment of On/Off condition occurs every 20 seconds after ignition switch is turned ON. This is not a malfunction because it is an operation for checking.

- 4: On and off timing for warning lamp and indicator lamp.

- ABS warning lamp: Refer to BRC-10, "Functions".
- Brake warning lamp: Refer to BRC-10, "Functions".
- VDC OFF indicator lamp: Refer to BRC-10, "Functions".
- SLIP indicator lamp: Refer to BRC-10, "Functions".
- Lane departure warning lamp: Refer to ACS-87, "System Description".

Fail-safe

INFOID:0000000003106535

ABS, EBD SYSTEM

In case of electrical malfunctions with ABS, ABS warning lamp, VDC OFF indicator lamp, SLIP indicator lamp will turn ON. In case of electrical malfunctions with the EBD, brake warning lamp, ABS warning lamp, VDC OFF indicator lamp and SLIP indicator lamp will turn ON. Simultaneously, the VDC/TCS/ABS become one of the following conditions of the fail-safe function.

- For malfunction of ABS, only the EBD is activated and the condition of vehicle is the same condition of vehicles without TCS/ABS system.
  NOTE:
  ABS self-diagnosis sound may be heard. This is a normal condition because a self-diagnosis for “Ignition switch ON” and “The first starting” are being performed.
- For malfunction of EBD, EBD and ABS become inoperative, and the condition of vehicle is the same as the condition of vehicles without TCS/ABS, EBD system.

VDC / TCS

In case of a malfunction in the VDC/TCS/ABS system, VDC OFF indicator lamp, SLIP indicator lamp are turned ON, and the condition of vehicle is the same as the condition of vehicles without VDC/TCS control.

CAUTION:

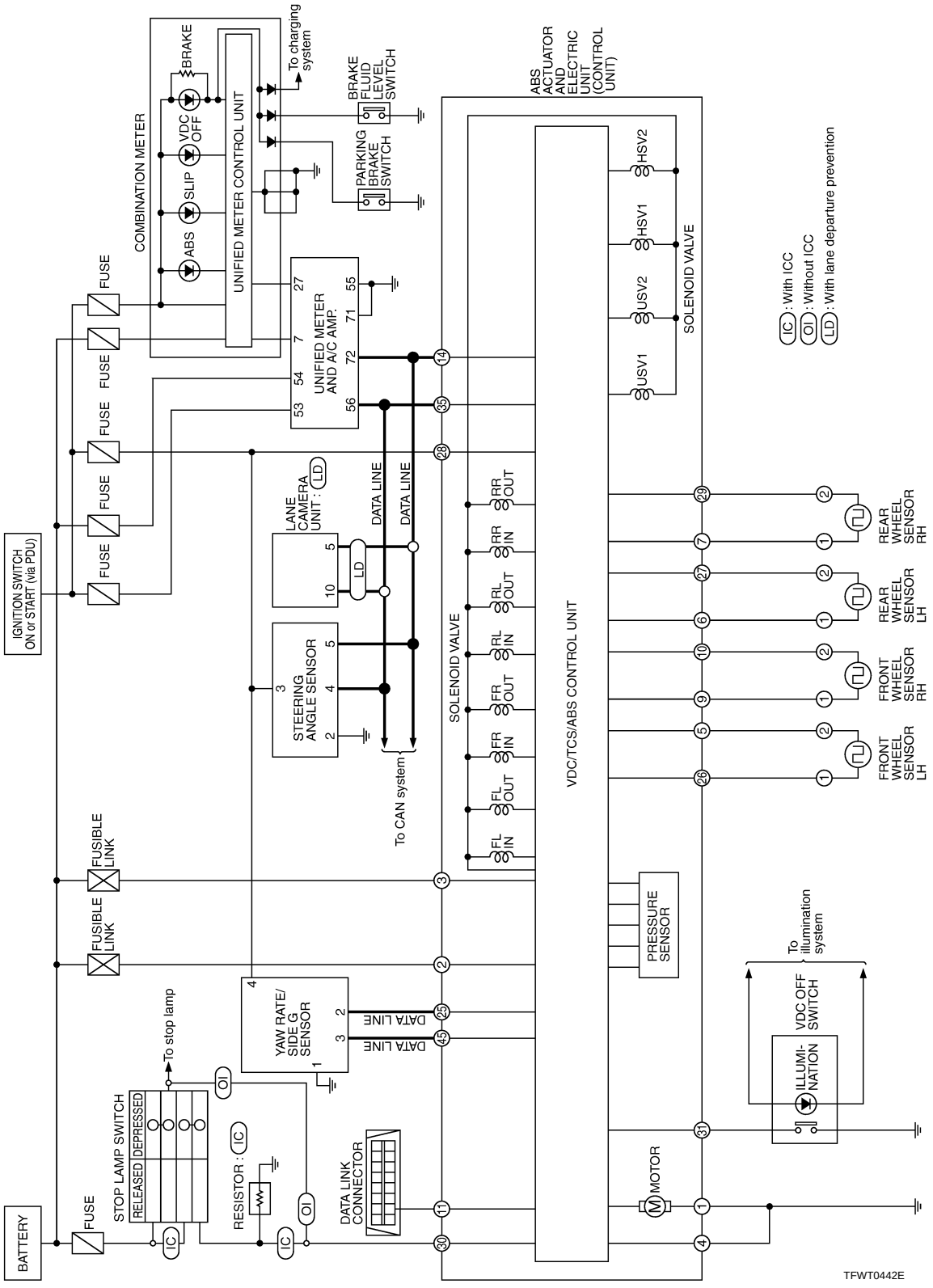
If the Fail-safe function is activated, then perform self-diagnosis for VDC/TCS/ABS control system.

LDW/LDP SYSTEM

- In case of malfunction in the LDW/LDP system, lane departure warning lamp is turned ON. and the condition of vehicle is the same as the condition of vehicles without LDW/LDP control.
- In case of malfunction in the VDC/TCS/ABS system, lane departure warning lamp is turned ON. and the condition of vehicle is the same as the condition of vehicles without LDW/LDP control.

