SECTION BRC
BRAKE CONTROL SYSTEM

CONTENTS

VDC/TCS/ABS

PRECAUTION

PRECAUTIONS

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

INFOID:0000000012853586

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 dual stage front air bag modules. The SRS system may only deploy one front air bag, depending on the severity of a collision and whether the front passenger seat is occupied. Information necessary to service the system safely is included in the SR and SB section 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, it is recommended that all maintenance and repair be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper repair, 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 SR section.**
- **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 or batteries, and wait at least three minutes before performing any service.**

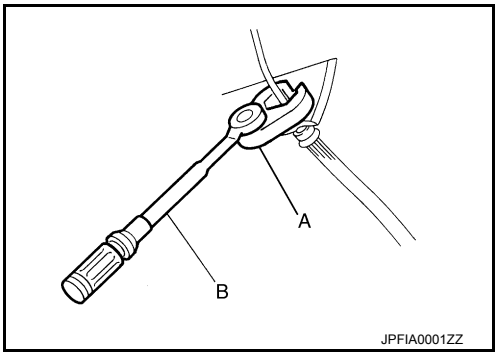
Precaution for Brake System

INFOID:0000000012853587

WARNING:

Clean any dust from the front brake and rear brake using a vacuum dust collector. Do not blow by compressed air.

- Brake fluid use refer to MA-16, "FOR USA AND CANADA : Fluids and Lubricants" (United States and Canada) or MA-17, "FOR MEXICO : Fluids and Lubricants" (Mexico).
- Do not reuse drained brake fluid.
- Do not spill or splash brake fluid on painted surfaces. Brake fluid may seriously damage paint. Wipe it off immediately and wash with water if it gets on a painted surface.
- Always confirm the specified tightening torque when installing the brake pipes.
- After pressing the brake pedal more deeply or harder than normal driving, such as air bleeding, check each item of brake pedal. Adjust brake pedal if it is outside the standard value.
- Do not use mineral oils such as gasoline or light oil to clean. They may damage rubber parts and cause improper operation.
- Always loosen the brake tube flare nut with a flare nut wrench.
- Tighten the brake tube flare nut to the specified torque with a crowfoot (A) and torque wrench (B).
- Always connect the battery terminal when moving the vehicle.
- Turn the ignition switch OFF and disconnect the ABS actuator and electric unit (control unit) harness connector or the battery negative terminal before performing the work.
- Check that no brake fluid leakage is present after replacing the parts.



Precaution for Brake Control System

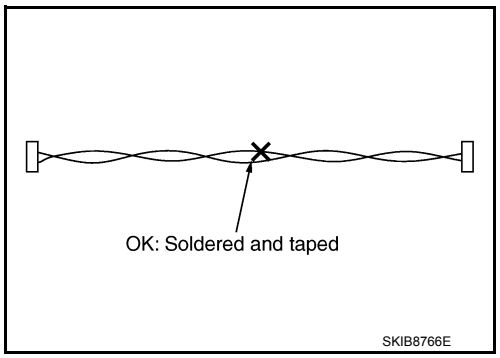
INFOID:0000000012853588

- Just after starting vehicle after ignition switch is ON, brake pedal may vibrate or motor operating noise may be heard from engine compartment. This is a normal condition.
- When an error is indicated by ABS or another warning lamp, collect all necessary information from customer (what symptoms are present under what conditions) and check for simple causes before starting diagnostic servicing. Besides electrical system inspection, check brake booster operation, brake fluid level and oil leaks.
- If tire size and type are used in an improper combination or brake pads are not Genuine NISSAN parts, stopping distance or steering stability may deteriorate.
- ABS might be out of order or malfunctions by putting a radio (wiring inclusive), an antenna and a lead-in wire near the control unit.
- If aftermarket parts (car stereo, CD player, etc.) have been installed, check for incidents such as harness pinches, open circuits, and improper wiring.
- VDC system may not operate normally or a VDC OFF indicator lamp or SLIP indicator lamp may light.
- When replacing the following parts with parts other than genuine parts or making modifications: Suspension-related parts (shock absorber, spring, bushing, etc.), tires, wheels (other than specified sizes), brake-related parts (pad, rotor, caliper, etc.), engine-related parts (muffler, ECM, etc.) and body reinforcement-related parts (roll bar, tower bar, etc.).
- When driving with worn or deteriorated suspension, tires and brake-related parts.

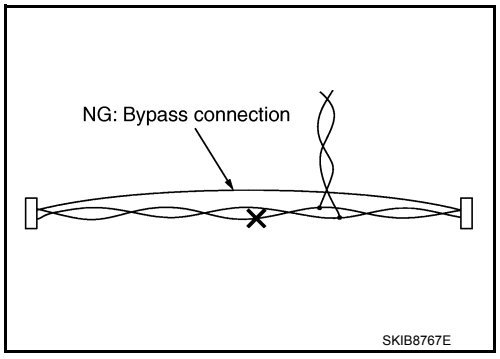
Precaution for Harness Repair

INFOID:0000000012853589

- Solder the repair part, and wrap it with tape. [Twisted wire fray must be 110 mm (4.33 in) or less.]



- Do not bypass the repair point with wire. (If it is bypassed, the turnout point cannot be separated and the twisted wire characteristics are lost.)



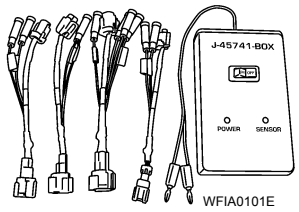
PREPARATION

PREPARATION

Special Service Tool

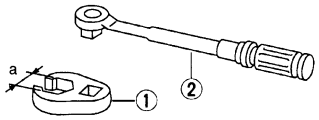
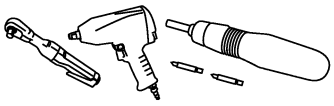
INFOID:0000000012853590

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
KV991J0080 (J-45741) ABS active wheel sensor tester  WFIA0101E	Checking operation of ABS active wheel sensors

Commercial Service Tools

INFOID:0000000012853591

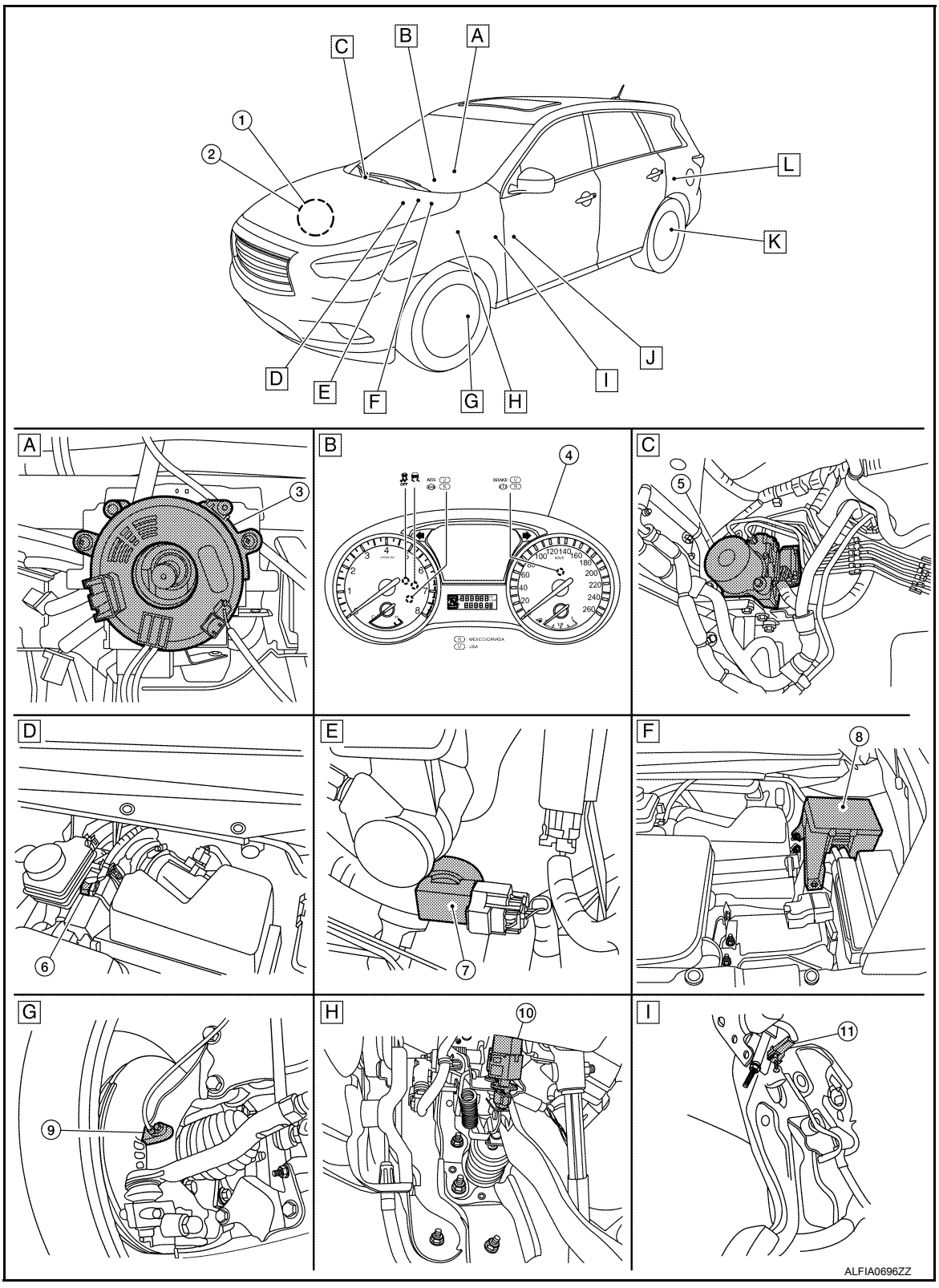
Tool name	Description
1. Flare nut crowfoot 2. Torque wrench  S-NT360	Tightening brake tube flare nuts **a: 10 mm (0.39 in)/12 mm (0.47 in)**
Power tool  PIIB1407E	Loosening nuts, screws and bolts

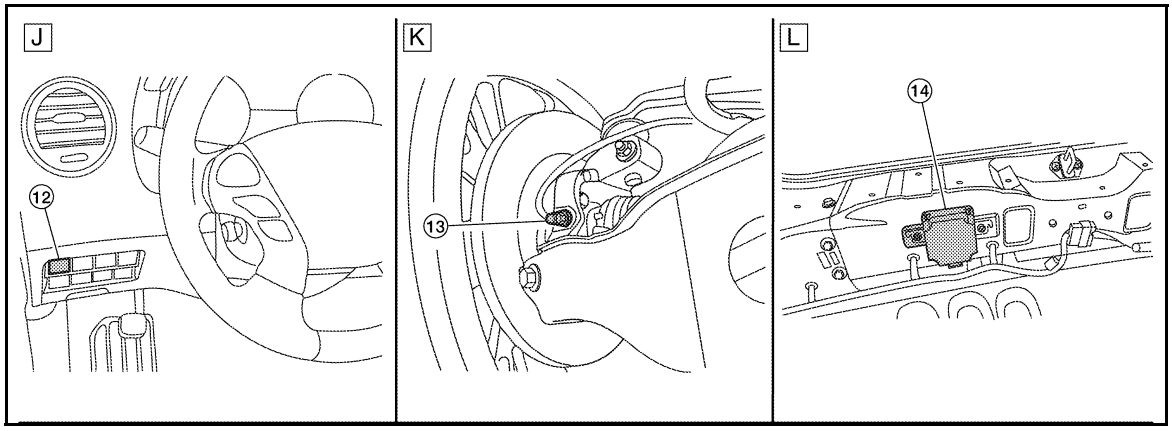
SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000013635593





A. Steering column area (view with steering wheel removed)
B. Instrument panel (LH side)
C. Engine compartment (RH rear)
D. Engine compartment (LH rear)
E. Left front wheel area (RH similar)
F. Engine compartment (LH rear)
G. Left front wheel area (RH similar)
H. Brake pedal area
I. LH drivers kick panel area
J. Instrument panel (LH side)
K. Front center console area (View with center console removed)
L. Left rear wheel area (RH similar)
M. Center of back door kicking plate area (view with storage box removed)

Component Description

INFOID:0000000013635591

No.	Component		Function
1.	ECM		Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication. • Accelerator pedal position signal • Engine speed signal Mainly receives the following signal from ABS actuator and electric unit (control unit) via CAN communication. • Target throttle position signal
2.	TCM		Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication. • Shift position signal • Current gear position signal
3.	Steering angle sensor		BRC-12, "Steering Angle Sensor"
4.	Combination meter		MWI-6, "METER SYSTEM : Component Parts Location"
5.	ABS actuator and electric unit (control unit)	Pump/motor	BRC-11, "ABS Actuator and Electric Unit (Control Unit)"
		Motor relay	
		Actuator relay (main relay)	
		ABS IN valve	
		ABS OUT valve	
		Cut valve 1	
		Cut valve 2	
		Pressure sensor	
6.	Brake fluid level switch		BRC-12, "Brake Fluid Level Switch"
7.	Vacuum sensor		BRC-12, "Vacuum Sensor"
8.	IPDM E/R		Supplies power to the following components: • ABS actuator and electric unit (control unit) • Steering angle sensor • Yaw rate/side/decel G sensor

No.	Component	Function
9.	Wheel sensor	BRC-11, "Wheel Sensor and Sensor Rotor"
10.	Stop lamp switch	BRC-12, "Stop Lamp Switch"
11.	Parking brake switch	BRC-12, "Parking Brake Switch"
12.	VDC OFF switch	BRC-12, "VDC OFF Switch"
13.	Wheel sensor	BRC-11, "Wheel Sensor and Sensor Rotor"
14.	ADAS control unit	BRC-12, "ADAS Control Unit"

ABS Actuator and Electric Unit (Control Unit)

INFOID:0000000012853594

Electric unit (control unit) is integrated with actuator and motor/accumulator assembly and comprehensively controls VDC function, TCS function, ABS function and EBD function.

ELECTRIC UNIT (CONTROL UNIT)

- Brake fluid pressure, engine and transmission are controlled according to signals from each sensor.
- If malfunction is detected, the system enters fail-safe mode.

ACTUATOR

The following components are integrated with ABS actuator.

Pump
Returns the brake fluid reserved in reservoir to master cylinder by reducing pressure.

Motor
Activates the pump according to signals from ABS actuator and electric unit (control unit).

Motor Relay
Operates the motor ON/OFF according to signals from ABS actuator and electric unit (control unit).

Actuator Relay
Operates each valve ON/OFF according to signals from ABS actuator and electric unit (control unit).

ABS IN Valve and ABS OUT Valve
Increases, holds or decreases the fluid pressure of each caliper according to signals from ABS actuator and electric unit (control unit).

Pressure Sensor
Detects the brake fluid pressure and transmits signal to ABS actuator and electric unit (control unit).

Cut Valve 1 (Primary Line), Cut Valve 2 (Secondary Line)
Shuts off the ordinary brake line from master cylinder when VDC function, TCS function, hill start assist function and brake force distribution function are activated.

Yaw Rate/Side/Decel G Sensor
Calculates the following information that affects the vehicle and transmits a signal to ABS actuator and electric unit (control unit). [Yaw rate/side/decel G sensor is integrated into the ABS actuator and electric unit (control unit)].

- Vehicle rotation angular velocity (yaw rate signal)
- Vehicle lateral acceleration (side G signal)
- Vehicle longitudinal acceleration (decel G signal)

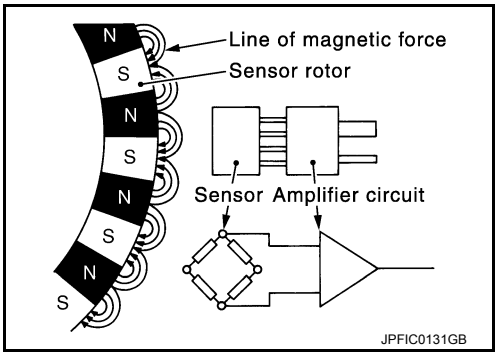
Wheel Sensor and Sensor Rotor

INFOID:0000000012853595

NOTE:

- Wheel sensor and sensor rotor is integrated in wheel hub assembly.
- Never measure resistance and voltage value using a tester because sensor is active sensor.

- Downsize and weight reduction is aimed. IC for detection portion and magnet for sensor rotor are adopted.
- Power supply is supplied to detection portion so that magnetic field line is read. Magnetic field that is detected is converted to current signal.
- When sensor rotor rotates, magnetic field changes. Magnetic field change is converted to current signals (rectangular wave) and is transmitted to ABS actuator and electric unit (control unit). Change of magnetic field is proportional to wheel speed.



Stop Lamp Switch

INFOID:0000000012853596

Detects the operation status of brake pedal and transmits converted electric signal to ABS actuator and electric unit (control unit).

Steering Angle Sensor

INFOID:0000000012853597

Detects the following information and transmits steering angle signal to ABS actuator and electric unit (control unit) via CAN communication:
- Steering wheel rotation amount
- Steering wheel rotation angular velocity
- Steering wheel rotation direction

Brake Fluid Level Switch

INFOID:0000000012853599

Detects the brake fluid level in reservoir tank and transmits converted electric signal from ABS actuator and electric unit (control unit) when brake fluid level is the specified level or less.

Vacuum Sensor

INFOID:0000000012853600

Detects the vacuum in brake booster and transmits converted electric signal to ABS actuator and electric unit (control unit).

Parking Brake Switch

INFOID:0000000012853601

Detects the operation status of parking brake switch and transmits converted electric signal from combination meter to ABS actuator and electric unit (control unit).

ADAS Control Unit

INFOID:0000000012853602

Controls Active trace control function in ADAS control unit and transmits Active trace control signal to ABS actuator and electric unit (control unit) via CAN communication.
NOTE:
Models with ICC system

VDC OFF Switch

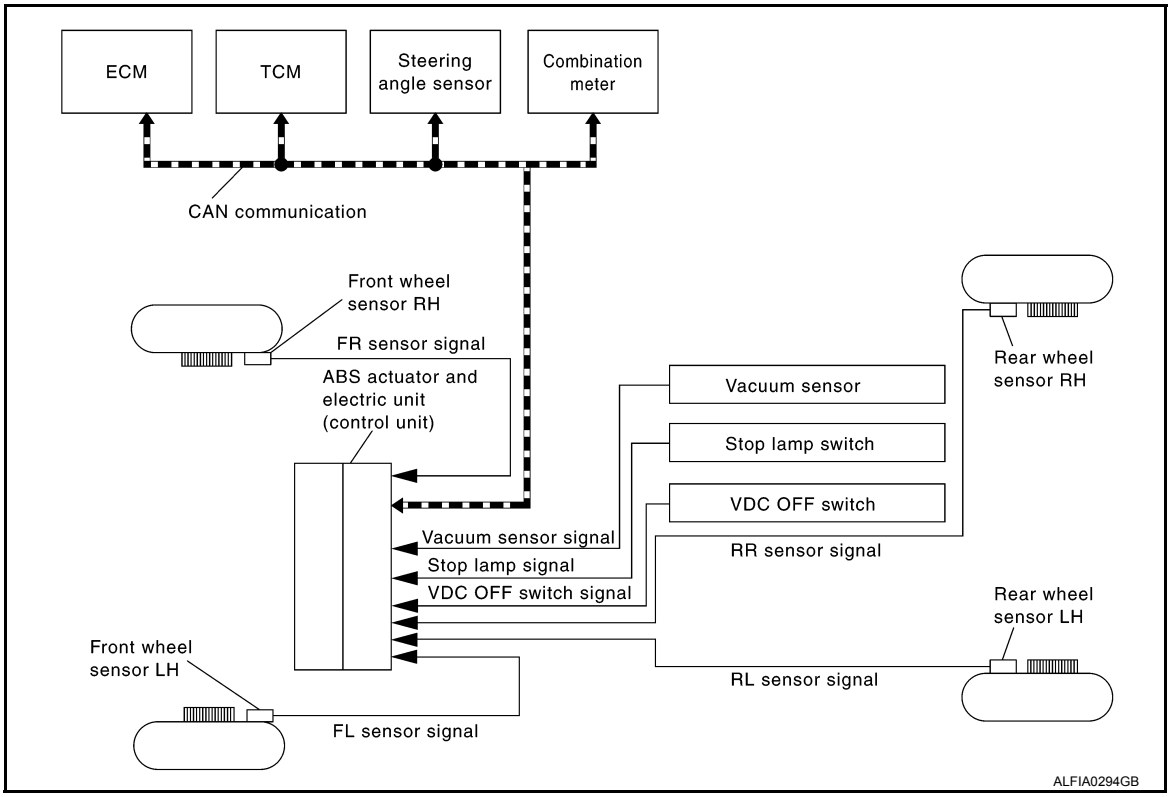
INFOID:0000000012853603

- This is an integrated switch with switches for other functions.
- Non-operational status or standby status of the following functions can be selected using VDC OFF switch. VDC OFF indicator lamp indicates the operation status of function. (ON: Non-operational status, OFF: Standby status)
- VDC function
  NOTE:
  Brake limited slip differential (BLSD) control operates.
- TCS function
- Active trace control function
- VDC OFF indicator lamp turns OFF (standby status) when the engine is started again after it is stopped once while VDC OFF indicator lamp is ON (non-operational status).

SYSTEM

System Diagram

INFOID:0000000012853604



System Description

INFOID:0000000012853605

- The system switches fluid pressure of each brake caliper to increase, to hold or to decrease according to signals from control unit in ABS actuator and electric unit (control unit). This control system is applied to VDC function, TCS function, ABS function, EBD function, hill start assist function, Brake force distribution function and Active trace control function.
- Fail-safe function is available for each function and is activated by each function when system malfunction occurs.

INPUT SIGNAL AND OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

VDC function, TCS function, ABS function, EBD function and Brake force distribution function

Component	Signal description
ECM	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Accelerator pedal position signal • Engine speed signal Mainly receives the following signal from ABS actuator and electric unit (control unit) via CAN communication. • Target throttle position signal
TCM	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Shift position signal

Component	Signal description
Steering angle sensor	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication. • Steering angle sensor signal
Combination meter	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Brake fluid level switch signal • Parking brake switch signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • ABS warning lamp signal • Brake warning lamp signal • VDC warning lamp signal • VDC OFF indicator lamp

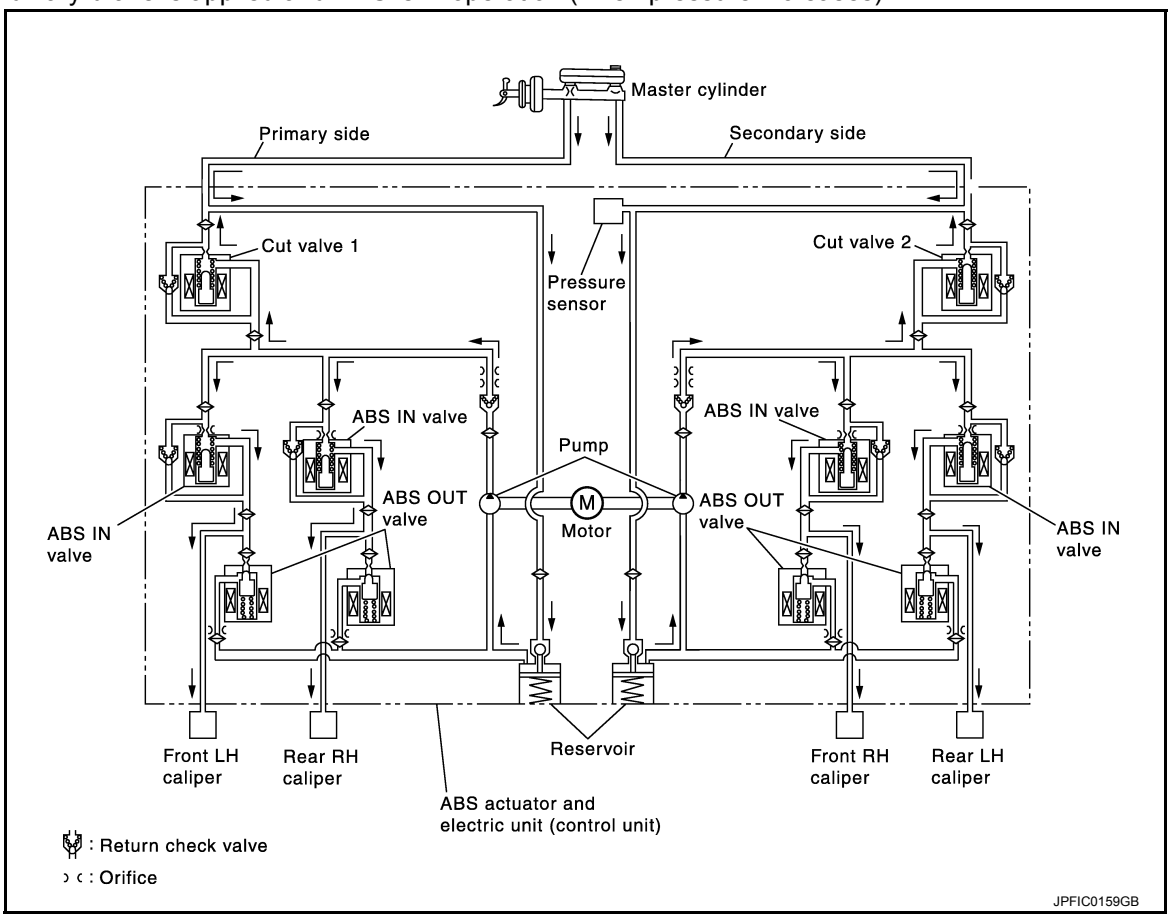
Active trace control function

Component	Signal description
ADAS control unit	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Active trace control signal
ECM	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Accelerator pedal position signal • Engine speed signal Mainly receives the following signal from ABS actuator and electric unit (control unit) via CAN communication: • Target throttle position signal
ABS actuator and electric unit (control unit)	Mainly transmits the following signals to ADAS control unit via CAN communication: • Vehicle speed signal (ABS) • Stop lamp switch signal (brake signal) • VDC OFF switch signal • Yaw rate signal • Side G sensor signal • Decel G sensor signal
Drive mode select switch	Outputs ON/OFF status of STANDARD, SPORT, ECO, SNOW mode to A/C auto AMP.
A/C auto AMP.	Mainly transmits the following signal to ADAS control unit via CAN communication: • Drive mode select switch signal
Steering angle sensor	Mainly transmits the following signal to ADAS control unit via CAN communication: • Steering angle sensor signal
Combination meter	Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • VDC OFF indicator lamp signal • VDC warning lamp signal Mainly receives the following signal from ADAS control unit via CAN communication: • FEB warning lamp signal

VALVE OPERATION (ABS AND EBD)

Each valve is operated and fluid pressure of brake caliper is controlled.

When ordinary brake is applied and ABS is in operation (when pressure increases).



Name	Not activated	When Pressure Increases
Cut valve 1	Power supply is not supplied (open)	Power supply is not supplied (open)
Cut valve 2	Power supply is not supplied (open)	Power supply is not supplied (open)
ABS IN valve	Power supply is not supplied (open)	Power supply is not supplied (open)
ABS OUT valve	Power supply is not supplied (close)	Power supply is not supplied (close)
Each caliper (fluid pressure)	—	Pressure increases

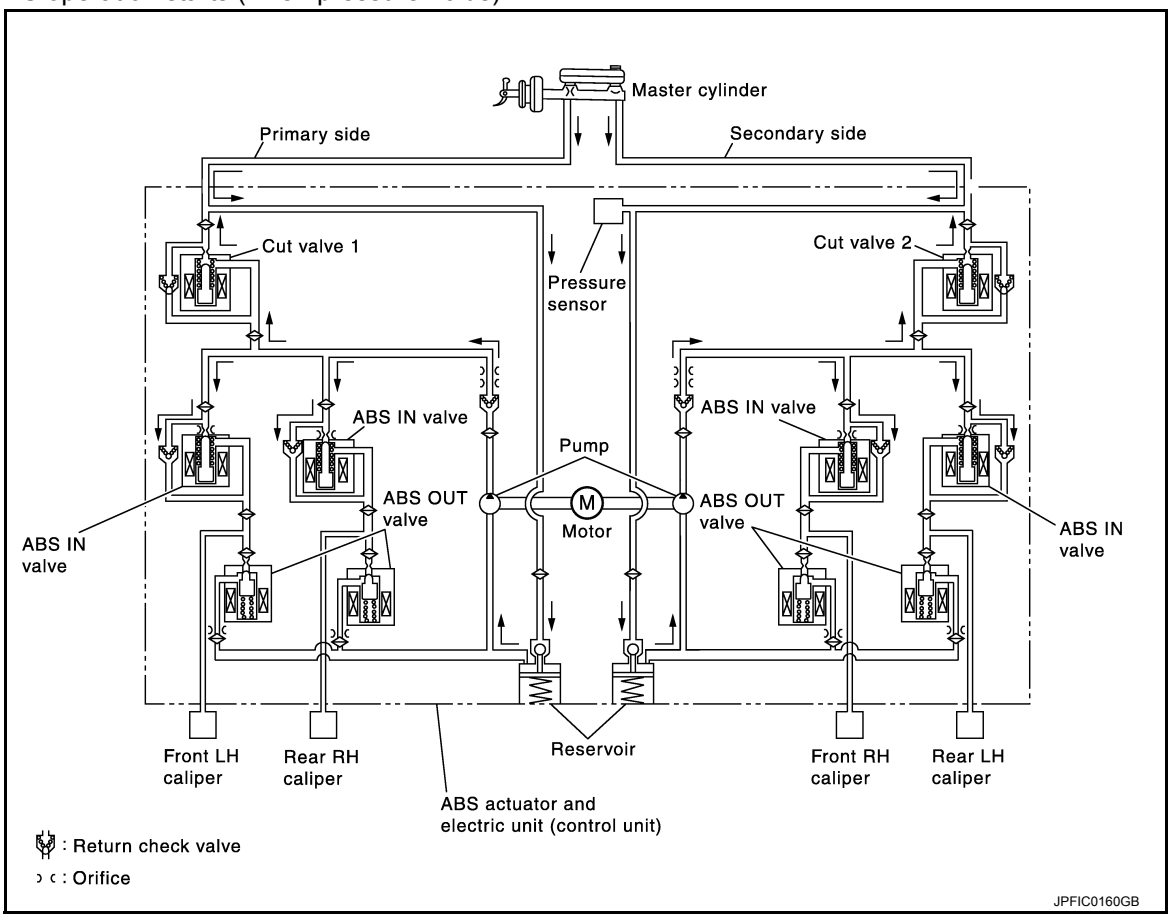
When front RH wheel caliper pressure increases
- Motor is activated. Brake fluid is pressurized by pump and is sent to secondary line through cut valve 2. At the same time, pressurized brake fluid is supplied to front RH caliper through ABS IN valve.

When front LH wheel caliper pressure increases
- Motor is activated. Brake fluid is pressurized by pump and is sent to primary line through cut valve 1. At the same time, pressurized brake fluid is supplied to front LH wheel caliper through ABS IN valve.

When rear RH wheel caliper pressure increases
- Motor is activated. Brake fluid is pressurized by pump and is sent to primary line through cut valve 1. At the same time, pressurized brake fluid is supplied to rear RH wheel caliper through ABS IN valve.

When rear LH wheel caliper pressure increases
- Motor is activated. Brake fluid is pressurized by pump and is sent to secondary line through cut valve 2. At the same time, pressurized brake fluid is supplied to rear LH wheel caliper through ABS IN valve.

When ABS operation starts (when pressure holds)



Name	Not activated	When pressure holds
Cut valve 1	Power supply is not supplied (open)	Power supply is not supplied (open)
Cut valve 2	Power supply is not supplied (open)	Power supply is not supplied (open)
ABS IN valve	Power supply is not supplied (open)	Power supply is supplied (close)
ABS OUT valve	Power supply is not supplied (close)	Power supply is not supplied (close)
Each caliper (fluid pressure)	—	Pressure holds

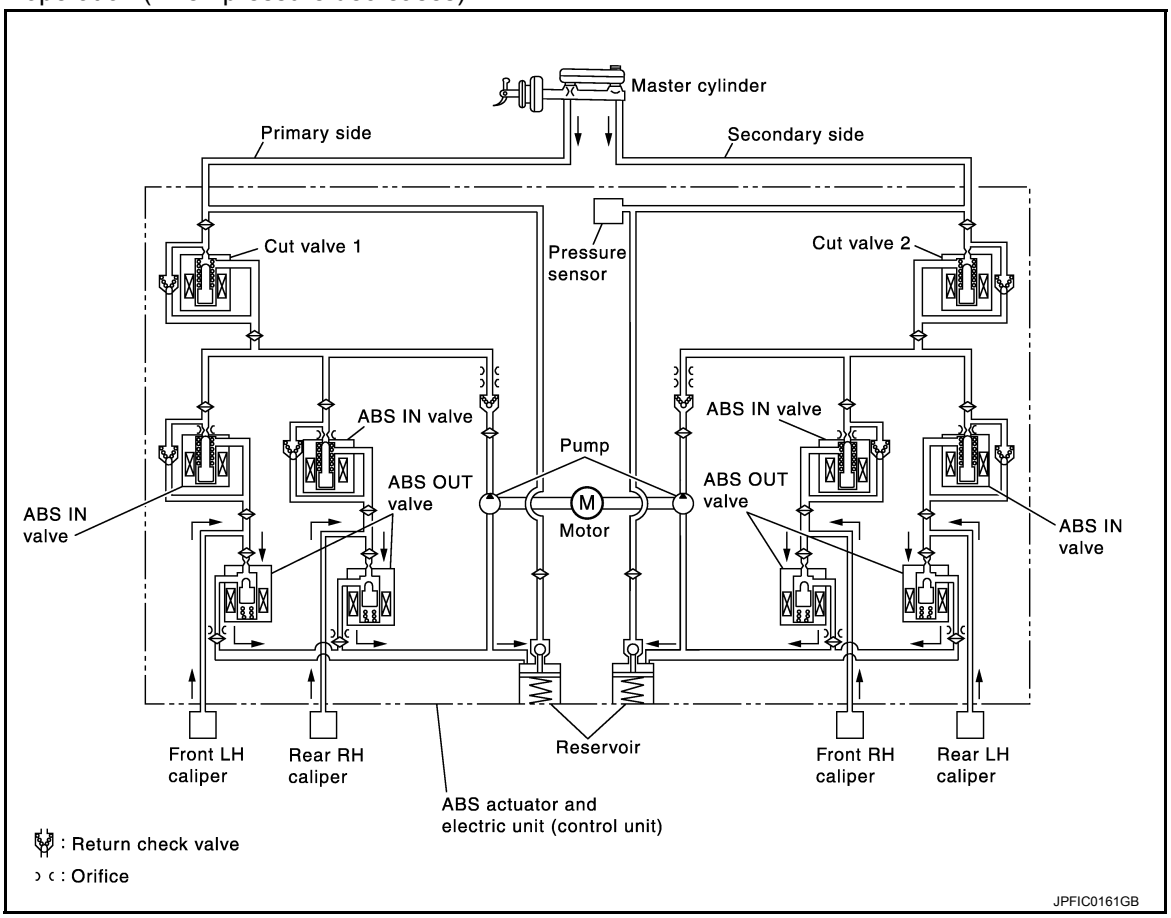
When front RH wheel caliper pressure holds
- Motor is activated. Brake fluid is pressurized by pump and is sent to secondary line through cut valve 2. At the same time, because ABS IN valve and ABS OUT valve are closed, fluid pressure holds.

When front LH wheel caliper pressure holds
- Motor is activated. Brake fluid is pressurized by pump and is sent to primary line through cut valve 1. At the same time, because ABS IN valve and ABS OUT valve are closed, fluid pressure holds.

When rear RH wheel caliper pressure holds
- Motor is activated. Brake fluid is pressurized by pump and is sent to primary line through cut valve 1. At the same time, because ABS IN valve and ABS OUT valve are closed, fluid pressure holds.

When rear LH wheel caliper pressure holds
- Motor is activated. Brake fluid is pressurized by pump and is sent to secondary line through cut valve 2. At the same time, because ABS IN valve and ABS OUT valve are closed, fluid pressure holds.

ABS is in operation (when pressure decreases)



Name	Not activated	When pressure decreases
Cut valve 1	Power supply is not supplied (open)	Power supply is not supplied (open)
Cut valve 2	Power supply is not supplied (open)	Power supply is not supplied (open)
ABS IN valve	Power supply is not supplied (open)	Power supply is supplied (close)
ABS OUT valve	Power supply is not supplied (close)	Power supply is supplied (open)
Each caliper (fluid pressure)	—	Pressure decreases

When front RH wheel caliper pressure decreases
- Being supplied to reservoir through ABS OUT valve, the fluid pressure of brake caliper is decreased.

When front LH wheel caliper pressure decreases
- Being supplied to reservoir through ABS OUT valve, the fluid pressure of brake caliper is decreased.

When rear RH wheel caliper pressure decreases
- Being supplied to reservoir through ABS OUT valve, the fluid pressure of brake caliper is decreased.

When rear LH wheel caliper pressure decreases
- Being supplied to reservoir through ABS OUT valve, the fluid pressure of brake caliper is decreased.

Component Parts and Function

Component	FUNCTION
Reservoir	Temporarily reserves the brake fluid drained from brake caliper, so that pressure efficiently decreases when decreasing pressure of brake caliper.
Pump	Returns the brake fluid reserved in reservoir to master cylinder by reducing pressure.
Motor	Drives the pump according to signals from control unit.
ABS IN valve	Switches the fluid pressure line to increase or hold according to signals from control unit.

Component	FUNCTION
ABS OUT valve	Switches the fluid pressure line to increase, hold or decrease according to signals from control unit.
Return check valve	Returns the brake fluid from brake caliper to master cylinder by bypassing orifice of each valve when brake is released.
Cut valve 1 Cut valve 2	Performs the duty control of fluid pressure increased by pump according to signals from control unit.
Pressure Sensor	Detects the brake pedal operation amount.

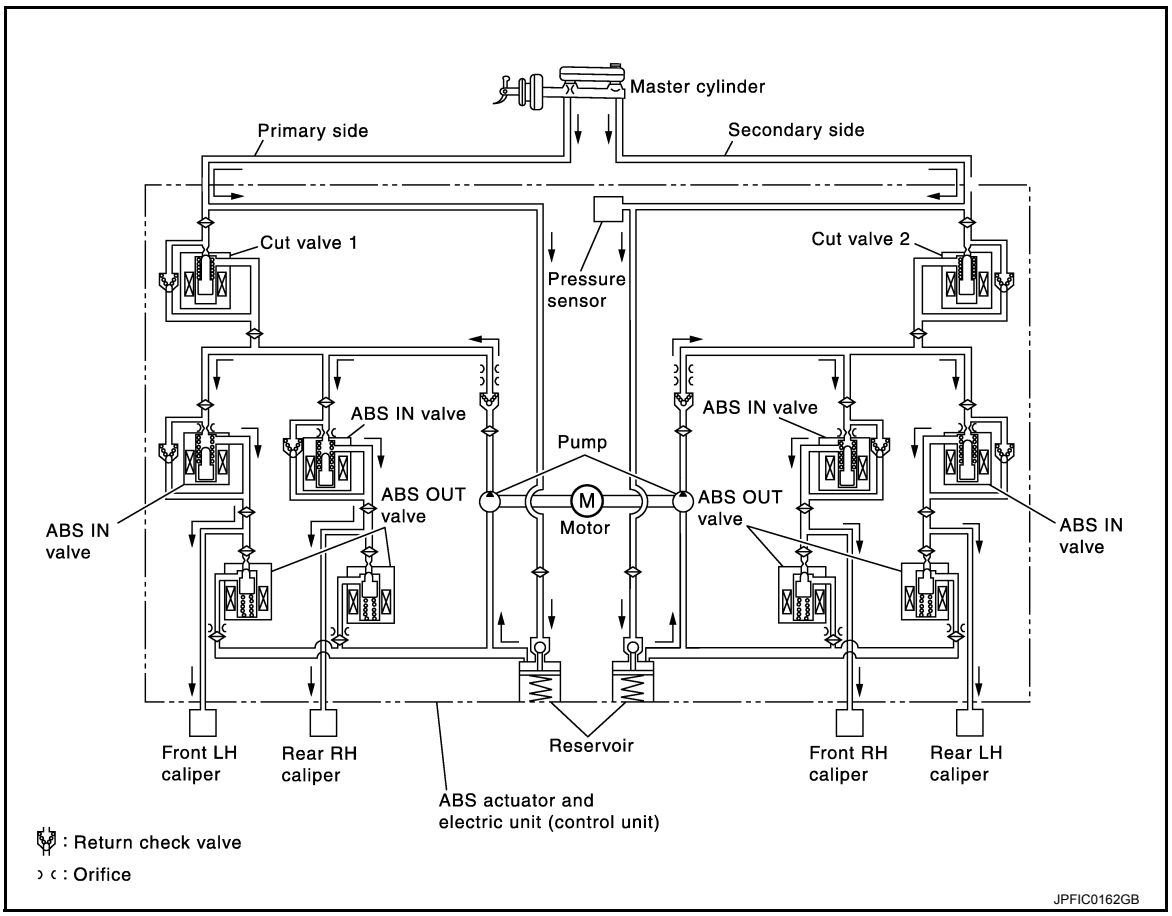
VALVE OPERATION (OTHER THAN ABS AND EBD)

Each valve is operated and fluid pressure of brake caliper is controlled.

NOTE:

There is no operation to hold and increase pressure for functions other than ABS and EBD.

When Pressure Increases



Name	Not activated	When Pressure Increases
Cut valve 1	Power supply is not supplied (open)	Wheel other than the one that the pressure is to be increased: Power supply is not supplied (open) Only wheel that the pressure is to be increased: Power supply is supplied (close)
Cut valve 2	Power supply is not supplied (open)	Wheel other than the one that the pressure is to be increased: Power supply is not supplied (open) Only wheel that the pressure is to be increased: Power supply is supplied (close)

Name	Not activated	When Pressure Increases
ABS IN valve	Power supply is not supplied (open)	Only wheel that the pressure is to be increased: Power supply is not supplied (open) Wheel other than the one that the pressure is to be increased: Power supply is supplied (close)
ABS OUT valve	Power supply is not supplied (close)	Power supply is not supplied (close)
Each caliper (fluid pressure)	—	Pressure increases

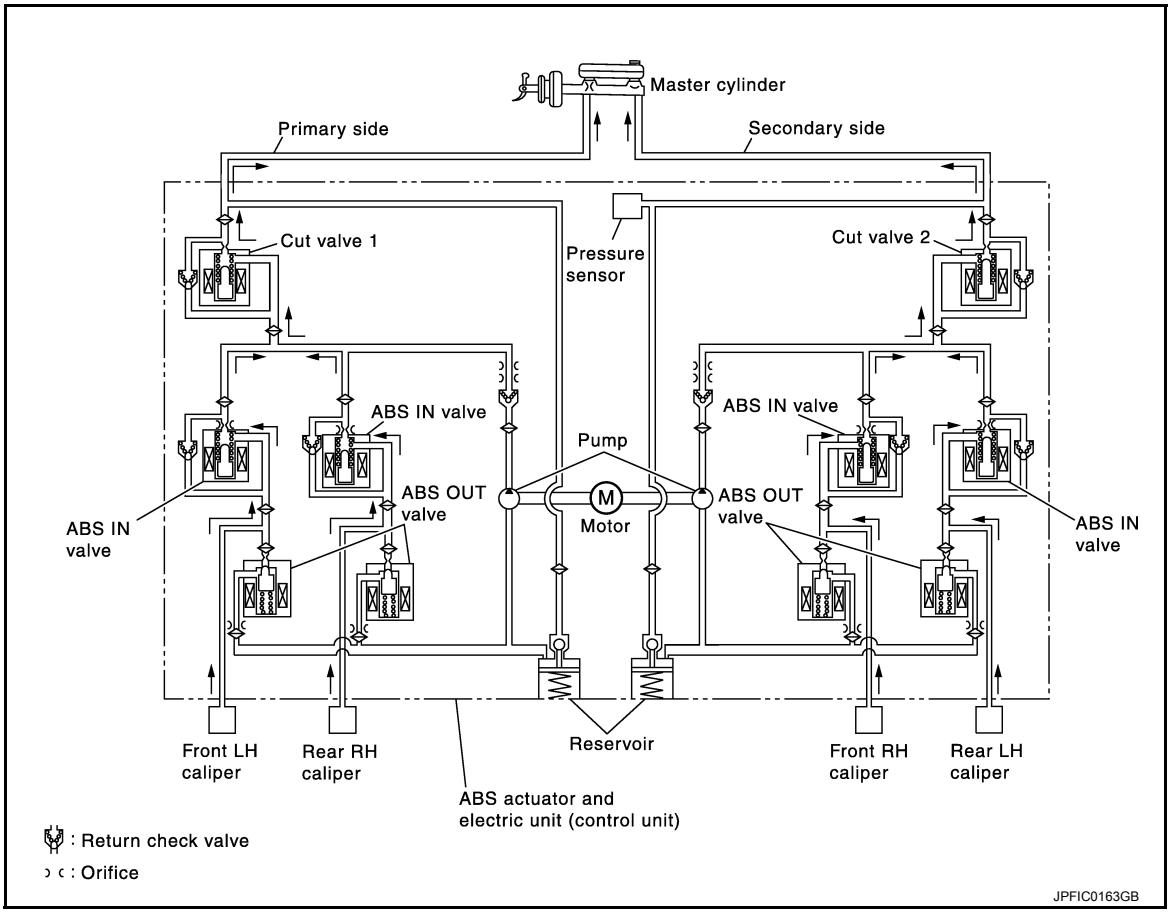
When front RH wheel caliper pressure increases
- Motor is activated. Brake fluid from pump is supplied to front RH wheel caliper through ABS IN valve. For other wheel, ABS IN valve is closed and brakes fluid is not supplied to caliper.

When front LH wheel caliper pressure increases
- Motor is activated. Brake fluid from pump is supplied to front LH wheel caliper through ABS IN valve. For other wheel, ABS IN valve is closed and brakes fluid is not supplied to caliper.

When rear RH wheel caliper pressure increases
- Motor is activated. Brake fluid from pump is supplied to front RH wheel caliper through ABS IN valve. For other wheel, ABS IN valve is closed and brakes fluid is not supplied to caliper.

When rear LH wheel caliper pressure increases
- Motor is activated. Brake fluid from pump is supplied to front LH wheel caliper through ABS IN valve. For other wheel, ABS IN valve is closed and brakes fluid is not supplied to caliper.

Released



Name	Not activated	When pressure decreases
Cut valve 1	Power supply is not supplied (open)	Power supply is not supplied (open)
Cut valve 2	Power supply is not supplied (open)	Power supply is not supplied (open)
ABS IN valve	Power supply is not supplied (open)	Power supply is not supplied (open)
ABS OUT valve	Power supply is not supplied (close)	Power supply is supplied (open)
Each caliper (fluid pressure)	—	Pressure decreases

When front RH wheel caliper pressure decreases
• Being returned to master cylinder through ABS IN valve, fluid pressure of brake caliper is decreased.

When front LH wheel caliper pressure decreases
• Being returned to master cylinder through ABS IN valve, fluid pressure of brake caliper is decreased.

When rear RH wheel caliper pressure decreases
• Being returned to master cylinder through ABS IN valve, fluid pressure of brake caliper is decreased.

When rear LH wheel caliper pressure decreases
• Being returned to master cylinder through ABS IN valve, fluid pressure of brake caliper is decreased.

Component Parts and Function

Component	Function
Reservoir	Temporarily reserves the brake fluid drained from brake caliper so that pressure efficiently decreases when decreasing pressure of brake caliper.
Pump	Returns the brake fluid reserved in reservoir to master cylinder by reducing pressure.
Motor	Drives the pump according to signals from control unit.
ABS IN valve	Switches the fluid pressure line to increase or hold according to signals from control unit.
ABS OUT valve	Switches the fluid pressure line to increase, hold or decrease according to signals from control unit.
Return check valve	Returns the brake fluid from brake caliper to master cylinder by bypassing orifice of each valve when brake is released.
Cut valve 1 Cut valve 2	Performs the duty control of fluid pressure increased by pump according to signals from control unit.
Pressure Sensor	Detects the brake pedal operation amount.

CONDITION FOR TURN ON THE WARNING LAMP

ABS Warning Lamp
• Turns ON at the same time as VDC warning lamp when either ABS function or EBD function is malfunctioning.
• Turns ON when ignition switch turns ON and turns OFF when the system is normal, for bulb check purposes.

Condition (status)	ABS warning lamp
Ignition switch OFF	OFF
For approx. 1 second after the ignition switch is turned ON	ON
Approx. 1 second after ignition switch is turned ON (when the system is in normal operation)	OFF
ABS function is malfunctioning	ON
EBD function is malfunctioning	ON

Brake Warning Lamp
• Turns ON at the same time as ABS warning lamp and VDC warning lamp when EBD function is malfunctioning.
• Turns ON when ignition switch turns ON and turns OFF when the system is normal for bulb check purposes.