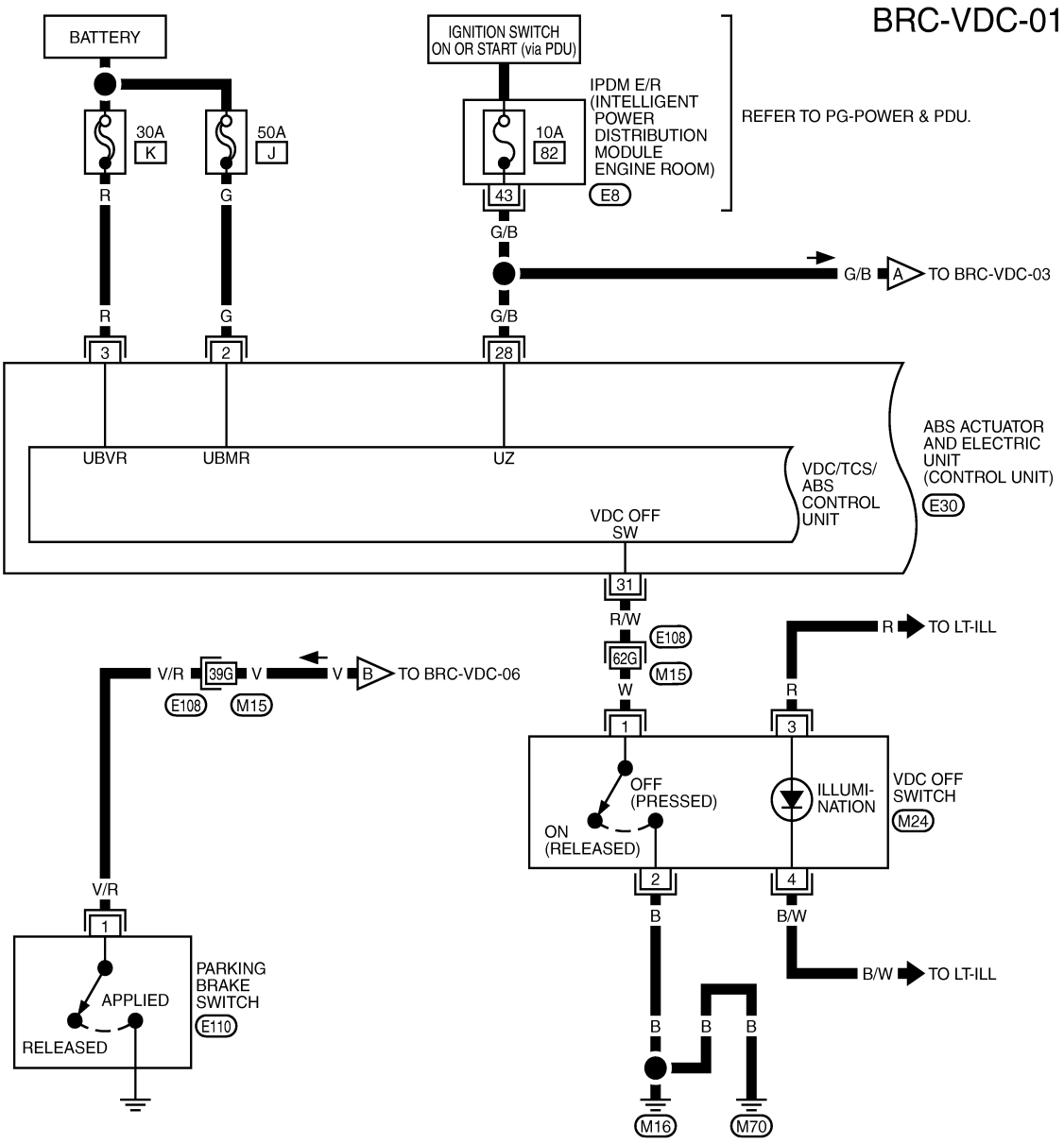
Schematic

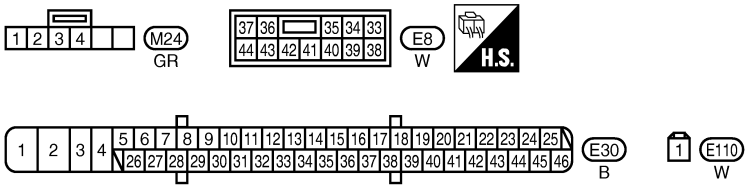
INFOID:0000000003502926



Wiring Diagram - VDC -

INFOID:0000000003420472

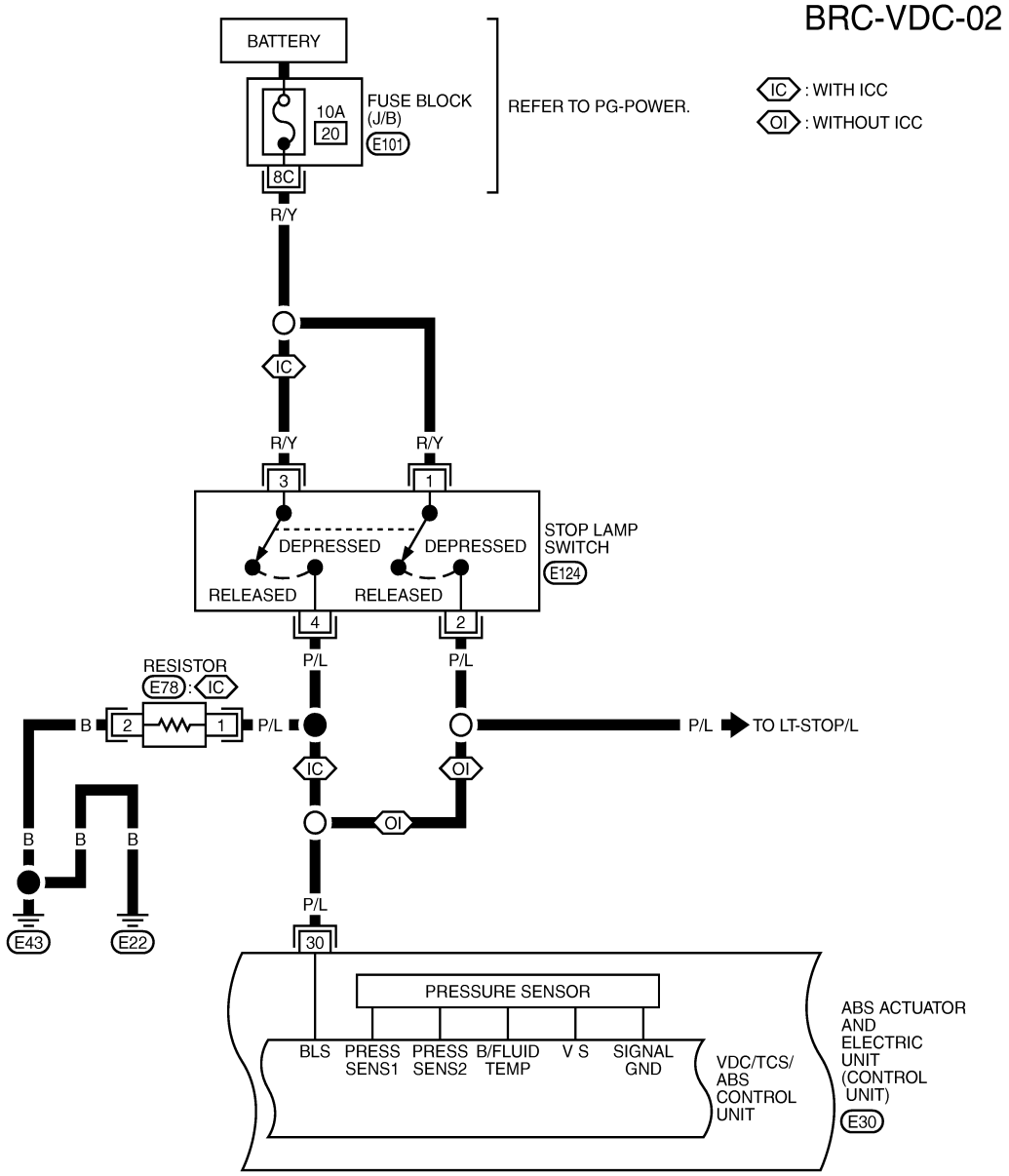


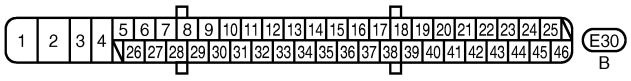


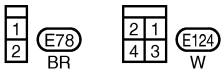
REFER TO THE FOLLOWING.
E108 - SUPER MULTIPLE JUNCTION (SMJ)