Condition (status)	Brake warning lamp
Ignition switch OFF	OFF
For approx. 1 seconds after the ignition switch is turned ON	ON
Approx. 1 second after ignition switch is turned ON (when the system is in normal operation)	OFF
After engine starts	OFF
When parking brake operates (parking brake switch ON)	ON
When brake booster vacuum decreases	ON
When vacuum sensor is malfunctioning	ON
When brake fluid is less than the specified level (brake fluid level switch ON)	ON
ABS function is malfunctioning	OFF
EBD function is malfunctioning	ON

VDC Warning Lamp
- Turns ON when either VDC function, TCS function, ABS function or EBD function is malfunctioning.
- Turns ON when ignition switch turns ON and turns OFF when the system is normal for bulb check purposes.

Condition (status)	VDC warning lamp
Ignition switch OFF	OFF
For approx. 1 second after the ignition switch is turned ON	ON
Approx. 1 second after ignition switch is turned ON (when the system is in normal operation)	OFF
VDC function is malfunctioning	ON
TCS function is malfunctioning	ON
ABS function is malfunctioning	ON
EBD function is malfunctioning	ON
VDC function is operating	Blinking
TCS function is operating	Blinking

FEB OFF indicator lamp
- Turns ON when Active trace control function is malfunctioning.

CONDITIONS FOR TURNING ON THE INDICATOR LAMP

VDC OFF indicator lamp
- Turns ON when VDC function and TCS function are switched to non-operational status (OFF) by VDC OFF switch.
- Turns ON when ignition switch turns ON and turns OFF when the system is normal for bulb check purposes.

Condition (status)	VDC OFF indicator lamp
Ignition switch OFF	OFF
For approx. 1 second after the ignition switch is turned ON	ON
Approx. 1 second after ignition switch is turned ON (when the system is in normal operation)	OFF
When VDC OFF switch is ON (VDC function, TCS function and Active trace control function are OFF)	ON

Fail-Safe

INFOID:0000000012853606

VDC FUNCTION, TCS FUNCTION, hill start assist FUNCTION AND BRAKE FORCE DISTRIBUTION FUNCTION

VDC warning lamp in combination meter turns ON when a malfunction occurs in system [ABS actuator and electric unit (control unit)]. The control is suspended for VDC function, TCS function, hill start assist function

and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, hill start assist function and Brake force distribution function. However, ABS function and EBD function are operated normally.

ABS FUNCTION

ABS warning lamp and VDC warning lamp in combination meter turn ON when a malfunction occurs in system [ABS actuator and electric unit (control unit)]. The control is suspended for VDC function, TCS function, ABS function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, ABS function, hill start assist function and Brake force distribution function. However, EBD function is operated normally.

NOTE:

ABS self-diagnosis sound may be heard the same as in the normal condition because self-diagnosis is performed when ignition switch turns ON and when vehicle initially starts.

EBD FUNCTION

ABS warning lamp, brake warning lamp and VDC warning lamp in combination meter turn ON when a malfunction occurs in system [ABS actuator and electric unit (control unit)]. The control is suspended for VDC function, TCS function, ABS function, EBD function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, ABS function, EBD function, hill start assist function and Brake force distribution function.

ACTIVE TRACE CONTROL FUNCTION

- FEB OFF indicator lamp turns ON when a malfunction occurs in the system [ABS actuator and electric unit (control unit)]. The control is suspended for Active trace control function. The vehicle becomes the same as models without Active trace control function.

  CAUTION:

  Lamp ON condition of intelligent brake assistance OFF indicator lamp is that intelligent brake assistance OFF switch is in the pressed and not turned ON status.
- Mode is fixed to the mode when a malfunction occurs if CAN communication malfunction (DTC “U1000”, DTC “U1010”“U0424”) occurs between ADAS control unit and A/C auto AMP. The mode is fixed to STANDARD mode after ignition switch turns OFF to ON.

DTC	Malfunction detected condition	Fail-safe condition
C1101	When an open circuit is detected in rear RH wheel sensor circuit.	The following functions are suspended: • VDC function • TCS function • ABS function • EBD function (only when both 2 rear wheels are malfunctioning) • hill start assist function • Brake force distribution function
C1102	When an open circuit is detected in rear LH wheel sensor circuit.	
C1103	When an open circuit is detected in front RH wheel sensor circuit.	
C1104	When an open circuit is detected in front LH wheel sensor circuit.	
C1105	• When power supply voltage of rear RH wheel sensor is low. • When distance between rear RH wheel sensor and rear RH wheel sensor rotor is large. • When installation of rear RH wheel sensor or rear RH wheel sensor rotor is not normal.	
C1106	• When power supply voltage of rear LH wheel sensor is low. • When distance between rear LH wheel sensor and rear LH wheel sensor rotor is large. • When installation of rear LH wheel sensor or rear LH wheel sensor rotor is not normal.	
C1107	• When power supply voltage of front RH wheel sensor is low. • When distance between front RH wheel sensor and front RH wheel sensor rotor is large. • When installation of front RH wheel sensor or front RH wheel sensor rotor is not normal.	
C1108	• When power supply voltage of front LH wheel sensor is low. • When distance between front LH wheel sensor and front LH wheel sensor rotor is large. • When installation of front LH wheel sensor or front LH wheel sensor rotor is not normal.	

DTC	Malfunction detected condition	Fail-safe condition
C1109	• When ignition voltage is 10 V or less. • When ignition voltage is 16 V or more.	The following functions are suspended: • VDC function • TCS function • ABS function • EBD function • hill start assist function • Brake force distribution function
C1111	When a malfunction is detected in motor or motor relay.	
C1115	When difference in wheel speed between any wheel and others is detected during the vehicle is driven, because of installation of other tires than specified.	The following functions are suspended: • VDC function • TCS function • ABS function • hill start assist function • Brake force distribution function
C1116	When stop lamp switch signal is not input when brake pedal operates.	
C1120	When a malfunction is detected in front LH ABS IN valve.	The following functions are suspended: • VDC function • TCS function • ABS function • EBD function • hill start assist function • Brake force distribution function
C1121	When a malfunction is detected in front LH ABS OUT valve.	
C1122	When a malfunction is detected in front RH ABS IN valve.	
C1123	When a malfunction is detected in front RH ABS OUT valve.	
C1124	When a malfunction is detected in rear LH ABS IN valve.	
C1125	When a malfunction is detected in rear LH ABS OUT valve.	
C1126	When a malfunction is detected in rear RH ABS IN valve.	
C1127	When a malfunction is detected in rear RH ABS OUT valve.	
C1130	When a malfunction is detected in ECM system.	The following functions are suspended: • VDC function • TCS function • hill start assist function • Brake force distribution function
C1140	When a malfunction is detected in actuator relay.	The following functions are suspended: • VDC function • TCS function • ABS function • EBD function • hill start assist function • Brake force distribution function
C1142	When a malfunction is detected in pressure sensor.	The following functions are suspended: • VDC function • TCS function • hill start assist function • Brake force distribution function
C1143	When a malfunction is detected in steering angle sensor.	
C1144	When neutral position adjustment of steering angle sensor is not complete.	
C1145	When a malfunction is detected in yaw rate signal.	
C1146	When a malfunction is detected in side/decel G signal.	The following functions are suspended: • VDC function • TCS function • ABS function • hill start assist function • Brake force distribution function
C1155	When brake fluid level low signal is detected.	
C1160	When calibration of yaw rate/side/decel G sensor is not complete.	The following functions are suspended: • VDC function • TCS function • hill start assist function • Brake force distribution function

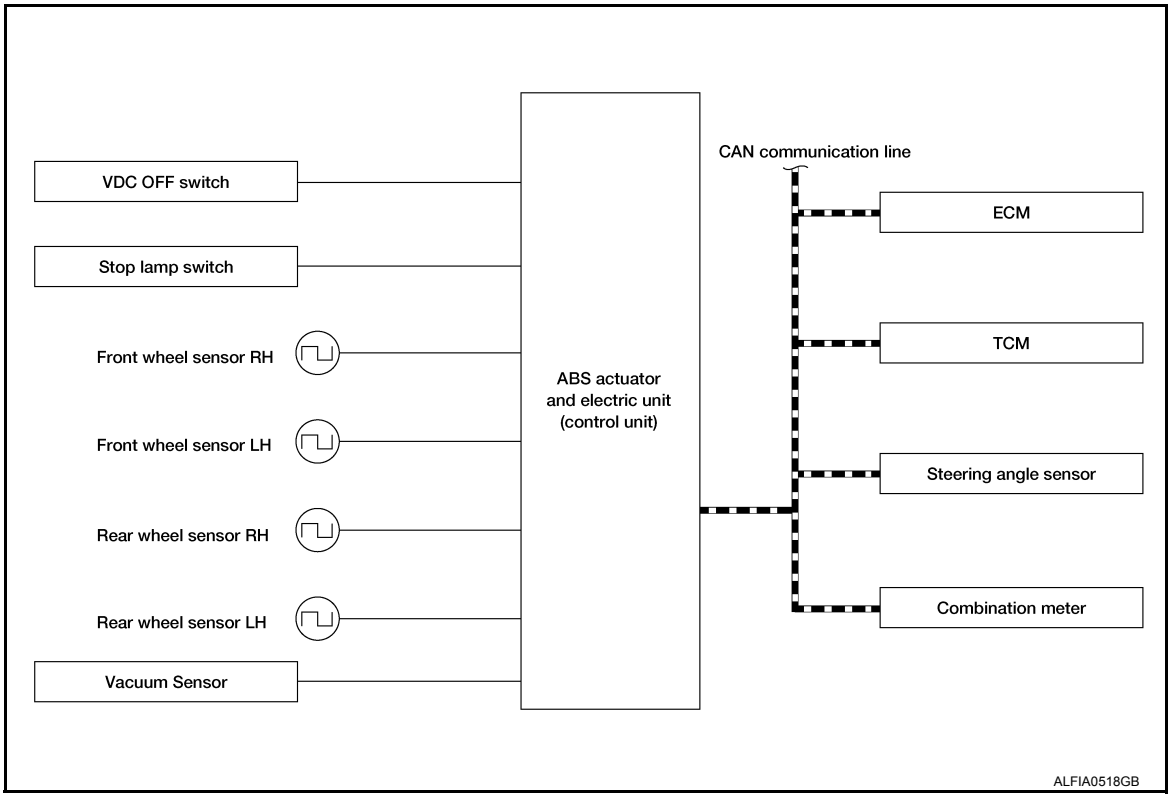
DTC	Malfunction detected condition	Fail-safe condition
C1164	When a malfunction is detected in cut valve 1.	The following functions are suspended: • VDC function • TCS function • ABS function • EBD function • hill start assist function • Brake force distribution function
C1165	When a malfunction is detected in cut valve 2.	
C1170	When the information in ABS actuator and electric unit (control unit) is not the same.	
C1197	When a malfunction is detected in vacuum sensor.	Electrical vacuum assistance of brake booster is suspended.
C1198	• When an open circuit is detected in vacuum sensor circuit. • When a short circuit is detected in vacuum sensor circuit. • When a malfunction is detected in vacuum sensor noise.	
C1199	When brake booster vacuum is approx. 0 kPa (0 mmHg) during engine running.	—
C119A	When a malfunction is detected in supply power voltage of vacuum sensor.	Electrical vacuum assistance of brake booster is suspended.
U1000	When CAN communication signal is not continuously received for 2 seconds or more.	The following functions are suspended: • VDC function • TCS function • hill start assist function • Brake force distribution function
U0424*	When signal that is transmitted from A/C auto AMP. is not the latest information.	Mode is fixed to the mode when a malfunction of drive mode selector occurs. The mode is fixed to STANDARD mode after ignition switch turns OFF to ON.

*: This is DTC that is detected in ADAS control unit side.

VDC FUNCTION

VDC FUNCTION : System Diagram

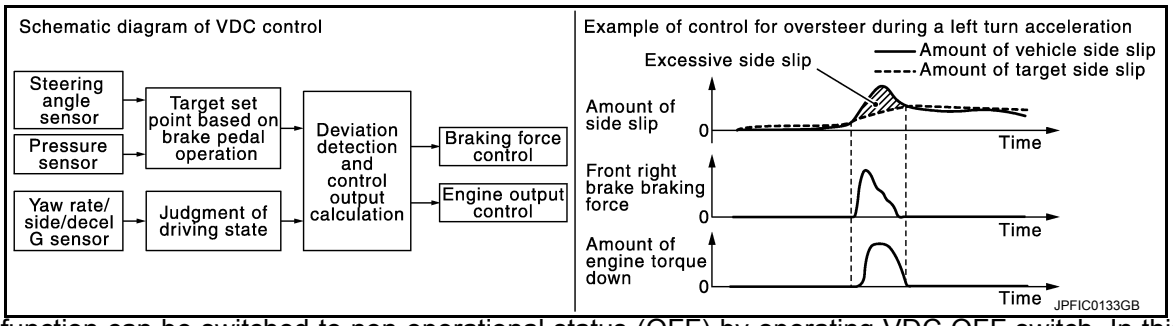
INFOID:0000000012853607



VDC FUNCTION : System Description

INFOID:0000000012853608

- Side slip or tail slip may occur while driving on a slippery road or during intended urgent evasive driving. VDC function detects side slip status using each sensor when side slip or tail slip is about to occur and improves vehicle stability by brake control and engine output control during driving.
- In addition to ABS function, EBD function and TCS function, target side slip amount is calculated according to steering operation amount from steering angle sensor and brake operation amount from brake pressure sensor. By comparing this information with vehicle side slip amount that is calculated from information from yaw rate/side/decel G sensor and wheel sensor, vehicle driving conditions (conditions of understeer or oversteer) are judged and vehicle stability is improved by brake force control on all 4 wheels and engine output control.



- VDC function can be switched to non-operational status (OFF) by operating VDC OFF switch. In this case, VDC OFF indicator lamp turns ON.
- Control unit portion automatically improves driving stability by performing brake force control as well as engine output control by transmitting drive signal to actuator portion according to difference between target side slip amount and vehicle side slip amount
- VDC warning lamp blinks while VDC function is in operation and indicates to the driver that the function is in operation.
- VDC function has brake limited slip differential (BLSD) function. LH and RH driving wheel spin is always monitored. If necessary, appropriate brake force is independently applied to LH or RH driving wheel so that one-sided wheel spin is avoided and traction is maintained. Mainly starting ability is improved. [Brake limited slip differential (BLSD) function operates while VDC function is in non-operational status (OFF) by VDC OFF switch.] VDC warning lamp turns ON when Brake limited slip differential (BLSD) function is in operation. Noises and vibration may be generated due to brake operation. This is not a malfunction.
- CONSULT can be used to diagnose the system.
- Fail-safe function is adopted. When a malfunction occurs in VDC function, the control is suspended for VDC function, TCS function, hill start assist function, Brake force distribution function and Active trace control function. The vehicle status becomes the same as models without VDC function, TCS function, hill start assist function, Brake force distribution function and Active trace control function. However, ABS function and EBD function are operated normally. Refer to BRC-21, "Fail-Safe".

NOTE:
VDC has the characteristic as described here. This is not a device that helps reckless driving.

INPUT SIGNAL AND OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

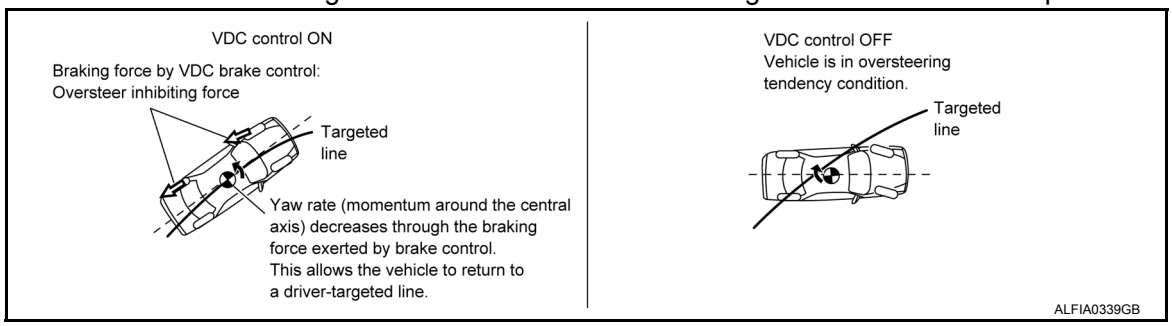
Component	Signal description
ECM	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Acceleration pedal position signal • Engine speed signal Mainly receives the following signal from ABS actuator and electric unit (control unit) via CAN communication: • Target throttle position signal
TCM	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Shift position signal

Component	Signal description
Steering angle sensor	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Steering angle sensor signal
Combination meter	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Brake fluid level switch signal • Parking brake switch signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • VDC warning lamp signal • VDC OFF indicator lamp signal

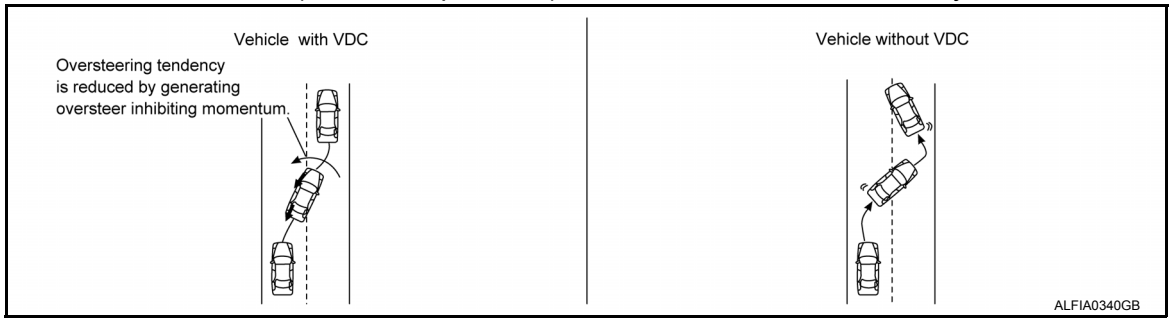
OPERATION CHARACTERISTICS

VDC Function That Prevents Oversteer Tendency

- During a cornering, brake force (brake fluid pressure) is applied on front wheel and rear wheel on the outer side of turn. Momentum directing towards the outer side of turn is generated. Oversteer is prevented.

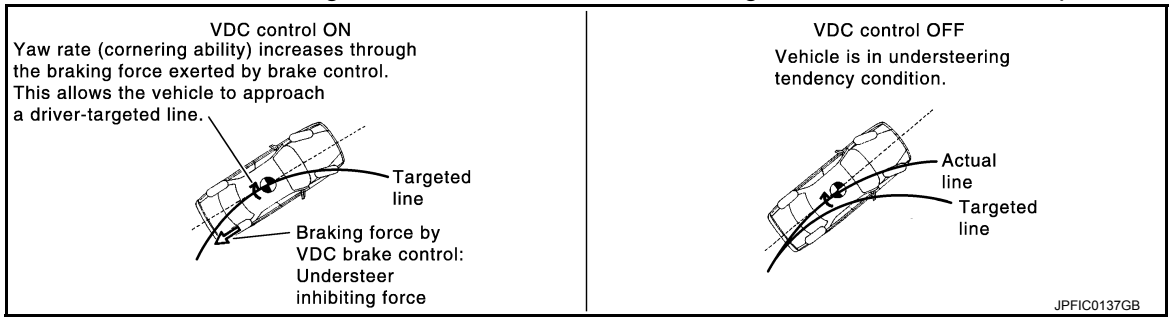


- Changing driving lane on a slippery road, when oversteer tendency is judged large, engine output is controlled as well as brake force (brake fluid pressure) of 4 wheels. Oversteer tendency decreases.

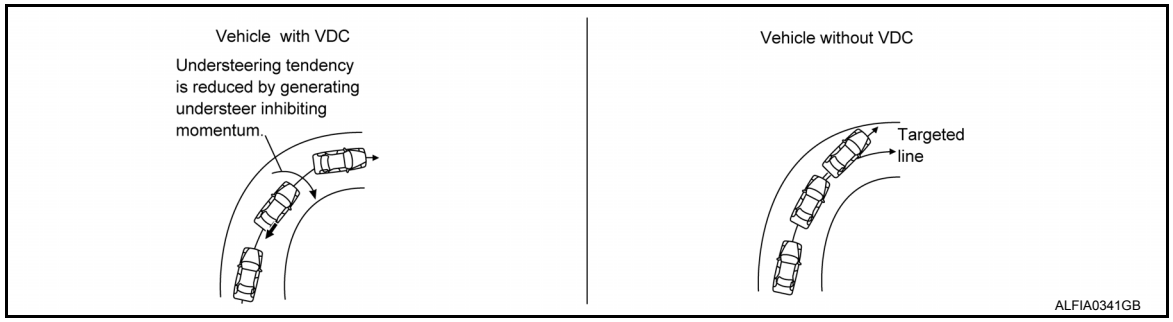


VDC Function That Prevents Understeer Tendency

- During a cornering, brake force (brake fluid pressure) is applied on front wheel and rear wheel on the inner side of turn. Momentum directing towards the inner side of turn is generated. Understeer is prevented.



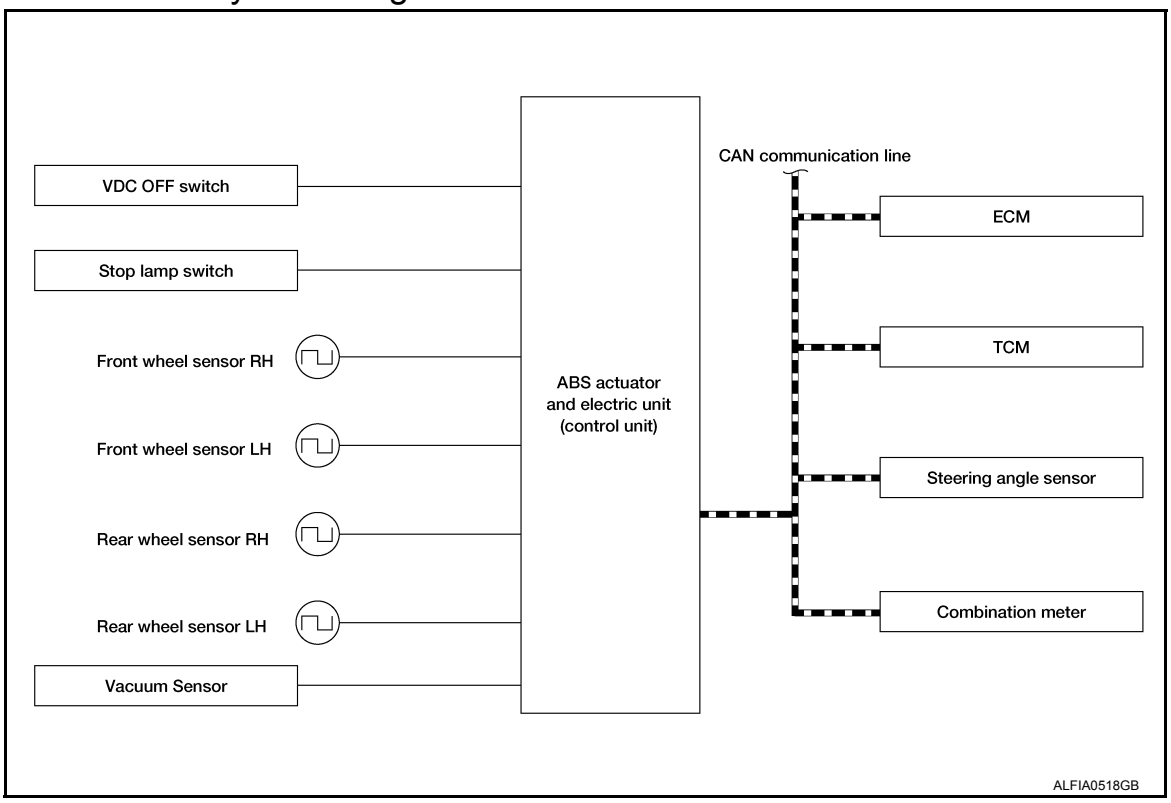
- Applying braking during cornering on a slippery road, when understeer tendency is judged large, engine output is controlled as well as brake force (brake fluid pressure) of four wheels. Understeer tendency decreases.



TCS FUNCTION

TCS FUNCTION : System Diagram

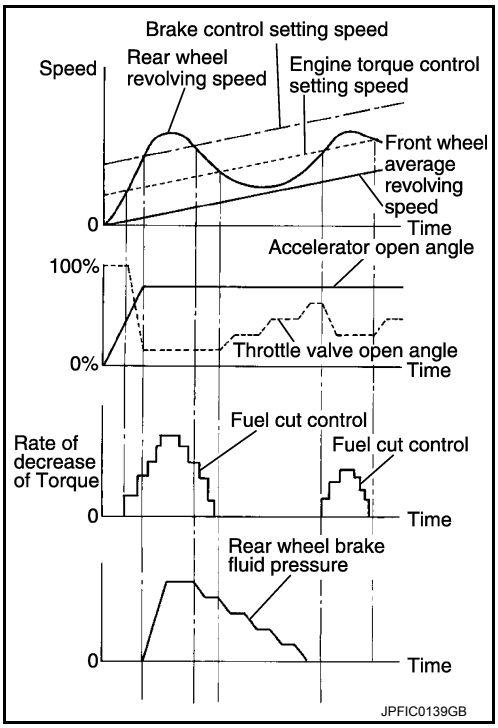
INFOID:0000000012853609



TCS FUNCTION : System Description

INFOID:0000000012853610

- Wheel spin status of drive wheel is detected by wheel sensor of 4 wheels. Engine output and transmission shift status is controlled so that slip rate of drive wheels is at an appropriate level. When wheel spin occurs on drive wheel, ABS actuator and electric unit (control unit) perform brake force control of LH and RH drive wheels (apply brake force by increasing brake fluid pressure of drive wheel) and decrease engine torque by engine torque control. Wheel spin amount decreases. Engine torque is controlled to appropriate level.
- TCS function can be switched to non-operational status (OFF) by operating VDC OFF switch. In this case, VDC OFF indicator lamp turns ON.
- VDC warning lamp blinks while TCS function is in operation and indicates to the driver that the function is in operation.
- CONSULT can be used to diagnose the system.
- Fail-safe function is adopted. When a malfunction occurs in TCS function, the control is suspended for VDC function, TCS function, hill start assist function, Brake force distribution function and Active trace control function. The vehicle status becomes the same as models without VDC function, TCS function, hill start assist function, Brake force distribution function and Active trace control function. However, ABS function and EBD function are operated normally. Refer to BRC-21, "Fail-Safe".



INPUT SIGNAL AND OUTPUT SIGNAL

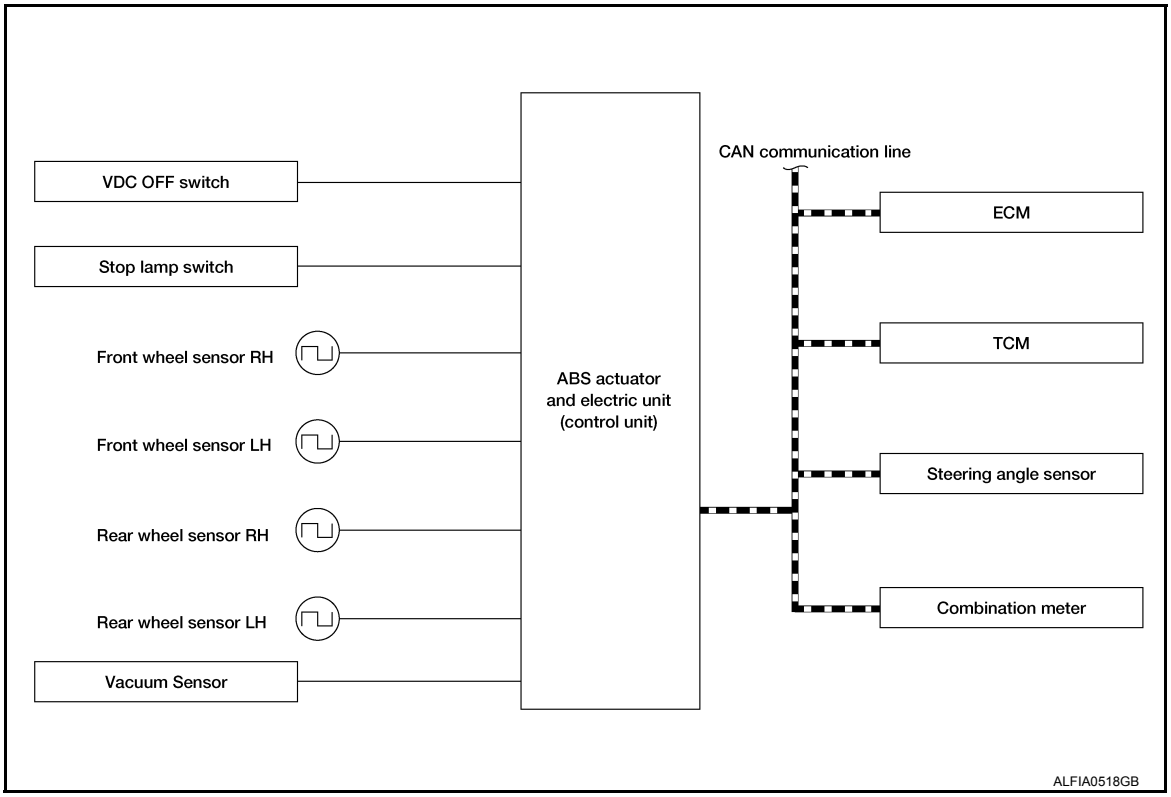
Major signal transmission between each unit via communication lines is shown in the following table.

Component	Signal description
ECM	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Accelerator pedal position signal • Engine speed signal Mainly receives the following signal from ABS actuator and electric unit (control unit) via CAN communication: • Target throttle position signal
TCM	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Shift position signal
Steering angle sensor	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Steering angle sensor signal
Combination meter	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Brake fluid level switch signal • Parking brake switch signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • VDC warning lamp signal • VDC OFF indicator lamp signal

ABS FUNCTION

ABS FUNCTION : System Diagram

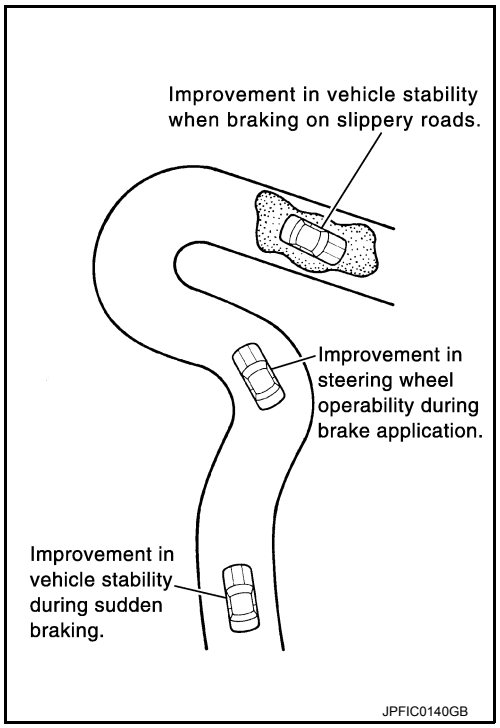
INFOID:0000000012853611



ABS FUNCTION : System Description

INFOID:0000000012853612

- By preventing wheel lock through brake force (brake fluid pressure) control that is electronically controlled by detecting wheel speed during braking, stability during emergency braking is improved so that obstacles can be avoided by steering operation.
- During braking, control units calculate wheel speed and pseudo-vehicle speed, and transmits pressure increase, hold or decrease signals to actuator portion according to wheel slip status.
- The following effects are obtained by preventing wheel lock during braking.
- Vehicle tail slip is prevented during braking when driving straight.
- Understeer and oversteer tendencies are moderated during braking driving on a corner.
- Obstacles may be easily bypassed by steering operation during braking.
- CONSULT can be used to diagnose the system diagnosis.
- Fail-safe function is adopted. When a malfunction occurs in ABS function, the control is suspended for VDC function, TCS function, ABS function, hill start assist function, Brake force distribution function and Active trace control function. The vehicle status becomes the same as models without VDC function, TCS function, ABS function, hill start assist function, Brake force distribution function and Active trace control function. However, EBD function is operated normally. Refer to BRC-21, "Fail-Safe".



NOTE:

- ABS has the characteristic as described here. This is not the device that helps reckless driving.
- To stop vehicle efficiently, ABS does not operate and ordinary brake operates at low speed [approx. 10 km/h (6 MPH) or less but differs subject to road conditions].
- Self-diagnosis is performed immediately after when engine starts and when vehicle initially is driven [by vehicle speed approx. 15 km/h (9 MPH)]. Motor sounds are generated during self-diagnosis. In addition, brake pedal may be feel heavy when depressing brake pedal lightly. These symptoms are not malfunctions.

INPUT SIGNAL AND OUTPUT SIGNAL

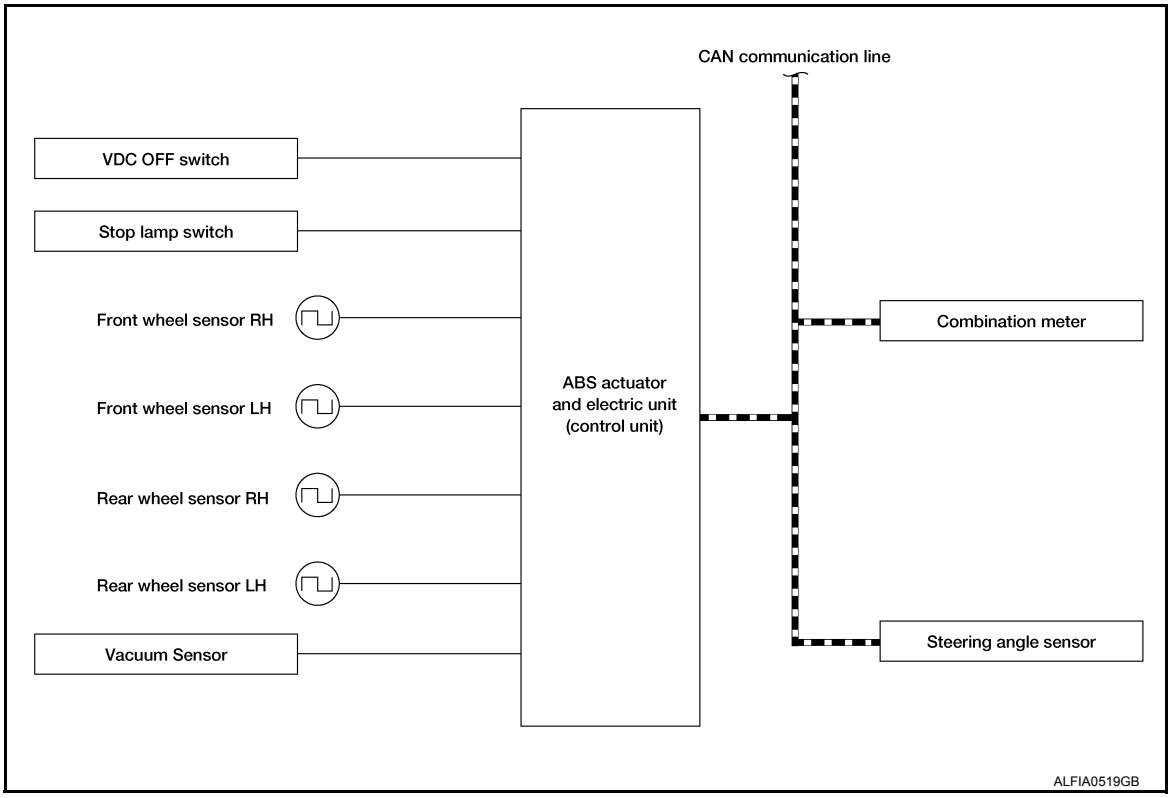
Major signal transmission between each unit via communication lines is shown in the following table.

Component	Signal description
Steering angle sensor	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Steering angle sensor signal
Combination meter	Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • ABS warning lamp signal • VDC warning lamp signal

EBD FUNCTION

EBD FUNCTION : System Diagram

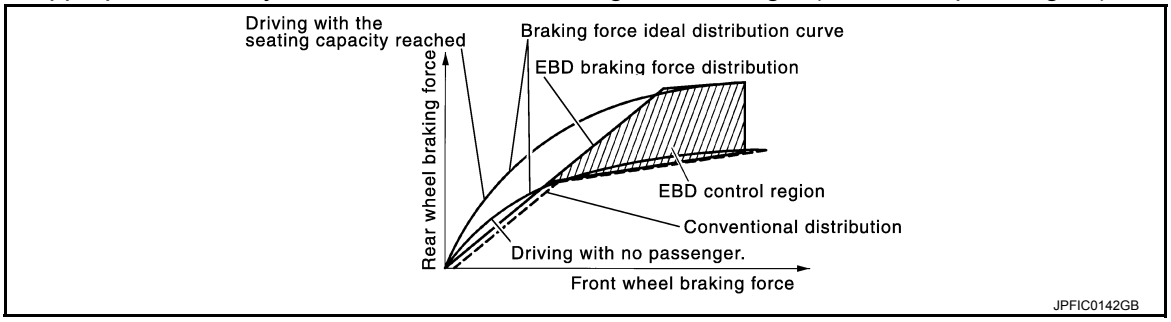
INFOID:0000000012853613



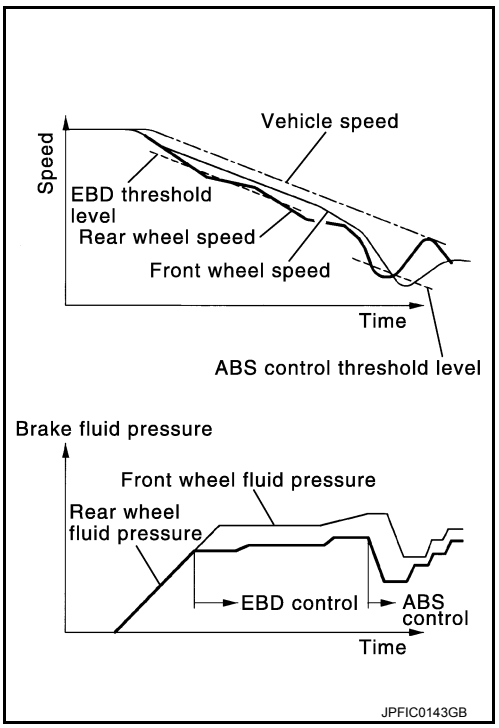
EBD FUNCTION : System Description

INFOID:0000000012853614

- By preventing rear wheel slip increase through rear wheel brake force (brake fluid pressure) control that is electronically controlled when slight skip on front and rear wheels are detected during braking, stability during braking is improved.
- EBD function is expanded and developed from conventional ABS function and corrects rear wheel brake force to appropriate level by electronic control according to load weight (number of passengers).



- During braking, control unit portion compares slight slip on front and rear wheels by wheel speed sensor signal, transmits drive signal to actuator portion when rear wheel slip exceeds front wheel slip for the specified value or more, and controls rear wheel brake force (brake fluid pressure) so that increase of rear wheel slip is prevented and slips on front wheel and rear wheel are nearly equalized. ABS control is applied when slip on each wheel increases and wheel speed is the threshold value of ABS control or less.
- CONSULT can be used to diagnose the system.
- Fail-safe function is adopted. When a malfunction occurs in EBD function, the control is suspended for VDC function, TCS function, ABS function, EBD function, hill start assist function, Brake force distribution function and Active trace control function. The vehicle status becomes the same as models without VDC function, TCS function, ABS function, EBD function, hill start assist function, Brake force distribution function and Active trace control function. Refer to BRC-21, "Fail-Safe".



INPUT SIGNAL AND OUTPUT SIGNAL

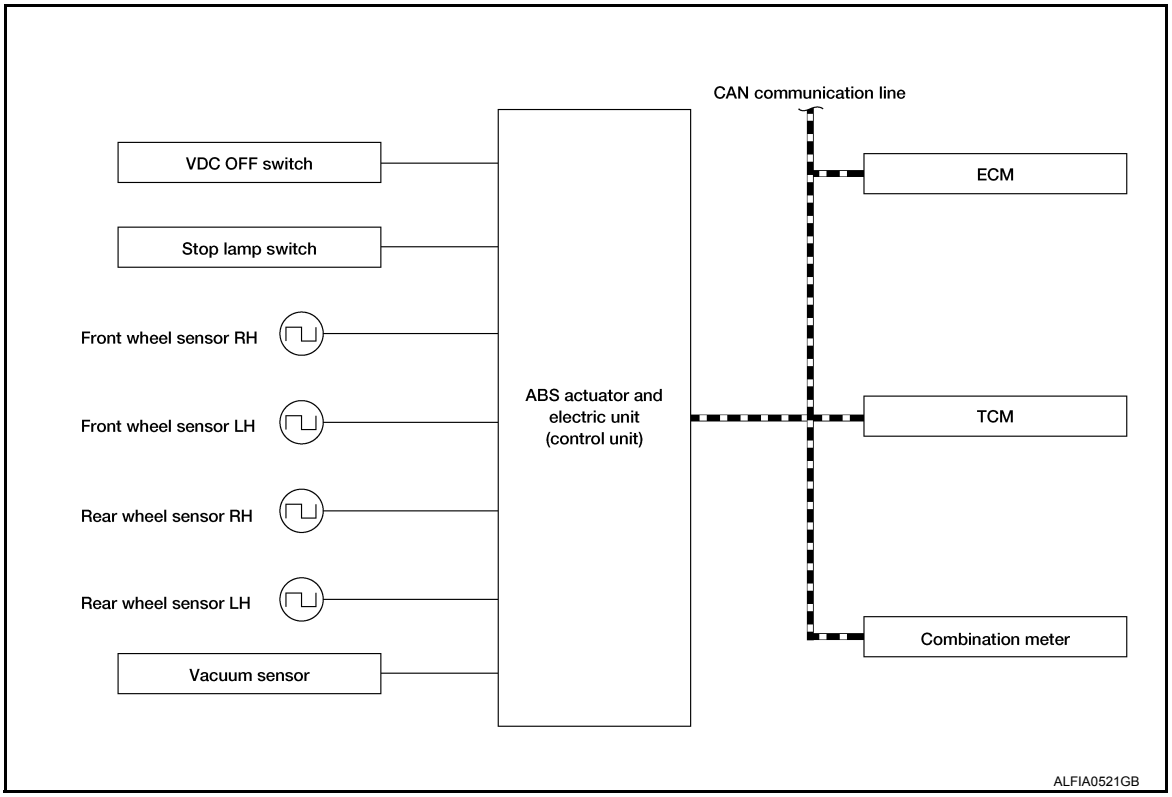
Major signal transmission between each unit via communication lines is shown in the following table.

Component	Signal description
Combination meter	Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • Brake warning lamp signal • ABS warning lamp signal • VDC warning lamp signal

Hill start assist FUNCTION

Hill start assist FUNCTION : System Diagram

INFOID:0000000012853615



Hill start assist FUNCTION : System Description

INFOID:0000000012853616

- This function maintains brake fluid pressure so that the vehicle does not move backwards even if brake pedal is released to depress accelerator pedal to start the vehicle while it is stopped on an uphill slope by depressing brake pedal.
- This function operates when the vehicle is in stop status on an uphill slope of slope ratio 10% or more and selector lever is in any position other than P (Park) or N (Neutral).
- Hill start assist function is only for the start aid. It maintains the brake fluid pressure for approx. 2 seconds after releasing the brake pedal, and then decreases the pressure gradually. If the vehicle starts by accelerator operation, the brake is released automatically and a smooth start can be performed.
- Fail-safe function is adopted. When a malfunction occurs in hill start assist function, the control is suspended for VDC function, TCS function, hill start assist function, Brake force distribution function and Active trace control function. The vehicle status becomes the same as models without VDC function, TCS function, hill start assist function, Brake force distribution function and Active trace control function. However, ABS function and EBD function are operated normally. Refer to BRC-21, "Fail-Safe".

INPUT SIGNAL AND OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

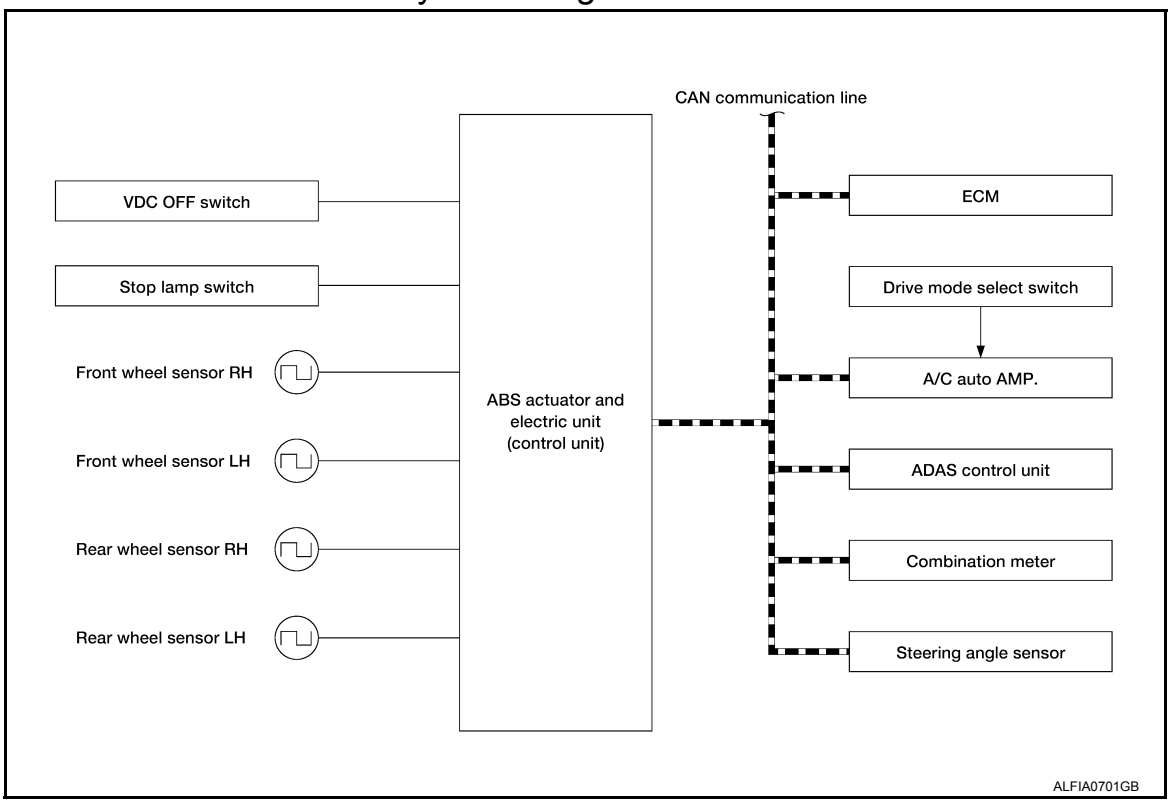
Component	Signal description
ECM	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Accelerator pedal position signal • Engine speed signal Mainly receives the following signal from ABS actuator and electric unit (control unit) via CAN communication: • Target throttle position signal

Component	Signal description
TCM	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Shift position signal
Combination meter	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Brake fluid level switch signal • Parking brake switch signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • VDC warning lamp signal • VDC OFF indicator lamp signal

ACTIVE STABILITY ASSIST

ACTIVE STABILITY ASSIST : System Diagram

INFOID:0000000012853617



ACTIVE STABILITY ASSIST : System Description

INFOID:0000000012853618

- Combination of Active trace control function and Brake force distribution function is named to as Active stability assist. Active trace control function is available for models with ICC system.
- Active stability assist system is aimed to smooth the vehicle movement utilizing VDC function for enjoyable driving with reliable feeling of the driver.

- Active trace control function

- Active Trace Control helps enhance the transition from braking into and then accelerating out of corners. Active Trace Control utilizes the vehicle′s VDC system to help improve cornering feel by automatically applying brakes, or smoothing engine torque characteristics while accelerating. Furthermore, Active Trace Control will apply selective braking to help create increased steering response in S-turns. For example, if driving through an S-turn that starts with steering to the right, the right-side brakes are engaged to create a yaw momentum and help turn the vehicle. When steering back to the left, left-side brakes are engaged. Refer to BRC-34, "ACTIVE STABILITY ASSIST : Active Trace Control Function".

- Brake Force Distribution function

- During braking, Brake force Distribution optimizes the distribution of brake force to each of the four wheels depending on the state of the turn detected by driver′s steering and some sensors. Brake force Distribution helps provide a more stable and secure feeling. Refer to BRC-13, "System Diagram".

• Active trace control can be switched to operational status or non-operational status by operating VDC OFF switch to ON/OFF.