TFWT0443E

BRC-VDC-02

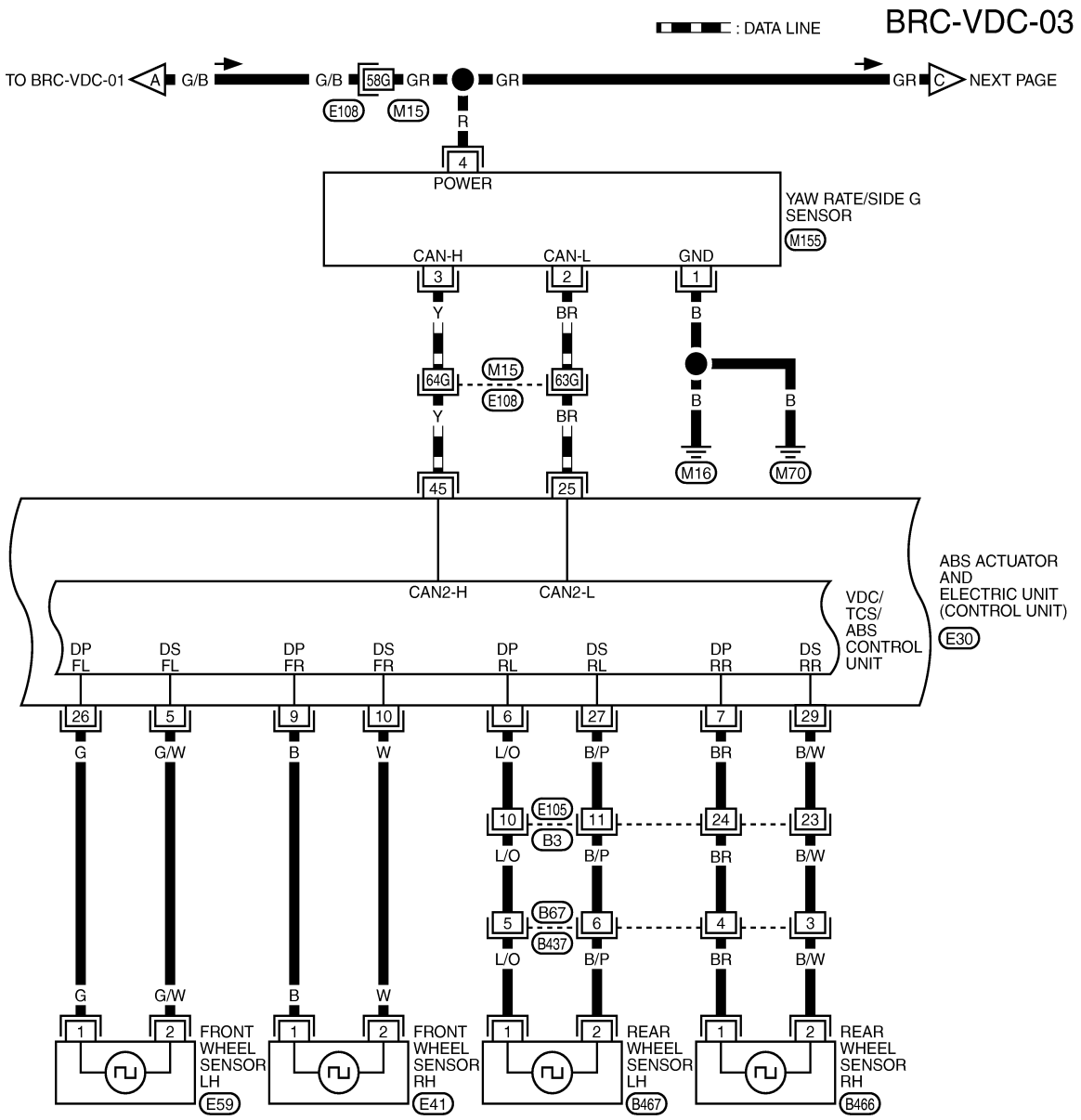


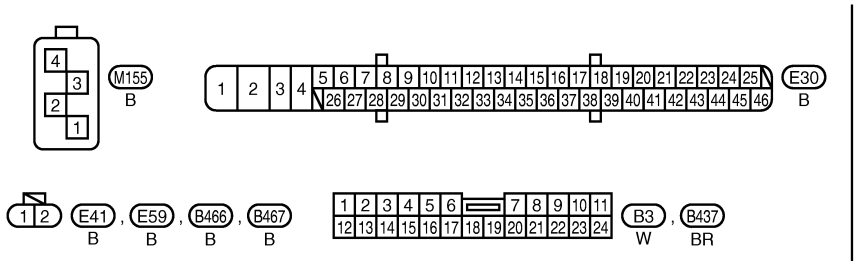




REFER TO THE FOLLOWING.
E101 - FUSE BLOCK - JUNCTION BOX (J/B)

TFWT0444E

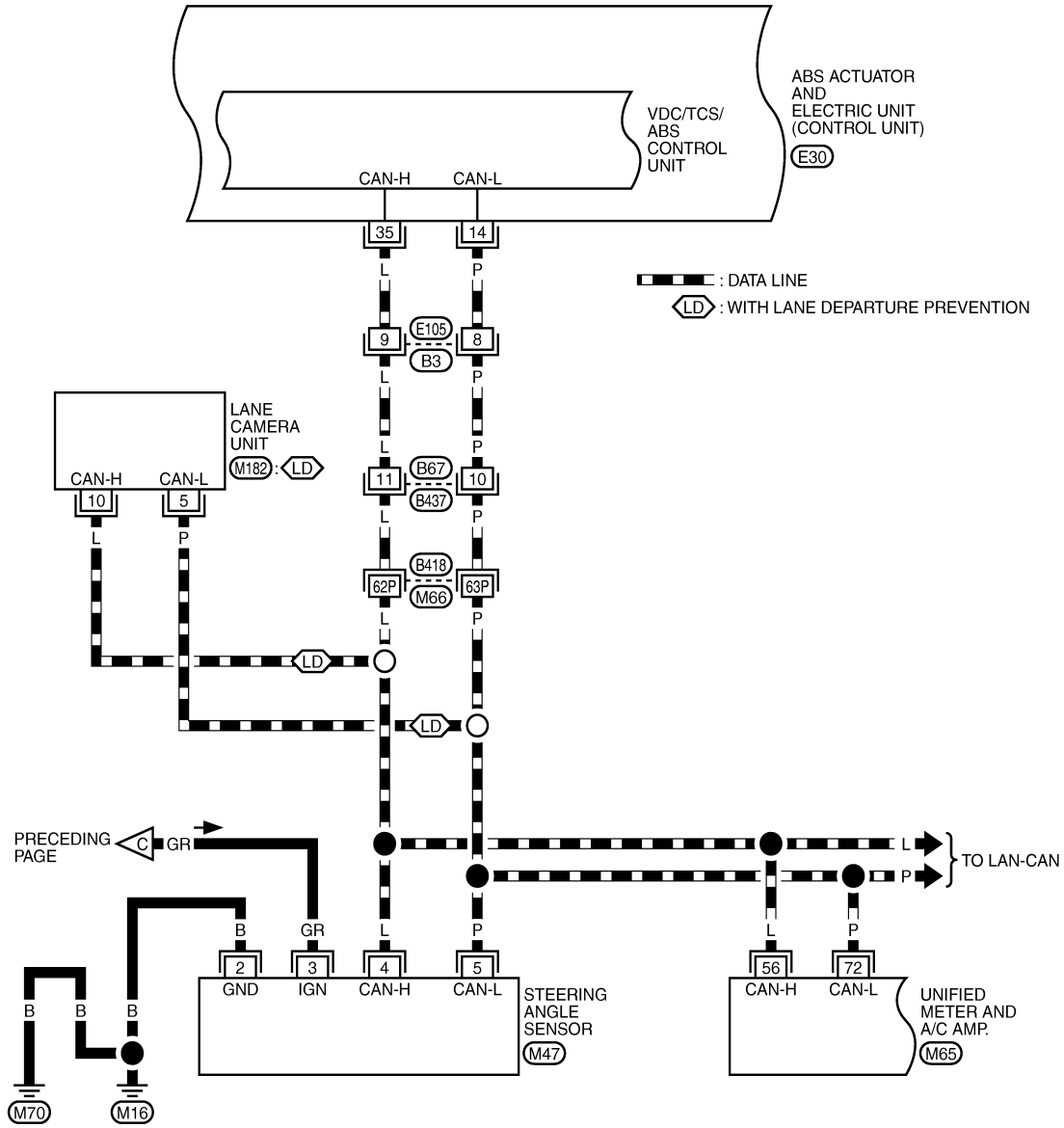


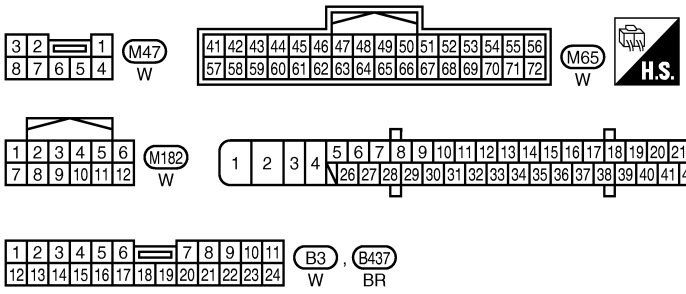


REFER TO THE FOLLOWING.
E108 - SUPER MULTIPLE JUNCTION (SMJ)