INPUT SIGNAL AND OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

Component	Signal description
ADAS control unit	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Active trace control signal
ECM	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Accelerator pedal position signal • Engine speed signal Mainly receives the following signal from ABS actuator and electric unit (control unit) via CAN communication: • Target throttle position signal
ABS actuator and electric unit (control unit)	Mainly transmits the following signals to ADAS control unit via CAN communication: • Vehicle speed signal (ABS) • Stop lamp switch signal (brake signal) • VDC OFF switch signal • Yaw rate signal • Side G sensor signal • Decel G sensor signal
Drive mode select switch	Outputs ON/OFF status of STANDARD, SPORT, ECO, SNOW mode to A/C auto AMP.
A/C auto AMP	Mainly transmits the following signal to ADAS control unit via CAN communication: • Drive mode select switch signal
Steering angle sensor	Mainly transmits the following signal to ADAS control unit via CAN communication: • Steering angle sensor signal
Combination meter	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Brake fluid level switch signal • Parking brake switch signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • VDC OFF indicator lamp signal • VDC warning lamp signal Mainly receives the following signal from ADAS control unit via CAN communication: • FEB warning lamp signal

ACTIVE STABILITY ASSIST : Active Trace Control Function

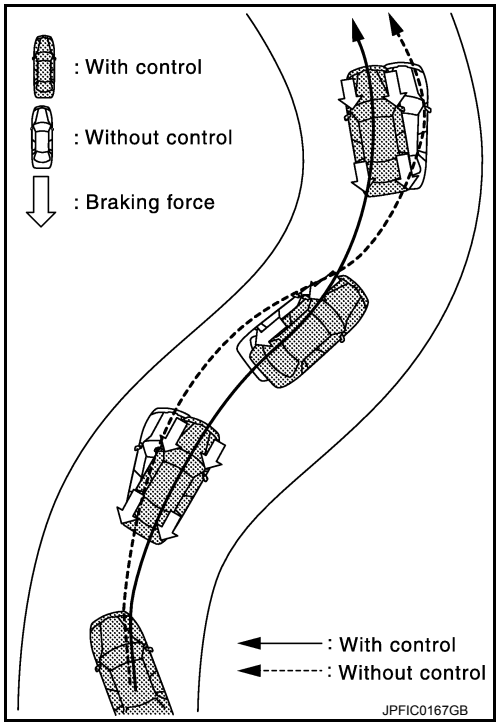
INFOID:0000000012853619

• Active trace control function is calculated by ADAS control unit and transmits command to ABS actuator and electric unit (control unit).
• This system senses driving based on the driver′s steering and acceleration/braking patterns, and individually controls the braking and application of engine torque to each of the four wheels to help smooth vehicle response.
• When the drive mode selector switch is set to the “SPORT” mode, the amount of brake control provided by Active trace control function is reduced.
• When the VDC OFF switch is turn OFF the VDC function, the Active trace control function is also turned OFF.
• Active trace control function is malfunctioning properly, the IBA OFF indicator lamp turns ON.

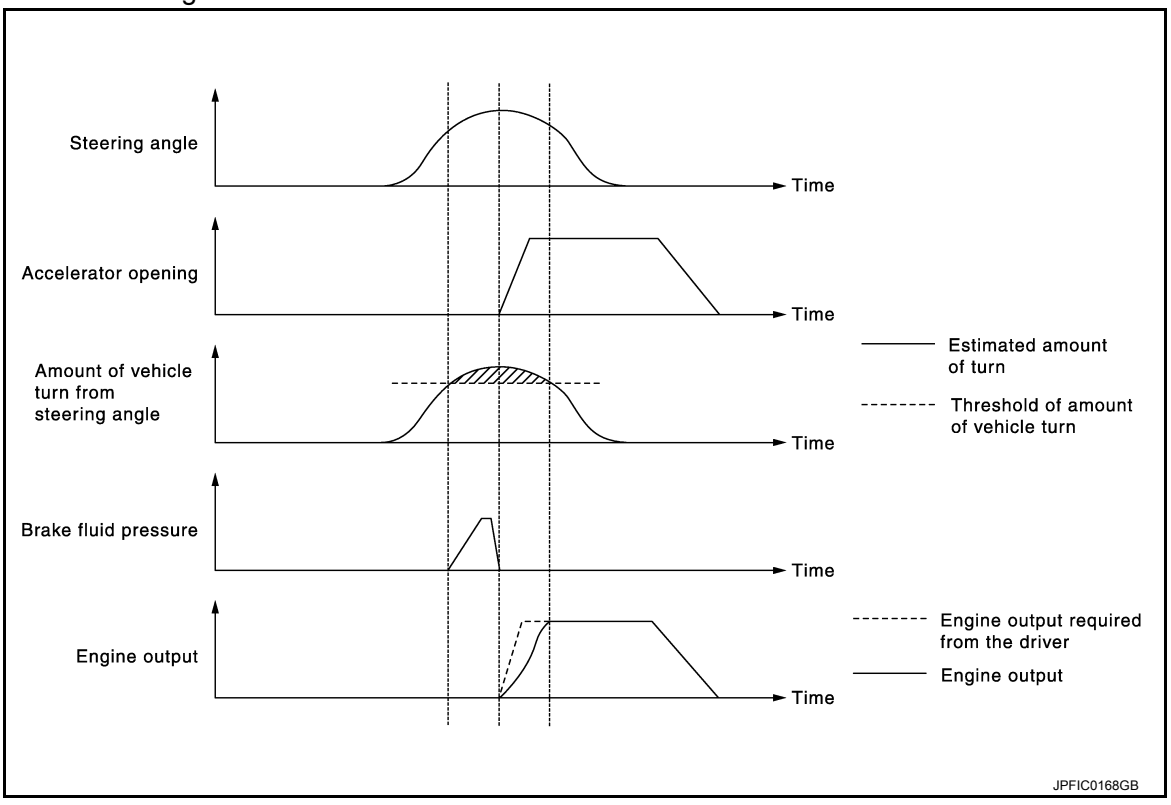
NOTE:
Effect to decrease delay of vehicle yaw rate in response to steering operation may not always be obtained in all driving conditions (example: when road surface resistance is low).

OPERATION CHARACTERISTICS

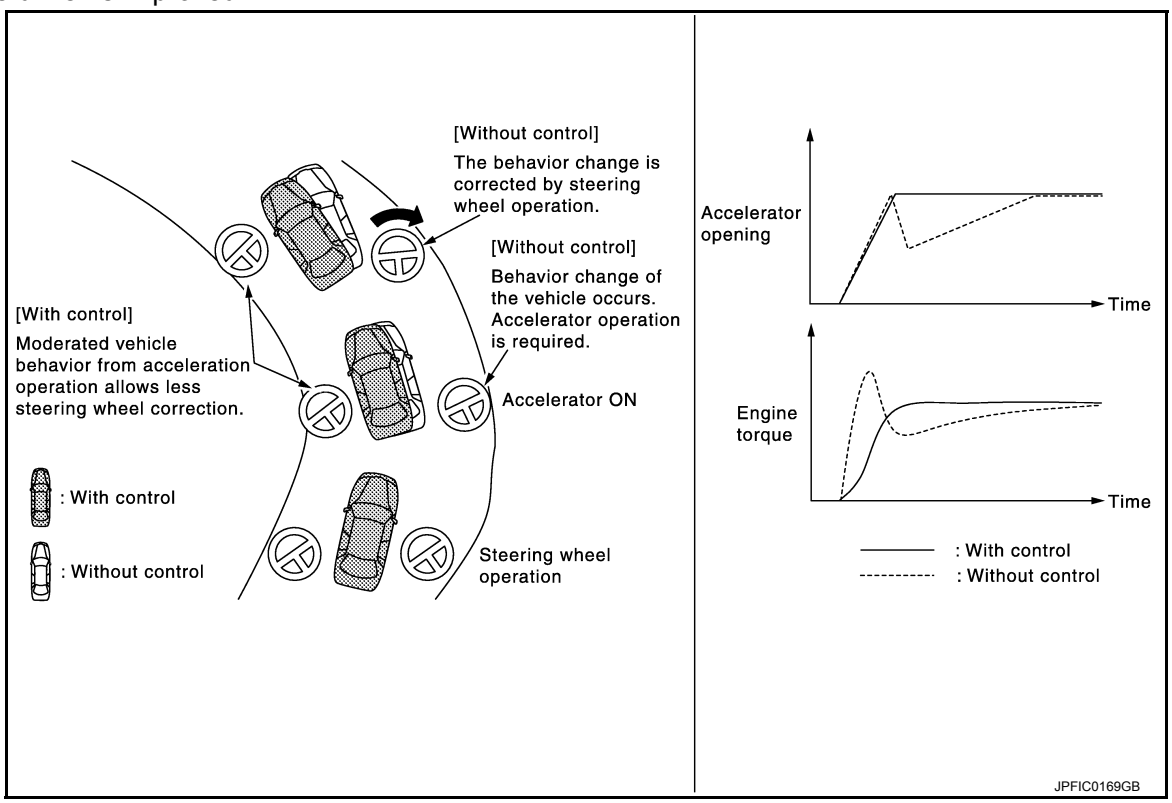
Active Trace Control helps enhance the transition from braking into and then accelerating out of corners. Active Trace Control utilizes the vehicle's VDC system to help improve cornering feel by automatically applying brakes, or smoothing engine torque characteristics while accelerating. Furthermore, Active Trace Control will apply selective braking to help create increased steering response in S-turns. For example, if driving through an S-turn that starts with steering to the right, the right-side brakes are engaged to create a yaw momentum and help turn the vehicle.



- Brake control amount and engine output are controlled according to steering operation status by the driver and vehicle cornering status.



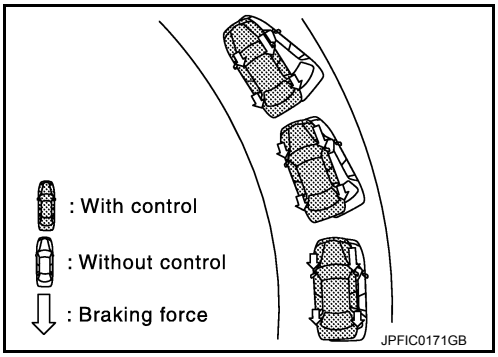
- By preventing a sudden torque change, vehicle behavior moderates. As a result, accelerator pedal operation by the driver is improved.



ACTIVE STABILITY ASSIST : Brake Force Distribution Function

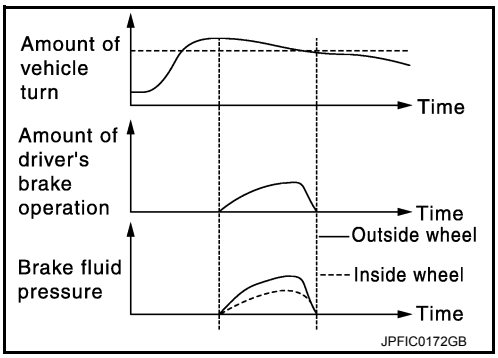
INFOID:0000000012853620

- Brake force distribution function is controlled by ABS actuator and electric unit (control unit).
- Brake force distribution function helps provide a more stable and secure feeling.



- During cornering, when brake operation is performed, brake fluid pressure of each wheel is controlled based on steering operation amount by the driver and vehicle cornering status amount detected by each sensor.
- VDC warning lamp turns ON when Brake force distribution function is malfunctioning.

NOTE:
Brake force distribution function may not always operate in all driving conditions.



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

CONSULT Function

INFOID:0000000012853621

CAUTION:
After disconnecting the CONSULT vehicle interface (VI) from the data link connector, the ignition must be cycled OFF → ON (for at least 5 seconds) → OFF. If this step is not performed, the BCM may not go to "sleep mode", potentially causing a discharged battery and no-start condition.

APPLICATION ITEMS

CONSULT can display each diagnostic item using the diagnostic test modes as follows.

Mode	Function description
ECU identification	Parts number of ABS actuator and electric unit (control unit) can be read.
Self Diagnostic Result	Self-diagnostic results and freeze frame data can be read and erased quickly.*
DATA MONITOR	Input/Output data in the ABS actuator and electric unit (control unit) can be read.
ACTIVE TEST	Diagnostic Test Mode in which CONSULT drives some actuators apart from the ABS actuator and electric unit (control unit) and also shifts some parameters in a specified range.
WORK SUPPORT	Components can be quickly and accurately adjusted.

*: The following diagnosis information is erased by erasing.

- DTC
- Freeze frame data (FFD)

ECU IDENTIFICATION

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

SELF DIAGNOSTIC RESULT

Refer to BRC-47, "DTC Index".

When "CRNT" is displayed on self-diagnosis result,
- The system is presently malfunctioning.

When "PAST" is displayed on self-diagnosis result,
- System malfunction in the past is detected, but the system is presently normal.

Freeze frame data (FFD)
The following vehicle status is recorded when DTC is detected and is displayed on CONSULT.

Item name	Display item
IGN counter (0 – 39)	The number of times that ignition switch is turned ON after the DTC is detected is displayed. • When "0" is displayed: It indicates that the system is presently malfunctioning. • When except "0" is displayed: It indicates that system malfunction in the past is detected, but the system is presently normal. **NOTE:** Each time when ignition switch is turned OFF to ON, numerical number increases in 1 → 2 → 3...38 → 39. When the operation number of times exceeds 39, the number do not increase and "39" is displayed until self-diagnosis is erased.

ACTIVE TEST

The active test is used to determine and identify details of a malfunction, based on self-diagnosis test results and data obtained in the DATA MONITOR. In response to instructions from CONSULT, instead of those from ABS actuator and electric unit (control unit) on the vehicle, a drive signal is sent to the actuator to check its operation.

CAUTION:
- **Never perform ACTIVE TEST while driving the vehicle.**
- **Always bleed air from brake system before active test.**
- **Never perform active test when system is malfunctioning.**

NOTE:

- When active test is performed while depressing the pedal, the pedal depressing stroke may change. This is not a malfunction.
- “TEST IS STOPPED” is displayed approx. 10 seconds after operation start.
- When performing active test again after “TEST IS STOPPED” is displayed, select “BACK”.
- ABS warning lamp, brake warning lamp and VDC warning lamp may turn ON during active test. This is not a malfunction.

ABS IN Valve and ABS OUT Valve
When “Up”, “Keep” or “Down” is selected on display screen, the following items are displayed when system is normal.

Test item	Display Item	Display		
		Up	Keep	Down
FR RH SOL	FR RH IN SOL	Off	On*	On*
	FR RH OUT SOL	Off	Off	On*
FR LH SOL	FR LH IN SOL	Off	On*	On*
	FR LH OUT SOL	Off	Off	On*
RR RH SOL	RR RH IN SOL	Off	On*	On*
	RR RH OUT SOL	Off	Off	On*
RR LH SOL	RR LH IN SOL	Off	On*	On*
	RR LH OUT SOL	Off	Off	On*

*: Immediately after being selected, status is “On”. Status changes to “Off” after approx. 2 seconds.

ABS IN Valve (ACT) and ABS OUT Valve (ACT)
When “Up”, “ACT UP” or “ACT KEEP” is selected on display screen, the following items are displayed when system is normal.

Test item	Display Item	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
	CV1	Off	Off	Off
	CV2	Off	On*	On*
FR LH ABS SOLENOID (ACT)	FR LH IN SOL	Off	Off	Off
	FR LH OUT SOL	Off	Off	Off
	CV1	Off	On*	On*
	CV2	Off	Off	Off
RR RH ABS SOLENOID (ACT)	RR RH IN SOL	Off	Off	Off
	RR RH OUT SOL	Off	Off	Off
	CV1	Off	On*	On*
	CV2	Off	Off	Off
RR LH ABS SOLENOID (ACT)	RR LH IN SOL	Off	On*	Off
	RR LH OUT SOL	Off	Off	Off
	CV1	Off	Off	Off
	CV2	Off	On*	On*

*: Immediately after being selected, status is “On”. Status changes to “Off” after approx. 10 seconds.

ABS MOTOR
When “On” or “Off” is selected on display screen, the following items are displayed when system is normal.

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

NOTE:
Display occasionally changes On/Off for a moment after ignition switch is turned ON. This is an operation for checking purposes and is not a malfunction.

DATA MONITOR

×: Applicable

Item (Unit)	Monitor item selection		Note
	ECU INPUT SIGNALS	MAIN SIGNALS	
FR LH SENSOR [km/h (MPH)]	×	×	Wheel speed calculated by front LH wheel sensor is displayed.
FR RH SENSOR [km/h (MPH)]	×	×	Wheel speed calculated by front RH wheel sensor is displayed.
RR LH SENSOR [km/h (MPH)]	×	×	Wheel speed calculated by rear LH wheel sensor is displayed.
RR RH SENSOR [km/h (MPH)]	×	×	Wheel speed calculated by rear RH wheel sensor is displayed.
DECEL G-SEN (m/s^2)	×	×	Decel G detected by decel G sensor is displayed.
FR RH IN SOL (On/Off)		×	Operation status of front RH wheel ABS IN valve is displayed.
FR RH OUT SOL (On/Off)		×	Operation status of front RH wheel ABS OUT valve is displayed.
FR LH IN SOL (On/Off)		×	Operation status of front LH wheel ABS IN valve is displayed.
FR LH OUT SOL (On/Off)		×	Operation status of front LH wheel ABS OUT valve is displayed.
RR RH IN SOL (On/Off)		×	Operation status of rear RH wheel ABS IN valve is displayed.
RR RH OUT SOL (On/Off)		×	Operation status of rear RH wheel ABS OUT valve is displayed.
RR LH IN SOL (On/Off)		×	Operation status of rear LH wheel ABS IN valve is displayed.
RR LH OUT SOL (On/Off)		×	Operation status of rear LH wheel ABS OUT valve is displayed.
EBD WARN LAMP (On/Off)			Brake warning lamp ON/OFF status is displayed. (Note 1)
STOP LAMP SW (On/Off)	×	×	Stop lamp switch signal input status is displayed.
MOTOR RELAY (On/Off)		×	ABS motor and motor relay status is displayed.
ACTUATOR RLY (On/Off)		×	ABS actuator relay status is displayed.
ABS WARN LAMP (On/Off)		×	ABS warning lamp ON/OFF status is displayed. (Note 1)
OFF LAMP (On/Off)		×	VDC OFF indicator lamp ON/OFF status is displayed.(Note 1)
OFF SW (On/Off)	×	×	VDC OFF switch ON/OFF status is displayed.(Note 1)

Item (Unit)	Monitor item selection		Note
	ECU INPUT SIGNALS	MAIN SIGNALS	
SLIP/VDC LAMP (On/Off)		×	VDC warning lamp ON/OFF status is displayed.(Note 1)
BATTERY VOLT (V)	×	×	Voltage supplied to ABS actuator and electric unit (control unit) is displayed.
GEAR	×	×	Current gear position judged from current gear position signal is displayed.
SLCT LVR POSI	×	×	Current gear position judged from current gear position signal is displayed.
ENGINE SPEED (tr/min)	×	×	Engine speed status is displayed.
YAW RATE SEN (d/s)	×	×	Yaw rate detected by yaw rate sensor is displayed.
R POSI SIG (On/Off)			R range signal input status judged from R range signal is displayed.
N POSI SIG (On/Off)			N range signal input status judged from N range signal is displayed.
CV1 (On/Off)			Cut valve 1 operation status is displayed.
CV2 (On/Off)			Cut valve 2 operation status is displayed.
ACCEL POS SIG (%)	×		Displays the Accelerator pedal position.
SIDE G -SENSOR (m/s^2)	×		Side G detected by side G sensor is displayed.
STR ANGLE SIG (°)	×		Steering angle detected by steering angle sensor is displayed.
PRESS SENSOR (bar)	×		Brake fluid pressure detected by pressure sensor is displayed.
EBD SIGNAL (On/Off)			EBD operation status is displayed.
ABS SIGNAL (On/Off)			ABS operation status is displayed.
TCS SIGNAL (On/Off)			TCS operation status is displayed.
VDC SIGNAL (On/Off)			VDC operation status is displayed.
EBD FAIL SIG (On/Off)			EBD fail-safe signal status is displayed.
ABS FAIL SIG (On/Off)			ABS fail-safe signal status is displayed.
TCS FAIL SIG (On/Off)			TCS fail-safe signal status is displayed.
VDC FAIL SIG (On/Off)			VDC fail-safe signal status is displayed.
CRANKING SIG (On/Off)			Cranking status is displayed.
FLUID LEV SW (On/Off)	×		Brake fluid level signal input status via CAN communication is displayed.

Item (Unit)	Monitor item selection		Note
	ECU INPUT SIGNALS	MAIN SIGNALS	
PARK BRAKE SW (On/Off)	×		Parking brake switch signal input status via CAN communication is displayed.
USS SIG(Note 2) (On/Off)			Hill start assist operation status is displayed.

Note 1: Refer to BRC-13, "System Description" for ON/OFF conditions of each warning lamp and indicator lamp.
Note 2: USS means “hill start assist.”

WORK SUPPORT

Conditions	Description
ST ANGLE SENSOR ADJUSTMENT	Perform neutral position adjustment of steering angle sensor.
DECEL G SEN CALIBRATION	Perform decel G sensor calibration.

ECU DIAGNOSIS INFORMATION

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Reference Value

INFOID:0000000012853622

CONSULT DATA MONITOR STANDARD VALUE

Monitor item	Condition	Reference values in normal operation
FR LH SENSOR	Vehicle stopped	0.00 km/h (MPH)
	When driving(Note 1)	Nearly matches the speedometer display (within ±10%)
FR RH SENSOR	Vehicle stopped	0.00 km/h (MPH)
	When driving(Note 1)	Nearly matches the speedometer display (within ±10%)
RR LH SENSOR	Vehicle stopped	0.00 km/h (MPH)
	When driving(Note 1)	Nearly matches the speedometer display (within ±10%)
RR RH SENSOR	Vehicle stopped	0.00 km/h (MPH)
	When driving(Note 1)	Nearly matches the speedometer display (within ±10%)
DECEL G-SEN	When stopped	Approx. 0 m/s^2
	During acceleration	Positive value
	During deceleration	Negative value
FR RH IN SOL	Active	On
	Not activated	Off
FR RH OUT SOL	Active	On
	Not activated	Off
FR LH IN SOL	Active	On
	Not activated	Off
FR LH OUT SOL	Active	On
	Not activated	Off
RR RH IN SOL	Active	On
	Not activated	Off
RR RH OUT SOL	Active	On
	Not activated	Off
RR LH IN SOL	Active	On
	Not activated	Off
RR LH OUT SOL	Active	On
	Not activated	Off
EBD WARN LAMP	When brake warning lamp is ON(Note 2)	On
	When brake warning lamp is OFF(Note 2)	Off
STOP LAMP SW	Brake pedal depressed	On
	Brake pedal not depressed	Off
MOTOR RELAY	Active	On
	Not activated	Off
ACTUATOR RLY	Active	On
	When not operating (in fail-safe mode)	Off

Monitor item	Condition	Reference values in normal operation
ABS WARN LAMP	When ABS warning lamp is ON(Note 2)	On
	When ABS warning lamp is OFF(Note 2)	Off
OFF LAMP	When VDC OFF indicator lamp is ON(Note 2)	On
	When VDC OFF indicator lamp is OFF(Note 2)	Off
OFF SW	VDC OFF switch ON (When VDC OFF switch is ON(Note 2))	On
	VDC OFF switch OFF (When VDC OFF switch is OFF(Note 2))	Off
SLIP/VDC LAMP	When VDC warning lamp is ON(Note 2)	On
	When VDC warning lamp is OFF(Note 2)	Off
BATTERY VOLT	Ignition switch ON	10 – 16 V
GEAR	Driving	1 – 7 Depending on shift status
SLCT LVR POSI	Vehicle stopped	N/P Depending on shift status
ENGINE SPEED	Engine stopped	0 tr/min
	Engine running	Almost same reading as tachometer
YAW RATE SEN	Vehicle stopped	Approx. 0 d/s
	Turning right	Negative value
	Turning left	Positive value
R POSI SIG	When selector lever is in the R position	On
	When selector lever is in the other position than R	Off
N POSI SIG	When selector lever is in the N position	On
	When selector lever is in the other position than N	Off
CV1	Active	On
	Not activated	Off
CV2	Active	On
	Not activated	Off
ACCEL POS SIG	Never depress accelerator pedal (with ignition switch ON)	0%
	Depress accelerator pedal (with ignition switch ON)	0 – 100%
SIDE G-SENSOR	Vehicle stopped	Approx. 0 m/s^2
	Right turn	Negative value
	Left turn	Positive value
STR ANGLE SIG	When driving straight	0±2.5°
	When steering wheel is steered to LH by 90°	Approx. +90°
	When steering wheel is steered to RH by 90°	Approx. –90°
PRESS SENSOR	Brake pedal not depressed	0 - 255 bar
	Brake pedal depressed	(Pressure increases according to pedal effort.)
EBD SIGNAL	EBD activated	On
	EBD not activated	Off
ABS SIGNAL	ABS is activated	On
	ABS is not activated	Off

Monitor item	Condition	Reference values in normal operation
TCS SIGNAL	TCS activated	On
	TCS not activated	Off
VDC SIGNAL	VDC activated	On
	VDC not activated	Off
EBD FAIL SIG	In EBD fail-safe	On
	EBD is normal	Off
ABS FAIL SIG	In ABS fail-safe	On
	ABS is normal	Off
TCS FAIL SIG	In TCS fail-safe	On
	TCS is normal	Off
VDC FAIL SIG	In VDC fail-safe	On
	VDC is normal	Off
CRANKING SIG	At cranking	On
	Other than at cranking	Off
FLUID LEV SW	When brake fluid level switch is ON (brake fluid level is less than the specified level)	On
	When brake fluid level switch is OFF	Off
PARK BRAKE SW	When parking brake is active	On
	Parking brake is released	Off
USS SIG(Note 3)	hill start assist is active	On
	hill start assist is inactive	Off

Note 1: Confirm tire pressure is standard value.
Note 2: Refer to BRC-13, "System Description" for ON/OFF conditions of each warning lamp and indicator lamp.
Note 3: USS means ‘‘hill start assist.’’

Fail-Safe

INFOID:0000000012853623

VDC FUNCTION, TCS FUNCTION, hill start assist FUNCTION AND BRAKE FORCE DISTRIBUTION FUNCTION

VDC warning lamp in combination meter turns ON when a malfunction occurs in the system [ABS actuator and electric unit (control unit)]. The control is suspended for VDC function, TCS function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, hill start assist function and Brake force distribution function. However, ABS function and EBD function are operated normally.

ABS FUNCTION

ABS warning lamp and VDC warning lamp in combination meter turn ON when a malfunction occurs in the system [ABS actuator and electric unit (control unit)]. The control is suspended for VDC function, TCS function, ABS function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, ABS function, hill start assist function and Brake force distribution function. However, EBD function is operated normally.

NOTE:
ABS self-diagnosis sound may be heard the same as in the normal condition because self-diagnosis is performed when ignition switch turns ON and when vehicle initially starts.

EBD FUNCTION

ABS warning lamp, brake warning lamp and VDC warning lamp in combination meter turn ON when a malfunction occurs in the system [ABS actuator and electric unit (control unit)]. The control is suspended for VDC function, TCS function, ABS function, EBD function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, ABS function, EBD function, hill start assist function and Brake force distribution function.

DTC	Malfunction detected condition	Fail-safe condition
C1101	When an open circuit is detected in rear RH wheel sensor circuit.	The following functions are suspended: • VDC function • TCS function • ABS function • EBD function (only when both 2 rear wheels are malfunctioning) • hill start assist function • Brake force distribution function
C1102	When an open circuit is detected in rear LH wheel sensor circuit.	
C1103	When an open circuit is detected in front RH wheel sensor circuit.	
C1104	When an open circuit is detected in front LH wheel sensor circuit.	
C1105	• When power supply voltage of rear RH wheel sensor is low. • When distance between rear RH wheel sensor and rear RH wheel sensor rotor is large. • When installation of rear RH wheel sensor or rear RH wheel sensor rotor is not normal.	
C1106	• When power supply voltage of rear LH wheel sensor is low. • When distance between rear LH wheel sensor and rear LH wheel sensor rotor is large. • When installation of rear LH wheel sensor or rear LH wheel sensor rotor is not normal.	
C1107	• When power supply voltage of front RH wheel sensor is low. • When distance between front RH wheel sensor and front RH wheel sensor rotor is large. • When installation of front RH wheel sensor or front RH wheel sensor rotor is not normal.	
C1108	• When power supply voltage of front LH wheel sensor is low. • When distance between front LH wheel sensor and front LH wheel sensor rotor is large. • When installation of front LH wheel sensor or front LH wheel sensor rotor is not normal.	
C1109	• When ignition voltage is 10 V or less. • When ignition voltage is 16 V or more.	The following functions are suspended: • VDC function • TCS function • ABS function • EBD function • hill start assist function • Brake force distribution function
C1111	When a malfunction is detected in motor or motor relay.	
C1113	When a malfunction is detected in G signal.	
C1115	When difference in wheel speed between any wheel and others is detected during the vehicle is driven because of installation of other tires than specified.	The following functions are suspended: • VDC function • TCS function • ABS function • hill start assist function • Brake force distribution function
C1116	When stop lamp switch signal is not input when brake pedal operates.	
C1120	When a malfunction is detected in front LH ABS IN valve.	The following functions are suspended: • VDC function • TCS function • ABS function • EBD function • hill start assist function • Brake force distribution function
C1121	When a malfunction is detected in front LH ABS OUT valve.	
C1122	When a malfunction is detected in front RH ABS IN valve.	
C1123	When a malfunction is detected in front RH ABS OUT valve.	
C1124	When a malfunction is detected in rear LH ABS IN valve.	
C1125	When a malfunction is detected in rear LH ABS OUT valve.	
C1126	When a malfunction is detected in rear RH ABS IN valve.	
C1127	When a malfunction is detected in rear RH ABS OUT valve.	
C1130	When a malfunction is detected in ECM system.	The following functions are suspended: • VDC function • TCS function • hill start assist function • Brake force distribution function

DTC	Malfunction detected condition	Fail-safe condition
C1140	When a malfunction is detected in actuator relay.	The following functions are suspended: • VDC function • TCS function • ABS function • EBD function • hill start assist function • Brake force distribution function
C1142	When a malfunction is detected in pressure sensor.	The following functions are suspended: • VDC function • TCS function • hill start assist function • Brake force distribution function
C1143	When a malfunction is detected in steering angle sensor.	
C1144	When neutral position adjustment of steering angle sensor is not complete.	
C1145	When a malfunction is detected in yaw rate signal.	
C1146	When a malfunction is detected in side/decel G signal.	The following functions are suspended: • VDC function • TCS function • ABS function • hill start assist function • Brake force distribution function
C1155	When brake fluid level low signal is detected.	
C1160	When calibration of yaw rate/side/decel G sensor is not complete.	The following functions are suspended: • VDC function • TCS function • hill start assist function • Brake force distribution function
C1164	When a malfunction is detected in cut valve 1.	The following functions are suspended: • VDC function • TCS function • ABS function • EBD function • hill start assist function • Brake force distribution function
C1165	When a malfunction is detected in cut valve 2.	
C1170	When the information in ABS actuator and electric unit (control unit) is not the same.	
C1197	When a malfunction is detected in vacuum sensor.	Electrical vacuum assistance of brake booster is suspended.
C1198	• When an open circuit is detected in vacuum sensor circuit. • When a short circuit is detected in vacuum sensor circuit. • When a malfunction is detected in vacuum sensor noise.	
C1199	When brake booster vacuum is approx. 0 kPa (0 mmHg) during engine running.	—
C119A	When a malfunction is detected in supply power voltage of vacuum sensor.	Electrical vacuum assistance of brake booster is suspended.
U1000	When CAN communication signal is not continuously received for 2 seconds or more.	The following functions are suspended: • VDC function • TCS function • hill start assist function • Brake force distribution function
U0424*	When signal that is transmitted from A/C auto AMP. is not the latest information.	Mode is fixed to the mode when a malfunction of drive mode selector occurs. The mode is fixed to STANDARD mode after ignition switch turns OFF to ON.

*: This is DTC that is detected in ADAS control unit side.

DTC Inspection Priority Chart

INFOID:0000000012853624

When multiple DTCs are displayed simultaneously, check one by one depending on the following priority list.

Priority	Detected item (DTC)
1	• U1000 CAN COMM CIRCUIT • U0424 HVAC CAN CIR 1*
2	• C1170 VARIANT CODING
3	• C1130 ENGINE SIGNAL 1 • C1144 ST ANG SEN SIGNAL
4	• C1109 BATTERY VOLTAGE [ABNOMAL] • C1111 PUMP MOTOR • C1140 ACTUATOR RLY
5	• C1101 RR RH SENSOR-1 • 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 • C1113 G SENSOR • C1115 ABS SENSOR [ABNORMAL SIGNAL] • C1116 STOP LAMP SW • C1120 FR LH IN ABS SOL • 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 • C1142 PRESS SEN CIRCUIT • C1143 ST ANG SEN CIRCUIT • C1145 YAW RATE SENSOR • C1146 SIDE G SEN CIRCUIT • C1160 DECEL G SEN SET • C1164 CV 1 • C1165 CV 2 • C1197 VACUUM SENSOR • C1198 VACUUM SEN CIR • C1199 BRAKE BOOSTER • C119A VACUUM SEN VOLT
6	• C1155 BR FLUID LEVEL LOW

*: This is DTC that is detected in ADAS control unit side.

DTC Index

INFOID:0000000012853625

DTC	Display Item	Refer to
C1101	RR RH SENSOR-1	BRC-86, "DTC Description"
C1102	RR LH SENSOR-1	
C1103	FR RH SENSOR-1	
C1104	FR LH SENSOR-1	
C1105	RR RH SENSOR-2	BRC-91, "DTC Description"
C1106	RR LH SENSOR-2	
C1107	FR RH SENSOR-2	
C1108	FR LH SENSOR-2	
C1109	BATTERY VOLTAGE [ABNOMAL]	BRC-98, "DTC Description"
C1111	PUMP MOTOR	BRC-100, "DTC Description"
C1113	G SENSOR	BRC-103, "DTC Description"

DTC	Display Item	Refer to
C1115	ABS SENSOR [ABNORMAL SIGNAL]	BRC-105, "DTC Description"
C1116	STOP LAMP SW	BRC-112, "DTC Description"
C1120	FR LH IN ABS SOL	BRC-118, "DTC Description"
C1121	FR LH OUT ABS SOL	BRC-120, "DTC Description"
C1122	FR RH IN ABS SOL	BRC-118, "DTC Description"
C1123	FR RH OUT ABS SOL	BRC-120, "DTC Description"
C1124	RR LH IN ABS SOL	BRC-118, "DTC Description"
C1125	RR LH OUT ABS SOL	BRC-120, "DTC Description"
C1126	RR RH IN ABS SOL	BRC-118, "DTC Description"
C1127	RR RH OUT ABS SOL	BRC-120, "DTC Description"
C1130	ENGINE SIGNAL 1	BRC-122, "DTC Description"
C1140	ACTUATOR RLY	BRC-124, "DTC Description"
C1142	PRESS SEN CIRCUIT	BRC-126, "DTC Description"
C1143	ST ANG SEN CIRCUIT	BRC-129, "DTC Description"
C1144	ST ANG SEN SIGNAL	BRC-133, "DTC Description"
C1145	YAW RATE SENSOR	BRC-103, "DTC Description"
C1146	SIDE G SEN CIRCUIT	
C1155	BR FLUID LEVEL LOW	BRC-135, "DTC Description"
C1160	DECEL G SEN SET	BRC-139, "DTC Description"
C1164	CV 1	BRC-141, "DTC Description"
C1165	CV 2	
C1170	VARIANT CODING	BRC-143, "DTC Description"
C1197	VACUUM SENSOR	BRC-144, "DTC Description"
C1198	VACUUM SEN CIR	BRC-147, "DTC Description"
C1199	BRAKE BOOSTER	BRC-149, "DTC Description"
C119A	VACUUM SEN VOLT	BRC-152, "DTC Description"
U1000	CAN COMM CIRCUIT	BRC-155, "DTC Description"
U0424*	HVAC CAN CIR 1	BRC-156, "DTC Logic"

*: This DTC is detected in ADAS control unit.

ADAS CONTROL UNIT

Reference Value

INFOID:0000000014223922

VALUES ON THE DIAGNOSIS TOOL

NOTE:
The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor item	Condition		Value/Status
MAIN SW	Ignition switch ON	When MAIN switch is pressed	On
		When MAIN switch is not pressed	Off
SET/COAST SW	Ignition switch ON	When SET/COAST switch is pressed	On
		When SET/COAST switch is not pressed	Off
CANCEL SW	Ignition switch ON	When CANCEL switch is pressed	On
		When CANCEL switch is not pressed	Off
RESUME/ACC SW	Ignition switch ON	When RESUME/ACCELERATE switch is pressed	On
		When RESUME/ACCELERATE switch is not pressed	Off
DISTANCE SW	Ignition switch ON	When DISTANCE switch is pressed	On
		When DISTANCE switch is not pressed	Off
CRUISE OPE	Drive the vehicle and activate the vehicle-to-vehicle distance control mode	When ICC system is controlling	On
		When ICC system is not controlling	Off
BRAKE SW	Ignition switch ON	When brake or clutch pedal is depressed	Off
		When brake or clutch pedal is not depressed	On
STOP LAMP SW	Ignition switch ON	When brake pedal is depressed	On
		When brake pedal is not depressed	Off
IDLE SW	Engine running	Idling	On
		Except idling (depress accelerator pedal)	Off
SET DISTANCE	• Start the engine and turn the ICC system ON • Press the DISTANCE switch to change the vehicle-to-vehicle distance setting	When set to “long”	Long
		When set to “middle”	Mid
		When set to “short”	Short
CRUISE LAMP	Start the engine and press MAIN switch	ICC system ON (MAIN switch indicator ON)	On
		ICC system OFF (MAIN switch indicator OFF)	Off
OWN VHCL	**NOTE:** The item is indicated, but not monitored		Off
VHCL AHEAD	Drive the vehicle and activate the vehicle-to-vehicle distance control mode	When a vehicle ahead is detected (vehicle ahead detection indicator ON)	On
		When a vehicle ahead is not detected (vehicle ahead detection indicator OFF)	Off
ICC WARNING	Start the engine and press MAIN switch	When ICC system is malfunctioning (ICC system malfunction ON)	On
		When ICC system is normal (ICC system malfunction OFF)	Off

Monitor item	Condition		Value/Status
VHCL SPEED SE	While driving		Displays the vehicle speed calculated by ADAS control unit
SET VHCL SPD	While driving	When vehicle speed is set	Displays the set vehicle speed
BUZZER O/P	Engine running	When the buzzer of the following system operates • Vehicle-to-vehicle distance control mode • DCA system • PFCW system • FEB system	On
		When the buzzer of the following system not operates • Vehicle-to-vehicle distance control mode • DCA system • PFCW system • FEB system	Off
THRTL SENSOR	**NOTE:** The item is indicated, but not monitored		0.0
ENGINE RPM	Engine running		Equivalent to tachometer reading
WIPER SW	Ignition switch ON	Wiper not operating	Off
		Wiper LO operation	Low
		Wiper HI operation	High
YAW RATE	**NOTE:** The item is indicated, but not monitored		0.0
BA WARNING	Engine running	FEB OFF indicator lamp ON • When FEB system is malfunctioning • When FEB system is turned to OFF	On
		FEB OFF indicator lamp OFF • When FEB system is normal • When FEB system is turned to ON	Off
STP LMP DRIVE	Drive the vehicle and activate the vehicle-to-vehicle distance control mode	When ICC brake hold relay is activated	On
		When ICC brake hold relay is not activated	Off
D RANGE SW	Engine running	When the selector lever is in “D” position or manual mode	On
		When the selector lever is in any position other than “D” or manual mode	Off
NP RANGE SW	Engine running	When the selector lever is in “N”, “P” position	On
		When the selector lever is in any position other than “N”, “P”	Off
PKB SW	Ignition switch ON	When the parking brake is applied	On
		When the parking brake is released	Off
PWR SUP MONI	Engine running		Power supply voltage value of ADAS control unit
VHCL SPD AT	While driving		Value of A/T vehicle speed sensor signal
THRTL OPENING	Engine running	Depress accelerator pedal	Displays the throttle position

Monitor item	Condition		Value/Status
GEAR	While driving		Displays the gear position
MODE SIG	Start the engine and press MAIN switch	When ICC system is deactivated	Off
		When vehicle-to-vehicle distance control mode is activated	ICC
		When conventional (fixed speed) cruise control mode is activated	ASCD
SET DISP IND	• Drive the vehicle and activate the conventional (fixed speed) cruise control mode • Press SET/COAST switch	SET switch indicator ON	On
		SET switch indicator OFF	Off
DISTANCE	Drive the vehicle and activate the vehicle-to-vehicle distance control mode	When a vehicle ahead is detected	Displays the distance from the preceding vehicle
		When a vehicle ahead is not detected	0.0
RELATIVE SPD	Drive the vehicle and activate the vehicle-to-vehicle distance control mode	When a vehicle ahead is detected	Displays the relative speed.
		When a vehicle ahead is not detected	0.0
DYNA ASIST SW	Ignition switch ON	When dynamic driver assistance switch is pressed	On
		When dynamic driver assistance switch is not pressed	Off
DCA ON IND	Start the engine and press dynamic driver assistance switch (When DCA setting is ON)	DCA system OFF	Off
		DCA system ON	On
DCA VHL AHED	Drive the vehicle and activate the DCA system	When a vehicle ahead is not detected (vehicle ahead detection indicator OFF)	Off
		When a vehicle ahead is detected (vehicle ahead detection indicator ON)	On
FCW SYSTEM ON	Ignition switch ON	When the PFCW system is ON	On
		When the PFCW system is OFF	Off
APA TEMP	Engine running		Display the accelerator pedal actuator integrated motor temperature
APA PWR	Ignition switch ON		Power supply voltage value of accelerator pedal actuator
LDW SYSTEM ON	Ignition switch ON	When the LDW system is ON	On
		When the LDW system is OFF	Off
LDW ON LAMP	Ignition switch ON	When the LDW system is ON	On
		When the LDW system is OFF	Off
LDP ON IND	Start the engine and press dynamic driver assistance switch (When LDP system setting is ON)	LDP ON indicator lamp ON	On
		LDP ON indicator lamp OFF	Off
LANE DPRT W/L	Drive the vehicle and activate the LDW system or LDP system	Lane departure warning lamp ON	On
		Lane departure warning lamp OFF	Off

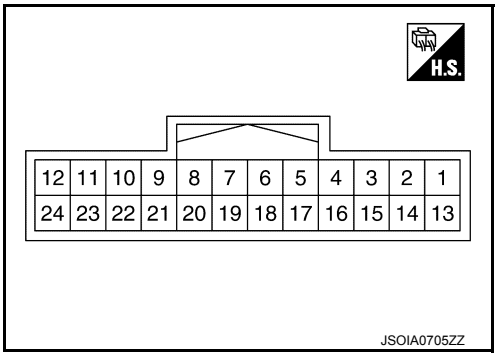
Monitor item	Condition		Value/Status
LDW BUZZER OUTPUT	Drive the vehicle and activate the LDW/LDP system or Blind Spot Warning/Blind Spot Intervention system	When the buzzer of the following system operates • LDW/LDP system • Blind Spot Warning/Blind Spot Intervention system	On
		When the buzzer of the following system does not operate • LDW/LDP system • Blind Spot Warning/Blind Spot Intervention system	Off
LDP SYSTEM ON	Start the engine and press dynamic driver assistance switch (When LDP system setting is ON)	When the LDP system is ON	On
		When the LDP system is OFF	Off
WARN REQ	Drive the vehicle and activate the LDP system	Lane departure warning is operating	On
		Lane departure warning is not operating	Off
READY signal	Start the engine and press dynamic driver assistance switch (When LDP system setting is ON)	When the LDP system is ON	On
		When the LDP system is OFF	Off
Camera lost	Drive the vehicle and activate the LDW system, LDP system or Blind Spot Intervention system	Both side lane markers are detected	Detect
		Deviate side lane marker is lost	Deviate
		Both side lane markers are lost	Both
Lane unclear	While driving	Lane marker is unclear	On
		Lane marker is clear	Off
STATUS signal	Drive the vehicle and activate the LDP system	When the LDP system is ON	Stnby
		When the LDP system is operating	Warn
		When the LDP system is canceled	Cancl
		When the LDP system is OFF	Off
Shift position	• Engine running • While driving		Displays the shift position
Turn signal	Turn signal lamps OFF		Off
	Turn signal lamp LH blinking		LH
	Turn signal lamp RH blinking		RH
	Turn signal lamp LH and RH blinking		LH&RH
SIDE G	While driving	Vehicle turning right	Negative value
		Vehicle turning left	Positive value
FUNC ITEM	Ignition switch ON		FUNC3
FUNC ITEM (FCW)	Engine running		On
FUNC ITEM (LDW)	Engine running		On
FUNC ITEM (BSW)	Engine running		On
DCA SELECT	Ignition switch ON	“Distance Control Assist” set with the integral switch is ON	On
		“Distance Control Assist” set with the integral switch is OFF	Off
LDP SELECT	Ignition switch ON	“Lane Departure Intervention” set with the integral switch is ON	On
		“Lane Departure Intervention” set with the integral switch is OFF	Off
BSI SELECT	Ignition switch ON	“Blind Spot Intervention” set with the integral switch is ON	On
		“Blind Spot Intervention” set with the integral switch is OFF	Off

Monitor item	Condition		Value/Status
FCW SELECT	Ignition switch ON	"Forward Emergency Braking" set with the integral switch is ON	On
		"Forward Emergency Braking" set with the integral switch is OFF	Off
LDW SELECT	Ignition switch ON	"Lane Departure Warning" set with the integral switch is ON	On
		"Lane Departure Warning" set with the integral switch is OFF	Off
BSW SELECT	Ignition switch ON	"Blind Spot Warning" set with the integral switch is ON	On
		"Blind Spot Warning" set with the integral switch is OFF	Off
DRIVE MODE STATS	Ignition switch ON	When drive mode select switch position is STANDARD	STD
		When drive mode select switch position is in SPORT	SPORT
		When drive mode select switch position is in ECO	ECO
		When drive mode select switch position is in SNOW	SNOW
		When drive mode select switch position is in PERSONAL	STD
		A signal other than those above is input	ERROR
WARN SYS SW	Ignition switch ON	When warning systems switch is pressed	On
		When warning systems switch is not pressed	Off
BSW/BSI WARN LMP	Engine running	When the BSW system is malfunctioning	On
		When the BSW system is normal	Off
BSI ON IND	Engine running	Blind Spot Intervention warning ON	On
		Blind Spot Intervention warning OFF	Off
BSW SYSTEM ON	Ignition switch ON	When the BSW system is ON	On
		When the BSW system is OFF	Off
BSI SYSTEM ON	Start the engine and press dynamic driver assistance switch (When Blind Spot Intervention system setting is ON)	When the Blind Spot Intervention system is ON	On
		When the Blind Spot Intervention system is OFF	Off
FCW SYSTEM ON	Engine running	When the FEB/PFCW system is ON	On
		When the FEB/PFCW system is OFF	Off
BCI SYSTEM ON	Engine running	When the BCI system is ON	On
		When the BCI system is OFF	Off
BCI SWITCH	**NOTE:** The item is indicated, but not monitored		Off
BATTERY CIRCUIT OFF	**NOTE:** The item is indicated, but not used		Off
LDP WARNING INDICATOR	Engine running	When the LDP system is malfunctioning	On
		When the LDP system is normal	Off
LDW ON INDICATOR	Engine running	LDW system display ON	On
		LDW system display OFF	Off
LDW WARNING INDICATOR	Engine running	When the LDW system is malfunctioning	On
		When the LDW system is normal	Off
SYSTEM CANCEL MESSAGE	Engine running	When the vehicle is normal	NOREQ
		When the wheel is slipping	SLIP
		When the drive mode selector is SNOW mode	SNOW
		When the VDC is OFF	VDC OFF

Monitor item	Condition		Value/Status
CAMERA HI TEMP MSG	Engine running	Lane camera unit high temperature warning display ON	On
		Lane camera unit high temperature warning display OFF	Off
ITS SETTING ITEM(DCA)	Ignition switch ON		On
ITS SETTING ITEM(LDP)	Ignition switch ON		On
ITS SETTING ITEM(BSI)	Ignition switch ON		On
BSI WARNING INDICATOR	Engine running	When the Blind Spot Intervention is malfunctioning	On
		When the Blind Spot Intervention is normal	Off
BSW ON INDICATOR	Engine running	BSW system display ON	On
		BSW system display OFF	Off
SIDE RADAR BLOCK COND	Engine running	Front bumper or side radar is dirty	On
		Front bumper and side radar is clean	Off
LDW WARNING ALERT TIMING	Ignition switch ON	LDW system OFF	Nothing
		Lane departure warning timing is early setting	Early
		Lane departure warning timing is late setting	Late
BSW IND BRIGHTNESS	Ignition switch ON	BSW system OFF	Nothing
		Blind Spot Warning/Blind Spot Intervention indicator brightness bright	Bright
		Blind Spot Warning/Blind Spot Intervention indicator brightness normal	Normal
		Blind Spot Warning/Blind Spot Intervention indicator brightness dark	Dark

TERMINAL LAYOUT

PHYSICAL VALUES



Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	−	Signal name	Input/ Output			
1 (B)	Ground	CAN high	—	—	—	—
2 (W)		CAN low	—	—	—	—
5 (B)		Ground	—	Ignition switch ON	—	0 V
6 (L)		ITS communication high	—	—	—	—
7 (Y)		ITS communication low	—	—	—	—
8 (L)		Chassis communication high	—	—	—	—
9 (Y)		Chassis communication low	—	—	—	—
12 (R)		Ignition power supply	Input	Ignition switch ON		Battery voltage
17 (G)		ICC brake hold relay drive signal	Output	Ignition switch ON	—	Battery voltage
					At “STOP LAMP” test of “Active test”	0 V
18 (BR)		Warning systems switch	Input	Ignition switch ON	When warning systems switch is not pressed	Battery voltage
					When warning systems switch is pressed	0 V
19 (W)		Warning systems ON indicator	Output	Ignition switch ON	Warning systems ON indicator ON	0 V
					Warning systems ON indicator OFF	Battery voltage
22 (BG)		BCI OFF switch	Input	Ignition switch ON	When BCI OFF switch is not pressed	Battery voltage
					When BCI OFF switch is pressed	0 V