TFWT0445E

BRC-VDC-04

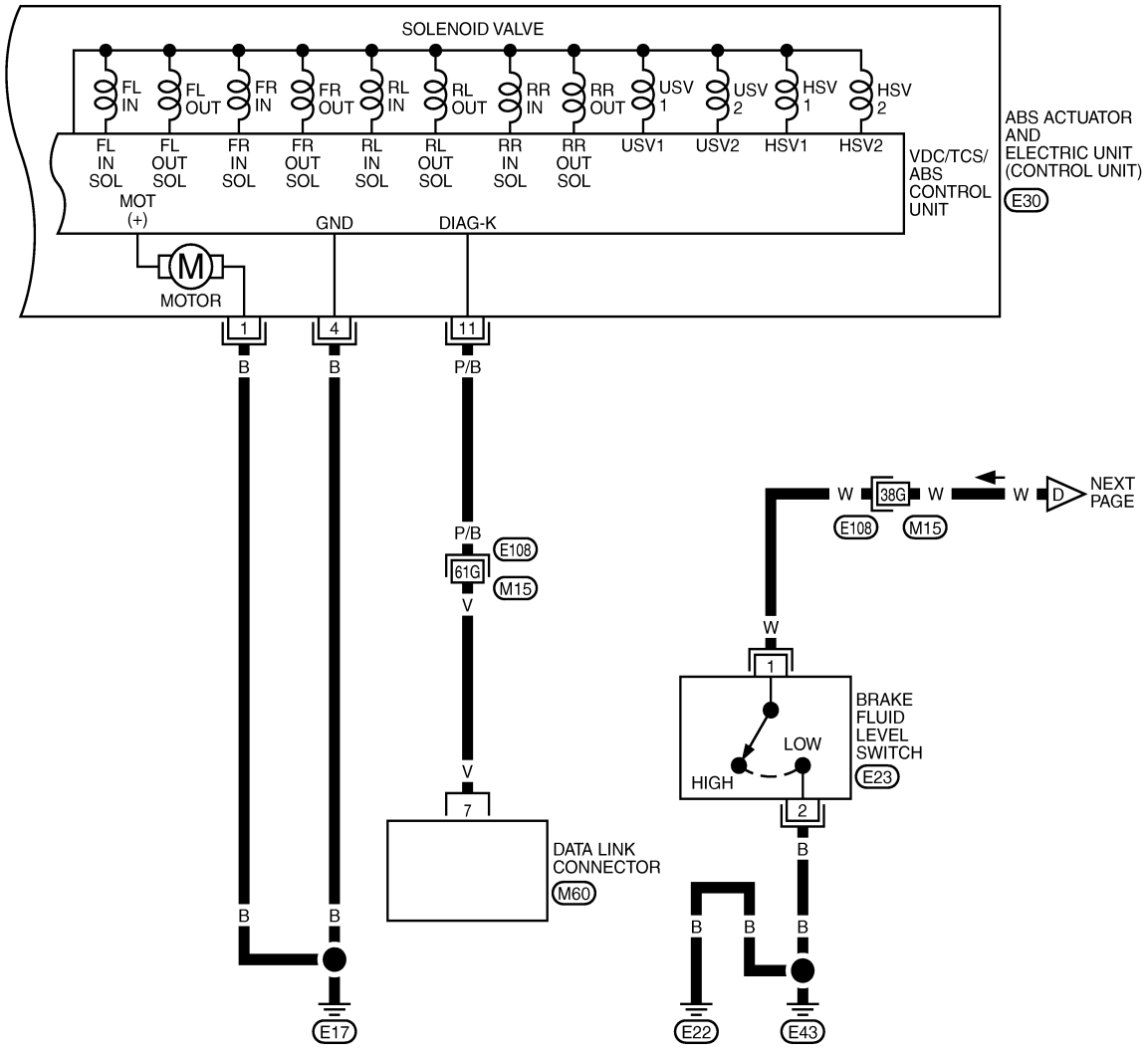


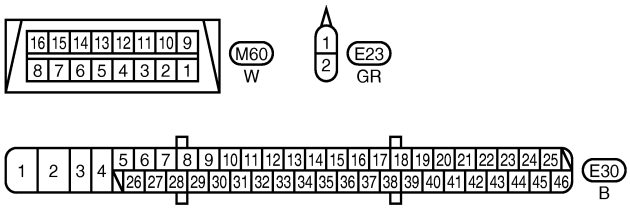


REFER TO THE FOLLOWING.
B418 - SUPER MULTIPLE JUNCTION (SMJ)