Fail-safe (ADAS Control Unit)

INFOID:0000000014223923

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

System	Buzzer	Warning lamp/Warning display	Description
Vehicle-to-vehicle distance control mode	High-pitched tone	ICC system warning	Cancel
Conventional (fixed speed) cruise control mode	High-pitched tone	ICC system warning	Cancel
Forward Emergency Braking (FEB)	High-pitched tone	FEB warning	Cancel
Predictive Forward Collision Warning (PFCW)	High-pitched tone	Warning message	Cancel
Distance Control Assist (DCA)	High-pitched tone	DCA system warning	Cancel
Lane Departure Warning (LDW)	—	Lane departure warning lamp	Cancel

System	Buzzer	Warning lamp/Warning display	Description
Lane Departure Prevention (LDP)	Low-pitched tone	Lane departure warning lamp	Cancel
Blind Spot Warning (BSW)	—	Blind Spot Warning warning lamp	Cancel
Blind Spot Intervention	Low-pitched tone	Blind Spot Intervention warning lamp	Cancel
Backup Collision Intervention (BCI)	High-pitched tone	Backup Collision Intervention warning indicator	Cancel
Rear Cross Traffic Alert (RCTA)	—	Rear Cross Traffic Alert warning	Cancel

DTC Inspection Priority Chart

INFOID:0000000014223924

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

Priority	Detected items (DTC)	
1	• U1507: LOST COMM (SIDE RDR R) • U1508: LOST COMM (SIDE RDR L)	
2	• 1CA0A: CONFIG UNFINISHED • U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)	
3	• C1B00: CAMERA UNIT MALF • C1F02: APA C/U MALF • C1B53: SIDE RDR R MALF • C1B54: SIDE RDR L MALF • C1B84: DIST SEN MALFUNCTION	
4	• C1A01: POWER SUPPLY CIR • C1A02: POWER SUPPLY CIR 2 • C1A04: ABS/TCS/VDC CIRC • C1A05: BRAKE SW/STOP L SW • C1A06: OPERATION SW CIRC • C1A13: STOP LAMP RLY FIX • C1A14: ECM CIRCUIT • C1A24: NP RANGE • C1A26: ECD MODE MALF • C1A27: ECD PWR SUPLY CIR • C1A33: CAN TRANSMISSION ERR • C1A34: COMMAND ERROR • C1A35: APA CIR • C1A36: APA CAN COMM CIR • C1A37: APA CAN CIR 2 • C1A38: APA CAN CIR 1 • C1A39: STRG SEN CIR • C1A40: SYSTEM SW CIR • C1B01: CAM AIMING INCMP • C1B03: CAM ABNRMAL TMP DETCT • C1B56: SONAR CIRCUIT • C1B57: AVM CIRCUIT • C1B58: DR ASSIST BUZZER CIRCUIT • C1B82: DIST SEN OFF-CENTER • C1B85: DIST SEN ABNORMAL TEMP • C1B86: DIST SEN PWR SUP CIR • C1F01: APA MOTOR MALF • C1F05: APA PWR SUPLY CIR	• U0121: VDC CAN CIR 2 • U0126: STRG SEN CAN CIR 1 • U0235: ICC SENSOR CAN CIRC 1 • U0401: ECM CAN CIR 1 • U0402: TCM CAN CIR 1 • U0415: VDC CAN CIR 1 • U0424: HVAC CAN CIR 1 • U0428: STRG SEN CAN CIR 2 • U1500: CAM CAN CIR 2 • U1501: CAM CAN CIR 1 • U1502: ICC SEN CAN COMM CIR • U1503: SIDE RDR L CAN CIR 2 • U1504: SIDE RDR L CAN CIR 1 • U1505: SIDE RDR R CAN CIR 2 • U1506: SIDE RDR R CAN CIR 1 • U150B: ECM CAN CIRC 3 • U150C: VDC CAN CIRC 3 • U150D: TCM CAN CIRC 3 • U150E: BCM CAN CIRC 3 • U1512: HVAC CAN CIRC3 • U1513: METER CAN CIRC 3 • U1514: STRG SEN CAN CIRC 3 • U1515: ICC SENSOR CAN CIRC 3 • U1516: CAM CAN CIR 3 • U1517: APA CAN CIRC 3 • U1518: SIDE RDR L CAN CIRC 3 • U1519: SIDE RDR R CAN CIRC 3 • U1521: SONAR CAN COMMUNICATION 2 • U1522: SONAR CAN COMMUNICATION 1 • U1523: SONAR CAN COMMUNICATION 3 • U1524: AVM CAN COMMUNICATION 1 • U1525: AVM CAN COMMUNICATION 3 • U1530: DR ASSIST BUZZER CAN CIR 1

Priority	Detected items (DTC)
5	• C1A03: VHCL SPEED SE CIRC
6	• C1A15: GEAR POSITION
7	• C1A00: CONTROL UNIT

DTC Index

INFOID:0000000014223925

Systems for fail-safe
- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Distance Control Assist (DCA)
- D: Forward Emergency Braking (FEB)
- E: Predictive Forward Collision Warning (PFCW)
- F: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)/Rear Cross Traffic Alert (RCTA)
- G: Back-up Collision Intervention (BCI)
- H: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)

DTC		CONSULT display	Fail-safe	Reference
CONSULT	On board display		System	
NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED	55	NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED	—	—
C1A0A	41	CONFIG UNFINISHED	A, B, C, D, E, F, G, H	DAS-68
C1A00	0	CONTROL UNIT	A, B, C, D, E, F, G, H	DAS-69
C1A01	1	POWER SUPPLY CIR	A, B, C, D, E, F, G, H	DAS-70
C1A02	2	POWER SUPPLY CIR 2	A, B, C, D, E, F, G, H	DAS-70
C1A03	3	VHCL SPEED SE CIRC	A, B, C, D, E, F, G, H	DAS-71
C1A04	4	ABS/TCS/VDC CIRC	A, B, C, D, E, F, G, H	DAS-73
C1A05	5	BRAKE SW/STOP L SW	A, B, C, D, G, H	DAS-75
C1A06	6	OPERATION SW CIRC	A, B, C, D, E, H	DAS-80
C1A13	13	STOP LAMP RLY FIX	A, B, C, D, E, G	DAS-82
C1A14	14	ECM CIRCUIT	A, B, C, D, E	DAS-89
C1A15	15	GEAR POSITION	A, B, C, D, E	DAS-91
C1A24	24	NP RANGE	A, B, C, D, E, F, G	DAS-93
C1A26	26	ECD MODE MALF	A, B, C, D, G	DAS-95
C1A27	27	ECD PWR SUPLY CIR	A, B, C, D, G	DAS-97
C1A33	33	CAN TRANSMISSION ERR	A, B, C, D, E	DAS-99
C1A34	34	COMMAND ERROR	A, B, C, D, E	DAS-100
C1A35	35	APA CIR	A, C, D, E	DAS-101
C1A36	36	APA CAN COMM CIR	A, C, D, E	DAS-102
C1A37	133	APA CAN CIR 2	A, C, D, E	DAS-103
C1A38	132	APA CAN CIR 1	A, C, D, E	DAS-104
C1A39	39	STRG SEN CIR	A, B, C, D, E, F, G	DAS-105
C1A40	40	SYSTEM SW CIR	G	DAS-105
C1B00	81	CAMERA UNIT MALF	F, H	DAS-108
C1B01	82	CAM AIMING INCMP	F, H	DAS-109
C1B03	83	ABNRML TMP DETCT	F, H	DAS-110
C1B53	84	SIDE RDR R MALF	F, G	DAS-111

Systems for fail-safe
- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Distance Control Assist (DCA)
- D: Forward Emergency Braking (FEB)
- E: Predictive Forward Collision Warning (PFCW)
- F: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)/Rear Cross Traffic Alert (RCTA)
- G: Back-up Collision Intervention (BCI)
- H: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)

DTC		CONSULT display	Fail-safe	Reference
CONSULT	On board display		System	
C1B54	85	SIDE RDR L MALF	F, G	DAS-112
C1B56	86	SONAR CIRCUIT	G	DAS-113
C1B57	87	AVM CIRCUIT	G	DAS-114
C1A58	182	DR ASSIST BUZZER CIRCUIT		DAS-115
C1B82	12	DIST SEN OFF-CENTER	A, C, D, E	DAS-116
C1B83	16	DIST SEN BLOCKED	A, C, D, E	DAS-117
C1B84	17	DIST SEN MALFUNCTION	A, C, D, E	DAS-118
C1B85	21	DIST SEN ABNORMAL TEMP	A, C, D, E	DAS-119
C1B86	80	DIST SEN PWR SUP CIR	A, C, D, E	DAS-120
C1F01	91	APA MOTOR MALF	A, C, D, E	DAS-122
C1F02	92	APA C/U MALF	A, C, D, E	DAS-123
C1F05	95	APA PWR SUPLY CIR	A, C, D, E	DAS-124
U0121	127	VDC CAN CIR 2	A, B, C, D, E, F, G, H	DAS-125
U0126	130	STRG SEN CAN CIR 1	A, B, C, D, E, F, G	DAS-126
U0235	144	ICC SENSOR CAN CIRC 1	A, C, D, E	DAS-127
U0401	120	ECM CAN CIR 1	A, B, C, D, E, F, G	DAS-128
U0402	122	TCM CAN CIR 1	A, B, C, D, E, F, G, H	DAS-129
U0415	126	VDC CAN CIR 1	A, B, C, D, E, F, G, H	DAS-131
U0424	156	HVAC CAN CIR 1		DAS-133
U0428	131	STRG SEN CAN CIR 2	A, B, C, D, E, F, G	DAS-134
U1000[NOTE]	100	CAN COMM CIRCUIT	A, B, C, D, E, F, G, H	DAS-135
U1010	110	CONTROL UNIT (CAN)	A, B, C, D, E, F, G, H	DAS-137
U150B	157	ECM CAN CIRC 3	A, B, C, D, E, F, G, H	DAS-138
U150C	158	VDC CAN CIRC 3	A, B, C, D, E, F, G, H	DAS-140
U150D	159	TCM CAN CIRC 3	A, B, C, D, E, F, G, H	DAS-142
U150E	160	BCM CAN CIRC 3	A, B, C, D, F, G, H	DAS-144
U1500	145	CAM CAN CIR2	F, H	DAS-145
U1501	146	CAM CAN CIR 1	F, H	DAS-146
U1502	147	ICC SEN CAN COMM CIR	A, C, D, E	DAS-147
U1503	150	SIDE RDR L CAN CIR 2	F, G	DAS-148
U1504	151	SIDE RDR L CAN CIR 1	F, G	DAS-149
U1505	152	SIDE RDR R CAN CIR 2	F, G	DAS-150
U1506	153	SIDE RDR R CAN CIR 1	F, G	DAS-151
U1507	154	LOST COMM (SIDE RDR R)	F, G	DAS-152
U1508	155	LOST COMM (SIDE RDR L)	F, G	DAS-153
U1512	162	HVAC CAN CIRC3		DAS-154

Systems for fail-safe
- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Distance Control Assist (DCA)
- D: Forward Emergency Braking (FEB)
- E: Predictive Forward Collision Warning (PFCW)
- F: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)/Rear Cross Traffic Alert (RCTA)
- G: Back-up Collision Intervention (BCI)
- H: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)

DTC		CONSULT display	Fail-safe	Reference
CONSULT	On board display		System	
U1513	163	METER CAN CIRC 3	A, B, C, D, E, F, G, H	DAS-155
U1514	164	STRG SEN CAN CIRC 3	A, B, C, D, E, F, G	DAS-156
U1515	165	ICC SENSOR CAN CIRC 3	A, C, D, E	DAS-157
U1516	166	CAM CAN CIRC 3	F, H	DAS-158
U1517	167	APA CAN CIRC 3	A, C, D, E	DAS-159
U1518	168	SIDE RDR L CAN CIRC 3	F, G	DAS-160
U1519	169	SIDE RDR R CAN CIRC 3	F, G	DAS-161
U1521	177	SONAR CAN COMMUNICATION 2	G	DAS-163
U1522	178	SONAR CAN COMMUNICATION 1	G	DAS-164
U1523	179	SONAR CAN COMMUNICATION 3	G	DAS-165
U1524	180	AVM CAN COMMUNICATION 1	G	DAS-166
U1525	181	AVM CAN COMMUNICATION 3	G	DAS-167
U1530	183	DR ASSIST BUZZER CAN CIR1		DAS-168

NOTE:
With the detection of “U1000” some systems do not perform the fail-safe operation.
A system controlling based on a signal received from the control unit performs fail-safe operation when the communication with the ADAS control unit becomes inoperable.

WIRING DIAGRAM

BRAKE CONTROL SYSTEM

Wiring Diagram

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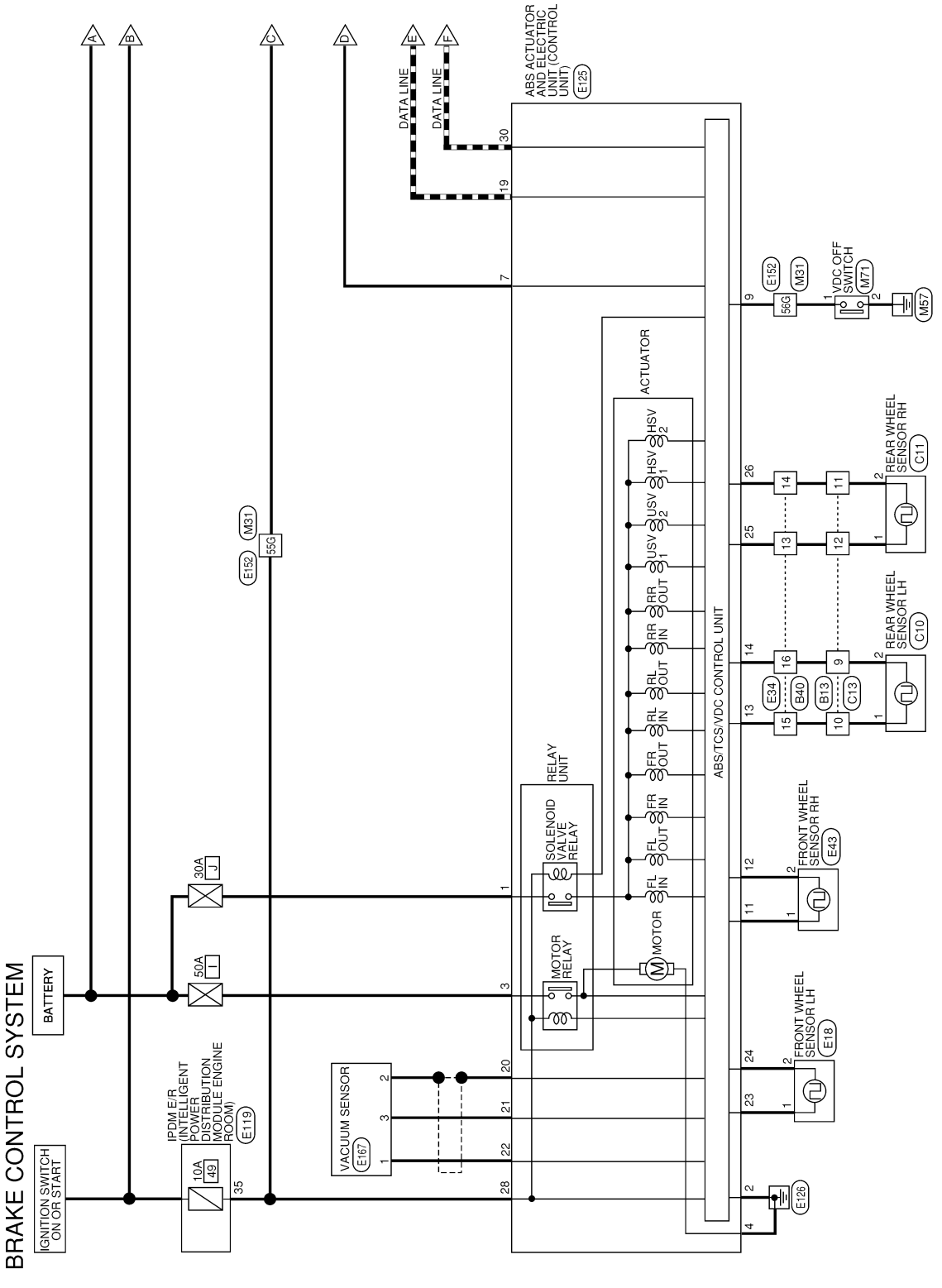

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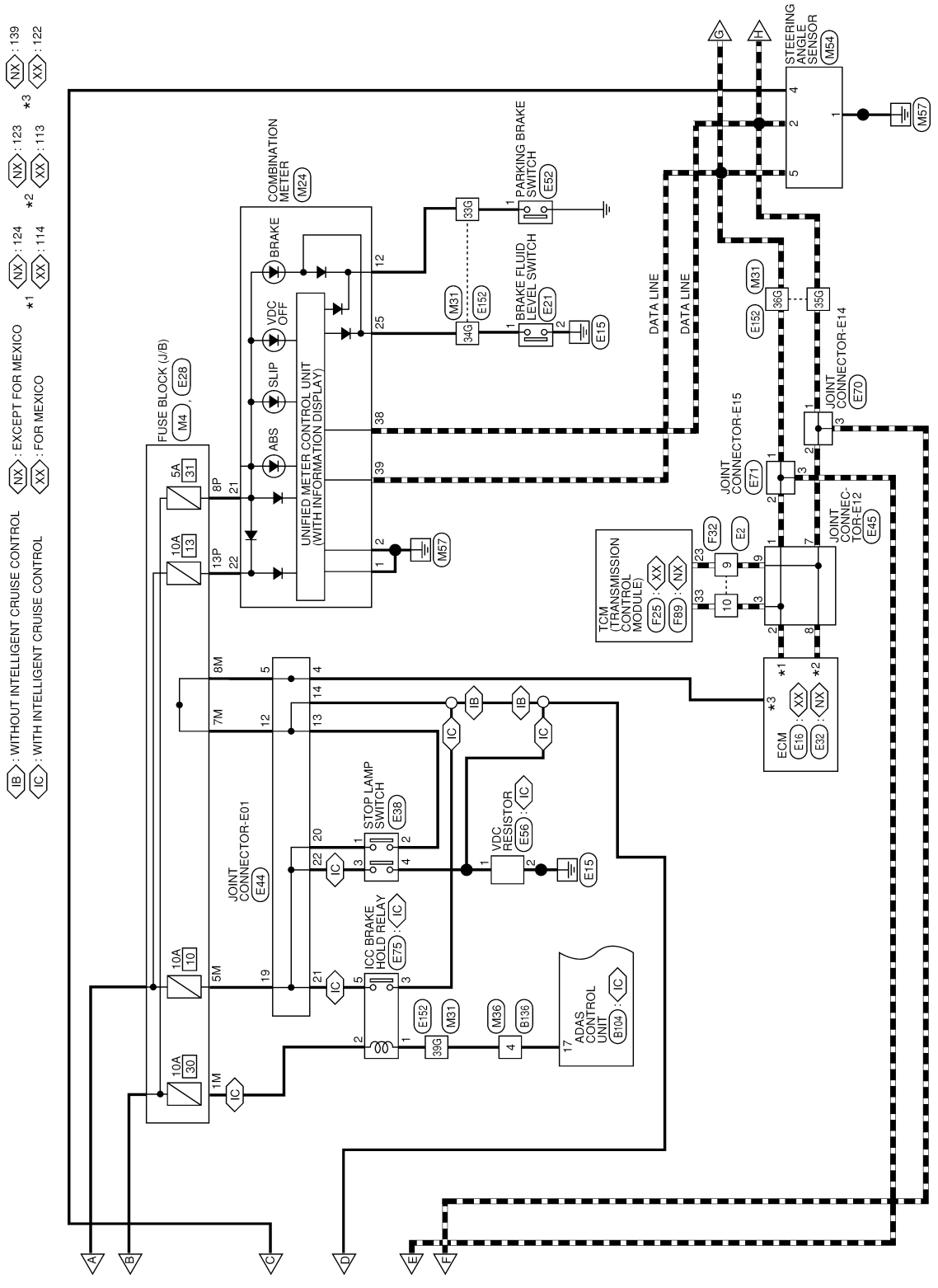
IB : WITHOUT INTELLIGENT CRUISE CONTROL
IC : WITH INTELLIGENT CRUISE CONTROL
NX : EXCEPT FOR MEXICO
XX : FOR MEXICO
*1 NX : 124 XX : 114
*2 NX : 123 XX : 113
*3 NX : 139 XX : 122
FUSE BLOCK (J/B) E28
M4, M5
COMBINATION METER M24
UNIFIED METER CONTROL UNIT (WITH INFORMATION DISPLAY)
BRAKE
VDC OFF
SLIP
ABS
PARKING BRAKE SWITCH E52
BRAKE FLUID LEVEL SWITCH E21
STEERING ANGLE SENSOR M54
M57
E15
DATA LINE
JOINT CONNECTOR-E14 E70
JOINT CONNECTOR-E15 E71
JOINT CONNECTOR-E12 E45
TCM (TRANSMISSION CONTROL MODULE) F25 F89
F32
E2
ECM E16 E32
JOINT CONNECTOR-E01 E44
STOP LAMP SWITCH E38
VDC RESISTOR E56
ICC BRAKE HOLD RELAY E75
ADAS CONTROL UNIT B104
M31
E152
M36
B136
A
B
C
D
E
F
G
H
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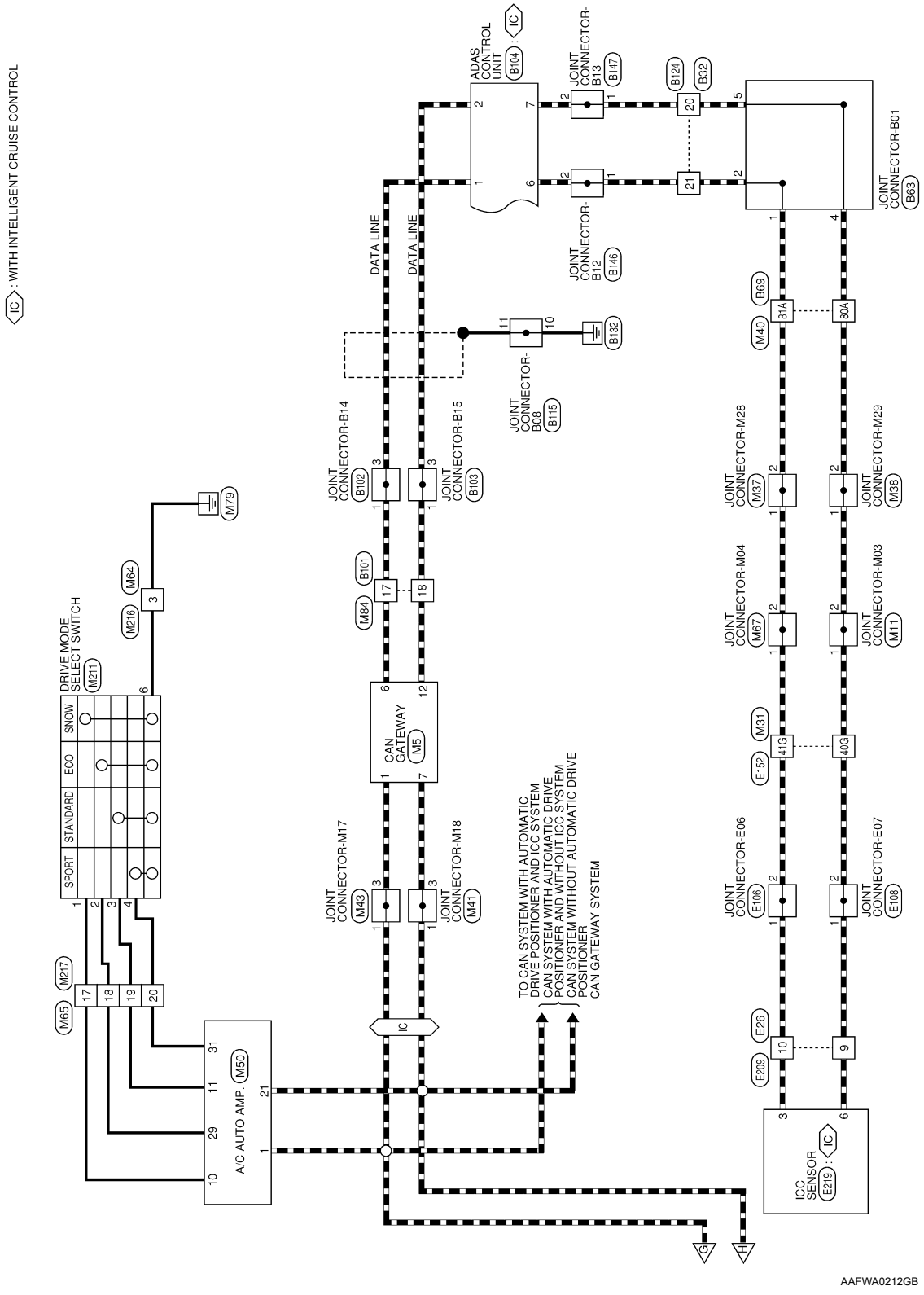
IC : WITH INTELLIGENT CRUISE CONTROL
ADAS CONTROL UNIT B104 : IC
JOINT CONNECTOR-B13 B147
JOINT CONNECTOR-B12 B146
JOINT CONNECTOR-B01 B63
B124 B32
DATA LINE
DATA LINE
JOINT CONNECTOR-B08 B115
B132
B69 M40
81A 80A
JOINT CONNECTOR-B14 B102
JOINT CONNECTOR-B15 B103
M79
M64 M216
DRIVE MODE SELECT SWITCH M211
SPORT STANDARD ECO SNOW
B101 M84
CAN GATEWAY M5
JOINT CONNECTOR-M28 M37
JOINT CONNECTOR-M29 M38
JOINT CONNECTOR-M04 M67
JOINT CONNECTOR-M03 M11
M31 E152
41G 40G
JOINT CONNECTOR-M17 M43
JOINT CONNECTOR-M18 M41
JOINT CONNECTOR-E06 E106
JOINT CONNECTOR-E07 E108
M217 M65
A/C AUTO AMP. M50
IC
TO CAN SYSTEM WITH AUTOMATIC DRIVE POSITIONER AND ICC SYSTEM
CAN SYSTEM WITH AUTOMATIC DRIVE POSITIONER AND WITHOUT ICC SYSTEM
CAN SYSTEM WITHOUT AUTOMATIC DRIVE POSITIONER
CAN GATEWAY SYSTEM
E26 E209
ICC SENSOR E219 : IC
G
H
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BRAKE CONTROL SYSTEM CONNECTORS

Connector No.	B13
Connector Name	WIRE TO WIRE
Connector Type	RH12FB-RS2
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	TO CHASSIS HARNESS
2	W	TO CHASSIS HARNESS
3	V	TO CHASSIS HARNESS
4	SB	TO CHASSIS HARNESS
5	BR	TO CHASSIS HARNESS
6	Y	TO CHASSIS HARNESS
7	B	TO CHASSIS HARNESS
8	LG	TO CHASSIS HARNESS
9	Y	TO CHASSIS HARNESS
10	BR	TO CHASSIS HARNESS
11	P	TO CHASSIS HARNESS
12	L	TO CHASSIS HARNESS
13	LG	TO CHASSIS HARNESS
14	V	TO CHASSIS HARNESS

Connector No.	B32
Connector Name	WIRE TO WIRE
Connector Type	TH32FW-NH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	–	TO BODY HARNESS RH
2	–	TO BODY HARNESS RH
3	–	TO BODY HARNESS RH
4	–	TO BODY HARNESS RH
5	G	TO BODY HARNESS RH
6	R	TO BODY HARNESS RH
7	B	TO BODY HARNESS RH
8	R	TO BODY HARNESS RH
9	W	TO BODY HARNESS RH
10	SHIELD	TO BODY HARNESS RH
11	B	TO BODY HARNESS RH
12	L	TO BODY HARNESS RH
13	B	TO BODY HARNESS RH
14	R	TO BODY HARNESS RH
15	W	TO BODY HARNESS RH
16	SHIELD	TO BODY HARNESS RH
17	L	TO BODY HARNESS RH
18	L	TO BODY HARNESS RH
19	P	TO BODY HARNESS RH
20	Y	TO BODY HARNESS RH
21	L	TO BODY HARNESS RH
22	B	TO BODY HARNESS RH
23	W	TO BODY HARNESS RH
24	SHIELD	TO BODY HARNESS RH
25	BR	TO BODY HARNESS RH
26	V	TO BODY HARNESS RH
27	–	TO BODY HARNESS RH
28	–	TO BODY HARNESS RH
29	–	TO BODY HARNESS RH
30	–	TO BODY HARNESS RH
31	–	TO BODY HARNESS RH
32	–	TO BODY HARNESS RH

Connector No.	B36
Connector Name	EVAP CONTROL SYSTEM PRESSURE SENSOR
Connector Type	E03FGY-RS
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1	G	GND
2	W	OUTPUT
3	R	POWER

Connector No.	B40
Connector Name	WIRE TO WIRE
Connector Type	TH24MW-NH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	LG	TO ENGINE ROOM HARNESS
2	Y	TO ENGINE ROOM HARNESS
3	R	TO ENGINE ROOM HARNESS
4	G	TO ENGINE ROOM HARNESS
5	W	TO ENGINE ROOM HARNESS
6	SHIELD	TO ENGINE ROOM HARNESS
7	R	TO ENGINE ROOM HARNESS
8	G	TO ENGINE ROOM HARNESS
9	B	TO ENGINE ROOM HARNESS
10	W	TO ENGINE ROOM HARNESS
11	–	TO ENGINE ROOM HARNESS
12	–	TO ENGINE ROOM HARNESS
13	L	TO ENGINE ROOM HARNESS
14	P	TO ENGINE ROOM HARNESS
15	BR	TO ENGINE ROOM HARNESS
16	Y	TO ENGINE ROOM HARNESS
17	BR	TO ENGINE ROOM HARNESS
18	Y	TO ENGINE ROOM HARNESS
19	LG	TO ENGINE ROOM HARNESS
20	SB	TO ENGINE ROOM HARNESS
21	W	TO ENGINE ROOM HARNESS
22	W	TO ENGINE ROOM HARNESS
23	W	TO ENGINE ROOM HARNESS
24	–	TO ENGINE ROOM HARNESS

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Type	BJ30FW
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	ITS CAN-H
2	L	ITS CAN-H
3	L	ITS CAN-H
4	Y	ITS CAN-L
5	Y	ITS CAN-L
6	Y	ITS CAN-L
7	–	–
8	SHIELD	GND
9	B	GND
10	B	GND
11	B	GND
12	LG	ILLUMI CONT OUT
13	LG	ILLUMI CONT OUT
14	LG	ILLUMI CONT OUT
15	–	–
16	W	ALERT SIGNAL
17	W	ALERT SIGNAL
18	–	–
19	B	GND
20	B	GND
21	SHIELD	SHIELD
22	B	GND
23	–	–
24	–	–
25	SHIELD	SHIELD
26	B	GND
27	B	GND
28	B	GND
29	W	TAIL
30	W	TAIL
31	W	TAIL
32	W	TAIL
33	W	TAIL

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BRAKE CONTROL SYSTEM CONNECTORS

Connector No.	B69
Connector Name	WIRE TO WIRE
Connector Type	TH80MDGY-CS16-TM4
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1A	–	TO MAIN HARNESS
2A	Y	TO MAIN HARNESS
3A	Y	TO MAIN HARNESS
4A	G	TO MAIN HARNESS
5A	–	TO MAIN HARNESS
6A	LG	TO MAIN HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
6A	R	TO MAIN HARNESS - (WITH CLIMATE CONTROLLED SEAT)
7A	BR	TO MAIN HARNESS
8A	G	TO MAIN HARNESS
9A	P	TO MAIN HARNESS
10A	–	TO MAIN HARNESS
11A	W	TO MAIN HARNESS
12A	G	TO MAIN HARNESS
13A	–	TO MAIN HARNESS
14A	R	TO MAIN HARNESS
15A	G	TO MAIN HARNESS
16A	W	TO MAIN HARNESS
17A	B	TO MAIN HARNESS
18A	B	TO MAIN HARNESS
19A	SHIELD	TO MAIN HARNESS
20A	W	TO MAIN HARNESS
21A	SHIELD	TO MAIN HARNESS
22A	–	TO MAIN HARNESS
23A	W	TO MAIN HARNESS
24A	B	TO MAIN HARNESS

25A	SHIELD	TO MAIN HARNESS
26A	B	TO MAIN HARNESS
27A	B	TO MAIN HARNESS
28A	SHIELD	TO MAIN HARNESS
29A	R	TO MAIN HARNESS
30A	B	TO MAIN HARNESS
31A	BR	TO MAIN HARNESS
32A	–	TO MAIN HARNESS
33A	W	TO MAIN HARNESS
34A	B	TO MAIN HARNESS
35A	SHIELD	TO MAIN HARNESS
36A	–	TO MAIN HARNESS
37A	LG	TO MAIN HARNESS
38A	V	TO MAIN HARNESS
39A	SB	TO MAIN HARNESS
40A	BR	TO MAIN HARNESS
41A	Y	TO MAIN HARNESS
42A	–	TO MAIN HARNESS
43A	–	TO MAIN HARNESS
44A	V	TO MAIN HARNESS
45A	G	TO MAIN HARNESS
46A	V	TO MAIN HARNESS
47A	L	TO MAIN HARNESS
48A	SB	TO MAIN HARNESS
49A	G	TO MAIN HARNESS
50A	W	TO MAIN HARNESS
51A	–	TO MAIN HARNESS
52A	–	TO MAIN HARNESS
53A	R	TO MAIN HARNESS
54A	SB	TO MAIN HARNESS
55A	LG	TO MAIN HARNESS
56A	Y	TO MAIN HARNESS
57A	SB	TO MAIN HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
57A	V	TO MAIN HARNESS - (WITH CLIMATE CONTROLLED SEAT)
58A	BR	TO MAIN HARNESS
59A	BR	TO MAIN HARNESS
60A	L	TO MAIN HARNESS
61A	Y	TO MAIN HARNESS
62A	–	TO MAIN HARNESS
63A	P	TO MAIN HARNESS
64A	R	TO MAIN HARNESS
65A	SB	TO MAIN HARNESS
66A	L	TO MAIN HARNESS
67A	LG	TO MAIN HARNESS
68A	P	TO MAIN HARNESS
69A	W	TO MAIN HARNESS
70A	G	TO MAIN HARNESS
71A	BR	TO MAIN HARNESS
72A	–	TO MAIN HARNESS
73A	Y	TO MAIN HARNESS
74A	P	TO MAIN HARNESS
75A	V	TO MAIN HARNESS

76A	R	TO MAIN HARNESS
77A	Y	TO MAIN HARNESS
78A	LG	TO MAIN HARNESS
79A	BR	TO MAIN HARNESS
80A	Y	TO MAIN HARNESS
81A	L	TO MAIN HARNESS
82A	BG	TO MAIN HARNESS
83A	Y	TO MAIN HARNESS
84A	LG	TO MAIN HARNESS
85A	SHIELD	TO MAIN HARNESS
86A	LG	TO MAIN HARNESS
87A	SB	TO MAIN HARNESS
88A	BG	TO MAIN HARNESS
89A	L	TO MAIN HARNESS
90A	P	TO MAIN HARNESS
91A	L	TO MAIN HARNESS
92A	LG	TO MAIN HARNESS
93A	B	TO MAIN HARNESS
94A	–	TO MAIN HARNESS
95A	–	TO MAIN HARNESS
96A	–	TO MAIN HARNESS
97A	BR	TO MAIN HARNESS
98A	L	TO MAIN HARNESS
99A	–	TO MAIN HARNESS
100A	–	TO MAIN HARNESS

Connector No.	B101
Connector Name	WIRE TO WIRE
Connector Type	TH32MW-NH
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
1	B	TO MAIN HARNESS
2	W	TO MAIN HARNESS
3	SHIELD	TO MAIN HARNESS
4	R	TO MAIN HARNESS
5	V	TO MAIN HARNESS - (WITHOUT REAR ENTERTAINMENT SYSTEM)
5	Y	TO MAIN HARNESS - (WITH REAR ENTERTAINMENT SYSTEM)
6	W	TO MAIN HARNESS - (WITHOUT REAR ENTERTAINMENT SYSTEM)
6	B	TO MAIN HARNESS - (WITH REAR ENTERTAINMENT SYSTEM)
7	R	TO MAIN HARNESS - (WITHOUT REAR ENTERTAINMENT SYSTEM)
7	W	TO MAIN HARNESS - (WITH REAR ENTERTAINMENT SYSTEM)
8	B	TO MAIN HARNESS - (WITHOUT REAR ENTERTAINMENT SYSTEM)
8	R	TO MAIN HARNESS - (WITH REAR ENTERTAINMENT SYSTEM)
9	SHIELD	TO MAIN HARNESS
10	G	TO MAIN HARNESS
11	SB	TO MAIN HARNESS
12	P	TO MAIN HARNESS
13	W	TO MAIN HARNESS
14	–	TO MAIN HARNESS
15	–	TO MAIN HARNESS
16	–	TO MAIN HARNESS
17	L	TO MAIN HARNESS
18	P	TO MAIN HARNESS
19	LG	TO MAIN HARNESS
20	BR	TO MAIN HARNESS
21	LG	TO MAIN HARNESS
22	LG	TO MAIN HARNESS
23	W	TO MAIN HARNESS
24	V	TO MAIN HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
24	BR	TO MAIN HARNESS - (WITH CLIMATE CONTROLLED SEAT)
25	SB	TO MAIN HARNESS
26	LG	TO MAIN HARNESS
27	Y	TO MAIN HARNESS
28	Y	TO MAIN HARNESS
29	SB	TO MAIN HARNESS
30	LG	TO MAIN HARNESS
31	G	TO MAIN HARNESS
32	–	TO MAIN HARNESS

Connector No.	B102
Connector Name	JOINT CONNECTOR-B14
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	L	CAN-H
3	B	CAN-H
4	–	–

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BRAKE CONTROL SYSTEM CONNECTORS

Connector No.	B103
Connector Name	JOINT CONNECTOR-B15
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	P	CAN-L
2	P	CAN-L
3	W	CAN-L
4	–	–

Connector No.	B104
Connector Name	ADAS CONTROL UNIT
Connector Type	TH24FW-NH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	CAN-H
2	W	CAN-L
3	–	–
4	–	–
5	B	GND
6	L	ITS CAN-H
7	Y	ITS CAN-L
8	L	IC CAN-H
9	Y	IC CAN-L
10	–	–
11	–	–
12	R	IGN
13	–	–
14	–	–
15	–	–
16	–	–
17	G	BRK-RLY
18	BR	ITS ALERT SW
19	W	ITS ALERT SW LED
20	–	–
21	–	–
22	–	–
23	–	–
24	–	–

Connector No.	B115
Connector Name	JOINT CONNECTOR-B08
Connector Type	BJ30FW
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	–	–
2	–	–
3	–	–
4	–	–
5	–	–
6	–	–
7	–	–
8	–	–
9	B	GND
10	GR	GND
11	SHIELD	SHIELD
12	–	–
13	–	–
14	–	–
15	–	–
16	–	–
17	–	–
18	–	–
19	R	IGNITION
20	R	IGNITION
21	R	IGNITION
22	–	–
23	–	–
24	–	–
25	–	–
26	–	–
27	W	ALERT SIGNAL
28	W	ALERT SIGNAL
29	B	ADDPESS
30	B	GND
31	GR	GND
32	SHIELD	SHIELD
33	B	GND

Connector No.	B124
Connector Name	WIRE TO WIRE
Connector Type	TH32MW-NH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	–	TO BODY HARNESS
2	–	TO BODY HARNESS
3	–	TO BODY HARNESS
4	–	TO BODY HARNESS
5	G	TO BODY HARNESS
6	R	TO BODY HARNESS
7	G	TO BODY HARNESS
8	R	TO BODY HARNESS
9	W	TO BODY HARNESS
10	SHIELD	TO BODY HARNESS
11	B	TO BODY HARNESS
12	L	TO BODY HARNESS
13	G	TO BODY HARNESS
14	R	TO BODY HARNESS
15	W	TO BODY HARNESS
16	SHIELD	TO BODY HARNESS
17	Y	TO BODY HARNESS
18	L	TO BODY HARNESS
19	P	TO BODY HARNESS
20	Y	TO BODY HARNESS
21	L	TO BODY HARNESS
22	B	TO BODY HARNESS
23	W	TO BODY HARNESS
24	SHIELD	TO BODY HARNESS
25	BR	TO BODY HARNESS
26	V	TO BODY HARNESS
27	–	TO BODY HARNESS
28	–	TO BODY HARNESS
29	–	TO BODY HARNESS
30	–	TO BODY HARNESS
31	–	TO BODY HARNESS
32	–	TO BODY HARNESS

Connector No.	B146
Connector Name	JOINT CONNECTOR-B12
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	ITS CAN-H
2	L	ITS CAN-H
3	L	ITS CAN-H
4	–	–

Connector No.	B147
Connector Name	JOINT CONNECTOR-B13
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	Y	ITS CAN-L
2	Y	ITS CAN-L
3	Y	ITS CAN-L
4	–	–

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BRAKE CONTROL SYSTEM CONNECTORS

Connector No.	C10
Connector Name	REAR WHEEL SENSOR LH
Connector Type	RH02MB
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	POWER
2	W	SIGNAL

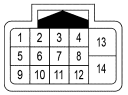
Connector No.	C11
Connector Name	REAR WHEEL SENSOR RH
Connector Type	RH02FGY
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1	V	POWER
2	P	SIGNAL

Connector No.	C13
Connector Name	WIRE TO WIRE
Connector Type	RH12MB-RS2
Connector Color	BLACK

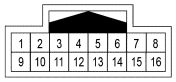
H.S.



Terminal No.	Color of Wire	Signal Name
1	L	TO BODY HARNESS
2	G	TO BODY HARNESS
3	BG	TO BODY HARNESS
4	BR	TO BODY HARNESS
5	W	TO BODY HARNESS
6	Y	TO BODY HARNESS
7	B	TO BODY HARNESS
8	LG	TO BODY HARNESS
9	W	TO BODY HARNESS
10	B	TO BODY HARNESS
11	P	TO BODY HARNESS
12	V	TO BODY HARNESS
13	SB	TO BODY HARNESS
14	Y	TO BODY HARNESS

Connector No.	E2
Connector Name	WIRE TO WIRE
Connector Type	TH16MW-NH
Connector Color	WHITE

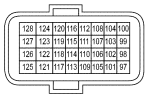
H.S.



Terminal No.	Color of Wire	Signal Name
1	R	TO ENGINE CONTROL HARNESS - (EXCEPT FOR MEXICO)
1	G	TO ENGINE CONTROL HARNESS - (FOR MEXICO)
2	W	TO ENGINE CONTROL HARNESS
3	W	TO ENGINE CONTROL HARNESS - (EXCEPT FOR MEXICO)
3	L	TO ENGINE CONTROL HARNESS - (FOR MEXICO)
4	L	TO ENGINE CONTROL HARNESS - (EXCEPT FOR MEXICO)
4	SB	TO ENGINE CONTROL HARNESS - (FOR MEXICO)
5	GR	TO ENGINE CONTROL HARNESS
6	L	TO ENGINE CONTROL HARNESS
7	P	TO ENGINE CONTROL HARNESS
8	LG	TO ENGINE CONTROL HARNESS
9	P	TO ENGINE CONTROL HARNESS
10	L	TO ENGINE CONTROL HARNESS
11	LG	TO ENGINE CONTROL HARNESS
12	Y	TO ENGINE CONTROL HARNESS
13	LG	TO ENGINE CONTROL HARNESS
14	V	TO ENGINE CONTROL HARNESS
15	GR	TO ENGINE CONTROL HARNESS - (EXCEPT FOR MEXICO)
15	R	TO ENGINE CONTROL HARNESS - (FOR MEXICO)
16	P	TO ENGINE CONTROL HARNESS - (FOR MEXICO)
16	B	TO ENGINE CONTROL HARNESS - (EXCEPT FOR MEXICO)

Connector No.	E16
Connector Name	ECM (FOR MEXICO)
Connector Type	RH24FGY-RZ8-R-RH
Connector Color	GRAY

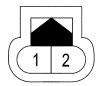
H.S.



Terminal No.	Color of Wire	Signal Name
97	W	ACCELERATOR PEDAL POSITION SENSOR 1 (WITHOUT ICC SYSTEM)
97	R	ACCELERATOR PEDAL POSITION SENSOR 1 (WITH ICC SYSTEM)
98	P	ACCELERATOR PEDAL POSITION SENSOR 2 (WITHOUT ICC SYSTEM)
98	B	ACCELERATOR PEDAL POSITION SENSOR 2 (WITH ICC SYSTEM)
99	R	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 1) (WITHOUT ICC SYSTEM)
99	G	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 1) (WITH ICC SYSTEM)
100	R	SENSOR GROUND (ACCELERATOR PEDAL POSITION SENSOR 1) (WITHOUT ICC SYSTEM)
100	W	SENSOR GROUND (ACCELERATOR PEDAL POSITION SENSOR 1) (WITH ICC SYSTEM)
101	G	ASCD STEERING SWITCH/ICC STEERING SWITCH
102	O	EVAP CONTROL SYSTEM PRESSURE SENSOR
103	W	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 2) (WITHOUT ICC SYSTEM)
103	Y	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 2) (WITH ICC SYSTEM)
104	P	DATA LINK CONNECTOR
105	–	–
106	Y	EVAP CANISTER VENT CONTROL VALVE
107	W	SENSOR POWER SUPPLY (EVAP CONTROL SYSTEM PRESSURE SENSOR, ENGINE OIL PRESSURE SENSOR)
108	R	SENSOR GROUND (ASCD STEERING SWITCH)
109	SB	IGNITION SWITCH
110	–	–
111	BR	FUEL TANK TEMPERATURE SENSOR
112	G	SENSOR GROUND (EVAP CONTROL SYSTEM PRESSURE SENSOR, ENGINE OIL PRESSURE SENSOR)
113	P	CAN-L
114	L	CAN-H
115	–	–
116	G	SENSOR GROUND (ACCELERATOR PEDAL POSITION SENSOR 2) (WITHOUT ICC SYSTEM)
116	L	SENSOR GROUND (ACCELERATOR PEDAL POSITION SENSOR 2) (WITH ICC SYSTEM)
117	–	–
118	W	PNP SIGNAL
119	–	–
120	LG	SENSOR GROUND (FUEL TANK TEMPERATURE SENSOR)
121	LG	POWER SUPPLY FOR ECM
122	R	STOP LAMP SWITCH
123	B	ECM GND
124	B	ECM GND
125	–	–
126	LG	BRAKE PEDAL POSITION SWITCH
127	B	ECM GND
128	B	ECM GND

Connector No.	E18
Connector Name	FRONT WHEEL SENSOR LH
Connector Type	RH02MB
Connector Color	BLACK

H.S.



Terminal No.	Color of Wire	Signal Name
1	G	POWER
2	W	SIGNAL

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BRAKE CONTROL SYSTEM CONNECTORS

Connector No.	E21
Connector Name	BRAKE FLUID LEVEL SWITCH
Connector Type	YV02FGY
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1	W	BRAKE OIL SW
2	B	GROUND

Connector No.	E26
Connector Name	WIRE TO WIRE
Connector Type	TH24MW-NH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	R	TO FRONT END MODULE HARNESS
2	W	TO FRONT END MODULE HARNESS
3	B	TO FRONT END MODULE HARNESS
4	SHIELD	TO FRONT END MODULE HARNESS
5	B	TO FRONT END MODULE HARNESS
6	R	TO FRONT END MODULE HARNESS
7	W	TO FRONT END MODULE HARNESS
8	SHIELD	TO FRONT END MODULE HARNESS
9	Y	TO FRONT END MODULE HARNESS
10	BG	TO FRONT END MODULE HARNESS
11	G	TO FRONT END MODULE HARNESS
12	W	TO FRONT END MODULE HARNESS
13	R	TO FRONT END MODULE HARNESS
14	B	TO FRONT END MODULE HARNESS
15	G	TO FRONT END MODULE HARNESS
16	SHIELD	TO FRONT END MODULE HARNESS
17	W	TO FRONT END MODULE HARNESS
18	P	TO FRONT END MODULE HARNESS
19	W	TO FRONT END MODULE HARNESS
20	R	TO FRONT END MODULE HARNESS
21	W	TO FRONT END MODULE HARNESS
22	BR	TO FRONT END MODULE HARNESS
23	V	TO FRONT END MODULE HARNESS
24	SB	TO FRONT END MODULE HARNESS

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS10FW-CS
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1M	R	IGNITION
2M	–	–
3M	–	–
4M	–	–
5M	Y	BATTERY
6M	L	TAIL LH
7M	P	BRAKE PEDAL POSITION SWITCH
8M	R	BRAKE PEDAL POSITION SWITCH
9M	–	–
10M	–	–

Connector No.	E32
Connector Name	ECM (EXCEPT FOR MEXICO)
Connector Type	RH24FB-RZ8-L-LH
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
121	W	EVAP CONTROL SYSTEM PRESSURE SENSOR
122	–	–
123	P	CAN-L
124	L	CAN-H
125	R	POWER SUPPLY (EVAP CONTROL SYSTEM PRESSURE SENSOR)
126	–	–
127	–	–
128	BR	FUEL TANK TEMPERATURE SENSOR
129	–	–
130	–	–
131	–	–
132	–	–
133	SB	POWER SUPPLY
134	G	ASCD STEERING SWITCH/ICC STEERING SWITCH
135	R	SENSOR GROUND
136	–	–
137	–	–
138	–	–
139	R	STOP LAMP SWITCH
140	LG	BRAKE PEDAL POSITION SWITCH
141	Y	EVAP CANISTER VENT CONTROL VALVE
142	Y	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 2) (WITH ICC SYSTEM)
142	W	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 2) (WITHOUT ICC SYSTEM)
143	B	ACCELE PEDAL POSITION SENSOR 2 (WITH ICC SYSTEM)
143	P	ACCELE PEDAL POSITION SENSOR 2 (WITHOUT ICC SYSTEM)
144	L	SENSOR GROUND [ACCELERATOR PEDAL POSITION SENSOR (SENSOR 2)] (WITH ICC SYSTEM)
144	G	SENSOR GROUND [ACCELERATOR PEDAL POSITION SENSOR (SENSOR 2)] (WITHOUT ICC SYSTEM)
145	LG	POWER SUPPLY FOR ECM
146	G	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 1) (WITH ICC SYSTEM)
146	R	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 1) (WITHOUT ICC SYSTEM)
147	B	SENSOR GROUND
148	LG	SENSOR GROUND
149	B	SENSOR GROUND
150	R	ACCELE PEDAL POSITION SENSOR 1 (WITH ICC SYSTEM)
150	W	ACCELE PEDAL POSITION SENSOR 1 (WITHOUT ICC SYSTEM)
151	W	SENSOR GROUND [ACCELERATOR PEDAL POSITION SENSOR (SENSOR 1)] (WITH ICC SYSTEM)
151	R	SENSOR GROUND [ACCELERATOR PEDAL POSITION SENSOR (SENSOR 1)] (WITHOUT ICC SYSTEM)
152	B	SENSOR GROUND

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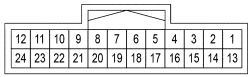
BRAKE CONTROL SYSTEM CONNECTORS

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Type	TH24FW-NH
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
1	Y	TO BODY HARNESS
2	L	TO BODY HARNESS
3	R	TO BODY HARNESS - (EXCEPT FOR MEXICO)
3	W	TO BODY HARNESS - (FOR MEXICO)
4	LG	TO BODY HARNESS - (EXCEPT FOR MEXICO)
4	G	TO BODY HARNESS - (FOR MEXICO)
5	W	TO BODY HARNESS - (EXCEPT FOR MEXICO)
5	BG	TO BODY HARNESS - (FOR MEXICO)
6	SHIELD	TO BODY HARNESS
7	W	TO BODY HARNESS
8	G	TO BODY HARNESS
9	R	TO BODY HARNESS
10	B	TO BODY HARNESS
11	R/G	TO BODY HARNESS
12	R/L	TO BODY HARNESS
13	BG	TO BODY HARNESS
14	P	TO BODY HARNESS
15	R	TO BODY HARNESS
16	G	TO BODY HARNESS
17	Y	TO BODY HARNESS
18	L	TO BODY HARNESS
19	R	TO BODY HARNESS
20	LG	TO BODY HARNESS
21	SB	TO BODY HARNESS
22	G	TO BODY HARNESS
23	LG	TO BODY HARNESS
24	LG	TO BODY HARNESS

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Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Type	M04FW-LC
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	Y	BATT
2	P	BRAKE PEDAL POSITION SWITCH
3	Y	BATT
4	G	STP

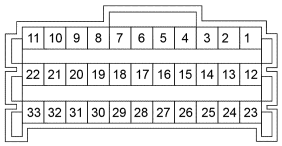
Connector No.	E43
Connector Name	FRONT WHEEL SENSOR RH
Connector Type	RH02MB
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	G	POWER
2	W	SIGNAL

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Type	BJ30FW
Connector Color	WHITE

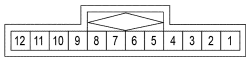
H.S.



Terminal No.	Color of Wire	Signal Name
1	W	SENSOR POWER SUPPLY
2	W	SENSOR POWER SUPPLY
3	W	SENSOR POWER SUPPLY
4	R	BATTERY
5	R	BATTERY
6	R	BATTERY
7	–	–
8	LG	BATTERY
9	LG	BATTERY
10	LG	BATTERY
11	LG	BATTERY
12	P	BATTERY
13	P	BATTERY
14	P	BATTERY
15	GR	GND
16	B	GND
17	B	GND
18	–	–
19	Y	BATTERY
20	Y	BATTERY
21	Y	BATTERY
22	Y	BATTERY
23	BG	EVAP CONTROL SYSTEM PRESSURE SENSOR
24	O	EVAP CONTROL SYSTEM PRESSURE SENSOR
25	–	–
26	G	GND
27	G	GND
28	G	GND
29	–	–
30	V	BATTERY
31	LG	BATTERY
32	V	BATTERY
33	V	BATTERY

Connector No.	E45
Connector Name	JOINT CONNECTOR-E12
Connector Type	A12FL
Connector Color	BLUE

H.S.



Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	L	CAN-H
3	L	CAN-H
4	L	CAN-H
5	–	–
6	–	–
7	P	CAN-L
8	P	CAN-L
9	P	CAN-L
10	P	CAN-L
11	–	–
12	–	–

Connector No.	E52
Connector Name	PARKING BRAKE SWITCH
Connector Type	P01FB-A
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	LG	PKB

Connector No.	E56
Connector Name	VDC RESISTOR
Connector Type	M02FBR-LC
Connector Color	BROWN

H.S.

Terminal No.	Color of Wire	Signal Name
1	G	CSW
2	GR	GND

BRAKE CONTROL SYSTEM CONNECTORS

Connector No.	E70
Connector Name	JOINT CONNECTOR-E14
Connector Type	RH06FB
Connector Color	BLACK

H.S.

6 5 4 3 2 1

Terminal No.	Color of Wire	Signal Name
1	P	CAN-L
2	P	CAN-L
3	P	CAN-L
4	P	CAN-L
5	–	–
6	–	–

Connector No.	E71
Connector Name	JOINT CONNECTOR-E15
Connector Type	RH06FB
Connector Color	BLACK

H.S.

6 5 4 3 2 1

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	L	CAN-H
3	L	CAN-H
4	L	CAN-H
5	–	–
6	–	–

Connector No.	E75
Connector Name	ICC BRAKE HOLD RELAY
Connector Type	MS02FL-M2-LC
Connector Color	BLUE

H.S.

3 5 2 1

Terminal No.	Color of Wire	Signal Name
1	W	BRAKE HOLD RLY DRIVE SIGNAL
2	R	IGN
3	P	BRAKE PEDAL POSITION SWITCH
5	Y	BATT

Connector No.	E106
Connector Name	JOINT CONNECTOR-E06
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

4 3 2 1

Terminal No.	Color of Wire	Signal Name
1	BG	CAN-H
2	BG	CAN-H
3	BG	CAN-H
4	–	–

Connector No.	E108
Connector Name	JOINT CONNECTOR-E07
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

4 3 2 1

Terminal No.	Color of Wire	Signal Name
1	Y	CAN-L
2	Y	CAN-L
3	Y	CAN-L
4	–	–

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH32FW-NH
Connector Color	WHITE

H.S.

19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34
35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

Terminal No.	Color of Wire	Signal Name
19	SB	SUB ECU
20	–	–
21	SB	BCM IGNSW
22	W	HORN RLY
23	LG	HORN SW
24	–	–
25	–	–
26	–	–
27	B	MOTOR FAN RLY MID
28	P	CAN-L
29	L	CAN-H
30	–	–
31	BG	DETENT SW
32	–	–
33	R	START CONT
34	GR	WIPER AUTOSTOP
35	BR	ABS ECU

Terminal No.	Color of Wire	Signal Name
36	W	START IG-E/R
37	W	CLUTCH I/L SW
38	P	PUSH START SW
39	–	–
40	–	–
41	B	GND (SIGNAL)
42	–	–
43	L	IGN SIGNAL
44	–	–
45	LG	PD SENS SIG-E/R
46	–	–
47	Y	PD SENS PWR-E/R
48	V	PD SENS GND-E/R
49	–	–
50	–	–

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BRAKE CONTROL SYSTEM CONNECTORS

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	SAZ34FB-HS2-SJSZ2-UH
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	R	SOLENOID (POWER)
2	B	ECU (GND)
3	W	MOTOR (POWER)
4	B/W	MOTOR (GND)
5	–	–
6	–	–
7	P	STOP LAMP SW (WITHOUT ICC)
7	G	STOP LAMP SW (WITH INTELLIGENT CRUISE CONTROL)
8	–	–
9	R	VDC OFF SW
10	–	–
11	G	FR RH SEN (POWER)
12	W	FR RH SEN (SIGNAL)
13	R	RR LH SEN (POWER)
14	G	RR LH SEN (SIGNAL)
15	–	–
16	–	–
17	–	–
18	–	–
19	L	CAN-H
20	SHIELD	VAC SEN (GND)
21	B	VAC SEN (POWER)
22	W	VAC SEN (SIGNAL)
23	G	FR LH SEN (POWER)
24	W	FR LH SEN (SIGNAL)
25	BG	RR RH SEN (POWER)
26	P	RR RH SEN (SIGNAL)
27	–	–
28	BR	IGN (POWER)
29	–	–
30	P	CAN-L
31	–	–
32	–	–
33	–	–
34	–	–
35	–	–
36	–	–
37	–	–
38	–	–

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1G	G	TO MAIN HARNESS
2G	W	TO MAIN HARNESS
3G	P	TO MAIN HARNESS
4G	R	TO MAIN HARNESS
5G	P	TO MAIN HARNESS
6G	W	TO MAIN HARNESS
7G	SHIELD	TO MAIN HARNESS
8G	G	TO MAIN HARNESS
9G	LG	TO MAIN HARNESS
10G	P	TO MAIN HARNESS
11G	G	TO MAIN HARNESS
12G	P	TO MAIN HARNESS
13G	W	TO MAIN HARNESS
14G	BG	TO MAIN HARNESS
15G	W	TO MAIN HARNESS
16G	R	TO MAIN HARNESS
17G	B	TO MAIN HARNESS
18G	SHIELD	TO MAIN HARNESS
19G	W	TO MAIN HARNESS
20G	G	TO MAIN HARNESS
21G	P	TO MAIN HARNESS
22G	B	TO MAIN HARNESS
23G	SHIELD	TO MAIN HARNESS
24G	R	TO MAIN HARNESS
25G	W	TO MAIN HARNESS
26G	SHIELD	TO MAIN HARNESS
27G	W	TO MAIN HARNESS
28G	R	TO MAIN HARNESS
29G	B	TO MAIN HARNESS
30G	G	TO MAIN HARNESS
31G	L	TO MAIN HARNESS
32G	LG	TO MAIN HARNESS
33G	LG	TO MAIN HARNESS
34G	W	TO MAIN HARNESS
35G	P	TO MAIN HARNESS
36G	L	TO MAIN HARNESS
37G	BG	TO MAIN HARNESS
38G	W	TO MAIN HARNESS
39G	W	TO MAIN HARNESS
40G	Y	TO MAIN HARNESS
41G	BG	TO MAIN HARNESS
42G	P	TO MAIN HARNESS
43G	R	TO MAIN HARNESS
44G	W	TO MAIN HARNESS
45G	Y	TO MAIN HARNESS
46G	SB	TO MAIN HARNESS
47G	V	TO MAIN HARNESS
48G	BR	TO MAIN HARNESS
49G	W	TO MAIN HARNESS
50G	G	TO MAIN HARNESS
51G	B/W	TO MAIN HARNESS
52G	BR	TO MAIN HARNESS
53G	L	TO MAIN HARNESS
54G	P	TO MAIN HARNESS
55G	BR	TO MAIN HARNESS
56G	R	TO MAIN HARNESS
57G	P	TO MAIN HARNESS
58G	BG	TO MAIN HARNESS
59G	W	TO MAIN HARNESS
60G	B	TO MAIN HARNESS
61G	SHIELD	TO MAIN HARNESS
62G	P	TO MAIN HARNESS
63G	L	TO MAIN HARNESS
64G	R	TO MAIN HARNESS
65G	G/R	TO MAIN HARNESS
66G	R	TO MAIN HARNESS
67G	BG	TO MAIN HARNESS
68G	LG/R	TO MAIN HARNESS
69G	W	TO MAIN HARNESS
70G	G	TO MAIN HARNESS
71G	GR	TO MAIN HARNESS
72G	–	TO MAIN HARNESS
73G	–	TO MAIN HARNESS
74G	–	TO MAIN HARNESS
75G	G	TO MAIN HARNESS
76G	Y	TO MAIN HARNESS
77G	BR	TO MAIN HARNESS
78G	–	TO MAIN HARNESS
79G	P	TO MAIN HARNESS
80G	G	TO MAIN HARNESS
81G	R	TO MAIN HARNESS
82G	–	TO MAIN HARNESS
83G	–	TO MAIN HARNESS
84G	–	TO MAIN HARNESS
85G	–	TO MAIN HARNESS
86G	–	TO MAIN HARNESS
87G	–	TO MAIN HARNESS
88G	–	TO MAIN HARNESS
89G	R	TO MAIN HARNESS
90G	L	TO MAIN HARNESS
91G	L	TO MAIN HARNESS
92G	–	TO MAIN HARNESS
93G	–	TO MAIN HARNESS
94G	Y	TO MAIN HARNESS
95G	W	TO MAIN HARNESS
96G	–	TO MAIN HARNESS
97G	–	TO MAIN HARNESS
98G	–	TO MAIN HARNESS
99G	–	TO MAIN HARNESS
100G	SHIELD	TO MAIN HARNESS

Connector No.	E167
Connector Name	VACUUM SENSOR
Connector Type	RH03FB
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	W	OUTPUT_SIGNAL
2	SHIELD	GND
3	B	VCC (+5V)

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BRAKE CONTROL SYSTEM CONNECTORS

Connector No.	E209
Connector Name	WIRE TO WIRE
Connector Type	TH24FW-NH
Connector Color	WHITE

H.S.

12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
1	Y	TO ENGINE ROOM HARNESS
2	L	TO ENGINE ROOM HARNESS
3	B	TO ENGINE ROOM HARNESS
4	SHIELD	TO ENGINE ROOM HARNESS
5	B	TO ENGINE ROOM HARNESS
6	R	TO ENGINE ROOM HARNESS
7	W	TO ENGINE ROOM HARNESS
8	SHIELD	TO ENGINE ROOM HARNESS
9	Y	TO ENGINE ROOM HARNESS
10	L	TO ENGINE ROOM HARNESS
11	SB	TO ENGINE ROOM HARNESS
12	Y	TO ENGINE ROOM HARNESS
13	R	TO ENGINE ROOM HARNESS
14	B	TO ENGINE ROOM HARNESS
15	G	TO ENGINE ROOM HARNESS
16	SHIELD	TO ENGINE ROOM HARNESS
17	W	TO ENGINE ROOM HARNESS
18	L	TO ENGINE ROOM HARNESS
19	Y	TO ENGINE ROOM HARNESS
20	V	TO ENGINE ROOM HARNESS
21	G	TO ENGINE ROOM HARNESS
22	L	TO ENGINE ROOM HARNESS
23	G	TO ENGINE ROOM HARNESS
24	R	TO ENGINE ROOM HARNESS

Connector No.	E219
Connector Name	ICC SENSOR
Connector Type	AAZ08FB
Connector Color	BLACK

H.S.

4	3	2	1
8	7	6	5

Terminal No.	Color of Wire	Signal Name
1	P	UBAT
2	–	–
3	L	CAN 1 H
4	–	–
5	–	–
6	Y	CAN 1 L
7	–	–
8	B	GND

Connector No.	F25
Connector Name	TCM (TRANSMISSION CONTROL MODULE) (FOR MEXICO)
Connector Type	RH40FB-RZ8-L-RH
Connector Color	BLACK

H.S.

31	32	33	34	35	36	37	38	39	40	47	48
21	22	23	24	25	26	27	28	29	30	45	46
11	12	13	14	15	16	17	18	19	20	43	44
1	2	3	4	5	6	7	8	9	10	41	42

Terminal No.	Color of Wire	Signal Name
1	–	–
2	SB	L RANGE SW
3	–	–
4	Y	D RANGE SW
5	L	N RANGE SW
6	BR	R RANGE SW
7	V	P RANGE SW
8	–	–
9	–	–
10	–	–
11	Y	SENSOR GND
12	LG	CVT FLUID TEMP SENS
13	–	–
14	–	–
15	–	–
16	Y	SEC PRESS SENS
17	LG	PRI PRESS SENS
18	–	–
19	–	–
20	–	–
21	–	–
22	–	–
23	P	CAN-L
24	LG	INPUT SPEED SENS
25	–	–
26	LG	SENS PWR SUPPLY
27	–	–
28	–	–
29	–	–
30	SB	LINE PRESS SOL VALVE
31	–	–
32	–	–
33	L	CAN-H
34	BR	OUTPUT SPEED SENS
35	LG	PRI SPEED SENS
36	–	–
37	BR	SELECT SOL VALVE
38	Y	TCC SOLE VALVE
39	L	SEC PRESS SOLE VALVE
40	V	PRI PRESS SOLE VALVE
41	B	GND
42	B	GND
43	–	–
44	–	–
45	LG	BATT
46	LG	BATT
47	Y	VIGN
48	Y	VIGN

Connector No.	F32
Connector Name	WIRE TO WIRE
Connector Type	TH16FW-NH
Connector Color	WHITE

H.S.

8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
1	L	TO ENGINE ROOM HARNESS - (EXCEPT FOR MEXICO)
1	BR	TO ENGINE ROOM HARNESS - (FOR MEXICO)
2	Y	TO ENGINE ROOM HARNESS
3	R	TO ENGINE ROOM HARNESS - (EXCEPT FOR MEXICO)
3	L	TO ENGINE ROOM HARNESS - (FOR MEXICO)
4	L	TO ENGINE ROOM HARNESS - (EXCEPT FOR MEXICO)
4	W	TO ENGINE ROOM HARNESS - (FOR MEXICO)
5	B	TO ENGINE ROOM HARNESS
6	L	TO ENGINE ROOM HARNESS
7	GR	TO ENGINE ROOM HARNESS
8	Y	TO ENGINE ROOM HARNESS
9	P	TO ENGINE ROOM HARNESS
10	L	TO ENGINE ROOM HARNESS
11	Y	TO ENGINE ROOM HARNESS
12	Y	TO ENGINE ROOM HARNESS - (EXCEPT FOR MEXICO)
12	P	TO ENGINE ROOM HARNESS - (FOR MEXICO)
13	SB	TO ENGINE ROOM HARNESS
14	V	TO ENGINE ROOM HARNESS
15	B	TO ENGINE ROOM HARNESS - (EXCEPT FOR MEXICO)
15	L	TO ENGINE ROOM HARNESS - (FOR MEXICO)
16	GR	TO ENGINE ROOM HARNESS - (FOR MEXICO)
16	B	TO ENGINE ROOM HARNESS - (EXCEPT FOR MEXICO)

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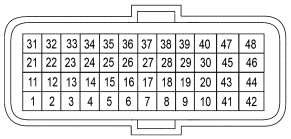
BRAKE CONTROL SYSTEM CONNECTORS

Connector No.	F89
Connector Name	TCM (TRANSMISSION CONTROL MODULE) (EXCEPT FOR MEXICO)
Connector Type	RH40FB-RZ8-L-RH
Connector Color	BLACK

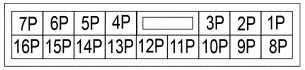
H.S.



Terminal No.	Color of Wire	Signal Name
1	–	–
2	SB	L RANGE SW
3	–	–
4	Y	D RANGE SW
5	L	N RANGE SW
6	BR	R RANGE SW
7	V	P RANGE SW
8	–	–
9	–	–
10	–	–
11	Y	SENSOR GND
12	LG	CVT FLUID TEMP SENS
13	–	–
14	–	–
15	–	–
16	Y	SEC PRESS SENS
17	LG	PRI PRESS SENS
18	–	–
19	–	–
20	–	–
21	–	–
22	–	–
23	P	CAN-L
24	LG	INPUT SPEED SENS
25	–	–
26	LG	SENS PWR SUPPLY
27	G	VDP SOL VALVE
28	–	–
29	–	–
30	SB	LINE PRESS SOL VALVE
31	–	–
32	–	–
33	L	CAN-H
34	BR	OUTPUT SPEED SENS
35	LG	PRI SPEED SENS
36	–	–
37	BR	SELECT SOL VALVE
38	Y	TCC SOLE VALVE
39	L	SEC PRESS SOLE VALVE
40	V	PRI PRESS SOLE VALVE
41	B	GND
42	B	GND
43	–	–
44	–	–
45	LG	BATT
46	LG	BATT
47	Y	VIGN
48	Y	VIGN

Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS16FW-CS
Connector Color	WHITE

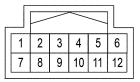
H.S.



Terminal No.	Color of Wire	Signal Name
1P	R	IGNITION
2P	LG	IGNITION
3P	G	IGN ELEC RELAY OUT 2
4P	–	–
5P	P	IGNITION
6P	BG	REAR DEFOGGER RELAY OUT
7P	LG	IGNITION
8P	BG	IGNITION
9P	L	BATTERY
10P	BR	IGNITION
11P	–	–
12P	–	–
13P	W	BATTERY
14P	Y	BATTERY
15P	L	BATT
16P	W	BLOWER FAN RELAY OUT

Connector No.	M5
Connector Name	CAN GATEWAY
Connector Type	TH12FW-NH
Connector Color	WHITE

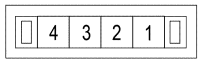
H.S.



Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	–	–
3	BG	BAT
4	L	CAN-H
5	B	GND
6	L	CAN-H
7	P	CAN-L
8	–	–
9	BG	IGN
10	P	CAN-L
11	B	GND
12	P	CAN-L

Connector No.	M11
Connector Name	JOINT CONNECTOR-M03
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
1	Y	CAN-L
2	Y	CAN-L
3	W	CAN-L
4	Y	CAN-L

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BRAKE CONTROL SYSTEM CONNECTORS

Connector No.	M24
Connector Name	COMBINATION METER
Connector Type	TH40FW-NH
Connector Color	WHITE

H.S.

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
1	B	GND1
2	B	GND2
3	P	STRG SW INPUT 1
4	BG	STRG SW INPUT 2
5	P	ACC
6	V	SECURITY
7	R	AIR BAG
8	G	AS BELT
9	Y	DR BUCKLE SW
10	–	–
11	BG	ALTERNATOR (CHARGE)
12	G	PKB
13	–	–
14	G	STRG SW OUTPUT 1
15	W	STRG SW OUTPUT 2
16	B	STRG SW OUTPUT GND
17	–	–
18	–	–
19	–	–
20	–	–
21	BG	IGN
22	W	BAT
23	B	ILLUMI CONT OUT
24	R	STRG SW GND
25	G	BRAKE OIL SW
26	R	FUEL SENSOR GND
27	W	FUEL SENSOR
28	–	–
29	–	–
30	–	–
31	–	–
32	–	–
33	BR	SPEED 2 P/R
34	BG	SPEED 8 P/R
35	–	–
36	–	–
37	–	–
38	P	CAN-L

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4
Connector Color	WHITE

H.S.

1G	2G	3G	4G	5G
6G	7G	8G	9G	10G

39	L	CAN-H
40	–	–

Terminal No.	Color of Wire	Signal Name
1G	SB	TO ENGINE ROOM HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
1G	P	TO ENGINE ROOM HARNESS - (WITH CLIMATE CONTROLLED SEAT)
2G	W	TO ENGINE ROOM HARNESS
3G	P	TO ENGINE ROOM HARNESS
4G	G	TO ENGINE ROOM HARNESS
5G	P	TO ENGINE ROOM HARNESS
6G	SB	TO ENGINE ROOM HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
6G	R	TO ENGINE ROOM HARNESS - (WITH CLIMATE CONTROLLED SEAT)
7G	SHIELD	TO ENGINE ROOM HARNESS
8G	G	TO ENGINE ROOM HARNESS
9G	BG	TO ENGINE ROOM HARNESS
10G	W	TO ENGINE ROOM HARNESS
11G	R	TO ENGINE ROOM HARNESS
12G	G	TO ENGINE ROOM HARNESS
13G	G	TO ENGINE ROOM HARNESS
14G	V	TO ENGINE ROOM HARNESS
15G	W	TO ENGINE ROOM HARNESS
16G	R	TO ENGINE ROOM HARNESS

17G	B	TO ENGINE ROOM HARNESS
18G	SHIELD	TO ENGINE ROOM HARNESS
19G	SB	TO ENGINE ROOM HARNESS
20G	LG	TO ENGINE ROOM HARNESS
21G	R	TO ENGINE ROOM HARNESS
22G	B	TO ENGINE ROOM HARNESS
23G	SHIELD	TO ENGINE ROOM HARNESS
24G	W	TO ENGINE ROOM HARNESS
25G	R	TO ENGINE ROOM HARNESS
26G	SHIELD	TO ENGINE ROOM HARNESS
27G	B	TO ENGINE ROOM HARNESS
28G	W	TO ENGINE ROOM HARNESS
29G	G	TO ENGINE ROOM HARNESS
30G	R	TO ENGINE ROOM HARNESS
31G	L	TO ENGINE ROOM HARNESS
32G	G	TO ENGINE ROOM HARNESS
33G	G	TO ENGINE ROOM HARNESS
34G	G	TO ENGINE ROOM HARNESS
35G	P	TO ENGINE ROOM HARNESS
36G	L	TO ENGINE ROOM HARNESS
37G	L	TO ENGINE ROOM HARNESS
38G	W	TO ENGINE ROOM HARNESS
39G	R	TO ENGINE ROOM HARNESS
40G	Y	TO ENGINE ROOM HARNESS
41G	L	TO ENGINE ROOM HARNESS
42G	P	TO ENGINE ROOM HARNESS
43G	W	TO ENGINE ROOM HARNESS
44G	G	TO ENGINE ROOM HARNESS
45G	R	TO ENGINE ROOM HARNESS
46G	Y	TO ENGINE ROOM HARNESS
47G	Y	TO ENGINE ROOM HARNESS
48G	LG	TO ENGINE ROOM HARNESS
49G	P	TO ENGINE ROOM HARNESS
50G	L	TO ENGINE ROOM HARNESS
51G	B/W	TO ENGINE ROOM HARNESS
52G	BR	TO ENGINE ROOM HARNESS
53G	L	TO ENGINE ROOM HARNESS
54G	BG	TO ENGINE ROOM HARNESS
55G	G	TO ENGINE ROOM HARNESS
56G	P	TO ENGINE ROOM HARNESS
57G	P	TO ENGINE ROOM HARNESS
58G	L	TO ENGINE ROOM HARNESS
59G	B	TO ENGINE ROOM HARNESS
60G	W	TO ENGINE ROOM HARNESS
61G	SHIELD	TO ENGINE ROOM HARNESS
62G	G	TO ENGINE ROOM HARNESS
63G	P	TO ENGINE ROOM HARNESS
64G	W	TO ENGINE ROOM HARNESS
65G	G/R	TO ENGINE ROOM HARNESS
66G	R	TO ENGINE ROOM HARNESS
67G	W	TO ENGINE ROOM HARNESS
68G	LG/R	TO ENGINE ROOM HARNESS
69G	P	TO ENGINE ROOM HARNESS

70G	BG	TO ENGINE ROOM HARNESS
71G	GR	TO ENGINE ROOM HARNESS
72G	–	TO ENGINE ROOM HARNESS
73G	–	TO ENGINE ROOM HARNESS
74G	–	TO ENGINE ROOM HARNESS
75G	G	TO ENGINE ROOM HARNESS
76G	Y	TO ENGINE ROOM HARNESS
77G	BR	TO ENGINE ROOM HARNESS
78G	–	TO ENGINE ROOM HARNESS
79G	R	TO ENGINE ROOM HARNESS
80G	W	TO ENGINE ROOM HARNESS
81G	G	TO ENGINE ROOM HARNESS
82G	P	TO ENGINE ROOM HARNESS
83G	P	TO ENGINE ROOM HARNESS
84G	P	TO ENGINE ROOM HARNESS
85G	P	TO ENGINE ROOM HARNESS
86G	P	TO ENGINE ROOM HARNESS
87G	P	TO ENGINE ROOM HARNESS
88G	P	TO ENGINE ROOM HARNESS
89G	R	TO ENGINE ROOM HARNESS
90G	P	TO ENGINE ROOM HARNESS
91G	L	TO ENGINE ROOM HARNESS
92G	P	TO ENGINE ROOM HARNESS
93G	P	TO ENGINE ROOM HARNESS
94G	O	TO ENGINE ROOM HARNESS
95G	B	TO ENGINE ROOM HARNESS
96G	P	TO ENGINE ROOM HARNESS
97G	P	TO ENGINE ROOM HARNESS
98G	P	TO ENGINE ROOM HARNESS
99G	P	TO ENGINE ROOM HARNESS
100G	SHIELD	TO ENGINE ROOM HARNESS

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BRAKE CONTROL SYSTEM CONNECTORS

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Type	TH40FW-NH
Connector Color	WHITE

H.S.

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
1	V	TO BODY HARNESS RH
2	G	TO BODY HARNESS RH
3	Y	TO BODY HARNESS RH
4	R	TO BODY HARNESS RH
5	BG	TO BODY HARNESS RH
6	LG	TO BODY HARNESS RH
7	SB	TO BODY HARNESS RH
8	G	TO BODY HARNESS RH
9	B	TO BODY HARNESS RH
10	W	TO BODY HARNESS RH
11	SHIELD	TO BODY HARNESS RH
12	W	TO BODY HARNESS RH
13	B	TO BODY HARNESS RH
14	SHIELD	TO BODY HARNESS RH
15	B	TO BODY HARNESS RH
16	W	TO BODY HARNESS RH
17	SHIELD	TO BODY HARNESS RH
18	SB	TO BODY HARNESS RH
19	LG	TO BODY HARNESS RH
20	SB	TO BODY HARNESS RH
21	B	TO BODY HARNESS RH
22	W	TO BODY HARNESS RH
23	SHIELD	TO BODY HARNESS RH
24	W	TO BODY HARNESS RH
25	B	TO BODY HARNESS RH
26	SHIELD	TO BODY HARNESS RH
27	B	TO BODY HARNESS RH
28	W	TO BODY HARNESS RH
29	SHIELD	TO BODY HARNESS RH
30	B	TO BODY HARNESS RH
31	W	TO BODY HARNESS RH
32	L	TO BODY HARNESS RH
33	Y	TO BODY HARNESS RH
34	–	TO BODY HARNESS RH
35	–	TO BODY HARNESS RH
36	–	TO BODY HARNESS RH
37	BR	TO BODY HARNESS RH
38	–	TO BODY HARNESS RH
39	–	TO BODY HARNESS RH
40	–	TO BODY HARNESS RH

Connector No.	M37
Connector Name	JOINT CONNECTOR-M28
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	L	CAN-H
3	B	CAN-H
4	–	–

Connector No.	M38
Connector Name	JOINT CONNECTOR-M29
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	Y	CAN-L
2	Y	CAN-L
3	W	CAN-L
4	–	–

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BRAKE CONTROL SYSTEM CONNECTORS

Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Type	TH80FDGY-CS16-TM4
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1A	GR	TO BODY HARNESS
2A	BR	TO BODY HARNESS
3A	Y	TO BODY HARNESS
4A	V	TO BODY HARNESS
5A	L/B	TO BODY HARNESS
6A	L	TO BODY HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
6A	G	TO BODY HARNESS - (WITH CLIMATE CONTROLLED SEAT)
7A	Y	TO BODY HARNESS
8A	W	TO BODY HARNESS
9A	L	TO BODY HARNESS
10A	R	TO BODY HARNESS
11A	R	TO BODY HARNESS
12A	BG	TO BODY HARNESS
13A	O	TO BODY HARNESS
14A	LG	TO BODY HARNESS
15A	R	TO BODY HARNESS
16A	G	TO BODY HARNESS
17A	B	TO BODY HARNESS
18A	B	TO BODY HARNESS
19A	SHIELD	TO BODY HARNESS
20A	B	TO BODY HARNESS
21A	SHIELD	TO BODY HARNESS
22A	–	TO BODY HARNESS
23A	W	TO BODY HARNESS
24A	B	TO BODY HARNESS
25A	SHIELD	TO BODY HARNESS
26A	B	TO BODY HARNESS
27A	B	TO BODY HARNESS
28A	SHIELD	TO BODY HARNESS
29A	R	TO BODY HARNESS
30A	B	TO BODY HARNESS
31A	R	TO BODY HARNESS
32A	Y/R	TO BODY HARNESS
33A	W	TO BODY HARNESS
34A	B	TO BODY HARNESS
35A	SHIELD	TO BODY HARNESS
36A	L/Y	TO BODY HARNESS
37A	LG	TO BODY HARNESS
38A	V	TO BODY HARNESS
39A	SB	TO BODY HARNESS
40A	BR	TO BODY HARNESS
41A	Y	TO BODY HARNESS
42A	G	TO BODY HARNESS
43A	–	TO BODY HARNESS
44A	W	TO BODY HARNESS
45A	R	TO BODY HARNESS
46A	BG	TO BODY HARNESS
47A	LG	TO BODY HARNESS
48A	R	TO BODY HARNESS
49A	P	TO BODY HARNESS
50A	W	TO BODY HARNESS
51A	L	TO BODY HARNESS
52A	P	TO BODY HARNESS
53A	G	TO BODY HARNESS
54A	W	TO BODY HARNESS
55A	BG	TO BODY HARNESS
56A	BR	TO BODY HARNESS
57A	P	TO BODY HARNESS - (WITH CLIMATE CONTROLLED SEAT)
57A	L	TO BODY HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
58A	G	TO BODY HARNESS
59A	SB	TO BODY HARNESS
60A	L	TO BODY HARNESS
61A	G	TO BODY HARNESS
62A	BR	TO BODY HARNESS
63A	BR	TO BODY HARNESS
64A	Y	TO BODY HARNESS
65A	W	TO BODY HARNESS
66A	BG	TO BODY HARNESS
67A	Y	TO BODY HARNESS
68A	LG	TO BODY HARNESS
69A	R	TO BODY HARNESS
70A	P	TO BODY HARNESS
71A	BR	TO BODY HARNESS
72A	SB	TO BODY HARNESS
73A	BG	TO BODY HARNESS
74A	BR	TO BODY HARNESS
75A	LG	TO BODY HARNESS
76A	W	TO BODY HARNESS
77A	L	TO BODY HARNESS
78A	V	TO BODY HARNESS
79A	LG	TO BODY HARNESS
80A	Y	TO BODY HARNESS
81A	L	TO BODY HARNESS
82A	BG	TO BODY HARNESS
83A	Y	TO BODY HARNESS
84A	LG	TO BODY HARNESS
85A	SHIELD	TO BODY HARNESS
86A	Y	TO BODY HARNESS
87A	LG	TO BODY HARNESS
88A	BR	TO BODY HARNESS
89A	L	TO BODY HARNESS
90A	P	TO BODY HARNESS
91A	L	TO BODY HARNESS
92A	L	TO BODY HARNESS
93A	B	TO BODY HARNESS
94A	W	TO BODY HARNESS
95A	W	TO BODY HARNESS
96A	–	TO BODY HARNESS
97A	SB	TO BODY HARNESS
98A	Y	TO BODY HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
98A	L	TO BODY HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
99A	–	TO BODY HARNESS
100A	–	TO BODY HARNESS

Connector No.	M41
Connector Name	JOINT CONNECTOR-M18
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	P	CAN-L
2	P	CAN-L
3	P	CAN-L
4	–	–

Connector No.	M43
Connector Name	JOINT CONNECTOR-M17
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	L	CAN-H
3	L	CAN-H
4	–	–

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BRAKE CONTROL SYSTEM CONNECTORS

Connector No.	M50
Connector Name	A/C AUTO AMP.
Connector Type	TH40FW-NH
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	GR	GND
3	G	BATT
4	–	–
5	G	TX RR
6	–	–
7	G	AMB SENS
8	G	STRG HTR SW
9	W	SUN SENS
10	SB	MODE 1
11	G	MODE 3
12	G	FAN OUT (COOLER)
13	W	IGN 2
14	W	FAN OUT (BOOSTER)
15	–	–
16	Y	ACTR (LIN)
17	LG	VACTR
18	W	FR FAN PWM
19	W	PTC 1
20	BR	STRG HTR RLY
21	P	CAN-L
22	GR	GND (POWER)
23	LG	IGN
24	–	–
25	W	RX RR
26	G	SENS GND
27	W	ING SENS
28	W	INT SENS
29	P	MODE 2
30	R	GAS SENS
31	BG	MODE 4
32	L	FAN F/B (COOLER)
33	–	–
34	L	FAN F/B (BOOSTER)
35	–	–
36	BR	WATER VALVE OPEN B
37	BR	ACTR GND
38	P	IGN ON/OFF
39	L	PTC 2
40	Y	WATER VALVE CLOSE A

Connector No.	M54
Connector Name	STEERING ANGLE SENSOR
Connector Type	TH08FW-NH
Connector Color	WHITE

H.S.

1	2	3	4
5	6	7	8

Terminal No.	Color of Wire	Signal Name
1	GR	GND
2	P	CAN-L
3	–	–
4	G	IGN
5	L	CAN-H
6	–	–
7	–	–
8	–	–

Connector No.	M64
Connector Name	WIRE TO WIRE
Connector Type	NS16FW-CS
Connector Color	WHITE

H.S.

7	6	5	4		3	2	1
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
1	Y	TO CONSOLE SUB HARNESS
2	B	TO CONSOLE SUB HARNESS
3	B	TO CONSOLE SUB HARNESS
4	LG	TO CONSOLE SUB HARNESS
5	SHIELD	TO CONSOLE SUB HARNESS
6	W	TO CONSOLE SUB HARNESS
7	B	TO CONSOLE SUB HARNESS
8	BG	TO CONSOLE SUB HARNESS
9	B	TO CONSOLE SUB HARNESS
10	–	TO CONSOLE SUB HARNESS
11	B/W	TO CONSOLE SUB HARNESS
12	BR	TO CONSOLE SUB HARNESS
13	Y	TO CONSOLE SUB HARNESS
14	SB	TO CONSOLE SUB HARNESS
15	L	TO CONSOLE SUB HARNESS
16	LG	TO CONSOLE SUB HARNESS

Connector No.	M65
Connector Name	WIRE TO WIRE
Connector Type	TH32FW-NH
Connector Color	WHITE

H.S.

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
1	W	TO CONSOLE SUB HARNESS
2	G	TO CONSOLE SUB HARNESS
3	BR	TO CONSOLE SUB HARNESS
4	BG	TO CONSOLE SUB HARNESS
5	W	TO CONSOLE SUB HARNESS
6	P	TO CONSOLE SUB HARNESS
7	W	TO CONSOLE SUB HARNESS - (WITH CLIMATE CONTROLLED SEAT)
7	LG	TO CONSOLE SUB HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
8	R	TO CONSOLE SUB HARNESS - (WITH CLIMATE CONTROLLED SEAT)
8	L	TO CONSOLE SUB HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
9	V	TO CONSOLE SUB HARNESS
10	BG	TO CONSOLE SUB HARNESS
11	P	TO CONSOLE SUB HARNESS
12	G	TO CONSOLE SUB HARNESS
13	SHIELD	TO CONSOLE SUB HARNESS
14	B	TO CONSOLE SUB HARNESS
15	R	TO CONSOLE SUB HARNESS
16	W	TO CONSOLE SUB HARNESS
17	SB	TO CONSOLE SUB HARNESS
18	P	TO CONSOLE SUB HARNESS
19	G	TO CONSOLE SUB HARNESS
20	BG	TO CONSOLE SUB HARNESS
21	R	TO CONSOLE SUB HARNESS
22	W	TO CONSOLE SUB HARNESS
23	R	TO CONSOLE SUB HARNESS
24	B	TO CONSOLE SUB HARNESS
25	G	TO CONSOLE SUB HARNESS
26	W	TO CONSOLE SUB HARNESS
27	LG	TO CONSOLE SUB HARNESS
28	B	TO CONSOLE SUB HARNESS
29	BR	TO CONSOLE SUB HARNESS
30	SHIELD	TO CONSOLE SUB HARNESS
31	B	TO CONSOLE SUB HARNESS
32	W	TO CONSOLE SUB HARNESS

Connector No.	M67
Connector Name	JOINT CONNECTOR-M04
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	L	CAN-H
3	B	CAN-H
4	L	CAN-H

Connector No.	M71
Connector Name	VDC OFF SWITCH
Connector Type	TH08FG-NH
Connector Color	GREEN

H.S.

4	6	3
2	1	5

Terminal No.	Color of Wire	Signal Name
1	P	PWR
2	GR	GND
3	R	ILL+
4	B	ILL-

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BRAKE CONTROL SYSTEM CONNECTORS

Connector No.	M84
Connector Name	WIRE TO WIRE
Connector Type	TH32FW-NH
Connector Color	WHITE

H.S.

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
1	B	TO BODY HARNESS RH
2	W	TO BODY HARNESS RH
3	SHIELD	TO BODY HARNESS RH
4	LG	TO BODY HARNESS RH
5	P	TO BODY HARNESS RH - (WITHOUT REAR ENTERTAINMENT SYSTEM)
5	Y	TO BODY HARNESS RH - (WITH REAR ENTERTAINMENT SYSTEM)
6	W	TO BODY HARNESS RH - (WITHOUT REAR ENTERTAINMENT SYSTEM)
6	B	TO BODY HARNESS RH - (WITH REAR ENTERTAINMENT SYSTEM)
7	R	TO BODY HARNESS RH - (WITHOUT REAR ENTERTAINMENT SYSTEM)
7	W	TO BODY HARNESS RH - (WITH REAR ENTERTAINMENT SYSTEM)
8	B	TO BODY HARNESS RH - (WITHOUT REAR ENTERTAINMENT SYSTEM)
8	R	TO BODY HARNESS RH - (WITH REAR ENTERTAINMENT SYSTEM)
9	SHIELD	TO BODY HARNESS RH
10	G	TO BODY HARNESS RH
11	L	TO BODY HARNESS RH
12	G	TO BODY HARNESS RH
13	G	TO BODY HARNESS RH
14	P	TO BODY HARNESS RH
15	O	TO BODY HARNESS RH
16	SB	TO BODY HARNESS RH
17	L	TO BODY HARNESS RH
18	P	TO BODY HARNESS RH
19	R	TO BODY HARNESS RH
20	–	TO BODY HARNESS RH
21	G	TO BODY HARNESS RH
22	R	TO BODY HARNESS RH
23	G	TO BODY HARNESS RH
24	R	TO BODY HARNESS RH - (WITH CLIMATE CONTROLLED SEAT)
24	V	TO BODY HARNESS RH - (WITHOUT CLIMATE CONTROLLED SEAT)

25	W	TO BODY HARNESS RH
26	W	TO BODY HARNESS RH
27	BG	TO BODY HARNESS RH
28	V	TO BODY HARNESS RH
29	SB	TO BODY HARNESS RH
30	L	TO BODY HARNESS RH
31	W	TO BODY HARNESS RH
32	–	TO BODY HARNESS RH

Connector No.	M211
Connector Name	DRIVE MODE SELECT SWITCH
Connector Type	TH10FB-NH
Connector Color	BLACK

H.S.

1	2	3	4	5
6	7	8	9	10

Terminal No.	Color of Wire	Signal Name
1	W	DATA1
2	L	DATA2
3	G	DATA3
4	Y	DATA4
5	–	–
6	B	GND
7	B	ILL CONT
8	–	–
9	R	ILL+
10	–	–

Connector No.	M216
Connector Name	WIRE TO WIRE
Connector Type	NS16MW-CS
Connector Color	WHITE

H.S.

1	2	3		4	5	6	7
8	9	10	11	12	13	14	15	16

Terminal No.	Color of Wire	Signal Name
1	BG	TO MAIN HARNESS
2	B	TO MAIN HARNESS
3	B	TO MAIN HARNESS

4	R	TO MAIN HARNESS
5	SHIELD	TO MAIN HARNESS
6	W	TO MAIN HARNESS
7	B	TO MAIN HARNESS
8	BG	TO MAIN HARNESS
9	B	TO MAIN HARNESS
10	–	TO MAIN HARNESS
11	–	TO MAIN HARNESS
12	BR	TO MAIN HARNESS
13	LG	TO MAIN HARNESS
14	L	TO MAIN HARNESS
15	LG	TO MAIN HARNESS
16	Y	TO MAIN HARNESS

Connector No.	M217
Connector Name	WIRE TO WIRE
Connector Type	TH32MW-NH
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
1	BG	TO MAIN HARNESS
2	BG	TO MAIN HARNESS
3	Y	TO MAIN HARNESS
4	BR	TO MAIN HARNESS
5	SB	TO MAIN HARNESS
6	P	TO MAIN HARNESS
7	V	TO MAIN HARNESS - (WITH CLIMATE CONTROLLED SEAT)
7	W	TO MAIN HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
8	L	TO MAIN HARNESS
9	G	TO MAIN HARNESS - (WITH CLIMATE CONTROLLED SEAT)
9	LG	TO MAIN HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
10	V	TO MAIN HARNESS
11	P	TO MAIN HARNESS
12	G	TO MAIN HARNESS
13	SHIELD	TO MAIN HARNESS
14	B	TO MAIN HARNESS
15	W	TO MAIN HARNESS
16	R	TO MAIN HARNESS
17	W	TO MAIN HARNESS
18	L	TO MAIN HARNESS
19	G	TO MAIN HARNESS
20	Y	TO MAIN HARNESS

21	B	TO MAIN HARNESS
22	W	TO MAIN HARNESS
23	R	TO MAIN HARNESS
24	B	TO MAIN HARNESS
25	G	TO MAIN HARNESS
26	W	TO MAIN HARNESS
27	LG	TO MAIN HARNESS
28	B	TO MAIN HARNESS
29	BR	TO MAIN HARNESS
30	SHIELD	TO MAIN HARNESS
31	B	TO MAIN HARNESS
32	W	TO MAIN HARNESS

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BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000012853628

DETAILED FLOW

1.INTERVIEW THE CUSTOMER

Clarify customer concerns before inspection. First of all, perform an interview utilizing BRC-79, "Diagnostic Work Sheet" and reproduce the symptom as well as fully understand it. Ask customer about his/her concerns carefully. Check symptoms by driving vehicle with customer, if necessary.

CAUTION:

Customers are not professional. Never guess easily like “maybe the customer means that...,” or “ maybe the customer mentions this symptom”.

>> GO TO 2.

2.CHECK SYMPTOM

Reproduce the symptom that is indicated by the customer, based on the information from the customer obtained in the interview. Also check that the symptom is not caused by fail-safe mode. Refer to BRC-44, "Fail-Safe".

CAUTION:

When the symptom is caused by normal operation, fully inspect each portion and obtain the understanding of customer that the symptom is not caused by a malfunction.

>> GO TO 3.

3.PERFORM THE SELF-DIAGNOSIS

CONSULT

1. Turn the ignition switch OFF → ON.
   CAUTION:
   Be sure to wait of 10 seconds after turning ignition switch OFF or ON.
2. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC detected?

YES >> Record or print Self Diagnostic Results and Freeze Frame Data (FFD). GO TO 4.
NO >> GO TO 6.

4.RECHECK THE SYMPTOM

CONSULT

1. Erase “Self Diagnostic Result” of “ABS”.
2. Turn the ignition switch OFF → ON → OFF.
   CAUTION:
   Be sure to wait of 10 seconds after turning ignition switch OFF or ON.
3. Perform DTC confirmation procedures for the malfunctioning system.
   NOTE:
   If some DTCs are detected at the some time, determine the order for performing the diagnosis based on BRC-46, "DTC Inspection Priority Chart".

Is DTC detected?

YES >> GO TO 5.
NO >> Check harness and connectors based on the information obtained in the interview. Refer to GI-50, "Intermittent Incident".

5.REPAIR OR REPLACE MALFUNCTIONING COMPONENT

1. Repair or replace malfunctioning components.
2. Reconnect component or connector after repairing or replacing.
3. When DTC is detected, erase “Self Diagnostic Result” of “ABS”.
   CAUTION:

- **Turn the ignition switch OFF → ON → OFF after erasing Self Diagnostic Result.**
- **Be sure to wait of 10 seconds after turning ignition switch OFF or ON.**

>> GO TO 7.

6. IDENTIFY MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

Identify malfunctioning system based on symptom diagnosis and perform inspection.

Can the malfunctioning system be identified?

YES >> GO TO 7.
NO >> Check harness and connectors based on the information obtained in the interview. Refer to GI-50, "Intermittent Incident".

7. FINAL CHECK

CONSULT
1. Select “Data Monitor” mode of “ABS”
2. Check the reference values. Refer to BRC-42, "Reference Value".
3. Recheck the symptom and check that the symptom is not reproduced on the same conditions.

Is the symptom reproduced?

YES >> GO TO 3.
NO >> Inspection End.

Diagnostic Work Sheet

INFOID:0000000012853629

DESCRIPTION

- In general, customers have their own criteria for a problem. Therefore, it is important to understand the symptom and status well enough by asking the customer about his/her concerns carefully. To systemize all the information for the diagnosis, prepare the interview sheet referring to the interview points.
- In some cases, multiple conditions that appear simultaneously may cause a DTC to be detected.