TFWT0446E

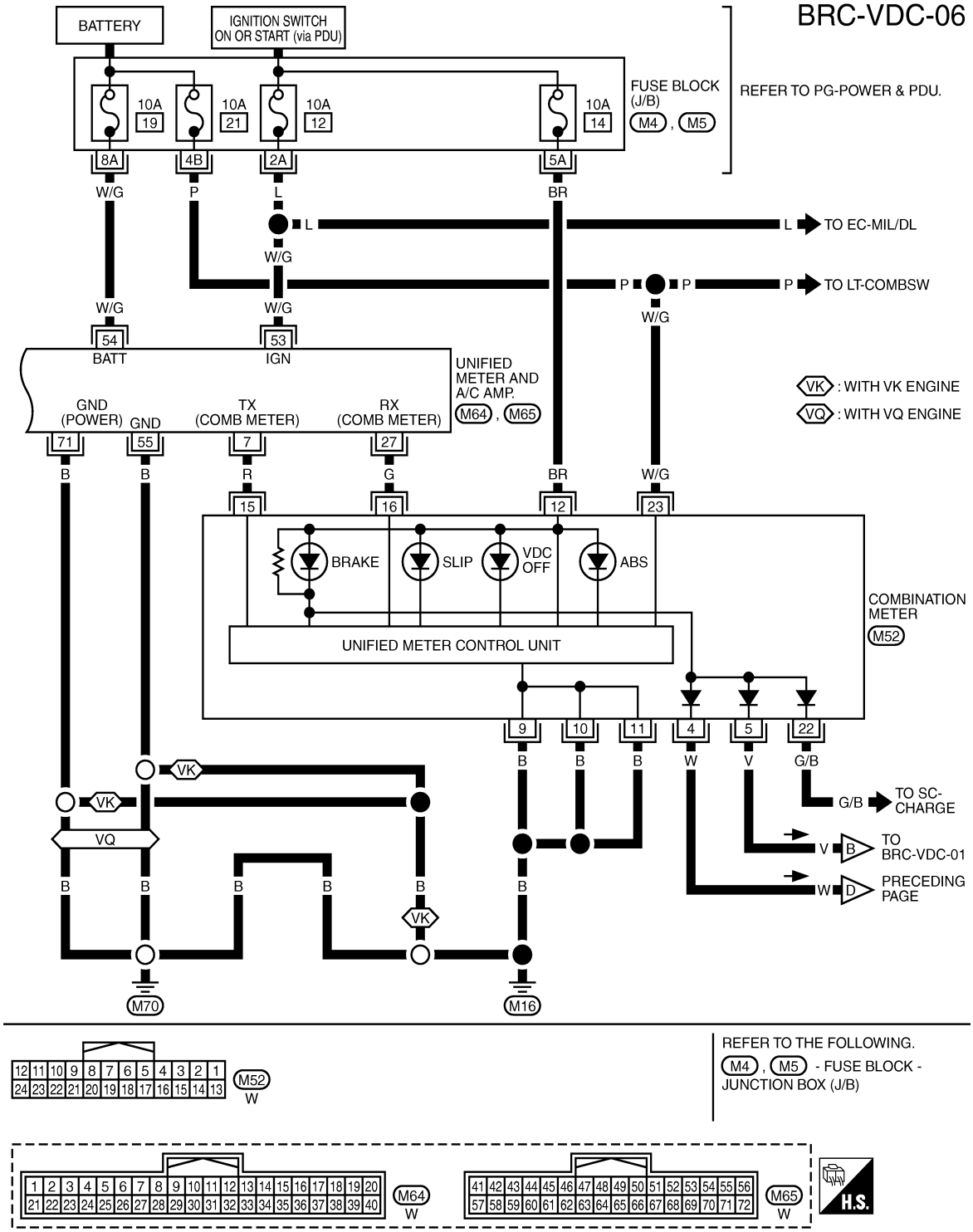
BRC-VDC-05





REFER TO THE FOLLOWING.
E108 - SUPER MULTIPLE JUNCTION (SMJ)

TFWT0447E


BRC-VDC-06
BATTERY
IGNITION SWITCH ON OR START (via PDU)
FUSE BLOCK (J/B) M4, M5
REFER TO PG-POWER & PDU.
10A 19
10A 21
10A 12
10A 14
8A
4B
2A
5A
W/G
P
L
BR
TO EC-MIL/DL
TO LT-COMBSW
54 BATT
53 IGN
UNIFIED METER AND A/C AMP. M64, M65
GND (POWER)
GND
TX (COMB METER)
RX (COMB METER)
71
55
7
27
15
16
12
23
BRAKE
SLIP
VDC OFF
ABS
COMBINATION METER M52
UNIFIED METER CONTROL UNIT
9
10
11
4
5
22
G/B
TO SC-CHARGE
TO BRC-VDC-01
PRECEDING PAGE
VK : WITH VK ENGINE
VQ : WITH VQ ENGINE
M70
M16
REFER TO THE FOLLOWING.
M4, M5 - FUSE BLOCK - JUNCTION BOX (J/B)
M52
M64
M65
H.S.

TFWT0448E

DTC No. Index

INFOID:0000000003106536

DTC	Items (CONSULT screen terms)	Reference
C1101	RR RH SENSOR-1	BRC-3, "C1101-C1116"
C1102	RR LH SENSOR-1	
C1103	FR RH SENSOR-1	
C1104	FR LH SENSOR-1	
C1105	RR RH SENSOR-2	
C1106	RR LH SENSOR-2	
C1107	FR RH SENSOR-2	
C1108	FR LH SENSOR-2	
C1109	BATTERY VOLTAGE [ABNORMAL]	
C1110	CONTROLLER FAILURE	
C1111	PUMP MOTOR	
C1114	MAIN RELAY	
C1115	ABS SENSOR [ABNORMAL SIGNAL]	
C1116	STOP LAMP SW	
C1120	FR LH IN ABS SOL	BRC-3, "C1120-C1137"
C1121	FR LH OUT ABS SOL	
C1122	FR RH IN ABS SOL	
C1123	FR RH OUT ABS SOL	
C1124	RR LH IN ABS SOL	
C1125	RR LH OUT ABS SOL	
C1126	RR RH IN ABS SOL	
C1127	RR RH OUT ABS SOL	
C1130	ENGINE SIGNAL 1	
C1131	ENGINE SIGNAL 2	
C1132	ENGINE SIGNAL 3	
C1133	ENGINE SIGNAL 4	
C1136	ENGINE SIGNAL 6	
C1137	RAS CIRCUIT	
C1142	PRESS SEN CIRCUIT	BRC-3, "C1142-C1185"
C1143	ST ANG SEN CIRCUIT	
C1144	ST ANG SEN SIGNAL	
C1145	YAW RATE SENSOR	
C1146	SIDE G-SEN CIRCUIT	
C1147	USV LINE [FL-RR]	
C1148	USV LINE [FR-RL]	
C1149	HSV LINE [FL-RR]	
C1150	HSV LINE [FR-RL]	
C1153	EMERGENCY BRAKE	
C1155	BR FLUID LEVEL LOW	
C1156	ST ANG SEN COM CIR	
C1170	VARIANT CODING	
C1185	ACC CONT	

DTC	Items (CONSULT screen terms)	Reference
C1B00	LDP) CAMERA MALF	ACS-118, "DTC Logic"
C1B04	LDP) ICC STG SW MALF	ACS-119, "DTC Logic"
C1B05	LDP) APP SEN MALF	ACS-120, "DTC Logic"
C1B06	LDP) TCM MALF	ACS-121, "DTC Logic"
U0100	LDP) ECM CAN CIR2	ACS-122, "DTC Logic"
U0101	LDP) TCM CAM CAN CIR2	ACS-123, "DTC Logic"
U0104	LDP) ICC CAM CAN CIR2	ACS-124, "DTC Logic"
U0405	LDP) ICC CAM CAN CIR1	ACS-125, "DTC Logic"
U1000	CAN COMM CIRCUIT	BRC-4, "U0100-U1501"
U1002	SYSTEM COMM (CAN)	
U1100	ACC COMM CIRCUIT	
U1500	LDP) CAM CAN CIR1	ACS-126, "DTC Logic"
U1501	LDP) CAM CAN CIR2	ACS-127, "DTC Logic"