INTERVIEW SHEET SAMPLE

Interview sheet					
Customer name	MR/MS	Registration number		Initial year registration	
		Vehicle type		VIN	
Storage date		Engine/traction Motor		Mileage	km (Mile)
Symptom		☐ Does not operate ( ) function			
		☐ Warning lamp turns ON. ☐ ABS or ☐ BRAKE or ☐ ☐ OFF ☐ Other ( )			
		☐ Noise (Location:) ☐ Vibration (Location:)			
		☐ Other ( )			
First occurrence		☐ Recently ☐ Other ( )			
Frequency of occurrence		☐ Always ☐ Under a certain conditions of ☐ Sometimes (time(s)/day)			
Climate conditions		☐ Irrelevant			
	Weather	☐ Fine ☐ Cloud ☐ Rain ☐Snow ☐ Others ( )			
	Temperature	☐ Hot ☐Warm ☐ Cool ☐ Cold ☐ Temperature [Approx. °C (°F)]			
	Relative humidity	☐ High ☐ Moderate ☐ Low			
Road conditions		☐ Ordinary road ☐ Highway ☐ Mountainous road (uphill or downhill) ☐ Rough road			

Interview sheet

Customer name	MR/MS	Registration number		Initial year registration	
		Vehicle type		VIN	
Storage date		Engine/traction Motor		Mileage	km (Mile)
Operating condition, etc.		☐ Irrelevant ☐ When engine/traction motor starts ☐ During idling ☐ During driving ☐ During acceleration ☐ At constant speed driving ☐ During deceleration ☐ Immediately before stop [Vehicle speed: Approx. km/h (MPH)] ☐ During cornering (right curve or left curve) ☐ When steering wheel is steered (to right or to left)			
Other conditions	VDC OFF switch operation	☐ Yes ☐ No			
	Use of other functions (ex. ICC)	☐ Yes ☐ No ( )			
	Presence of non-genuine parts installation	☐ Yes ☐ No ( )			

Memo

ADDITIONAL SERVICE WHEN REPLACING ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Description

INFOID:0000000012853630

After replacing the ABS actuator and electric unit (control unit), perform the following procedures:
- Neutral position adjustment for the steering angle sensor
- Calibration of the decel G sensor

Work Procedure

INFOID:0000000012853631

1.PERFORM THE NEUTRAL POSITION ADJUSTMENT FOR THE STEERING ANGLE SENSOR

Perform the neutral position adjustment for the steering angle sensor.

>> Refer to BRC-82, "Work Procedure", GO TO 2.

2.PERFORM CALIBRATION OF THE DECEL G SENSOR

Perform calibration of the decel G sensor.

>> Refer to BRC-84, "Work Procedure".

ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION

Description

INFOID:0000000012853632

Refer to the table below to determine if adjustment of steering angle sensor neutral position is required.

×: Required –: Not required

Situation	Adjustment of steering angle sensor neutral position
Removing/Installing ABS actuator and electric unit (control unit)	—
Replacing ABS actuator and electric unit (control unit)	×
Removing/Installing steering angle sensor	×
Replacing steering angle sensor	×
Removing/Installing steering components	×
Replacing steering components	×
Removing/Installing suspension components	×
Replacing suspension components	×
Change tires to new ones	—
Tire rotation	—
Adjusting wheel alignment	×

Work Procedure

INFOID:0000000012853633

ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION

CAUTION:

To adjust neutral position of steering angle sensor, make sure to use CONSULT.
(Adjustment cannot be done without CONSULT).

1.ALIGN THE VEHICLE STATUS

Stop vehicle with front wheels in straight-ahead position.

>> GO TO 2.

2.PERFORM THE NEUTRAL POSITION ADJUSTMENT FOR THE STEERING ANGLE SENSOR

1. On the CONSULT screen, touch “Work support” and “ST ANG SEN ADJUSTMENT” in order.
2. Touch “START”.
   CAUTION:
   Do not touch steering wheel while adjusting steering angle sensor.
3. After approximately 10 seconds, touch “END”.
   NOTE:
   After approximately 60 seconds, it ends automatically.
4. Turn ignition switch OFF, then turn it ON again.
   CAUTION:
   Be sure to perform above operation.

>> GO TO 3.

3.CHECK DATA MONITOR

1. Run vehicle with front wheels in straight-ahead position, then stop.
2. Select “Data Monitor”. Then make sure “STR ANGLE SIG” is within 0±2.5°.

Is the steering angle within the specified range?

YES >> GO TO 4.
NO >> Perform the neutral position adjustment for the steering angle sensor again, GO TO 1.

4.ERASE THE SELF-DIAGNOSIS MEMORY

Erase the self-diagnosis memory of the ABS actuator and electric unit (control unit) and ECM.

- ABS actuator and electric unit (control unit): Refer to BRC-37, "CONSULT Function".

- ECM: Refer to EC-79, "CONSULT Function" (except for Mexico) or EC-625, "CONSULT Function" (for Mexico).

Are the memories erased?

YES >> Inspection End.
NO >> Check the items indicated by the self-diagnosis.

CALIBRATION OF DECEL G SENSOR

Description

INFOID:0000000012853634

Refer to the table below to determine if calibration of the decel G sensor is required.

×: Required –: Not required

Situation	Calibration of decel G sensor
Removing/Installing ABS actuator and electric unit (control unit)	—
Replacing ABS actuator and electric unit (control unit)	×
Removing/Installing steering components	—
Replacing steering components	—
Removing/Installing suspension components	—
Replacing suspension components	—
Removing/Installing tire	—
Replacing tire	—
Tire rotation	—
Adjusting wheel alignment	—
Removing/Installing yaw rate/side/decel G sensor	×
Replacing yaw rate/side/decel G sensor	×

Work Procedure

INFOID:0000000012853635

CALIBRATION OF DECEL G SENSOR

CAUTION:

To calibrate the decel G sensor, make sure to use CONSULT.
(Calibration cannot be done without CONSULT).

1.ALIGN THE VEHICLE STATUS

Stop vehicle with front wheels in straight-ahead position.

>> GO TO 2.

2.PERFORM CALIBRATION OF DECEL G SENSOR

1. On the CONSULT screen, touch “Work support” and “DECEL G SEN CALIBRATION” in order.
2. Touch “START”.
3. After approximately 10 seconds, touch “END”.
   NOTE:
   After approximately 60 seconds, it ends automatically.
4. Turn ignition switch OFF, then turn it ON again.
   CAUTION:
   Be sure to perform above operation.

>> GO TO 3.

3.CHECK DATA MONITOR

1. Run vehicle with front wheels in straight-ahead position, then stop.
2. Select “Data Monitor”. Then make sure “DECEL G SEN” is within ± 0.08G.

Is the inspection result normal?

YES >> GO TO 4.
NO >> Perform calibration of decel G sensor again, GO TO 1.

4.ERASE THE SELF-DIAGNOSIS MEMORY

Erase the self-diagnosis memory of the ABS actuator and electric unit (control unit) and ECM.

- ABS actuator and electric unit (control unit): Refer to BRC-37, "CONSULT Function".

- ECM: Refer to EC-79, "CONSULT Function" (except for Mexico) or EC-625, "CONSULT Function" (for Mexico).

Are the memories erased?

YES >> Inspection End.
NO >> Check the items indicated by the self-diagnosis.

DTC/CIRCUIT DIAGNOSIS

C1101, C1102, C1103, C1104 WHEEL SENSOR

DTC Description

INFOID:0000000012853636

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1101	RR RH SENSOR-1 (Rear RH wheel sensor-1)	When an open circuit is detected in rear RH wheel sensor circuit.
C1102	RR LH SENSOR-1 (Rear LH wheel sensor-1)	When an open circuit is detected in rear LH wheel sensor circuit.
C1103	FR RH SENSOR-1 (Front RH wheel sensor-1)	When an open circuit is detected in front RH wheel sensor circuit.
C1104	FR LH SENSOR-1 (Front LH wheel sensor-1)	When an open circuit is detected in front LH wheel sensor circuit.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery	• Harness or connector • Wheel sensor • ABS actuator and electric unit (control unit) • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery • Vehicle was not driven after previous repair

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

CONSULT
1. Start the engine.
2. Drive the vehicle at approx. 50 km/h (31 MPH) or more for approx. 2 minutes.
3. Stop the vehicle.
4. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
5. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
6. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1101”, “C1102”, “C1103” or “C1104” detected?

YES-1 >> “C1101”, “C1102”, “C1103” or “C1104” is displayed as “CRNT”: Proceed to BRC-87, "Diagnosis Procedure".

YES-2 >> “C1101”, “C1102”, “C1103” or “C1104” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853637

CAUTION:
Never check between wheel sensor harness connector terminals.

1.CHECK WHEEL SENSOR

1. Turn the ignition switch OFF.
2. Check the wheel sensor for damage.

Is the inspection result normal?

YES >> GO TO 3.
NO >> GO TO 2.

2.REPLACE WHEEL SENSOR (1)

CONSULT
1. Replace the wheel sensor.
- Front: Refer to BRC-175, "Removal and Installation - Front Wheel Sensor".
- Rear: Refer to BRC-177, "Removal and Installation - Rear Wheel Sensor".
2. Erase “Self Diagnostic Result” of “ABS”.
3. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
4. Start the engine.
5. Drive the vehicle at approx. 50 km/h (31 MPH) or more for approx. 2 minutes.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.
6. Stop the vehicle.
7. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
8. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
9. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1101”, “C1102”, “C1103” or “C1104” detected?

YES >> GO TO 3.
NO >> Inspection End.

3.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.
3. Check the wheel sensor harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair / replace harness or connector, securely lock the connector, and GO TO 4.

4.PERFORM SELF-DIAGNOSIS (1)

CONSULT
1. Erase “Self Diagnostic Result” of “ABS”.
2. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
3. Start the engine.
4. Drive the vehicle at approx. 50 km/h (31 MPH) or more for approx. 2 minutes.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.

5. Stop the vehicle.
6. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
7. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
8. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1101”, “C1102”, “C1103” or “C1104” detected?

YES >> GO TO 5.
NO >> Inspection End.

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

Check the ABS actuator and electric unit (control unit) power supply and ground circuits. Refer to BRC-157, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair / replace harness, connector, fuse, or fusible link.

6. CHECK TERMINAL

1. Turn the ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector and then check the ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.
3. Disconnect wheel sensor harness connector and check each wheel sensor pin terminal for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 8.
NO >> Repair / replace harness, connector, or terminal, and GO TO 7.

7. PERFORM SELF-DIAGNOSIS (2)

CONSULT
1. Connect ABS actuator and electric unit (control unit) harness connector.
2. Connect wheel sensor harness connector.
3. Erase “Self Diagnostic Result” of “ABS”.
4. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
5. Start the engine.
6. Drive the vehicle at approx. 50 km/h (31 MPH) or more for approx. 2 minutes.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.
7. Stop the vehicle.
8. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
9. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
10. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1101”, “C1102”, “C1103” or “C1104” detected?

YES >> GO TO 8.
NO >> Inspection End.

8. CHECK WHEEL SENSOR HARNESS

1. Turn the ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector.
3. Disconnect wheel sensor harness connector.

4. Check the continuity between ABS actuator and electric unit (control unit) harness connector and wheel sensor harness connector. (Check the continuity while turning steering wheel left and right, or while moving center harness in wheel housing.)

Power Supply Circuit

ABS actuator and electric unit (control unit)		Wheel sensor			Continuity
Connector	Terminal	Connector		Terminal	
E125	23	E18	(Front LH wheel)	1	Yes
	11	E43	(Front RH wheel)		
	13	C10	(Rear LH wheel)		
	25	C11	(Rear RH wheel)		

Signal Circuit

ABS actuator and electric unit (control unit)		Wheel sensor			Continuity
Connector	Terminal	Connector		Terminal	
E125	24	E18	(Front LH wheel)	2	Yes
	12	E43	(Front RH wheel)		
	14	C10	(Rear LH wheel)		
	26	C11	(Rear RH wheel)		

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair / replace harness or connector, and GO TO 9.

9. PERFORM SELF-DIAGNOSIS (3)

CONSULT

1. Connect ABS actuator and electric unit (control unit) harness connector.
2. Connect wheel sensor harness connector.
3. Erase “Self Diagnostic Result” of “ABS”.
4. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
5. Start the engine.
6. Drive the vehicle at approx. 50 km/h (31 MPH) or more for approx. 2 minutes.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.
7. Stop the vehicle.
8. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
9. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
10. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1101”, “C1102”, “C1103” or “C1104” detected?

YES >> GO TO 10.
NO >> Inspection End.

10. CHECK WHEEL SENSOR OUTPUT SIGNAL

1. Disconnect ABS actuator and electric unit (control unit) harness connector.
2. Disconnect wheel sensor harness connector.
3. Connect ABS active wheel sensor tester (SST: J-45741-A) to wheel sensor using appropriate adapter.
4. Turn the ABS active wheel sensor tester power switch ON.
   NOTE:
   The green POWER indicator should illuminate. If the POWER indicator does not illuminate, replace the battery in the ABS active wheel sensor tester before proceeding.
5. Spin the wheel of the vehicle by hand and observe the red SENSOR indicator on the ABS active wheel sensor tester. The red SENSOR indicator should flash ON and OFF to indicate an output signal.

NOTE:
If the red SENSOR indicator illuminates but does not flash, reverse the polarity of the tester leads and retest.

Does the ABS active wheel sensor tester detect a signal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> GO TO 11.

11. REPLACE WHEEL SENSOR

CONSULT
1. Replace the wheel sensor.
- Front: Refer to BRC-175, "Removal and Installation - Front Wheel Sensor".
- Rear: Refer to BRC-177, "Removal and Installation - Rear Wheel Sensor".
2. Connect ABS actuator and electric unit (control unit) harness connector.
3. Erase “Self Diagnostic Result” of “ABS”.
4. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
5. Start the engine.
6. Drive the vehicle at approx. 50 km/h (31 MPH) or more for approx. 2 minutes.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.
7. Stop the vehicle.
8. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
9. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
10. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1101”, “C1102”, “C1103” or “C1104” detected?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Inspection End.

C1105, C1106, C1107, C1108 WHEEL SENSOR

DTC Description

INFOID:0000000012853638

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1105	RR RH SENSOR-2 (Rear RH wheel sensor-2)	• When power supply voltage of rear RH wheel sensor is low. • When distance between rear RH wheel sensor and rear RH wheel sensor rotor is large. • When installation of rear RH wheel sensor or rear RH wheel sensor rotor is not normal. • When there is contamination on or damage to the rear RH wheel sensor or rear RH sensor rotor.
C1106	RR LH SENSOR-2 (Rear LH wheel sensor-2)	• When power supply voltage of rear LH wheel sensor is low. • When distance between rear LH wheel sensor and rear LH wheel sensor rotor is large. • When installation of rear LH wheel sensor or rear LH wheel sensor rotor is not normal. • When there is contamination on or damage to the rear LH wheel sensor or rear LH sensor rotor.
C1107	FR RH SENSOR-2 (Front RH wheel sensor-2)	• When power supply voltage of front RH wheel sensor is low. • When distance between front RH wheel sensor and front RH wheel sensor rotor is large. • When installation of front RH wheel sensor or front RH wheel sensor rotor is not normal. • When there is contamination on or damage to the front RH wheel sensor or front RH sensor rotor.
C1108	FR LH SENSOR-2 (Front LH wheel sensor-2)	• When power supply voltage of front LH wheel sensor is low. • When distance between front LH wheel sensor and front LH wheel sensor rotor is large. • When installation of front LH wheel sensor or front LH wheel sensor rotor is not normal. • When there is contamination on or damage to the front LH wheel sensor or front LH sensor rotor.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • Wheel sensor • Sensor rotor • Tire size • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery	• Harness or connector • Wheel sensor • Sensor rotor • ABS actuator and electric unit (control unit) • Tire size • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery • Vehicle was not driven after previous repair

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

CONSULT
1. Start the engine.
2. Drive the vehicle at approx. 50 km/h (31 MPH) or more for approx. 2 minutes.
3. Stop the vehicle.
4. Turn the ignition switch OFF.

NOTE:
Wait at least 10 seconds after turning ignition switch OFF.

5. Start the engine.

NOTE:
Wait at least 10 seconds after starting the engine.

6. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1105”, “C1106”, “C1107” or “C1108” detected?

YES-1 >> “C1105”, “C1106”, “C1107” or “C1108” is displayed as “CRNT”: Proceed to BRC-92, "Diagnosis Procedure".
YES-2 >> “C1105”, “C1106”, “C1107” or “C1108” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853639

CAUTION:
Never check between wheel sensor harness connector terminals.

1.CHECK WHEEL HUB ASSEMBLY

Check that there is no excessive looseness in wheel hub assembly.
- Front: Refer to FAX-6, "Inspection".
- Rear: Refer to RAX-5, "Inspection".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the wheel hub assembly, and GO TO 2.
- Front: Refer to FAX-8, "Removal and Installation".
- Rear: Refer to RAX-7, "Removal and Installation".

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

Check the ABS actuator and electric unit (control unit) power supply and ground circuits. Refer to BRC-157, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair / replace harness, connector, fuse, or fusible link.

3.CHECK TIRE

1. Turn the ignition switch OFF.
2. Check the tire air pressure, wear and size. Refer to WT-60, "Tire Air Pressure".

Is the inspection result normal?

YES >> GO TO 6.
NO >> Adjust air pressure or replace tire, and GO TO 4.

4.CHECK DATA MONITOR (1)

CONSULT
1. Erase “Self Diagnostic Result” mode of “ABS”.
2. Turn the ignition switch OFF → ON → OFF.

NOTE:
Wait at least 10 seconds after turning ignition switch OFF or ON.

3. Start the engine.
4. Select “DATA MONITOR” mode of “ABS”, check “FR LH SENSOR”, “FR RH SENSOR”, “RR LH SENSOR” and “RR RH SENSOR”.

NOTE:
Set the “DATA MONITOR” recording speed to “10 msec”.

5. Read the values (wheel speed) of both the normal wheel sensors and malfunctioning wheel sensor.

NOTE:
Vehicle must be driven after repair or replacement to erase the previous DTCs.

Note the difference at 50 km/h (31 MPH) between the wheel speed detected by the malfunctioning wheel sensor and the maximum/minimum wheel speed detected by the normal wheel sensors, is the difference within 5%, respectively?

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

5. PERFORM SELF-DIAGNOSIS (1)

CONSULT
1. Stop the vehicle.
2. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
3. Start the engine.
   NOTE:
   Wait at least 10 seconds after start the engine.
4. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1105”, “C1106”, “C1107” or “C1108” detected?

YES >> GO TO 6.
NO >> Inspection End.

6. CHECK WHEEL SENSOR AND SENSOR ROTOR

1. Turn the ignition switch OFF.
2. Disconnect wheel sensor harness connector.
3. Remove dust and foreign matter adhered to the wheel sensor and sensor rotor with a vacuum dust collector through the wheel sensor mounting hole.
   CAUTION:
   Install wheel sensor with no backlash and float, and tighten the mounting bolt to the specified torque.
   - **Front: Refer to BRC-175, "Exploded View - Front Wheel Sensor".**
   - **Rear: Refer to BRC-176, "Exploded View - Rear Wheel Sensor".**

>> GO TO 7.

7. CHECK WHEEL SENSOR

Check the wheel sensor for damage.

Is the inspection result normal?

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

8. CHECK WHEEL SENSOR OUTPUT SIGNAL

1. Disconnect ABS actuator and electric unit (control unit) harness connector.
2. Connect ABS active wheel sensor tester (SST: J-45741-A) to wheel sensor using appropriate adapter.
3. Turn the ABS active wheel sensor tester power switch ON.
   NOTE:
   The green POWER indicator should illuminate. If the POWER indicator does not illuminate, replace the battery in the ABS active wheel sensor tester before proceeding.
4. Spin the wheel of the vehicle by hand and observe the red SENSOR indicator on the ABS active wheel sensor tester. The red SENSOR indicator should flash ON and OFF to indicate an output signal.
   NOTE:
   If the red SENSOR indicator illuminates but does not flash, reverse the polarity of the tester leads and retest.

Does the ABS active wheel sensor tester detect a signal?

YES >> GO TO 12.
NO >> GO TO 9.

9. REPLACE WHEEL SENSOR (1)

CONSULT
1. Replace the wheel sensor.
- Front: Refer to BRC-175, "Removal and Installation - Front Wheel Sensor".

- Rear: Refer to BRC-177, "Removal and Installation - Rear Wheel Sensor".

2. Connect ABS actuator and electric unit (control unit) harness connector.
3. Erase “Self Diagnostic Result” mode of “ABS”.
4. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
5. Start the engine.
6. Select “DATA MONITOR” mode of “ABS”, check “FR LH SENSOR”, “FR RH SENSOR”, “RR LH SENSOR” and “RR RH SENSOR”.
   NOTE:
   Set the “DATA MONITOR” recording speed to “10 msec”.
7. Read the values (wheel speed) of both the normal wheel sensors and malfunctioning wheel sensor.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.

Note the difference at 50 km/h (31 MPH) between the wheel speed detected by the malfunctioning wheel sensor and the maximum/minimum wheel speed detected by the normal wheel sensors, is the difference within 5%, respectively?

YES >> GO TO 10.
NO >> GO TO 20.

10. PERFORM SELF-DIAGNOSIS (2)

CONSULT
1. Stop the vehicle.
2. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
3. Start the engine.
   NOTE:
   Wait at least 10 seconds after start the engine.
4. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1105”, “C1106”, “C1107” or “C1108” detected?

YES >> GO TO 11.
NO >> Inspection End.

11. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.
3. Check the wheel sensor harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 14.
NO >> Repair / replace harness or connector, securely lock the connector, and GO TO 12.

12. CHECK DATA MONITOR (2)

CONSULT
1. Erase “Self Diagnostic Result” mode of “ABS”.
2. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
3. Start the engine.
4. Select “DATA MONITOR” of “ABS”, check “FR LH SENSOR”, “FR RH SENSOR”, “RR LH SENSOR” and “RR RH SENSOR”.
   NOTE:
   Set the “DATA MONITOR” recording speed to “10 msec”.
5. Read the values (wheel speed) of both the normal wheel sensors and malfunctioning wheel sensor.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.

Note the difference at 50 km/h (31 MPH) between the wheel speed detected by the malfunctioning wheel sensor and the maximum/minimum wheel speed detected by the normal wheel sensors, is the difference within 5%, respectively?

YES >> GO TO 13.
NO >> GO TO 14.

13. PERFORM SELF-DIAGNOSIS (3)

CONSULT
1. Stop the vehicle.
2. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
3. Start the engine.
   NOTE:
   Wait at least 10 seconds after start the engine.
4. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1105”, “C1106”, “C1107” or “C1108” detected?

YES >> GO TO 14.
NO >> Inspection End.

14. CHECK TERMINAL

1. Turn the ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector and then check the ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.
3. Disconnect wheel sensor harness connector and check each wheel sensor pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 17.
NO >> Repair / replace harness, connector, or terminal, and GO TO 15.

15. CHECK DATA MONITOR (3)

CONSULT
1. Connect ABS actuator and electric unit (control unit) harness connector.
2. Connect wheel sensor harness connector.
3. Erase “Self Diagnostic Result” of “ABS”.
4. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
5. Start the engine.
6. Select “DATA MONITOR” of “ABS”, check “FR LH SENSOR”, “FR RH SENSOR”, “RR LH SENSOR” and “RR RH SENSOR”.
   NOTE:
   Set the “DATA MONITOR” recording speed to “10 msec”.
7. Read the values (wheel speed) of both the normal wheel sensors and malfunctioning wheel sensor.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.

Note the difference at 50 km/h (31 MPH) between the wheel speed detected by the malfunctioning wheel sensor and the maximum/minimum wheel speed detected by the normal wheel sensors, is the difference within 5%, respectively?

YES >> GO TO 16.
NO >> GO TO 17.

16. PERFORM SELF-DIAGNOSIS (4)

CONSULT
1. Stop the vehicle.
2. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
3. Start the engine.
   NOTE:
   Wait at least 10 seconds after start the engine.
4. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1105”, “C1106”, “C1107” or “C1108” detected?

YES >> GO TO 17.
NO >> Inspection End.

17.CHECK WHEEL SENSOR HARNESS

1. Turn the ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector.
3. Disconnect wheel sensor harness connector.
4. Check the continuity between ABS actuator and electric unit (control unit) harness connector and ground.

Power Supply Circuit

ABS actuator and electric unit (control unit)		—	Continuity
Connector	Terminal		
E125	23	Ground	No
	11		
	13		
	25		

Is the inspection result normal?

YES >> GO TO 18.
NO >> Repair / replace harness or connector, and GO TO 18.

18.CHECK DATA MONITOR (4)

CONSULT
1. Connect ABS actuator and electric unit (control unit) harness connector.
2. Connect wheel sensor harness connector.
3. Erase “Self Diagnostic Result” of “ABS”.
4. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
5. Start the engine.
6. Select “DATA MONITOR” mode of “ABS”, check “FR LH SENSOR”, “FR RH SENSOR”, “RR LH SENSOR” and “RR RH SENSOR”.
   NOTE:
   Set the “DATA MONITOR” recording speed to “10 msec”.
7. Read the values (wheel speed) of both the normal wheel sensors and malfunctioning wheel sensor.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.

Note the difference at 50 km/h (31 MPH) between the wheel speed detected by the malfunctioning wheel sensor and the maximum/minimum wheel speed detected by the normal wheel sensors, is the difference within 5%, respectively?

YES >> GO TO 19.
NO >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".

19.PERFORM SELF-DIAGNOSIS (5)

CONSULT
1. Stop the vehicle.
2. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
3. Start the engine.
   NOTE:
   Wait at least 10 seconds after start the engine.
4. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1105”, “C1106”, “C1107” or “C1108” detected?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".

NO >> Inspection End.

20. REPLACE SENSOR ROTOR

CONSULT

1. Replace the sensor rotor.

- Front: Refer to BRC-179, "Removal and Installation - Front Sensor Rotor".
- Rear: Refer to BRC-179, "Removal and Installation - Rear Sensor Rotor".

2. Erase “Self Diagnostic Result” of “ABS”.
3. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
4. Start the engine.
5. Drive the vehicle at approx. 50 km/h (31 MPH) or more for approx. 2 minutes.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.
6. Stop the vehicle.
7. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
8. Start the engine.
   NOTE:
   Wait at least 10 seconds after start the engine.
9. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1105”, “C1106”, “C1107” or “C1108” detected?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Inspection End.

C1109 POWER AND GROUND SYSTEM

DTC Description

INFOID:0000000012853640

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1109	BATTERY VOLTAGE [ABNORMAL] (Battery voltage [abnormal])	When ignition power supply voltage is in following state: • Ignition power supply voltage: 10 V ≥ ignition power supply voltage. • Ignition power supply voltage: 16 V ≤ ignition power supply voltage.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery • Charge system	• Harness or connector • ABS actuator and electric unit (control unit) • IPDM E/R • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery • Charge system

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

CONSULT
1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1109” detected?

YES-1 >> “C1109” is displayed as “CRNT”: Proceed to BRC-98, "Diagnosis Procedure".
YES-2 >> “C1109” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853641

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair / replace harness or connector, securely lock the connector, and GO TO 2.

2.PERFORM SELF-DIAGNOSIS

1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1109” detected?

YES >> GO TO 3.
NO >> Inspection End.

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

Check the ABS actuator and electric unit (control unit) power supply and ground circuits. Refer to BRC-157, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair / replace harness, connector, fuse, or fusible link.

4.CHECK TERMINAL

1. Check the ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.
2. Check the IPDM E/R pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Repair / replace harness, connector, or terminal.

C1111 ABS MOTOR, MOTOR RELAY SYSTEM

DTC Description

INFOID:0000000012853642

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1111	PUMP MOTOR (Pump motor and motor relay)	When a malfunction is detected in motor or motor relay.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery	• Harness or connector • ABS actuator and electric unit (control unit) • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

CONSULT

1. Turn the ignition switch OFF → ON, and wait 30 seconds.
2. Drive the vehicle at approx. 50 km/h (31 MPH) or more for approx. 2 minutes.
3. Stop the vehicle.
4. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
5. Start the engine.
   NOTE:
   Wait at least 10 seconds after start the engine.
6. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1111” detected?

YES-1 >> “C1111” is displayed as “CRNT”: Proceed to BRC-100, "Diagnosis Procedure".
YES-2 >> “C1111” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853643

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair / replace harness or connector, securely lock the connector, and GO TO 2.

2.PERFORM SELF-DIAGNOSIS

CONSULT
1. Turn the ignition switch OFF → ON, and wait 30 seconds.
2. Start the engine.
3. Drive the vehicle at approx. 50 km/h (31 MPH) or more for approx. 2 minutes.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.
4. Stop the vehicle.
5. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
6. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
7. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1111” detected?

YES >> GO TO 3.
NO >> Inspection End.

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

Check the ABS actuator and electric unit (control unit) power supply and ground circuits. Refer to BRC-157, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair / replace harness, connector, or fuse, and GO TO 4.

4.ERASE SELF-DIAGNOSIS RESULT (1)

CONSULT
1. Start the engine.
2. Drive the vehicle at approx. 50 km/h (31 MPH) or more for approx. 2 minutes.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.
3. Stop the vehicle.
4. Erase “Self Diagnostic Result” of “ABS”.
5. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.

>> Inspection End.

5.CHECK TERMINAL

1. Turn the ignition switch OFF.
2. Check the ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Repair / replace harness or connector, and GO TO 6.

6.ERASE SELF-DIAGNOSIS RESULT (2)

CONSULT
1. Start the engine.
2. Drive the vehicle at approx. 50 km/h (31 MPH) or more for approx. 2 minutes.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.
3. Stop the vehicle.
4. Erase “Self Diagnostic Result” of “ABS”.

5. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.

   >> Inspection End.

C1113, C1145, C1146 YAW RATE/SIDE/DECEL G SENSOR

DTC Description

INFOID:0000000013652080

DTC DETECTION LOGIC

DTC	Display item (Trouble diagnosis content)	Malfunction detected condition
C1113	G-SENSOR (Decel G sensor circuit)	When a malfunction is detected in the longitudinal G sensor internal to the ABS actuator and electric unit (control unit).
C1145	YAW RATE SENSOR (Yaw rate sensor circuit)	When a malfunction is detected in the yaw rate sensor internal to the ABS actuator and electric unit (control unit).
C1146	SIDE G-SEN CIRCUIT (Side G sensor circuit)	When a malfunction is detected in side G sensor internal to the ABS actuator and electric unit (control unit).

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

DTC	PAST DTC	CRNT DTC
C1113	• ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery • Change in vehicle posture (e.g. different tire sizes on front and rear, overload)	• ABS actuator and electric unit (control unit) • Change in vehicle posture (e.g. different tire sizes on front and rear, overload)
C1145 C1146	• ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery	ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

CONSULT
1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Select “Self Diagnostic Result” of “ABS”.

Is DTC “C1113”, “C1145” or “C1146” detected?

YES-1 >> “C1113”, “C1145”, or “C1146” is displayed as “CRNT”: Proceed to BRC-104, "Diagnosis Procedure".
YES-2 >> “C1113”, “C1145”, or “C1146” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000013652081

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

Check the ABS actuator and electric unit (control unit) power supply and ground circuit. Refer to BRC-98, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair / replace harness, connector, fuse, or fusible link.

2.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair / replace harness or connector, securely lock the connector, and GO TO 3.

3.PERFORM SELF-DIAGNOSIS

CONSULT

1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after start the engine.
3. Select “Self Diagnostic Result” of “ABS”.

Is DTC “C1113”, “C1145” or “C1146” detected?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Inspection End.

C1115 WHEEL SENSOR

DTC Description

INFOID:0000000012853644

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1115	ABS SENSOR [ABNORMAL SIGNAL] (Wheel sensor [abnormal signal])	When difference in wheel speed between any wheel and others is detected when the vehicle is driven, because of installation of other tires than specified.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • Wheel sensor • Sensor rotor • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery	• Harness or connector • Wheel sensor • Sensor rotor • ABS actuator and electric unit (control unit) • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery • Tire size

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Start the engine.
2. Drive the vehicle at approx. 50 km/h (31 MPH) or more for approx. 2 minutes.
3. Stop the vehicle.
4. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
5. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
6. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1115” detected?

YES-1 >> “C1115” is displayed as “CRNT”: Proceed to BRC-105, "Diagnosis Procedure".
YES-2 >> “C1115” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853645

CAUTION:
Never check between wheel sensor harness connector terminals.

1.CHECK TIRE

Check the tire air pressure, wear and size. Refer to WT-60, "Tire Air Pressure".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Adjust air pressure or replace tire and GO TO 2.

2.CHECK DATA MONITOR (1)

With CONSULT
1. Erase “Self Diagnostic Result” of “ABS”
2. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
3. Start the engine.
4. Select “DATA MONITOR” of “ABS”, check “FR LH SENSOR”, “FR RH SENSOR”, “RR LH SENSOR” and “RR RH SENSOR”.
   NOTE:
   Set the “DATA MONITOR” recording speed to “10 msec”.
5. Read the values (wheel speed) of both the normal wheel sensors and malfunctioning wheel sensor.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.

Note the difference at 50 km/h (31 MPH) between the wheel speed detected by the malfunctioning wheel sensor and the maximum/minimum wheel speed detected by the normal wheel sensors, is the difference within 5%, respectively?

YES >> GO TO 3.
NO >> GO TO 4.

3.PERFORM SELF-DIAGNOSIS (1)

With CONSULT
1. Stop the vehicle.
2. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
3. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
4. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1115” detected?

YES >> GO TO 4.
NO >> Inspection End.

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

Check the ABS actuator and electric unit (control unit) power supply and ground circuits. Refer to BRC-157, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair / replace harness, connector, fuse, or fusible link.

5.CHECK WHEEL SENSOR AND SENSOR ROTOR

1. Turn the ignition switch OFF.
2. Disconnect wheel sensor harness connector.
3. Remove dust and foreign matter adhered to the wheel sensor and sensor rotor with a vacuum dust collector through the wheel sensor mounting hole.
   CAUTION:
   Install wheel sensor with no backlash and float, and tighten the mounting bolt to the specified torque.
   - **Front: Refer to BRC-175, "Exploded View - Front Wheel Sensor".**
   - **Rear: Refer to BRC-176, "Exploded View - Rear Wheel Sensor".**

>> GO TO 6.

6.CHECK WHEEL SENSOR

Check the wheel sensor for damage.

Is the inspection result normal?

YES >> GO TO 7.
NO >> GO TO 8.

7.CHECK WHEEL SENSOR OUTPUT SIGNAL

1. Disconnect ABS actuator and electric unit (control unit) harness connector.
2. Connect ABS active wheel sensor tester (SST: J-45741-A) to wheel sensor using appropriate adapter.
3. Turn the ABS active wheel sensor tester power switch ON.
   NOTE:
   The green POWER indicator should illuminate. If the POWER indicator does not illuminate, replace the battery in the ABS active wheel sensor tester before proceeding.
4. Spin the wheel of the vehicle by hand and observe the red SENSOR indicator on the ABS active wheel sensor tester. The red SENSOR indicator should flash ON and OFF to indicate an output signal.
   NOTE:
   If the red SENSOR indicator illuminates but does not flash, reverse the polarity of the tester leads and retest.

Does the ABS active wheel sensor tester detect a signal?

YES >> GO TO 11.
NO >> GO TO 8.

8.REPLACE WHEEL SENSOR (1)

With CONSULT
1. Replace the wheel sensor.
- Front: Refer to BRC-175, "Removal and Installation - Front Wheel Sensor".
- Rear: Refer to BRC-177, "Removal and Installation - Rear Wheel Sensor".
2. Connect ABS actuator and electric unit (control unit) harness connector.
3. Erase “Self Diagnostic Result” of “ABS”
4. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
5. Start the engine.
6. Select “DATA MONITOR” of “ABS”, check “FR LH SENSOR”, “FR RH SENSOR”, “RR LH SENSOR” and “RR RH SENSOR”.
   NOTE:
   Set the “DATA MONITOR” recording speed to “10 msec”.
7. Read the values (wheel speed) of both the normal wheel sensors and malfunctioning wheel sensor.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.

Note the difference at 50 km/h (31 MPH) between the wheel speed detected by the malfunctioning wheel sensor and the maximum/minimum wheel speed detected by the normal wheel sensors, is the difference within 5%, respectively?

YES >> GO TO 9.
NO >> GO TO 19.

9.PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Stop the vehicle.
2. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
3. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
4. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1115” detected?

YES >> GO TO 10.
NO >> Inspection End.

10.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.
3. Check the wheel sensor harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 12.
NO >> Repair / replace harness or connector, securely lock the connector, and GO TO 11.

11.CHECK DATA MONITOR (2)

With CONSULT
1. Erase “Self Diagnostic Result” of “ABS”
2. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
3. Start the engine.
4. Select “DATA MONITOR” of “ABS”, check “FR LH SENSOR”, “FR RH SENSOR”, “RR LH SENSOR” and “RR RH SENSOR”.
   NOTE:
   Set the “DATA MONITOR” recording speed to “10 msec”.
5. Read the values (wheel speed) of both the normal wheel sensors and malfunctioning wheel sensor.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.

Note the difference at 50 km/h (31 MPH) between the wheel speed detected by the malfunctioning wheel sensor and the maximum/minimum wheel speed detected by the normal wheel sensors, is the difference within 5%, respectively?

YES >> GO TO 12.
NO >> GO TO 13.

12.PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Stop the vehicle.
2. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
3. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
4. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1115” detected?

YES >> GO TO 13.
NO >> Inspection End.

13.CHECK TERMINAL

1. Turn the ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector and then check the ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.
3. Disconnect wheel sensor harness connector and check each wheel sensor pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 16.
NO >> Repair / replace harness, connector, or terminal, and GO TO 14.

14.CHECK DATA MONITOR (3)

With CONSULT
1. Connect ABS actuator and electric unit (control unit) harness connector.

2. Connect wheel sensor harness connector.
3. Erase “Self Diagnostic Result” of “ABS”
4. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
5. Start the engine.
6. Select “DATA MONITOR” of “ABS”, check “FR LH SENSOR”, “FR RH SENSOR”, “RR LH SENSOR” and “RR RH SENSOR”.
   NOTE:
   Set the “DATA MONITOR” recording speed to “10 msec”.
7. Read the values (wheel speed) of both the normal wheel sensors and malfunctioning wheel sensor.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.

Note the difference at 50 km/h (31 MPH) between the wheel speed detected by the malfunctioning wheel sensor and the maximum/minimum wheel speed detected by the normal wheel sensors, is the difference within 5%, respectively?

YES >> GO TO 15.
NO >> GO TO 16.

15. PERFORM SELF-DIAGNOSIS (4)

With CONSULT

1. Stop the vehicle.
2. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
3. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
4. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1115” detected?

YES >> GO TO 16.
NO >> Inspection End.

16. CHECK WHEEL SENSOR HARNESS

1. Turn the ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector.
3. Disconnect wheel sensor harness connector.
4. Check the continuity between ABS actuator and electric unit (control unit) harness connector and wheel sensor harness connector. (Check the continuity while turning steering wheel left and right, or while moving center harness in wheel housing.)

Power Supply Circuit

ABS actuator and electric unit (control unit)		Wheel sensor			Continuity
Connector	Terminal	Connector		Terminal	
E125	23	E18	(Front LH wheel)	1	Yes
	11	E43	(Front RH wheel)		
	13	C10	(Rear LH wheel)		
	26	C11	(Rear RH wheel)		

Signal Circuit

ABS actuator and electric unit (control unit)		Wheel sensor			Continuity
Connector	Terminal	Connector		Terminal	
E125	24	E18	(Front LH wheel)	2	Yes
	12	E43	(Front RH wheel)		
	14	C10	(Rear LH wheel)		
	25	C11	(Rear RH wheel)		

5. Check the continuity between ABS actuator and electric unit (control unit) harness connector and the ground.

Power Supply Circuit

ABS actuator and electric unit (control unit)		—	Continuity
Connector	Terminal		
E125	23	Ground	No
	11		
	13		
	25		

Is the inspection result normal?

YES >> GO TO 17.
NO >> Repair / replace harness or connector, and GO TO 17.

17. CHECK DATA MONITOR (4)

With CONSULT
1. Connect ABS actuator and electric unit (control unit) harness connector.
2. Connect wheel sensor harness connector.
3. Erase “Self Diagnostic Result” of “ABS”
4. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
5. Start the engine.
6. Select “DATA MONITOR” of “ABS”, check “FR LH SENSOR”, “FR RH SENSOR”, “RR LH SENSOR” and “RR RH SENSOR”.
   NOTE:
   Set the “DATA MONITOR” recording speed to “10 msec”.
7. Read the values (wheel speed) of both the normal wheel sensors and malfunctioning wheel sensor.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.

Note the difference at 50 km/h (31 MPH) between the wheel speed detected by the malfunctioning wheel sensor and the maximum/minimum wheel speed detected by the normal wheel sensors, is the difference within 5%, respectively?

YES >> GO TO 18.
NO >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".

18. PERFORM SELF-DIAGNOSIS (5)

With CONSULT
1. Stop the vehicle.
2. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
3. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
4. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1115” detected?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Inspection End.

19. REPLACE SENSOR ROTOR

With CONSULT
1. Replace the sensor rotor.
- Front: Refer to BRC-179, "Removal and Installation - Front Sensor Rotor".
- Rear: Refer to BRC-179, "Removal and Installation - Rear Sensor Rotor".
2. Erase “Self Diagnostic Result” of “ABS”

3. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
4. Start the engine.
5. Drive the vehicle at approx. 50 km/h (31 MPH) or more for approx. 2 minutes.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.
6. Stop the vehicle.
7. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
8. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
9. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1115” detected?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".

NO >> Inspection End.

C1116 STOP LAMP SWITCH

DTC Description

INFOID:0000000013642353

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1116	STOP LAMP SW (Stop lamp switch)	When stop lamp switch signal is not input when brake pedal operates.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • Stop lamp switch signal circuit	• Harness or connector • Stop lamp switch • ABS actuator and electric unit (control unit) • Resistor (models with ICC system) • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery • Stop lamp relay

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

CONSULT

1. Turn the ignition switch OFF, and wait 10 seconds or more.
2. Start the engine.
   NOTE:
   Stop the vehicle.
3. Wait 1 minute or more.
   NOTE:
   Never depress brake pedal.
4. Depress brake pedal by 100 mm (3.94 in) or more, and maintain at that position for a minimum of 1 minute or more.
5. Release brake pedal, and wait 1 minute or more.
6. Repeat step 4 to 5 ten or more times.
7. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
8. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
9. Select “Self Diagnostic Result” mode of “ABS”.

Is DTC “C1116” detected?

YES-1 >> “C1116” is displayed as “CRNT”: Proceed to BRC-113, "Diagnosis Procedure".
YES-2 >> “C1116” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-52, "Circuit Inspection".

NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000013642354

NOTE:
DTC “C1116” may be detected when the brake pedal and the accelerator pedal are simultaneously depressed for 1 minute or more while driving the vehicle. This is not a malfunction.

1.INTERVIEW FROM THE CUSTOMER

Check if the brake pedal and the accelerator pedal are simultaneously depressed for 1 minute or more while driving the vehicle.

Is there such a history?

YES >> GO TO 2.
NO >> GO TO 3.

2.PERFORM SELF-DIAGNOSIS

CONSULT
1. Erase “Self Diagnostic Result” of “ABS”
2. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
3. Start the engine.
   NOTE:
   Stop the vehicle.
4. Depress the brake pedal several times.
5. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
6. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
7. Select “Self Diagnostic Result” of “ABS”.

Is DTC “C1116” detected?

YES >> GO TO 3.
NO >> Inspection End.

3.STOP LAMP FOR ILLUMINATION

Depress brake pedal and check that stop lamp turns ON.

Does stop lamp turn ON?

YES >> GO TO 5.
NO >> Check the stop lamp system. Refer to BRC-113, "Diagnosis Procedure". GO TO 4.

4.CHECK DATA MONITOR (1)

CONSULT
1. Erase “Self Diagnostic Result” of “ABS”
2. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
3. Start the engine.
   NOTE:
   Stop the vehicle.
4. Select “DATA MONITOR” of “ABS”, check “STOP LAMP SW”. Check that data monitor displays “On” or “Off” when brake pedal is depressed or released. Refer to BRC-42, "Reference Value".
5. Select “DATA MONITOR” of “ABS”, check “PRESS SENSOR”. Check that data monitor displays “5 bar” or less when brake pedal is depressed. Refer to BRC-42, "Reference Value".

Is the inspection result normal?

YES >> Inspection End.
NO >> GO TO 5.

5.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.
3. Check the stop lamp switch harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair / replace harness or connector, and GO TO 6.

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

Check the ABS actuator and electric unit (control unit) power supply and ground circuits. Refer to BRC-98, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Repair / replace harness, connector, fuse, or fusible link.

7.CHECK STOP LAMP SWITCH CLEARANCE

1. Turn the ignition switch OFF.
2. Check the stop lamp switch clearance. Refer to BR-7, "Inspection".

Is the inspection result normal?

YES >> GO TO 9.
NO >> Adjust stop lamp switch clearance. Refer to BR-13, "Adjustment". GO TO 8.

8.CHECK DATA MONITOR (2)

CONSULT
1. Erase “Self Diagnostic Result” of “ABS”
2. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
3. Start the engine.
   NOTE:
   Stop the vehicle.
4. Select “DATA MONITOR” of “ABS”, check “STOP LAMP SW”. Check that data monitor displays “On” or “Off” when brake pedal is depressed or released. Refer to BRC-42, "Reference Value".
5. Select “DATA MONITOR” of “ABS”, check “PRESS SENSOR”. Check that data monitor displays “5 bar” or less when brake pedal is depressed. Refer to BRC-42, "Reference Value".

Is the inspection result normal?

YES >> Inspection End.
NO >> GO TO 9.

9.CHECK STOP LAMP SWITCH

Check the stop lamp switch. Refer to BRC-117, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 10.
NO >> Replace the stop lamp switch. Refer to BR-20, "Exploded View". GO TO 10.

10.CHECK DATA MONITOR (3)

CONSULT
1. Erase “Self Diagnostic Result” of “ABS”
2. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
3. Start the engine.
   NOTE:
   Start the vehicle.
4. Select “DATA MONITOR” of “ABS”, check “STOP LAMP SW”. Check that data monitor displays “On” or “Off” when brake pedal is depressed or released. Refer to BRC-42, "Reference Value".

5. Select “DATA MONITOR” of “ABS”, check “PRESS SENSOR”. Check that data monitor displays “5 bar” or less when brake pedal is depressed. Refer to BRC-42, "Reference Value".

Is the inspection result normal?

YES >> Inspection End.
NO >> GO TO 11.

11. CHECK CONNECTOR AND TERMINAL

1. Turn the ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector.
3. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.
4. Check the ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.
5. Disconnect stop lamp switch harness connector.
6. Check the stop lamp switch harness connector for disconnection or looseness.
7. Check the stop lamp switch pin terminals for damage or loose connection with harness connector.
8. Disconnect resistor harness connector. (Models with ICC)
9. Check the resistor harness connector for disconnection or looseness. (Models with ICC)
10. Check the resistor pin terminals for damage or loose connection with harness connector. (Models with ICC)

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair / replace harness, connector, or terminal, and GO TO 12.

12. CHECK DATA MONITOR (4)

With CONSULT

1. Connect ABS actuator and electric unit (control unit) harness connector.
2. Connect stop lamp switch harness connector.
3. Connect resistor harness connector. (Models with ICC)
4. Erase “Self Diagnostic Result” of “ABS”
5. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
6. Start the engine.
   NOTE:
   Stop the vehicle.
7. Select “DATA MONITOR” of “ABS”, check “STOP LAMP SW”. Check that data monitor displays “On” or “Off” when brake pedal is depressed or released. Refer to BRC-42, "Reference Value".
8. Select “DATA MONITOR” of “ABS”, check “PRESS SENSOR”. Check that data monitor displays “5 bar” or less when brake pedal is depressed. Refer to BRC-42, "Reference Value".

Is the inspection result normal?

YES >> Inspection End.
NO >> GO TO 13.

13. CHECK STOP LAMP SWITCH CIRCUIT (1)

1. Turn the ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector.
3. Check the voltage between ABS actuator and electric unit (control unit) harness connector and ground.

ABS actuator and electric unit (control unit)		—	Condition	Voltage
Connector	Terminal			
E125	7	Ground	Brake pedal depressed	10 – 16 V
			Brake pedal not depressed	Approx. 0 V

4. Turn the ignition switch ON.
5. Check the voltage between ABS actuator and electric unit (control unit) harness connector and ground.

ABS actuator and electric unit (control unit)		—	Condition	Voltage
Connector	Terminal			
E125	7	Ground	Brake pedal depressed	10 – 16 V
			Brake pedal not depressed	Approx. 0 V

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".

NO (Models with ICC)>>Repair / replace harness or connector, and GO TO 14.

NO (Models without ICC)>>Repair / replace harness or connector, and GO TO 15.

14. CHECK STOP LAMP SWITCH CIRCUIT (2) (MODELS WITH ICC)

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

ABS actuator and electric unit (control unit)		Stop lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
E125	7	E38	4	Yes

5. Check the continuity between ABS actuator and electric unit (control unit) harness connector and resistor harness connector.

ABS actuator and electric unit (control unit)		Resistor		Continuity
Connector	Terminal	Connector	Terminal	
E125	7	E56	1	Yes

6. Check the continuity between ABS actuator and electric unit (control unit) harness connector and the ground.

ABS actuator and electric unit (control unit)		—	Continuity
Connector	Terminal		
E125	7	Ground	No

7. Check the continuity between resistor and the ground.

Resistor		—	Continuity
Connector	Terminal		
E56	1	Ground	No
	2		Yes

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".

NO >> Repair / replace harness or connector, and GO TO 16.

15. CHECK STOP LAMP SWITCH CIRCUIT (2) (MODELS WITHOUT ICC)

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

ABS actuator and electric unit (control unit)		Stop lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
E125	7	E38	2	Yes

4. Check the continuity between ABS actuator and electric unit (control unit) harness connector and the ground.

ABS actuator and electric unit (control unit)		—	Continuity
Connector	Terminal		
E125	7	Ground	No

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".

NO >> Repair / replace harness or connector, and GO TO 16.

16. CHECK DATA MONITOR (5)

With CONSULT

1. Connect ABS actuator and electric unit (control unit) harness connector.
2. Connect stop lamp switch harness connector.
3. Connect resistor harness connector. (Models with ICC)
4. Erase “Self Diagnostic Result” of “ABS”
5. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
6. Start the engine.
   NOTE:
   Stop the vehicle.
7. Select “DATA MONITOR” of “ABS”, check “STOP LAMP SW”. Check that data monitor displays “On” or “Off” when brake pedal is depressed or released. Refer to BRC-42, "Reference Value".
8. Select “DATA MONITOR” of “ABS”, check “PRESS SENSOR”. Check that data monitor displays “5 bar” or less when brake pedal is depressed. Refer to BRC-42, "Reference Value".

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".

Component Inspection

INFOID:0000000013642355

1. CHECK STOP LAMP SWITCH

1. Turn the ignition switch OFF.
2. Disconnect stop lamp switch harness connector.
3. Check the continuity when stop lamp switch is operated.

Stop lamp switch	Condition	Continuity
Terminal		
2 – 1	When stop lamp switch is released (When brake pedal is depressed)	Yes
4 – 3	When stop lamp switch is pressed (When brake pedal is released)	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace the stop lamp switch. Refer to BR-20, "Exploded View".

C1120, C1122, C1124, C1126 ABS IN VALVE SYSTEM

DTC Description

INFOID:0000000012853649

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1120	FR LH IN ABS SOL (Front LH ABS IN solenoid valve)	When a malfunction is detected in front LH ABS IN valve.
C1122	FR RH IN ABS SOL (Front RH ABS IN solenoid valve)	When a malfunction is detected in front RH ABS IN valve.
C1124	RR LH IN ABS SOL (Rear LH ABS IN solenoid valve)	When a malfunction is detected in rear LH ABS IN valve.
C1126	RR RH IN ABS SOL (Rear RH ABS IN solenoid valve)	When a malfunction is detected in rear RH ABS IN valve.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery	• Harness or connector • ABS actuator and electric unit (control unit) • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT
1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1120”, “C1122”, “C1124” or “C1126” detected?

YES-1 >> “C1120”, “C1122”, “C1124” or “C1126” is displayed as “CRNT”: Proceed to BRC-118, "Diagnosis Procedure".
YES-2 >> “C1120”, “C1122”, “C1124” or “C1126” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853650

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair / replace harness or connector, securely lock the connector, and GO TO 2.

2.PERFORM SELF-DIAGNOSIS

With CONSULT
1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1120”, “C1122”, “C1124” or “C1126” detected?

YES >> GO TO 3.
NO >> Inspection End.

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

Check the ABS actuator and electric unit (control unit) power supply and ground circuits. Refer to BRC-157, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair / replace harness, connector, fuse, or fusible link.

4.CHECK TERMINAL

Check the ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Repair / replace harness, connector, or terminal.

C1121, C1123, C1125, C1127 ABS OUT VALVE SYSTEM

DTC Description

INFOID:0000000012853651

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1121	FR LH OUT ABS SOL (Front LH ABS OUT solenoid valve)	When a malfunction is detected in front LH ABS OUT valve.
C1123	FR RH OUT ABS SOL (Front RH ABS OUT solenoid valve)	When a malfunction is detected in front RH ABS OUT valve.
C1125	RR LH OUT ABS SOL (Rear LH ABS OUT solenoid valve)	When a malfunction is detected in rear LH ABS OUT valve.
C1127	RR RH OUT ABS SOL (Rear RH ABS OUT solenoid valve)	When a malfunction is detected in rear RH ABS OUT valve.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery	• Harness or connector • ABS actuator and electric unit (control unit) • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1121”, “C1123”, “C1125” or “C1127” detected?

YES-1 >> “C1121”, “C1123”, “C1125” or “C1127” is displayed as “CRNT”: Proceed to BRC-120, "Diagnosis Procedure".
YES-2 >> “C1121”, “C1123”, “C1125” or “C1127” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853652

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair / replace harness or connector, securely lock the connector, and GO TO 2.

2.PERFORM SELF-DIAGNOSIS

1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1121”, “C1123”, “C1125” or “C1127” detected?

YES >> GO TO 3.
NO >> Inspection End.

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

Check the ABS actuator and electric unit (control unit) power supply and ground circuits. Refer to BRC-157, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair / replace harness, connector, fuse, or fusible link.

4.CHECK TERMINAL

Check the ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Repair / replace harness, connector, or terminal.

C1130 ENGINE SIGNAL

DTC Description

INFOID:0000000012853653

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1130	ENGINE SIGNAL 1 (Engine system signal)	When a malfunction is detected in ECM system.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery • CAN communication line	• Harness or connector • ECM • ABS actuator and electric unit (control unit) • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery • CAN communication line

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1130” detected?

YES-1 >> “C1130” is displayed as “CRNT”: Proceed to BRC-122, "Diagnosis Procedure".
YES-2 >> “C1130” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853654

1.CHECK ENGINE SYSTEM

With CONSULT
Perform “Self Diagnostic Result” of “ENGINE”.

Is DTC detected?

YES >> Check the DTC. Refer to EC-112, "DTC Index" (VQ35DE FOR USA AND CANADA) or EC-654, "DTC Index" (VQ35DE FOR MEXICO).
NO >> GO TO 2.

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

Check the ABS actuator and electric unit (control unit) power supply and ground circuits. Refer to BRC-157, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair / replace harness, connector, fuse, or fusible link.

3.CHECK CONNECTOR AND TERMINAL

1. Turn the ignition switch OFF.
2. Disconnect ECM harness connector.
3. Disconnect ABS actuator and electric unit (control unit) harness connector.
4. Check the connector for disconnection or looseness.
5. Check the pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair / replace harness, connector, or terminal, securely lock the connector, and GO TO 4.

4.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

With CONSULT

1. Connect ECM harness connector.
2. Connect ABS actuator and electric unit (control unit) harness connector.
3. Erase “Self Diagnostic Result” of “ABS”
4. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
5. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
6. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1130” or “U1000” detected?

YES (“C1130”)>>GO TO 1.
YES (“U1000”)>>Refer to LAN-28, "Trouble Diagnosis Flow Chart".
NO >> Inspection End.

C1140 ACTUATOR RELAY SYSTEM

DTC Description

INFOID:0000000012853655

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1140	ACTUATOR RLY (Actuator relay)	When a malfunction is detected in actuator relay.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery	• Harness or connector • ABS actuator and electric unit (control unit) • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1140” detected?

YES-1 >> “C1140” is displayed as “CRNT”: Proceed to BRC-124, "Diagnosis Procedure".
YES-2 >> “C1140” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853656

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair / replace harness or connector, securely lock the connector, and GO TO 2.

2.PERFORM SELF-DIAGNOSIS

With CONSULT
1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1140” detected?

YES >> GO TO 3.
NO >> Inspection End.

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

Check the ABS actuator and electric unit (control unit) power supply and ground circuits. Refer to BRC-157, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair / replace harness, connector, fuse, or fusible link.

4. CHECK TERMINAL

Check the ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Repair / replace harness, connector, or terminal.

C1142 PRESS SENSOR

DTC Description

INFOID:0000000012853657

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1142	PRESS SEN CIRCUIT (Pressure sensor circuit)	When a malfunction is detected in pressure sensor.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • Air inclusion in the brake piping • Stop lamp switch system • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery	• Stop lamp switch system • ABS actuator and electric unit (control unit) • Brake system • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery • Air inclusion in the brake piping

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1142” detected?

YES-1 >> “C1142” is displayed as “CRNT”: Proceed to BRC-126, "Diagnosis Procedure".
YES-2 >> “C1142” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853658

1.STOP LAMP SWITCH SYSTEM

Check the stop lamp switch system. Refer to BRC-113, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace stop lamp switch system.

2.CHECK BRAKE FLUID LEAKAGE

Check the brake fluid leakage. Refer to BR-8, "Inspection".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace brake fluid leakage part.

3. CHECK BRAKE PIPING

Check the brake piping. Refer to BR-8, "Inspection".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace brake piping.
- Front: Refer to BR-23, "FRONT : Removal and Installation".
- Rear: Refer to BR-26, "REAR : Removal and Installation".

4. CHECK BRAKE PEDAL

Check the brake pedal.
- Brake pedal height: Refer to BR-7, "Inspection".
- Brake pedal assembly: Refer to BR-20, "Exploded View".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Adjust the brake pedal height or replace brake pedal assembly.
- Adjust the brake pedal: Refer to BR-13, "Adjustment".
- Replace the brake pedal: Refer to BR-20, "Removal and Installation".

5. CHECK BRAKE MASTER CYLINDER

Check the brake master cylinder. Refer to BR-9, "Inspection".

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace brake master cylinder. Refer to BR-28, "Removal and Installation".

6. CHECK BRAKE BOOSTER

Check the brake booster. Refer to BR-10, "Inspection".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Repair or replace brake booster. Refer to BR-31, "Removal and Installation".

7. CHECK VACUUM PIPING

Check the vacuum piping. Refer to BR-34, "Exploded View".

Is the inspection result normal?

YES >> GO TO 8.
NO >> Repair or replace vacuum piping. Refer to BR-34, "Removal and Installation".

8. CHECK FRONT DISC BRAKE

Check the front disc brake caliper. Refer to BR-37, "BRAKE CALIPER ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 9.
NO >> Repair or replace front disc brake caliper. Refer to BR-38, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

9. CHECK REAR DISC BRAKE

Check the rear disc brake. Refer to BR-42, "BRAKE CALIPER ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair or replace rear disc brake. Refer to BR-43, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

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

Check the ABS actuator and electric unit (control unit) power supply and ground circuits. Refer to BRC-157, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 11.
NO >> Repair / replace harness, connector, fuse, or fusible link.

11. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

With CONSULT

1. Erase “Self Diagnostic Result” of “ABS”.
2. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
3. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
4. Start the engine and drive the vehicle for a short period of time.
   NOTE:
   Vehicle must be driven after repair or replacement to erase the previous DTCs.
5. Stop the vehicle.
6. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1142” detected?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Check the ABS actuator and electric unit (control unit) harness connector and terminal for damage, looseness and disconnection. Repair / replace harness, connector, or terminal.

C1143 STEERING ANGLE SENSOR

DTC Description

INFOID:0000000012853659

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1143	ST ANG SEN CIRCUIT (Steering angle sensor circuit)	When a malfunction is detected in steering angle sensor.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery • CAN communication line • Incomplete neutral position adjustment of steering angle sensor • Improper installation of steering angle sensor	• Harness or connector • Steering angle sensor • ABS actuator and electric unit (control unit) • IPDM E/R • CAN communication line • Wheel alignment • Incomplete neutral position adjustment of steering angle sensor • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT
1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1143” detected?

YES-1 >> “C1143” is displayed as “CRNT”: Proceed to BRC-129, "Diagnosis Procedure".
YES-2 >> “C1143” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853660

1.ADJUST THE NEUTRAL POSITION OF STEERING ANGLE SENSOR

With CONSULT
Perform neutral position adjustment of steering angle sensor. Refer to BRC-82, "Description".

>> GO TO 2.

2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT
1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1143” detected?

YES-1 >> “C1143” is displayed as “CRNT”: GO TO 3.
YES-2 >> “C1143” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO >> Inspection End.

3.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.
3. Check the steering angle sensor harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair / replace harness or connector, securely lock the connector, and GO TO 4.

4.PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1143” detected?

YES >> GO TO 5.
NO >> Inspection End.

5.CHECK STEERING ANGLE SENSOR POWER SUPPLY

1. Turn the ignition switch OFF.
2. Disconnect steering angle sensor harness connector.
3. Check the voltage between steering angle sensor harness connector and ground.

Steering angle sensor		—	Voltage (Approx.)
Connector	Terminal		
M54	4	Ground	0 V

4. Turn the ignition switch ON.
   NOTE:
   Start the engine.
5. Check the voltage between steering angle sensor harness connector and ground.

Steering angle sensor		—	Voltage (Approx.)
Connector	Terminal		
M54	4	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 7.
NO >> GO TO 6.

6. CHECK STEERING ANGLE SENSOR POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Check fuse 49 (10A).
3. Disconnect IPDM E/R harness connector.
4. Check the continuity between steering angle sensor harness connector and IPDM E/R harness connector.

Steering angle sensor		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
M54	4	E119	35	Yes

5. Check the continuity between steering angle sensor harness connector and ground.

Steering angle sensor		—	Continuity
Connector	Terminal		
M54	4	Ground	No

Is the inspection result normal?

YES >> Perform trouble diagnosis for ignition power supply.
NO >> Repair / replace harness, connector, or fuse.

7. CHECK STEERING ANGLE SENSOR GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Check the continuity between steering angle sensor harness connector and ground.

Steering angle sensor		—	Continuity
Connector	Terminal		
M54	1	Ground	Yes

Is the inspection result normal?

YES >> GO TO 8.
NO >> Repair / replace harness or connector.

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

Check the ABS actuator and electric unit (control unit) power supply and ground circuits. Refer to BRC-157, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 9.
NO >> Repair / replace harness, connector, fuse, or fusible link.

9. CHECK TERMINAL

1. Check the steering angle sensor pin terminals for damage or loose connection with harness connector.
2. Check the IPDM E/R pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair / replace harness, connector, or terminal.

10. CHECK CAN COMMUNICATION LINE

Check the CAN communication line. Refer to LAN-28, "Trouble Diagnosis Flow Chart".

Is the inspection result normal?

YES >> GO TO 11.
NO >> Repair / replace harness or connector.

11. CHECK DATA MONITOR

With CONSULT
1. Select “DATA MONITOR” of “ABS”, check “STR ANGLE SIG”.

2. Check that the indication changes with the steering angle when the steering wheel is turned left/right from the neutral position. Refer to BRC-42, "Reference Value".

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".

NO >> Replace the steering angle sensor. Refer to BRC-183, "Removal and Installation".

C1144 INCOMPLETE STEERING ANGLE SENSOR ADJUSTMENT

DTC Description

INFOID:0000000012853661

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1144	ST ANG SEN SIGNAL (Steering angle sensor not complete)	When neutral position adjustment of steering angle sensor is not complete.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
Incomplete neutral position adjustment of steering angle sensor	• Harness or connector • Steering angle sensor • ABS actuator and electric unit (control unit) • Incomplete neutral position adjustment of steering angle sensor

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1144” detected?

YES-1 >> “C1144” is displayed as “CRNT”: Proceed to BRC-133, "Diagnosis Procedure".
YES-2 >> “C1144” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853662

1.ADJUST THE NEUTRAL POSITION OF STEERING ANGLE SENSOR

Perform neutral position adjustment of steering angle sensor. Refer to BRC-82, "Description".

>> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

With CONSULT

1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.

2. Start the engine.
NOTE:
Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1144” detected?

YES >> GO TO 3.
NO >> Inspection End.

3.CHECK STEERING ANGLE SENSOR SYSTEM

1. Turn the ignition switch OFF.
2. Check the steering angle sensor system. Refer to BRC-129, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair / replace harness, connector, or terminal.

4.CHECK DATA MONITOR

With CONSULT
1. Select “DATA MONITOR” of “ABS”, check “STR ANGLE SIG”.
2. Check that the indication changes with the steering angle when the steering wheel is turned left/right from the neutral position. Refer to BRC-42, "Reference Value".

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Replace the steering angle sensor. Refer to BRC-183, "Removal and Installation".

C1155 BRAKE FLUID LEVEL SWITCH

DTC Description

INFOID:0000000012853665

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1155	BR FLUID LEVEL LOW (Brake fluid level low)	• When brake fluid level low signal is detected. • When an open circuit is detected in brake fluid level switch circuit.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • Brake fluid level is low	• Harness or connector • ABS actuator and electric unit (control unit) • Brake fluid level switch • Combination meter • Brake fluid level is low

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT
1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1155” detected?

YES-1 >> “C1155” is displayed as “CRNT”: Proceed to BRC-135, "Diagnosis Procedure".
YES-2 >> “C1155” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853666

1.CHECK BRAKE FLUID LEVEL

1. Turn the ignition switch OFF.
2. Check the brake fluid level. Refer to BR-8, "Inspection".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Refill brake fluid. Refer to BR-14, "Drain and Refill". GO TO 2.

2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT
1. Erase “Self Diagnostic Result” of “ABS”

2. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
3. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
4. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1155” detected?

YES >> GO TO 3.
NO >> Inspection End.

3.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the combination meter harness connector for disconnection or looseness.
3. Check the brake fluid level switch harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair / replace harness or connector, and GO TO 4.

4.PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1155” detected?

YES >> GO TO 5.
NO >> Inspection End.

5.CHECK BRAKE FLUID LEVEL SWITCH

Check the brake fluid level switch. Refer to BR-28, "Exploded View".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace the reservoir tank. Refer to BR-28, "Exploded View". GO TO 6.

6.PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Erase “Self Diagnostic Result” of “ABS”
2. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
3. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
4. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1155” detected?

YES >> GO TO 7.
NO >> Inspection End.

7.CHECK CONNECTOR AND TERMINAL

1. Turn the ignition switch OFF.
2. Disconnect brake fluid level switch harness connector.
3. Check the brake fluid level switch harness connector for disconnection or looseness.
4. Check the brake fluid level switch pin terminals for damage or loose connection with harness connector.
5. Disconnect combination meter harness connector.

6. Check the combination meter harness connector for disconnection or looseness.
7. Check the combination meter pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 9.
NO >> Repair / replace harness, connector, or terminal, and GO TO 8.

8. PERFORM SELF-DIAGNOSIS (4)

With CONSULT
1. Erase “Self Diagnostic Result” of “ABS”
2. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
3. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
4. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1155” detected?

YES >> GO TO 9.
NO >> Inspection End.

9. CHECK BRAKE FLUID LEVEL SWITCH CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect brake fluid level switch harness connector.
3. Disconnect combination meter harness connector.
4. Check the continuity between brake fluid level switch harness connector and combination meter harness connector.

Brake fluid level switch		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
E21	1	M24	25	Yes

5. Check the continuity between brake fluid level switch harness connector and ground.

Brake fluid level switch		—	Continuity
Connector	Terminal		
E21	1	Ground	No

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair / replace harness or connector, and GO TO 10.

10. CHECK BRAKE FLUID LEVEL SWITCH GROUND CIRCUIT

Check the continuity between brake fluid level switch harness connector and ground.

Brake fluid level switch		—	Continuity
Connector	Terminal		
E21	2	Ground	Yes

Is the inspection result normal?

YES >> GO TO 11.
NO >> Repair / replace harness or connector, and GO TO 11.

11. CHECK COMBINATION METER

Check the combination meter. Refer to MWI-17, "CONSULT Function (METER/M&A)".

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".

NO >> Repair or replace combination meter. Refer to MWI-94, "Removal and Installation".

Component Inspection

INFOID:0000000012853667

1. CHECK BRAKE FLUID LEVEL SWITCH

1. Turn the ignition switch OFF.
2. Disconnect brake fluid level switch harness connector.
3. Check the continuity between terminals of brake fluid level switch.

Brake fluid level switch	Condition	Continuity
Terminal		
1 – 2	When brake fluid level in reservoir tank is within the specified level.	No
	When brake fluid level in reservoir tank is less than the specified level.	Yes

Is the inspection result normal?

YES >> Inspection End.
NO >> Replace the reservoir tank. Refer to BR-28, "Exploded View".

C1160 INCOMPLETE DECEL G SENSOR CALIBRATION

DTC Description

INFOID:0000000012853668

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1160	DECEL G SEN SET (Decel G sensor set)	When calibration of yaw rate/side/decel G sensor is not complete.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery	• Incomplete calibration of decel G sensor • ABS actuator and electric unit (control unit) • Yaw rate/side/decel G sensor • Harness or connector

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT
1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1160” detected?

YES-1 >> “C1160” is displayed as “CRNT”: Proceed to BRC-139, "Diagnosis Procedure".
YES-2 >> “C1160” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853669

1.DECEL G SENSOR CALIBRATION

Perform decel G sensor calibration. Refer to BRC-84, "Work Procedure".

>> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

With CONSULT
Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1160” detected?

YES >> GO TO 3.
NO >> Inspection End.

3. CHECK YAW RATE/SIDE/DECEL G SENSOR SYSTEM

1. Turn the ignition switch OFF.
2. Check the yaw rate/side/decel G sensor system. Refer to BRC-84, "Work Procedure".

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Inspection End.

C1164, C1165 CV SYSTEM

DTC Description

INFOID:0000000012853670

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1164	CV 1 (Cut valve 1)	When a malfunction is detected in cut valve 1.
C1165	CV 2 (Cut valve 2)	When a malfunction is detected in cut valve 2.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery	• Harness or connector • ABS actuator and electric unit (control unit) • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1164” or “C1165” detected?

YES-1 >> “C1164” or “C1165” is displayed as “CRNT”: Proceed to BRC-141, "Diagnosis Procedure".
YES-2 >> “C1164” or “C1165” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853671

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair / replace harness or connector, securely lock the connector, and GO TO 2.

2.PERFORM SELF-DIAGNOSIS

With CONSULT
Perform “Self Diagnostic Result” of “ABS” again.

Is DTC “C1164” or “C1165” detected?

YES >> GO TO 3.
NO >> Inspection End.

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

Check the ABS actuator and electric unit (control unit) power supply and ground circuits. Refer to BRC-157, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair / replace harness, connector, fuse, or fusible link.

4.CHECK TERMINAL

Check the ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness.

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Repair / replace harness, connector, or terminal.

C1170 VARIANT CODING

DTC Description

INFOID:0000000012853672

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1170	VARIANT CODING (Variant coding)	When the information in ABS actuator and electric unit (control unit) is not the same.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
—	ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1170” detected?

YES-1 >> “C1170” is displayed as “CRNT”: Proceed to BRC-143, "Diagnosis Procedure".
YES-2 >> “C1170” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853673

1.CHECK SELF-DIAGNOSIS RESULTS

With CONSULT

Replace the ABS actuator and electric unit (control unit) even if other DTC are displayed along with “C1170” in “Self Diagnostic Result” of “ABS”.

>> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".

C1197 VACUUM SENSOR

DTC Description

INFOID:0000000012853674

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1197	VACUUM SENSOR (Vacuum sensor)	When a malfunction is detected in vacuum sensor.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery	• Harness or connector • Vacuum sensor (brake booster) • Vacuum piping • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1197” detected?

YES-1 >> “C1197” is displayed as “CRNT”: Proceed to BRC-144, "Diagnosis Procedure".
YES-2 >> “C1197” is displayed as “PAST”: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853675

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the vacuum sensor harness connector for disconnection or looseness.
3. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair / replace harness or connector, and GO TO 2.

2.CHECK BRAKE BOOSTER

1. Turn the ignition switch OFF.

2. Check the brake booster. Refer to BR-10, "Inspection".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the brake booster. Refer to BR-31, "Removal and Installation".

3.CHECK VACUUM PIPING

Check the vacuum piping. Refer to BR-34, "Exploded View".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the vacuum piping. Refer to BR-34, "Removal and Installation".

4.CHECK TERMINAL

1. Turn the ignition switch OFF.
2. Disconnect vacuum sensor harness connector.
3. Check the vacuum sensor pin terminals for damage or loose connection with harness connector.
4. Disconnect ABS actuator and electric unit (control unit) harness connector.
5. Check the ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair / replace harness, connector, or terminal.

5.CHECK VACUUM SENSOR CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect vacuum sensor harness connector.
3. Disconnect ABS actuator and electric unit (control unit) harness connector.
4. Check the continuity between vacuum sensor harness connector and ABS actuator and electric unit (control unit) harness connector.

Vacuum sensor		ABS actuator and electric unit (control unit)		Continuity
Connector	Terminal	Connector	Terminal	
E167	1	E125	22	Yes
	2		20	
	3		21	

5. Check the continuity between vacuum sensor harness connector and ground.

Vacuum sensor		—	Continuity
Connector	Terminal		
E167	1	Ground	No
	2		
	3		

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair / replace harness or connector.

6.REPLACE VACUUM SENSOR

With CONSULT

1. Connect ABS actuator and electric unit (control unit) harness connector.
2. Replace the vacuum sensor.
   CAUTION:
   Always replace brake booster because vacuum sensor cannot be disassembled. Refer to BR-31, "Removal and Installation".
3. Erase “Self Diagnostic Result” of “ABS”.
4. Turn the ignition switch OFF → ON → OFF.
   NOTE:

Wait at least 10 seconds after turning ignition switch OFF or ON.

5. Start engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
6. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1197” detected?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".

NO >> Inspection End.

C1198 VACUUM SENSOR

DTC Description

INFOID:0000000012853676

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1198	VACUUM SEN CIR (Vacuum sensor circuit)	• When an open circuit is detected in vacuum sensor circuit. • When a short circuit is detected in vacuum sensor circuit. • When a malfunction is detected in vacuum sensor noise.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery	• Harness or connector • Vacuum sensor (brake booster) • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT
1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1198” detected?

YES-1 >> “CRNT” is displayed: Proceed to BRC-147, "Diagnosis Procedure".
YES-2 >> “PAST” is displayed: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853677

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the vacuum sensor harness connector for disconnection or looseness.
3. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair / replace harness or connector, and GO TO 2.

2.CHECK TERMINAL

1. Turn the ignition switch OFF.
2. Disconnect vacuum sensor harness connector.
3. Check the vacuum sensor pin terminals for damage or loose connection with harness connector.
4. Disconnect ABS actuator and electric unit (control unit) harness connector.
5. Check the ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair / replace harness, connector, or terminal.

3.CHECK VACUUM SENSOR CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect vacuum sensor harness connector.
3. Disconnect ABS actuator and electric unit (control unit) harness connector.
4. Check the continuity between vacuum sensor harness connector and ABS actuator and electric unit (control unit) harness connector.

Vacuum sensor		ABS actuator and electric unit (control unit)		Continuity
Connector	Terminal	Connector	Terminal	
E167	1	E125	22	Yes
	2		20	
	3		21	

5. Check the continuity between vacuum sensor harness connector and ground.

Vacuum sensor		—	Continuity
Connector	Terminal		
E167	1	Ground	No
	2		
	3		

Is the inspection result normal?

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

4.REPLACE VACUUM SENSOR

With CONSULT
1. Connect ABS actuator and electric unit (control unit) harness connector.
2. Replace the vacuum sensor.
   CAUTION:
   Always replace brake booster because vacuum sensor cannot be disassembled. Refer to BR-31, "Removal and Installation".
3. Erase “Self Diagnostic Result” of “ABS”
4. Turn the ignition switch OFF → ON → OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF or ON.
5. Start engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
6. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1198” detected?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Inspection End.

C1199 BRAKE BOOSTER

DTC Description

INFOID:0000000012853678

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1199	BRAKE BOOSTER (Brake booster)	When brake booster vacuum is approx. 0 kPa (0 mm Hg) during engine running.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery	• Harness or connector • Vacuum sensor (brake booster) • Vacuum piping • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1199” detected?

YES-1 >> “CRNT” is displayed: Proceed to BRC-149, "Diagnosis Procedure".
YES-2 >> “PAST” is displayed: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853679

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the vacuum sensor harness connector for disconnection or looseness.
3. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair / replace harness or connector, and GO TO 2.

2.CHECK BRAKE BOOSTER

1. Turn the ignition switch OFF.
2. Check the brake booster. Refer to BR-10, "Inspection".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the brake booster. Refer to BR-31, "Removal and Installation".

3.CHECK VACUUM PIPING

Check the vacuum piping. Refer to BR-34, "Exploded View".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the vacuum piping. Refer to BR-34, "Removal and Installation".

4.CHECK TERMINAL

1. Turn the ignition switch OFF.
2. Disconnect vacuum sensor harness connector.
3. Check the vacuum sensor pin terminals for damage or loose connection with harness connector.
4. Disconnect ABS actuator and electric unit (control unit) harness connector.
5. Check the ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair / replace harness, connector, or terminal.

5.CHECK VACUUM SENSOR CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect vacuum sensor harness connector.
3. Disconnect ABS actuator and electric unit (control unit) harness connector.
4. Check the continuity between vacuum sensor harness connector and ABS actuator and electric unit (control unit) harness connector.

Vacuum sensor		ABS actuator and electric unit (control unit)		Continuity
Connector	Terminal	Connector	Terminal	
E167	1	E125	22	Yes
	2		20	
	3		21	

5. Check the continuity between vacuum sensor harness connector and ground.

Vacuum sensor		—	Continuity
Connector	Terminal		
E167	1	Ground	No
	2		
	3		

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair / replace harness or connector.

6.REPLACE VACUUM SENSOR

With CONSULT

1. Connect ABS actuator and electric unit (control unit) harness connector.
2. Replace the vacuum sensor.
   CAUTION:
   Always replace brake booster because vacuum sensor cannot be disassembled. Refer to BR-31, "Removal and Installation".
3. Erase “Self Diagnostic Result” of “ABS”
4. Turn the ignition switch OFF → ON → OFF.

NOTE:
Wait at least 10 seconds after turning ignition switch OFF or ON.

5. Start engine.

NOTE:
Wait at least 10 seconds after starting the engine.

6. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C1199” detected?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".

NO >> Inspection End.

C119A VACUUM SENSOR

DTC Description

INFOID:0000000012853680

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C119A	VACUUM SEN VOLT (Vacuum sensor voltage)	When a malfunction is detected in supply power voltage of vacuum sensor.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery	• Harness or connector • Vacuum sensor (brake booster) • ABS actuator and electric unit (control unit) • ABS actuator and electric unit (control unit) power supply system • Fuse • Fusible link • Battery

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “C119A” detected?

YES-1 >> “CRNT” is displayed: Proceed to BRC-152, "Diagnosis Procedure".
YES-2 >> “PAST” is displayed: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident"
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853681

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Check the vacuum sensor harness connector for disconnection or looseness.
3. Check the ABS actuator and electric unit (control unit) harness connector for disconnection or looseness.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair / replace harness or connector, and GO TO 2.

2.CHECK VACUUM SENSOR POWER SUPPLY

1. Turn the ignition switch OFF.
2. Disconnect vacuum sensor harness connector.
3. Check the voltage between vacuum sensor harness connector and ground.

Vacuum sensor		—	Voltage (Approx.)
Connector	Terminal		
E167	3	Ground	0 V

4. Turn the ignition switch ON.
   NOTE:
   Start the engine.
5. Check the voltage between vacuum sensor harness connector and ground.

Vacuum sensor		—	Voltage (Approx.)
Connector	Terminal		
E167	3	Ground	5 V

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 3.

3.CHECK VACUUM SENSOR POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector.
3. Check the continuity between vacuum sensor harness connector and ABS actuator and electric unit (control unit) harness connector.

Vacuum sensor		ABS actuator and electric unit (control unit)		Continuity
Connector	Terminal	Connector	Terminal	
E167	3	E125	21	Yes

4. Check the continuity between vacuum sensor harness connector and ground.

Vacuum sensor		—	Continuity
Connector	Terminal		
E167	3	Ground	No

Is the inspection result normal?

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

4.CHECK VACUUM SENSOR GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Check the continuity between vacuum sensor harness connector and ground.

Vacuum sensor		—	Continuity
Connector	Terminal		
E167	2	Ground	No

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair / replace harness or connector.

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

Check the ABS actuator and electric unit (control unit) power supply and ground circuits. Refer to BRC-157, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair / replace harness, connector, fuse, or fusible link.

6. CHECK TERMINAL

1. Check the vacuum sensor pin terminals for damage or loose connection with harness connector.
2. Check the ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Repair / replace harness, connector, or terminal.

U1000 CAN COMM CIRCUIT

DTC Description

INFOID:0000000012853682

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U1000	CAN COMM CIRCUIT (CAN communication circuit)	When CAN communication signal is not continuously transmitted or received for 2 seconds or more.

POSSIBLE CAUSE

NOTE:
Confirm if DTC is PAST or CRNT. If DTC is CRNT, proceed with Diagnosis Procedure. If DTC is PAST, clear the DTC. Do not replace the ABS actuator and electric unit (control unit) for a PAST DTC.

PAST DTC	CRNT DTC
• Harness or connector • CAN communication line	CAN communication system malfunction

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF.
   NOTE:
   Wait at least 10 seconds after turning ignition switch OFF.
2. Start the engine.
   NOTE:
   Wait at least 10 seconds after starting the engine.
3. Perform “Self Diagnostic Result” of “ABS”.

Is DTC “U1000” detected?

YES-1 >> “CRNT” is displayed: Proceed to BRC-155, "Diagnosis Procedure".
YES-2 >> “PAST” is displayed: Inspection End (Erase “Self Diagnostic Result” of “ABS”).
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012853683

Proceed to LAN-28, "Trouble Diagnosis Flow Chart".

U0424 HVAC CAN CIRCUIT 1

Description

INFOID:0000000012853684

ADAS control unit reads status of signal that is transmitted from A/C auto AMP. to ADAS control unit.

DTC Logic

INFOID:0000000012853685

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
U0424	HVAC CAN CIR 1	When signal that is transmitted from A/C auto AMP. is not the latest information	A/C auto AMP.

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

With CONSULT.
1. Turn the ignition switch ON.
2. Perform self-diagnostic result for “ICC/ADAS”.

Is DTC U0424 detected?

YES >> Proceed to diagnosis procedure. Refer to BRC-156, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000012853686

1.PERFORM ADAS CONTROL UNIT SELF-DIAGNOSIS

With CONSULT
Perform self-diagnosis for “ICC/ADAS”.

Are DTC “U1010” and “U0424” simultaneously detected?

YES >> Refer to BRC-155, "Diagnosis Procedure".
NO >> Replace A/C auto AMP. Refer to HAC-160, "Removal and Installation".

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:0000000012853687

1.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) IGNITION POWER SUPPLY (1)

1. Turn the ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector.
3. Check the voltage between ABS actuator and electric unit (control unit) harness connector and ground.

ABS actuator and electric unit (control unit)		—	Voltage (Approx.)
Connector	Terminal		
E125	28	Ground	0 V

4. Turn the ignition switch ON
   NOTE:
   Start the engine.
5. Check the voltage between ABS actuator and electric unit (control unit) harness connector and ground.

ABS actuator and electric unit (control unit)		—	Voltage (Approx.)
Connector	Terminal		
E125	28	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.
NO >> GO TO 2.

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

1. Turn the ignition switch OFF.
2. Check the 10A fuse (49).
3. Disconnect IPDM E/R harness connector.
4. Check the continuity between ABS actuator and electric unit (control unit) harness connector and IPDM E/R.

ABS actuator and electric unit (control unit)		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
E125	28	E119	35	Yes

5. Check the continuity between ABS actuator and electric unit (control unit) harness connector and ground.

ABS actuator and electric unit (control unit)		—	Continuity
Connector	Terminal		
E125	28	Ground	No

Is the inspection result normal?

YES >> Perform trouble diagnosis for ignition power supply.
NO >> Repair / replace harness, connector, or fuse.

3.CHECK MOTOR AND MOTOR RELAY POWER SUPPLY

1. Turn the ignition switch OFF.
2. Check the voltage between ABS actuator and electric unit (control unit) harness connector and ground.

ABS actuator and electric unit (control unit)		—	Voltage (Approx.)
Connector	Terminal		
E125	3	Ground	Battery voltage

3. Turn the ignition switch ON.
   NOTE:

Start the engine.

4. Check the voltage between ABS actuator and electric unit (control unit) harness connector and ground.

ABS actuator and electric unit (control unit)		—	Voltage (Approx.)
Connector	Terminal		
E125	3	Ground	Battery voltage

Is the inspection result normal?

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

4. CHECK MOTOR AND MOTOR RELAY POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Check the 50A fusible link (I).
3. Check the continuity and short circuit between ABS actuator and electric unit (control unit) harness connector terminal 4 and 50A fusible link (I).

Is the inspection result normal?

YES >> Perform trouble diagnosis for battery power supply.
NO >> Repair / replace harness, connector, or fusible link.

5. CHECK ACTUATOR RELAY, ABS IN VALVE, ABS OUT VALVE POWER SUPPLY

1. Turn the ignition switch OFF.
2. Check the voltage between ABS actuator and electric unit (control unit) harness connector and ground.

ABS actuator and electric unit (control unit)		—	Voltage (Approx.)
Connector	Terminal		
E125	1	Ground	Battery voltage

3. Turn the ignition switch ON
NOTE:
Start the engine.
4. Check the voltage between ABS actuator and electric unit (control unit) harness connector and ground.

ABS actuator and electric unit (control unit)		—	Voltage (Approx.)
Connector	Terminal		
E125	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 7.
NO >> GO TO 6.

6. CHECK ACTUATOR RELAY, ABS IN VALVE, ABS OUT VALVE POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Check the 30A fusible link (J).
3. Check the continuity and short circuit between ABS actuator and electric unit (control unit) harness connector terminal 3 and 30A fusible link (J).

Is the inspection result normal?

YES >> Perform trouble diagnosis for battery power supply.
NO >> Repair / replace harness, connector, or fusible link.

7. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) GROUND CIRCUIT

Check the continuity between ABS actuator and electric unit (control unit) harness connector and the ground.

ABS actuator and electric unit (control unit)		—	Continuity
Connector	Terminal		
E125	4	Ground	Yes
	2		

Is the inspection result normal?

YES >> GO TO 8.
NO >> Repair / replace harness, connector, or terminal.

8.CHECK TERMINAL

1. Check the ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.
2. Check the IPDM E/R pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Repair / replace harness, connector, or terminal.

PARKING BRAKE SWITCH

Component Function Check

INFOID:0000000012853688

1.COMBINATION METER INPUT SIGNAL

1. Start engine.
2. Check PKB SW in DATA MONITOR while applying and releasing the parking brake.

Condition	CONSULT
Parking brake applied	: ON
Parking brake released	: OFF

>> Inspection End.

Diagnosis Procedure

INFOID:0000000012853689

Regarding Wiring Diagram information, refer toMWI-29, "Wiring Diagram - With Automatic Drive Positioner" or MWI-48, "Wiring Diagram - Without Automatic Drive Positioner".

1.CHECK PARKING BRAKE SWITCH CIRCUIT

1. Disconnect combination meter harness connector M24 and parking brake switch harness connector E52.
2. Check continuity between combination meter harness connector M24 terminal 12 and parking brake switch harness connector E52 terminal 1.

12 - 1	**: Continuity should exist.**

3. Check continuity between combination meter harness connector M24 terminal 12 and ground.

12 - Ground	**: Continuity should not exist.**

Is the inspection result normal?

YES >> Inspection End.
NO >> Repair or replace harness or connectors.

Component Inspection

INFOID:0000000012853690

1.CHECK PARKING BRAKE SWITCH

Check continuity between parking brake switch terminal 1 and switch case ground.

Component	Terminal	Condition	Continuity
Parking brake switch	1	Parking brake applied	Yes
		Parking brake released	No

Is the inspection result normal?

YES >> Inspection End.
NO >> Replace parking brake switch. Refer to PB-7, "Exploded View".

VDC OFF SWITCH

Component Function Check

INFOID:0000000012853691

1.CHECK VDC OFF SWITCH OPERATION

Check that VDC OFF indicator lamp in combination meter turns ON/OFF when VDC OFF switch is operated.

Is the inspection result normal?

YES >> Inspection End.
NO >> Proceed to diagnosis procedure. Refer to BRC-161, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000012853692

Regarding Wiring Diagram information, refer to BRC-60, "Wiring Diagram".

1.CONNECTOR INSPECTION

1. Turn ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) connector E125 and VDC OFF switch connector M71.
3. Check connectors and terminals for deformation, disconnection, looseness or damage.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace as necessary.

2.CHECK VDC OFF SWITCH

Check VDC OFF switch. Refer to BRC-162, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace VDC OFF switch.

3.CHECK VDC OFF SWITCH SIGNAL

With CONSULT.

1. Connect ABS actuator and electric unit (control unit) connector E125 and VDC OFF switch connector M71.
2. Turn ignition switch ON.
3. In “DATA MONITOR” select “OFF SW” and check VDC OFF switch signal.

Condition	DATA MONITOR
VDC OFF switch is pressed and released	On
VDC OFF switch is pressed and released again	Off

Is the inspection result normal?

YES >> Refer to BRC-78, "Work Flow".
NO >> GO TO 4.

4.CHECK VDC OFF SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) connector E125 and VDC OFF switch connector M71.
3. Check continuity between ABS actuator and electric unit (control unit) connector E125 terminal 30 and VDC OFF switch connector M71 terminal 1.

ABS actuator and electric unit (control unit)		VDC OFF switch		Continuity
Connector	Terminal	Connector	Terminal	
E125	9	M71	1	Yes

4. Check continuity between ABS actuator and electric unit (control unit) connector terminal E125 terminal 30 and ground.

ABS actuator and electric unit (control unit)		—	Continuity
Connector	Terminal		
E125	9	Ground	No

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning components.

5.CHECK VDC OFF SWITCH GROUND CIRCUIT

Check continuity between VDC OFF switch connector M71 terminal 2 and ground.

VDC OFF switch		—	Continuity
Connector	Terminal		
M71	2	Ground	Yes

Is the inspection result normal?

YES >> Replace ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Repair or replace malfunctioning components.

Component Inspection

INFOID:0000000012853693

1.CHECK VDC OFF SWITCH

1. Turn ignition switch OFF.
2. Disconnect VDC OFF switch connector.
3. Check continuity between terminals of VDC OFF switch connector.

VDC OFF switch terminals	Condition	Continuity
1 – 2	VDC OFF switch pressed	Yes
	VDC OFF switch released	No

Is the inspection result normal?

YES >> Inspection End.
NO >> Replace VDC OFF switch.

ABS WARNING LAMP

Component Function Check

INFOID:0000000012853694

1.CHECK ABS WARNING LAMP FUNCTION

Check that ABS warning lamp in combination meter turns ON for approximately 2 seconds after ignition switch is turned ON.

Is the inspection result normal?

YES >> Inspection End.
NO >> Proceed to diagnosis procedure. Refer to BRC-163, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000012853695

1.PERFORM THE SELF-DIAGNOSIS

With CONSULT.
Perform self-diagnostic result.

Are any DTCs detected?

YES >> Refer to BRC-47, "DTC Index".
NO >> GO TO 2.

2.CHECK COMBINATION METER

Check if indication and operation of combination meter are normal. Refer to MWI-9, "METER SYSTEM : System Description".

Is the inspection result normal?

YES >> Replace ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Replace combination meter. Refer to MWI-94, "Removal and Installation".

BRAKE WARNING LAMP

Component Function Check

INFOID:0000000012853696

1.CHECK BRAKE WARNING LAMP FUNCTION (1)

Check that brake warning lamp in combination meter turns ON for approximately 2 seconds after ignition switch is turned ON.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Proceed to diagnosis procedure. Refer to BRC-164, "Diagnosis Procedure".

2.CHECK BRAKE WARNING LAMP FUNCTION (2)

Check that brake warning lamp in combination meter turns ON/OFF when parking brake is operated.

Is the inspection result normal?

YES >> Inspection End.
NO >> Check parking brake switch system. Refer to MWI-82, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000012853697

1.PERFORM THE SELF-DIAGNOSIS

With CONSULT.
Perform self-diagnostic result.

Are any DTCs detected?

YES >> Refer to BRC-47, "DTC Index".
NO >> GO TO 2.

2.CHECK COMBINATION METER

Check if indication and operation of combination meter are normal. Refer to MWI-9, "METER SYSTEM : System Description".

Is the inspection result normal?

YES >> Replace ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Replace combination meter. Refer to MWI-94, "Removal and Installation".

VDC OFF INDICATOR LAMP

Component Function Check

INFOID:0000000012853698

1.CHECK VDC OFF INDICATOR LAMP FUNCTION (1)

Check that VDC OFF indicator lamp in combination meter turns ON for approximately 2 seconds after ignition switch is turned ON.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Proceed to diagnosis procedure. Refer to BRC-165, "Diagnosis Procedure"

2.CHECK VDC OFF INDICATOR LAMP FUNCTION (2)

Check that VDC OFF indicator lamp in combination meter turns ON/OFF when VDC OFF switch is operated.

Is the inspection result normal?

YES >> Inspection End.
NO >> Check VDC OFF switch. Refer to BRC-161, "Diagnosis Procedure"

Diagnosis Procedure

INFOID:0000000012853699

1.PERFORM THE SELF-DIAGNOSIS

With CONSULT.
Perform self diagnostic result.

Are any DTCs detected?

YES >> Refer to BRC-47, "DTC Index".
NO >> GO TO 2.

2.CHECK COMBINATION METER

Check if indication and operation of combination meter are normal. Refer to MWI-9, "METER SYSTEM : System Description".

Is the inspection result normal?

YES >> Replace ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Replace combination meter. Refer to MWI-94, "Removal and Installation".

SLIP INDICATOR LAMP

Component Function Check

INFOID:0000000012853700

1.CHECK SLIP INDICATOR LAMP FUNCTION

Check that slip indicator lamp in combination meter turns ON for approximately 2 seconds after ignition switch is turned ON.

Is the inspection result normal?

YES >> Inspection End.
NO >> Proceed to diagnosis procedure. Refer to BRC-166, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000012853701

1.PERFORM THE SELF-DIAGNOSIS

With CONSULT.
Perform self diagnostic result.

Are any DTCs detected?

YES >> Refer to BRC-47, "DTC Index".
NO >> GO TO 2.

2.CHECK COMBINATION METER

Check if indication and operation of combination meter are normal. Refer to MWI-9, "METER SYSTEM : System Description".

Is the inspection result normal?

YES >> Replace ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".
NO >> Replace combination meter. Refer to MWI-94, "Removal and Installation".

SYMPTOM DIAGNOSIS

VDC/TCS/ABS

Symptom Table

INFOID:0000000012853702

If ABS warning lamp, VDC OFF indicator lamp and SLIP indicator lamp turn ON, perform self-diagnosis.

Symptom	Check item	Reference
Excessive ABS function operation frequency	Brake force distribution	BRC-168, "Diagnosis Procedure"
	Looseness of front and rear axle	
	Wheel sensor and rotor system	
Unexpected pedal reaction	Brake pedal stroke	BRC-169, "Diagnosis Procedure"
	Make sure the braking force is sufficient when the ABS is not operating.	
The braking distance is long	Check stopping distance when the ABS is not operating.	BRC-170, "Diagnosis Procedure"
ABS function does not operate (Note 1)	ABS actuator and electric unit (control unit)	BRC-171, "Diagnosis Procedure"
Pedal vibration or ABS operation sound occurs (Note 2)	Brake pedal	BRC-172, "Diagnosis Procedure"
	ABS actuator and electric unit (control unit)	
Vehicle jerks during VDC/TCS/ABS control	ABS actuator and electric unit (control unit)	BRC-173, "Diagnosis Procedure"
	TCM	
	ECM	

NOTE:

- 1: The ABS does not operate when the speed is 10 km/h (6 MPH) or less.
- 2: Under the following conditions, ABS is activated and vibration is felt when brake pedal is lightly depressed (just place a foot on it). However, this is normal.

- When shifting gears
- When driving on slippery road
- During cornering at high speed
- When passing over bumps or grooves [approximately 50 mm (1.97 in) or more]
- When pulling away just after starting engine [at approximately 10 km/h (6 MPH) or higher]

EXCESSIVE OPERATION FREQUENCY

Description

INFOID:0000000012853703

VDC function, TCS function, ABS function, EBD function, hill start assist function or Brake force distribution function operates in excessive operation frequency.

Diagnosis Procedure

INFOID:0000000012853704

1.CHECK BRAKING FORCE

Check brake force using a brake tester.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Check brake system.

2.CHECK FRONT AND REAR AXLE

Check that there is no excessive looseness in front and rear axle.
- Front axle: Refer to FAX-7, "Inspection".
- Rear axle: Refer to RAX-6, "Inspection".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning components.

3.CHECK WHEEL SENSOR

Check wheel sensor.
- Check installation and damage of wheel sensor.
- Check connection of wheel sensor harness connector.
- Check terminal of wheel sensor harness connector.

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair installation or replace wheel sensor.
- Front wheel sensor: Refer to BRC-175, "Removal and Installation - Front Wheel Sensor".
- Rear wheel sensor: Refer to BRC-177, "Removal and Installation - Rear Wheel Sensor".