SYMPTOM DIAGNOSIS

LDW & LDP SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000003035085

CAUTION:
Perform the self-diagnosis with CONSULT-III before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

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.	• Harness between lane camera unit and combination meter. • Lane departure warning lamp (Combination meter) • Lane camera unit	Lane departure warning lamp circuit ACS-136
	LDP ON indicator lamp (Green) does not illuminate.	• Harness between lane camera unit and combination meter. • LDP ON indicator lamp (Combination meter) • Lane camera unit	LDP ON indicator lamp circuit ACS-137
	LDW ON indicator (on the LDW switch) does not illuminate.	• Harness between lane camera unit and LDW switch. • LDW ON indicator (LDW switch) • Lane camera unit	LDW ON indicator circuit ACS-132
	Lane departure warning lamp (Yellow) and LDP ON indicator lamp (Green) do not illuminate.	• Power supply and ground circuit of combination meter • Combination meter • Lane camera unit	Power supply and ground circuit of combination meter DI-19
	All of indicator/warning lamps do not illuminate; • Lane departure warning lamp (Yellow) • LDP ON indicator lamp (Green) • LDW ON indicator	• Power supply and ground circuit of lane camera unit • Lane camera unit	Power supply and ground circuit of lane camera unit ACS-128
LDW system is not activated. (Indicator/warning lamps illuminate when ignition switch OFF ⇒ ON.)	LDW ON indicator is not turned ON ⇔ OFF when operating LDW switch.	• Harness between lane camera unit and LDW switch. • Harness between LDW switch and ground. • Lane camera unit	LDW switch circuit ACS-130
	Lane departure warning buzzer is not sounding. (Lane departure warning lamp is activated.)	• Harness between the fuse and lane departure warning buzzer. • Harness between lane camera unit and lane departure warning buzzer. • Harness between lane departure warning buzzer and ground. • Lane departure warning buzzer • Lane camera unit	Lane departure warning buzzer circuit ACS-134
	Lane departure warning lamp is not activated. (Lane departure warning buzzer is sounding.)	Lane camera unit	—

Symptom		Possible cause	Inspection item/Reference page
LDP system is not activated. (LDW system is functioning normally)	LDP ON indicator lamp is not turned ON ⇔ OFF when operating LDP ON switch.	LDP ON switch (ICC steering switch)	LDP ON switch (ICC steering switch)
	Warning is functioning but yawing is not functioning.	—	• Cause of auto-cancel ACS-95 • Normal operating condition ACS-164
	Yawing is functioning but warning is not functioning.	• ABS actuator and electric unit (control unit) • Lane camera unit	—
Warning functions are not timely. (Example) • Does not function when driving on lane markers. • Functions when driving in a lane. • Functions in a different position from the actual position.		• Camera aiming adjustment • Lane camera unit	Camera aiming adjustment ACS-77
Functions when changing the course in direction of the turn signal.		Turn signal • BCM • Lane camera unit	Lane camera unit Data monitor “TURN SIGNAL”

NORMAL OPERATING CONDITION

Description

INFOID:0000000003035086

LANE DEPARTURE WARNING (LDW)

- LDW system is only a warning device to inform the driver of a potential unintended lane departure. It does 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 does not operate at speeds below approximately 72 km/h (45 MPH) or if it cannot detect lane markers.
- Excessive noise interfere with the warning sound, and the buzzer 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 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 does 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 changes 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 does not operate at speeds below approximately 72 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 without 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 does interfere with the warning sound, and the buzzer 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 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.

PRECAUTION

PRECAUTIONS

Precaution for LDW/LDP System Service

INFOID:0000000003106537

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.**

To keep the LDW/LDP system operating properly, be sure to observe the following items:

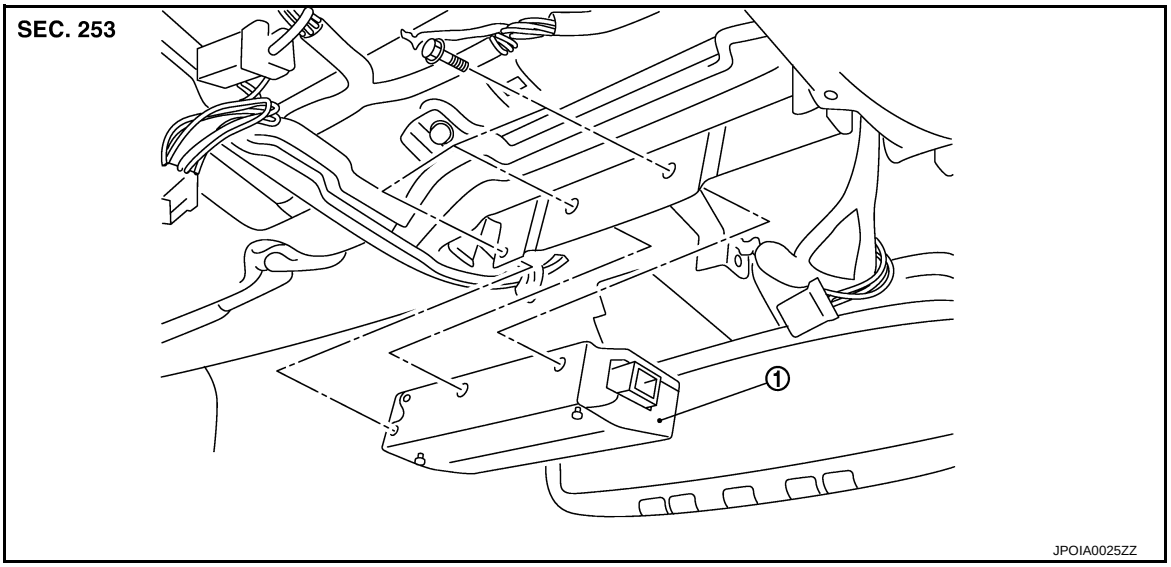
- **Always keep the windshield clean. The sensing capability of the camera unit depends on the condition of the windshield. See “Appearance and care” for cleaning instructions.**
- **Never strike or damage the areas around the lane camera unit.**
- **Never touch the camera lens.**
- **Never attach a sticker (including transparent material) or install an accessory near the lane camera unit.**
- **Never place reflective materials, such as a white paper or mirrors on the instrument panel. Reflection of the sunlight may adversely affect the camera unit's lane marker detection capability.**

ON-VEHICLE REPAIR

LANE CAMERA UNIT

Exploded View

INFOID:0000000003035089



1. Lane camera unit

Removal and Installation

INFOID:0000000003035090

REMOVAL

1. Remove map lamp assembly. Refer to EI-62, "Component Parts Location".
2. Disconnect lane camera unit connector.
3. Remove the bolts, and remove lane camera unit.

INSTALLATION

Installation is the reverse order of removal.

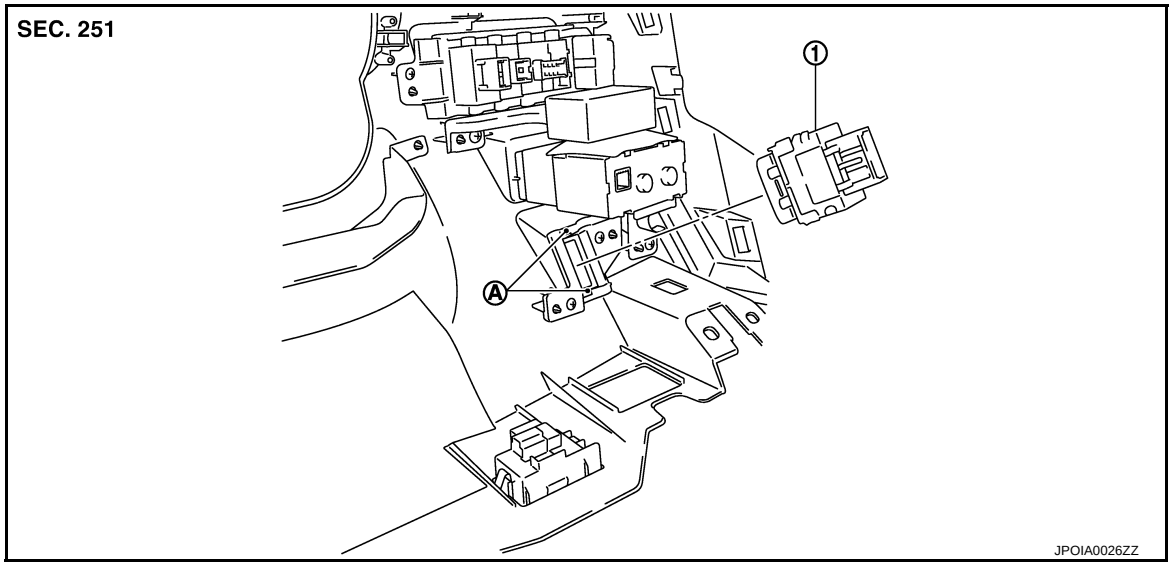
CAUTION:

- **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 ACS-77, "CAMERA AIMING ADJUSTMENT : Description".**

LDW SWITCH

Exploded View

INFOID:0000000003035091



1. LDW switch
A. Pawls

Removal and Installation

INFOID:0000000003035092

REMOVAL

1. Remove the instrument driver lower panel. Refer to IP-11, "INSTRUMENT PANEL : Component Parts Location".
2. Widen the pawl. Then remove LDW switch.

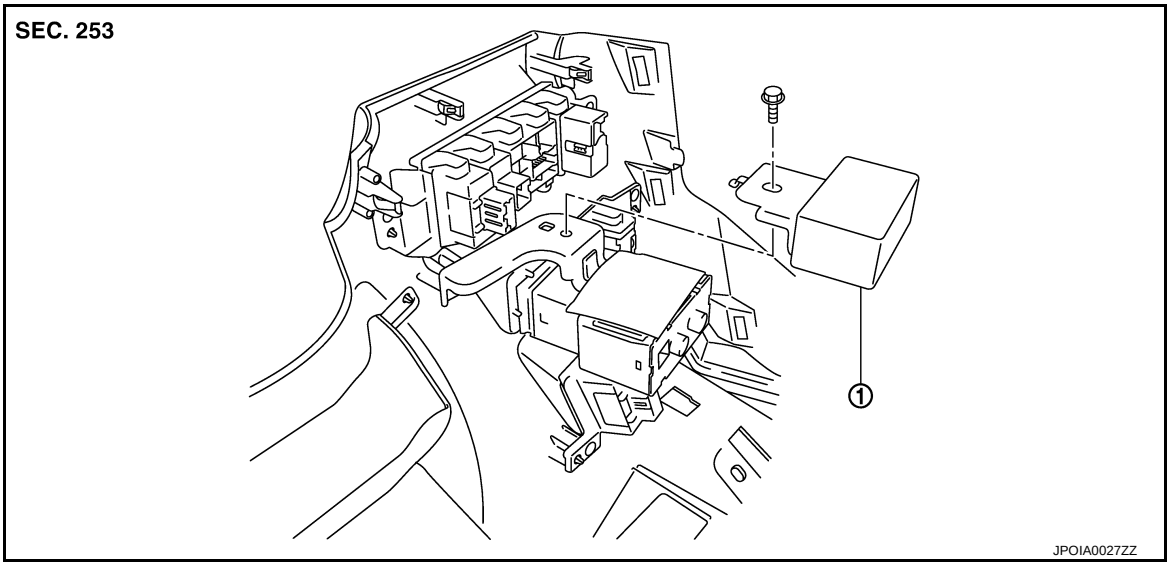
INSTALLATION

Install in the reverse order of removal.

LANE DEPARTURE WARNING BUZZER

Exploded View

INFOID:0000000003035093



1. Lane departure warning buzzer

Removal and Installation

INFOID:0000000003035094

REMOVAL

1. Remove the instrument driver lower panel. Refer to IP-11, "INSTRUMENT PANEL : Component Parts Location".
2. Remove the bolt.
3. Disconnect the connector and remove lane departure warning buzzer.

INSTALLATION

Installation is the reverse order of removal.

LDP ON SWITCH

Exploded View

INFOID:0000000003035095

LDP ON switch is integrated in the ICC steering switch. Refer to SRS-33, "Removal and Installation".