4.CHECK SENSOR ROTOR

Check that there is no looseness, damage or foreign material on sensor rotor.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair installation or replace sensor rotor.
- Front sensor rotor: Refer to BRC-179, "Removal and Installation - Front Sensor Rotor".
- Rear sensor rotor: Refer to BRC-179, "Removal and Installation - Rear Sensor Rotor".

5.CHECK WARNING LAMP TURNS OFF

Check that ABS warning lamp, brake warning lamp and VDC warning lamp turn OFF approx. 1 second after key switch is turned ON and stay in OFF status during driving.

CAUTION:

Brake warning lamp turns ON when parking brake is operated (parking brake switch is ON) or brake fluid is less than the specified level (brake fluid level switch is ON).

Is the inspection result normal?

YES >> Inspection End.
NO >> Perform self-diagnosis result. Refer to BRC-37, "CONSULT Function".

UNEXPECTED BRAKE PEDAL REACTION

Description

INFOID:0000000012853705

A malfunction of brake pedal feel (height or others) is detected when brake pedal is depressed.

Diagnosis Procedure

INFOID:0000000012853706

1.CHECK FRONT AND REAR AXLE

Check that there is no excessive looseness in front and rear axle.
- Front axle: Refer to FAX-7, "Inspection".
- Rear axle: Refer to RAX-6, "Inspection".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning components.

2.CHECK DISC ROTOR

Check disc rotor runout.
- Front: Refer to BR-11, "DISC ROTOR : Inspection".
- Rear: Refer to BR-12, "DISC ROTOR : Inspection".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Refinish the disc rotor.

3.CHECK BRAKE FLUID LEAKAGE

Check fluid leakage. Refer to BR-8, "Inspection"

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace malfunctioning components.

4.CHECK BRAKE PEDAL

Check brake pedal. Refer to BR-7, "Inspection".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Adjust brake pedal. Refer to BR-13, "Adjustment".

5.CHECK BRAKING FORCE

Check brake force using a brake tester.

Is the inspection result normal?

YES >> GO TO 6.
NO >> Check brake system.

6.CHECK BRAKE PERFORMANCE

Disconnect ABS actuator and electric unit (control unit) connector so that ABS does not operate. Check that brake force is normal in this condition. Connect harness connectors after checking.

Is the inspection result normal?

YES >> Inspection End.
NO >> Check brake system.

THE BRAKING DISTANCE IS LONG

Description

INFOID:0000000012853707

Brake stopping distance is long when ABS function is operated.

Diagnosis Procedure

INFOID:0000000012853708

CAUTION:

Brake stopping distance on slippery roads like a rough road, gravel road or snowy road may become longer when ABS is operated than when ABS is not operated.

1.CHECK BRAKING FORCE

Check brake force using a brake tester.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Check brake system.

2.CHECK BRAKE PERFORMANCE

Disconnect ABS actuator and electric unit (control unit) connector so that ABS does not operate. Check brake stopping distance in this condition. Connect harness connectors after checking.

Is the inspection result normal?

YES >> Inspection End.
NO >> Check brake system.

ABS FUNCTION DOES NOT OPERATE

Description

INFOID:0000000012853709

VDC function, TCS function, ABS function, EBD function, hill start assist function or Brake force distribution function does not operate.

Diagnosis Procedure

INFOID:0000000012853710

CAUTION:

- **VDC function, TCS function, ABS function, EBD function, hill start assist function and Brake force distribution function never operate when the vehicle speed is 10 km/h (6.2 MPH) or less. However, hill start assist function operates when the vehicle speed is 0 km/h (0 MPH) (the vehicle is in stop status).**
- **VDC function and TCS function never operate when VDC OFF switch is operated (when VDC OFF indicator lamp turns ON).**

1. CHECK ABS WARNING LAMP

Check that ABS warning lamp, brake warning lamp and VDC warning lamp turn ON and turn OFF approx. 1 second after key switch is turned ON. Check that ABS warning lamp, brake warning lamp and VDC warning lamp and stay in OFF status during driving.

CAUTION:

Brake warning lamp turns ON when parking brake is operated (parking brake switch is ON) or brake fluid is less than the specified level (brake fluid level switch is ON).

Is the inspection result normal?

YES >> Inspection End.
NO >> Perform self-diagnosis result. Refer to BRC-37, "CONSULT Function".

BRAKE PEDAL VIBRATION OR OPERATION SOUND OCCURS

Description

INFOID:0000000012853711

- Brake pedal vibrates and motor sound from ABS actuator and electric unit (control unit) occurs when the engine starts.
- Brake pedal vibrates during braking.

CAUTION:

Vibration may be felt during brake pedal is lightly depressed (just placing a foot on it) in the following conditions. This is normal.

- **When shifting gears**
- **When driving on slippery road**
- **During cornering at high speed**
- **When passing over bumps or grooves [Approx. 50 mm (1.97 in) or more]**
- **When pulling away just after starting engine [at approx. 10 km/h (6.2 MPH) or higher]**

Diagnosis Procedure

INFOID:0000000012853712

1.SYMPTOM CHECK 1

Check that there are pedal vibrations when the engine is started.

Do vibrations occur?

YES >> GO TO 2.
NO >> Check brake pedal. Refer to BR-7, "Inspection".

2.SYMPTOM CHECK 2

Check that motor sound from ABS actuator occurs when the engine starts.

Does the operation sound occur?

YES >> GO TO 3.
NO >> Perform self-diagnosis result. Refer to BRC-37, "CONSULT Function".

3.SYMPTOM CHECK 3

Check symptoms when electrical component (head lamps, etc.) switches are operated.

Does the symptom occur?

YES >> Check that radio (including wiring), antenna and antenna lead-in wires are not located near ABS actuator and electric unit (control unit). Move them if they are located near ABS actuator and electric unit (control unit).
NO >> Inspection End.

VEHICLE JERKS DURING VDC/TCS/ABS CONTROL

Description

INFOID:0000000012853713

The vehicle jerks when VDC function, TCS function, ABS function, EBD function, hill start assist function or Brake force distribution function operates.

Diagnosis Procedure

INFOID:0000000012853714

1.CHECK SYMPTOM

Check that the vehicle jerks when VDC function, TCS function, ABS function, EBD function, hill start assist function or Brake force distribution function operates.

Is the inspection result normal?

YES >> Inspection End.
NO >> GO TO 2.

2.PERFORM THE SELF-DIAGNOSIS

With CONSULT
Perform self-diagnosis result. Refer to BRC-37, "CONSULT Function".

Is any DTC detected?

YES >> Check the DTC. Refer to BRC-47, "DTC Index".
NO >> GO TO 3.

3.CHECK CONNECTOR

With CONSULT
1. Turn the ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector.
3. Check connector terminal for deformation, disconnection and looseness.
4. Connect harness connector and perform self-diagnosis result. Refer to BRC-37, "CONSULT Function".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace connector terminal.

4.CHECK ECM AND TCM SELF-DIAGNOSIS RESULTS

With CONSULT
Perform self-diagnosis result for “ENGINE” and “TRANSMISSION”.

Is any DTC detected?

YES >> Check the DTC.
NO >> Replace ABS actuator and electric unit (control unit). Refer to BRC-180, "Removal and Installation".

NORMAL OPERATING CONDITION

Description

INFOID:0000000012853715

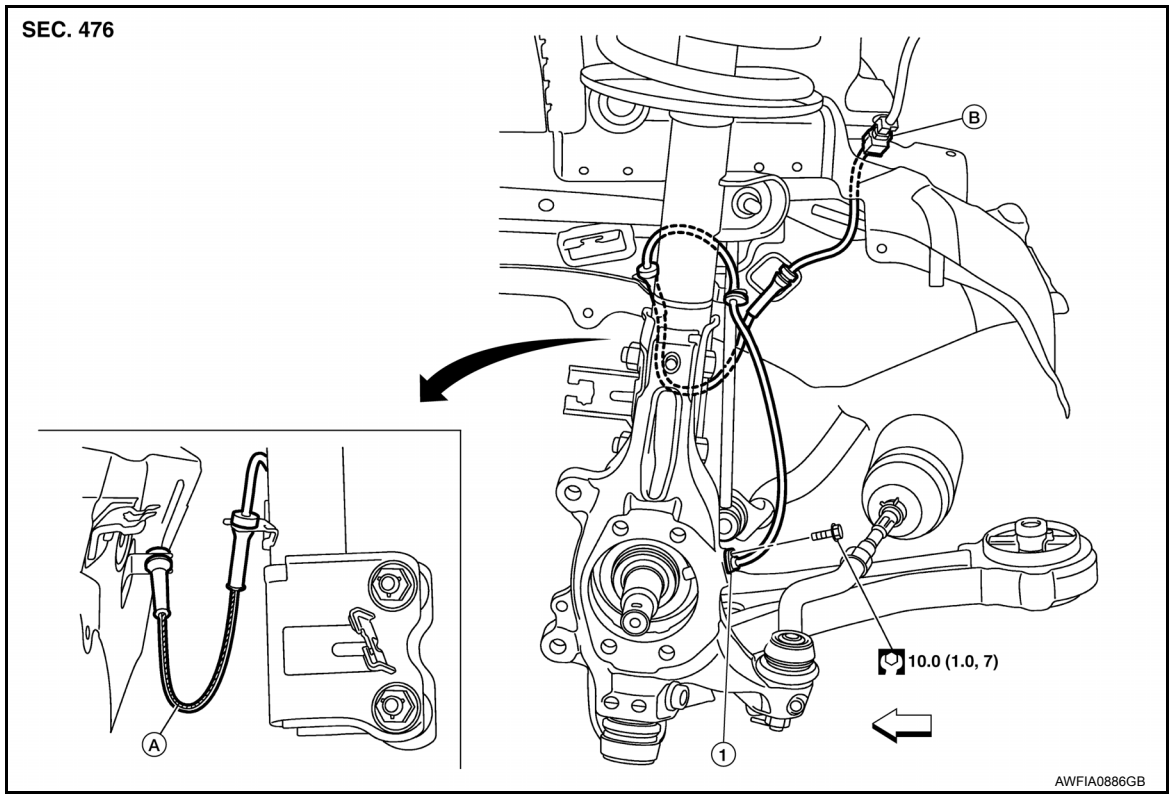
Symptom	Result
Brake pedal slightly vibrates and operation sound (motor sound and sound from suspension) occurs when VDC function, TCS function, ABS function, EBD function, hill start assist function, Brake force distribution function or Active trace control function operates.	This is not a malfunction, because it is caused by VDC function, TCS function, ABS function, EBD function, hill start assist function, Brake force distribution function and Active trace control function that are normally operated.
Brake stopping distance may become longer than models without ABS function depending on the road conditions, when ABS function is operated on slippery road like rough road, gravel road or snowy road.	
Brake pedal vibrates and operation sound occurs during sudden acceleration and cornering, when VDC function, TCS function, Brake force distribution function or Active trace control function is operated.	
Brake pedal vibrates and motor sound from the engine room occurs when the engine starts or the vehicle starts just after starting the engine.	This is not a malfunction because it is caused by operation check of ABS actuator and electric unit (control unit).
Acceleration may be felt insufficient depending on the road conditions.	This is not a malfunction because it is caused by TCS function that puts the highest priority to obtain the optimum traction (stability).
TCS function may operate momentarily while driving on a road where friction coefficient varies or when downshifting or fully depressing accelerator pedal.	
ABS warning lamp and VDC warning lamp may turn ON when the vehicle is on a rotating turntable or is given a strong shaking or large vibrations on a ship while the engine is running.	In this case, restart the engine on a normal road. If the normal condition is restored, there is no malfunction. In that case, erase “ABS” self-diagnosis result memory with CONSULT.
VDC warning lamp may turn ON and VDC function, TCS function, Brake force distribution function and Active trace control function may not normally operate, when driving on a special road the is extremely slanted (bank in a circuit course).	
A malfunction in yaw rate/side/decel G sensor system may be detected when the vehicle sharply turns during a spin turn, acceleration turn or drift driving while VDC function, TCS function, Brake force distribution function and Active trace control function are OFF (VDC OFF switch is pressed and VDC OFF indicator lamp is in ON status).	
The vehicle speed does not increase when the accelerator pedal is depressed while the vehicle is on a 2-wheel chassis dynamometer for speedometer check.	This is normal. (When checking the vehicle on a chassis dynamometer, operate VDC OFF switch so that TCS function is OFF.)

UNIT REMOVAL AND INSTALLATION

WHEEL SENSOR

Exploded View - Front Wheel Sensor

INFOID:0000000012853716



1. Front wheel sensor
A. Color line (slant line)
B. Front wheel sensor connector
⇦ Front

Removal and Installation - Front Wheel Sensor

INFOID:0000000012853717

CAUTION:

- **Be careful not to damage front wheel sensor edge and sensor rotor teeth.**
- **When removing the front wheel hub and bearing, first remove the front wheel sensor from the steering knuckle. Failure to do so may result in damage to the front wheel sensor wires making the front wheel sensor inoperative.**
- **Pull out the front wheel sensor, being careful to turn it as little as possible. Do not pull on the front wheel sensor harness.**
- **Before installation, check if foreign objects such as iron fragments are adhered to the pick-up part of the front wheel sensor or to the inside of the hole in the steering knuckle for the front wheel sensor, or if a foreign object is caught in the surface of the mating surface for the sensor rotor. Fix as necessary and then install the front wheel sensor.**

REMOVAL

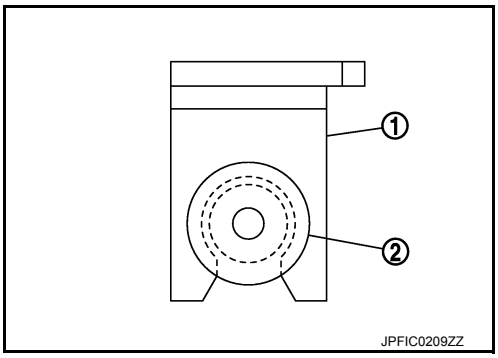
1. Remove the front wheel and tire using power tool. Refer to WT-52, "Adjustment".
2. Partially remove the fender protector to gain access to the wheel sensor connector.
3. Disconnect the front wheel sensor harness connector.
4. Remove the front wheel sensor bolt.
5. Remove the front wheel sensor from the strut bracket and body brackets.
6. Remove the front wheel sensor from the steering knuckle.

INSTALLATION

Installation is in the reverse order of the removal.

CAUTION:

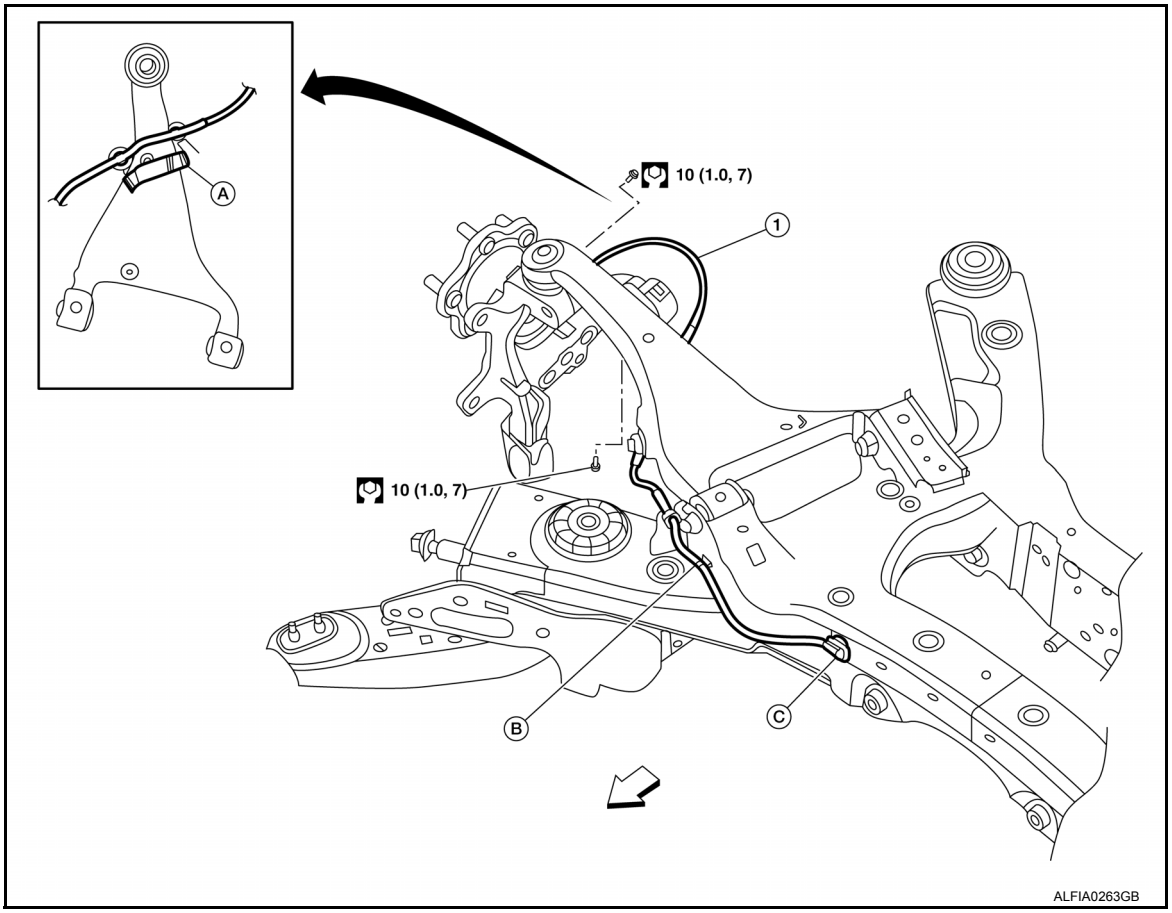
- **When installing, make sure there is no foreign material such as iron chips on and in the hole in the steering knuckle for the front wheel sensor. Make sure no foreign material has been caught in the sensor rotor. Remove any foreign material and clean the mount.**
- **Do not twist front wheel sensor harness when installing front wheel sensor. Check that grommet (2) is fully inserted to bracket (1). Check that front wheel sensor harness is not twisted after installation.**



Exploded View - Rear Wheel Sensor

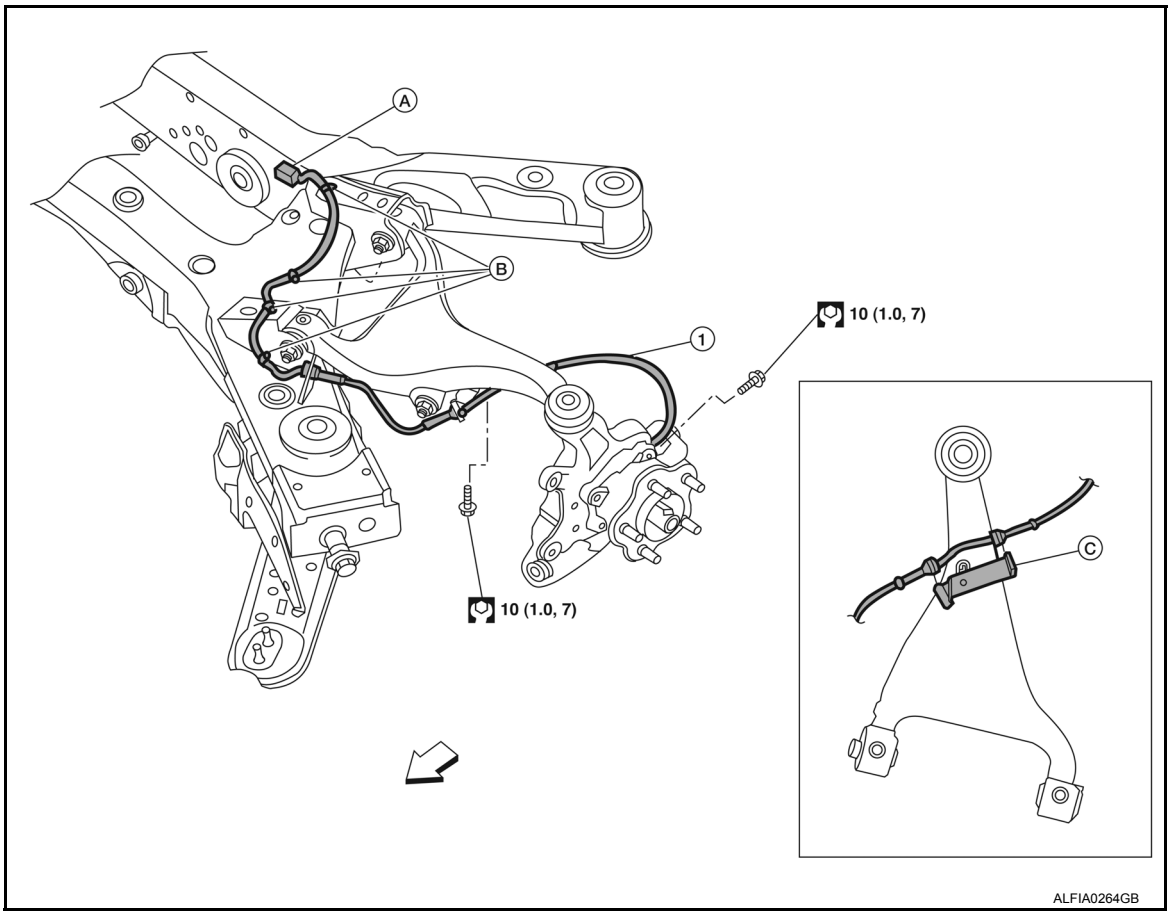
INFOID:0000000012853718

RH Side



1. Rear wheel sensor
A. Rear wheel sensor bracket
B. Clip
C. Rear wheel sensor connector
⇦ Front

LH Side



1. Rear wheel sensor
A. Rear wheel sensor connector
B. Clip
C. Rear wheel sensor bracket
⇦ Front

Removal and Installation - Rear Wheel Sensor

INFOID:0000000012853719

CAUTION:

- **Be careful not to damage rear wheel sensor edge and sensor rotor teeth.**
- **When removing the rear wheel hub and bearing, first remove the rear wheel sensor from the rear knuckle. Failure to do so may result in damage to the rear wheel sensor wires making the rear wheel sensor inoperative.**
- **Pull out the rear wheel sensor, being careful to turn it as little as possible. Do not pull on the real wheel sensor harness.**
- **Before installation, check if foreign objects such as iron fragments are adhered to the pick-up part of the rear wheel sensor or to the inside of the hole in the rear knuckle for the wheel sensor, or if a foreign object is caught in the surface of the mating surface for the sensor rotor. Fix as necessary and then install the rear wheel sensor.**

REMOVAL

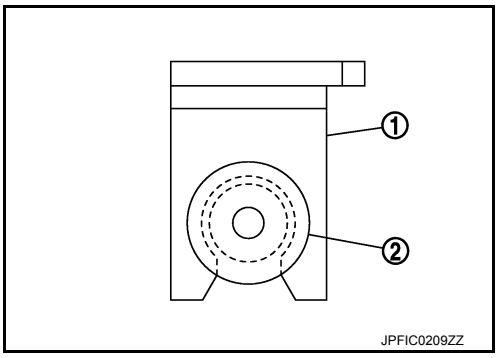
1. Remove the rear wheel and tire using power tool. Refer to WT-52, "Adjustment".
2. Remove the rear wheel sensor bolt.
3. Disconnect the rear wheel sensor harness connector.
4. Remove the rear wheel sensor from the sensor brackets.
5. Remove the rear wheel sensor from the rear knuckle.

INSTALLATION

Installation is in the reverse order of the removal.

CAUTION:

- **When installing, make sure there is no foreign material such as iron chips on and in the hole in the rear knuckle for the rear wheel sensor. Make sure no foreign material has been caught in the sensor rotor. Remove any foreign material and clean the mount.**
- **Do not twist rear wheel sensor harness when installing rear wheel sensor. Check that grommet (2) is fully inserted to bracket (1). Check that rear wheel sensor harness is not twisted after installation.**



SENSOR ROTOR

Removal and Installation - Front Sensor Rotor

INFOID:0000000012853720

The front wheel sensor rotor is an integral part of the wheel hub and bearing and cannot be disassembled. Refer to FAX-8, "Removal and Installation".

Removal and Installation - Rear Sensor Rotor

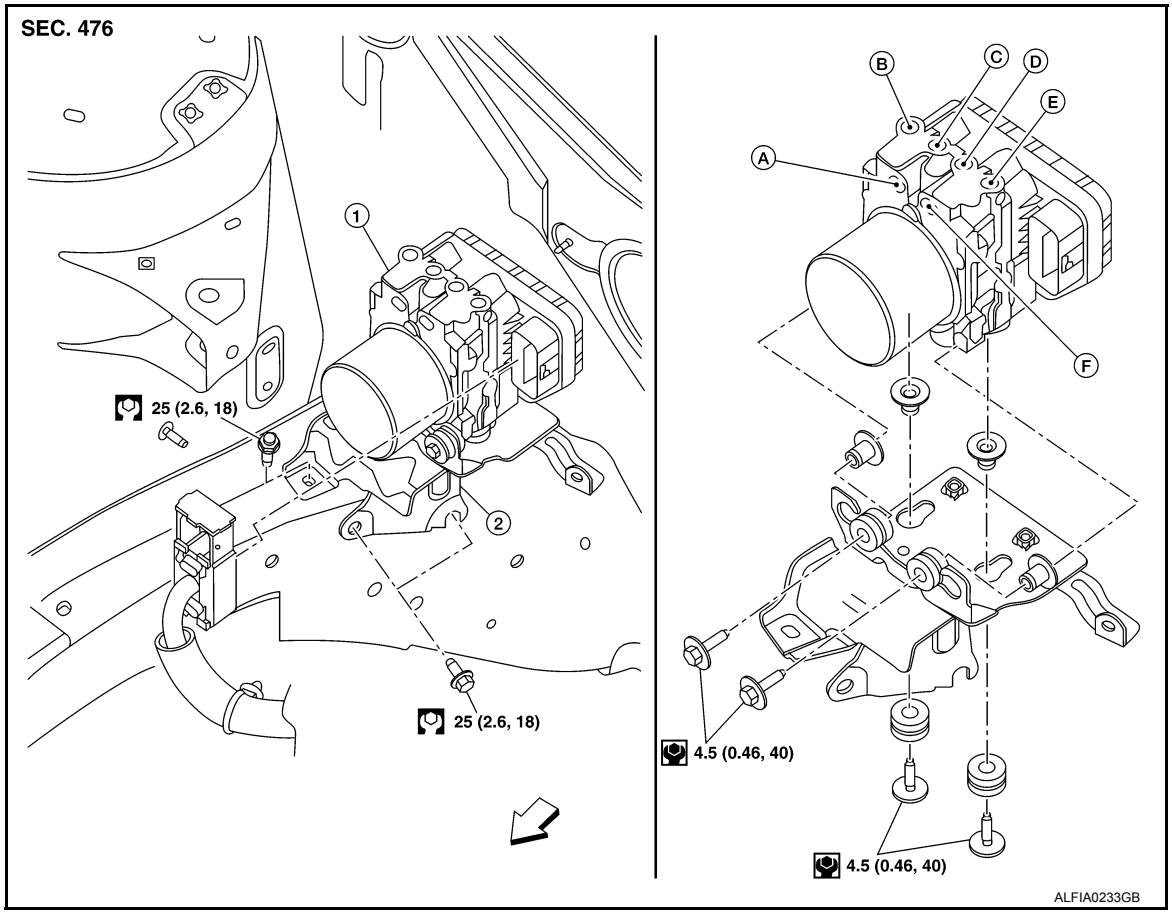
INFOID:0000000012853721

The rear wheel sensor rotor is an integral part of the wheel hub and bearing and cannot be disassembled. Refer to RAX-7, "Removal and Installation".

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Exploded View

INFOID:0000000012853722



1. ABS actuator and electric unit (control unit)
2. Bracket
A. From master cylinder secondary side
B. To front RH brake caliper
C. To rear LH brake caliper
D. To rear RH brake caliper
E. To front LH brake caliper
F. From master cylinder primary side
⇦ Front

Removal and Installation

INFOID:0000000012853723

REMOVAL

CAUTION:

- **To remove brake tube, use a flare nut wrench to prevent flare nuts and brake tube from being damaged.**
- **Do not remove actuator by holding harness.**

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Disconnect the negative battery terminal. Refer to PG-147, "Exploded View".
2. Remove cowl top and cowl top extension. Refer to EXT-25, "Removal and Installation".
3. Disconnect the harness connector from the ABS actuator and electric unit (control unit).
4. Separate brake tubes from ABS actuator and electric unit (control unit). Refer to BR-22, "FRONT : Exploded View".
5. Remove ABS actuator and electric unit (control unit) bracket bolt.
6. Remove ABS actuator and electric unit (control unit) from vehicle.

INSTALLATION

Installation is in the reverse order of removal.

- After work is completed, bleed air from brake tube. Refer to BR-14, "Bleeding Brake System".
- Adjust the neutral position of steering angle sensor. Refer to BRC-82, "Work Procedure".
- Perform calibration of yaw rate/side/decel G sensor. Refer to BRC-84, "Work Procedure".

CAUTION:

- **To install, use flare nut crowfoot and torque wrench.**
- **Do not apply excessive impact to ABS actuator and electric unit (control unit), such as dropping it.**
- **Do not install actuator by holding harness.**
- **After installing harness connector in the ABS actuator and electric unit (control unit), make sure connector is securely locked.**

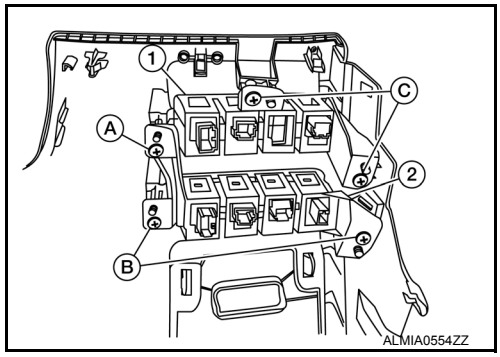
VDC OFF SWITCH

Removal and Installation

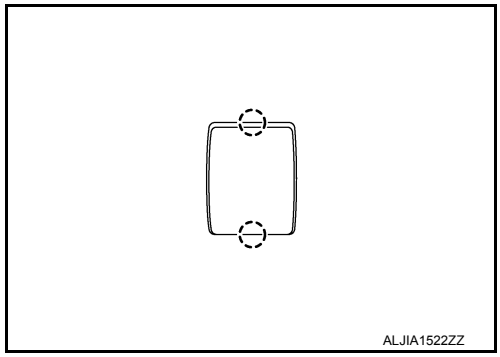
INFOID:0000000013480168

REMOVAL

1. Remove instrument lower panel LH. Refer to IP-25, "Removal and Installation".
2. Remove screws (A) and (B) and remove the lower switch carrier assembly (2).
3. Remove the screws (C) from the upper switch carrier assembly (1) and remove upper switch carrier.



4. Release pawls using suitable tool and remove the VDC OFF switch from the upper switch carrier.
   ◌: Pawl



INSTALLATION

Installation is in the reverse order of removal.

STEERING ANGLE SENSOR

Removal and Installation

INFOID:0000000012853726

To remove and install the steering angle sensor, remove and install spiral cable. Refer to SR-15, "Removal and Installation".

PRECAUTION

PRECAUTIONS

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

INFOID:0000000014224280

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 dual stage front air bag modules. The SRS system may only deploy one front air bag, depending on the severity of a collision and whether the front passenger seat is occupied. Information necessary to service the system safely is included in the SR and SB section 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, it is recommended that all maintenance and repair be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper repair, 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 SR section.**
- **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 or batteries, and wait at least three minutes before performing any service.**

Precaution for FEB System Service

INFOID:0000000014224335

WARNING:

- **Failure to follow the warnings and instructions for proper use of the FEB with pedestrian detection system could result in serious injury or death.**
- **The FEB with pedestrian detection system is a supplemental aid to the driver. It is not a replacement for the drivers attention to traffic conditions or responsibility to drive safely. It cannot prevent accidents due to carelessness or dangerous driving techniques.**
- **The FEB with pedestrian detection system does not function in all driving, traffic, weather, and road conditions.**
- **Listed below are the system limitations for the FEB with pedestrian detection system. Failure to operate the vehicle in accordance with these system limitations could result in serious injury or death.**
- **The FEB with pedestrian detection system cannot detect all vehicles or pedestrians under call conditions.**
- **The FEB with pedestrian detection system does not detect the following objects:**
- **Small pedestrians (including small children), animals and cyclists.**
- **Pedestrians in wheel chairs or using mobile transport such as scooters, child-operated toys, or skateboards.**
- **Pedestrians who are seated or otherwise not in a full upright standing or walking position.**
- **Oncoming vehicles**
- **Crossing vehicles**
- **Obstacles on the roadside.**

CAUTION:

- **The FEB with pedestrian detection system has some performance limitations, for example:**
- **If a stationary vehicle is in the vehicle’s path, the FEB with pedestrian detection system will not function when the vehicle is driven at speeds over approximately 50 MPH (80 km/h).**

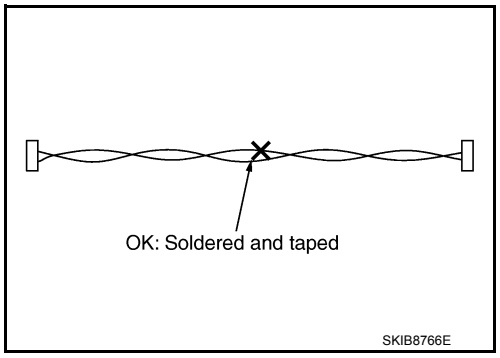
- **For pedestrian detection, the FEB with pedestrian detection system will not function when the vehicle is driven at speeds over approximately 37 MPH (60 km/h) or below approximately 6 MPH (10 km/h).**
- **The FEB with pedestrian detection system will not function for pedestrians in darkness or in tunnels, even if there is street lighting in the areas.**
- **For pedestrians, the FEB with pedestrian detection system will not issue the first warning and will not push the accelerator pedal up**

- The vehicles brake lights come on when any braking is performed by the FEB with pedestrian detection system. Depending on vehicle speed and distance to the vehicle or pedestrian ahead, as well as driving and roadway conditions, the system may help the driver avoid a forward collision or may help mitigate the consequences if a collision should be unavoidable. If the driver is handling the steering wheel, accelerating or braking, the FEB with pedestrian detection system will function later or not function.
- The automatic braking will cease under the following conditions:
- When the steering wheel is turned to avoid a collision.
- When the accelerator pedal is depressed.
- When there is no longer a vehicle or pedestrian detected ahead.
- If the FEB with pedestrian detection system has stopped the vehicle, the vehicle will remain at a standstill for approximately 2 seconds before the brakes are released.
- The FEB with pedestrian detection system will be automatically turned on when the engine is started.
- The PFCW system (if equipped) is integrated into the FEB with pedestrian detection system. There is not a separate selection in the vehicle information display for the PFCW system. When the FEB with pedestrian detection is turned off, the PFCW system is also turned off.

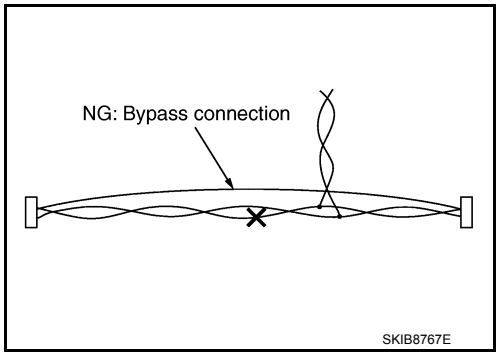
Precaution for Harness Repair

INFOID:0000000014224336

- Solder the repair part, and wrap it with tape. [Twisted wire fray must be 110 mm (4.33 in) or less.]



- Do not bypass the repair point with wire. (If it is bypassed, the turnout point cannot be separated and the twisted wire characteristics are lost.)

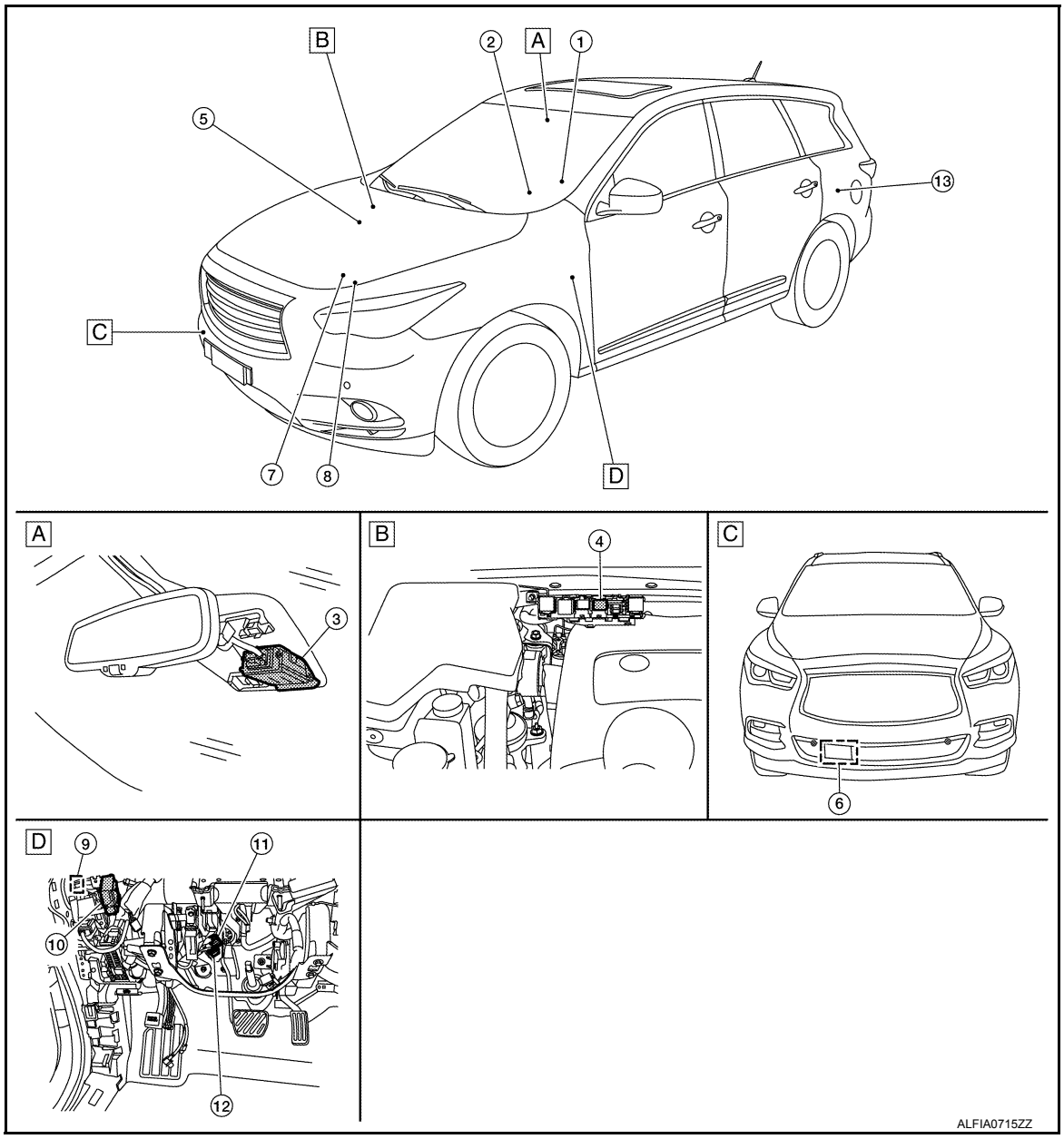


SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000014170316



A. Rear view mirror area

B. Back side of engine room (RH) (view with relay cover removed)

C. Radiator core support assembly (RH)

C. Upper side of brake pedal (view with instrument panel LH removed)

Component Description

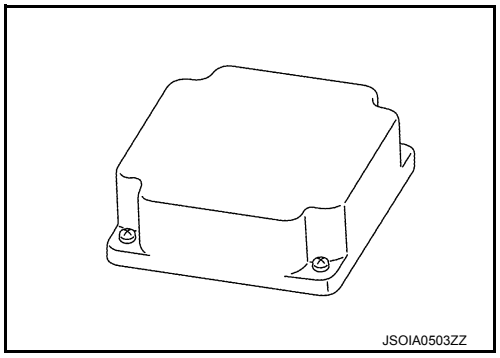
INFOID:0000000014170317

No.	Component		Function
1.	ICC steering switch		Refer to CCS-11, "ICC Steering Switch"
2.	Combination meter		Refer to MWI-6, "METER SYSTEM : Component Parts Location"
3.	Lane camera unit		Refer to BRC-188, "Lane Camera Unit"
4.	ICC brake hold relay		Refer to BRC-189, "ICC Brake Hold Relay"
5.	ABS actuator and electric unit (control unit)	Pump/motor	Refer to BRC-11, "ABS Actuator and Electric Unit (Control Unit)"
		Motor relay	
		Actuator relay (main relay)	
		ABS IN valve	
		ABS OUT valve	
		Cut valve 1	
		Cut valve 2	
		Pressure sensor	
6.	ICC sensor		Refer to BRC-188, "ICC Sensor"
7.	TCM		Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication. • Shift position signal • Current gear position signal
8.	ECM		Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication. • Accelerator pedal position signal • Engine speed signal Mainly receives the following signal from ABS actuator and electric unit (control unit) via CAN communication. • Target throttle position signal
9.	Warning buzzer		Refer to BRC-189, "Driver Assistance Buzzer"
10.	Driver assistance buzzer control module		Refer to BRC-189, "Driver Assistance Buzzer Control Module"
11.	Stop lamp switch		Refer to BRC-188, "Brake Pedal Position Switch / Stop Lamp Switch"
12.	Brake pedal position switch		
13.	ADAS control unit		Refer to BRC-187, "ADAS Control Unit"

ADAS Control Unit

INFOID:0000000014170318

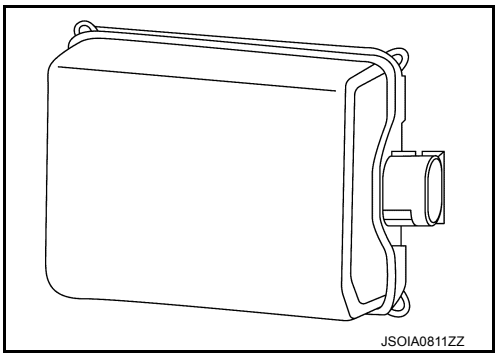
- ADAS control unit is installed at trunk side of the parcel shelf.
- Communicates with each control unit via CAN communication/ITS communication/Chassis communication.
- ADAS control unit included gateway function, and necessary for system control signals are transmitted to each control unit between CAN communication and ITS communication by the ADAS control unit.
- ADAS control unit controls the each system, based on ITS communication signal, CAN communication signal, and chassis communication signal from each control unit.



ICC Sensor

INFOID:0000000014170319

- ICC sensor is installed on the back of the front bumper and detects a vehicle ahead by using millimeter waves.
- ICC sensor detects radar reflected from a vehicle ahead by irradiating radar forward and calculates a distance from the vehicle ahead and relative speed, based on the detected signal.
- ICC sensor transmits the presence/absence of vehicle ahead and the distance from the vehicle to ADAS control unit via ITS communication.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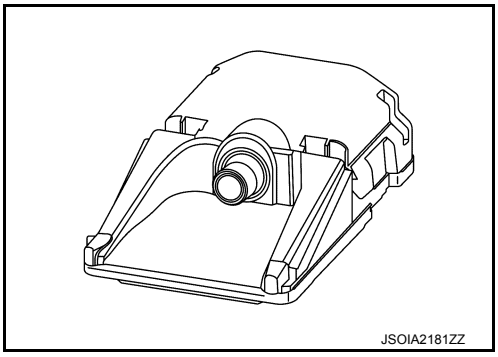
Lane Camera Unit

INFOID:0000000014203040

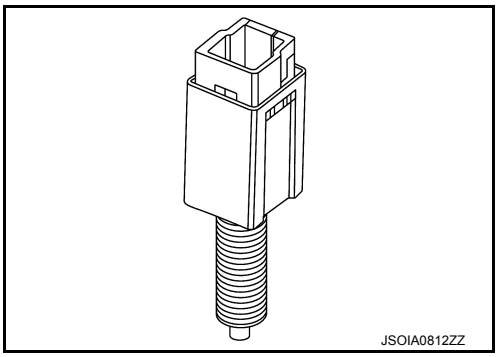
- Lane camera unit is installed to windshield, and detects the lane marker in travel lane and pedestrian ahead.
- Transmits the signal to ADAS control unit and ADAS control unit 2 via chassis communication.


JSOIA2181ZZ

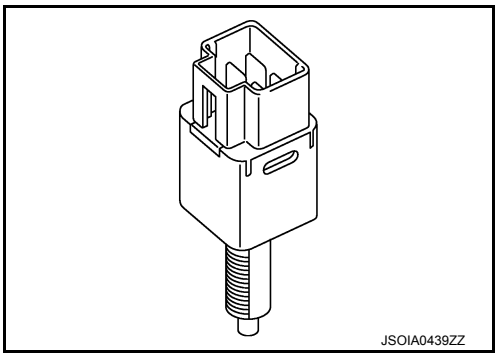
Brake Pedal Position Switch / Stop Lamp Switch

INFOID:0000000014170320

- Brake pedal position switch is installed at the upper part of the brake pedal and detects a brake operation performed by the driver.


JSOIA0812ZZ

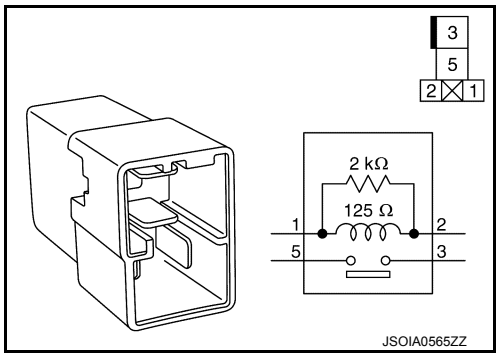
- Brake pedal position switch is turned OFF when depressing the brake pedal.
- Brake pedal position switch signal is input to ECM. Brake pedal position switch signal is transmitted from ECM to ADAS control unit via CAN communication. (VQ35DE)
- Stop lamp switch is installed at the upper part of the brake pedal and detects a brake operation performed by the driver.
- Stop lamp switch is turned ON, when depressing the brake pedal.
- Stop lamp switch signal is input to ECM and ABS actuator and electric unit (control unit). Stop lamp switch signals are transmitted from ECM and ABS actuator and electric unit (control unit) to ADAS control unit via CAN communication. (VQ35DE)


JSOIA0439ZZ

ICC Brake Hold Relay

INFOID:0000000014170321

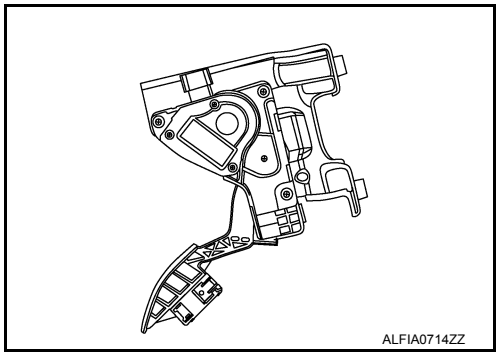
- ICC brake hold relay is installed in the engine room (right side).
- When the brake is activated by the system, the ICC brake hold relay turns ON the stop lamp by bypassing the circuit of the stop lamp, according to a signal transmitted from the ADAS control unit.



Accelerator Pedal Actuator

INFOID:0000000014170322

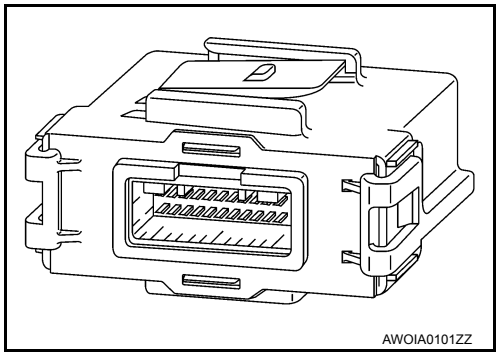
- Installed to the upper portion of the accelerator pedal, this consists of the accelerator pedal actuator together with the accelerator pedal position sensor, and is linked with the accelerator pedal.
- If accelerator pedal feedback force control signal is received from ADAS control unit via ITS communication, it operates the integrated motor for applying control to move the accelerator pedal upward.



Driver Assistance Buzzer Control Module

INFOID:0000000014170323

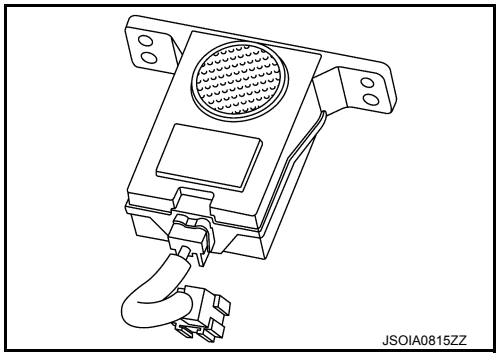
- Driver assistance buzzer control module is installed at the behind of glove box.
- When driver assistance buzzer signal is received from the ADAS control unit, the driver assistance buzzer control module transmits the warning buzzer signal to driver assistance buzzer.



Driver Assistance Buzzer

INFOID:0000000014170324

- Driver assistance buzzer is installed at the behind the display control unit.
- When a warning buzzer signal is received from the driver assistance buzzer control module, the driver assistance buzzer sounds a buzzer.

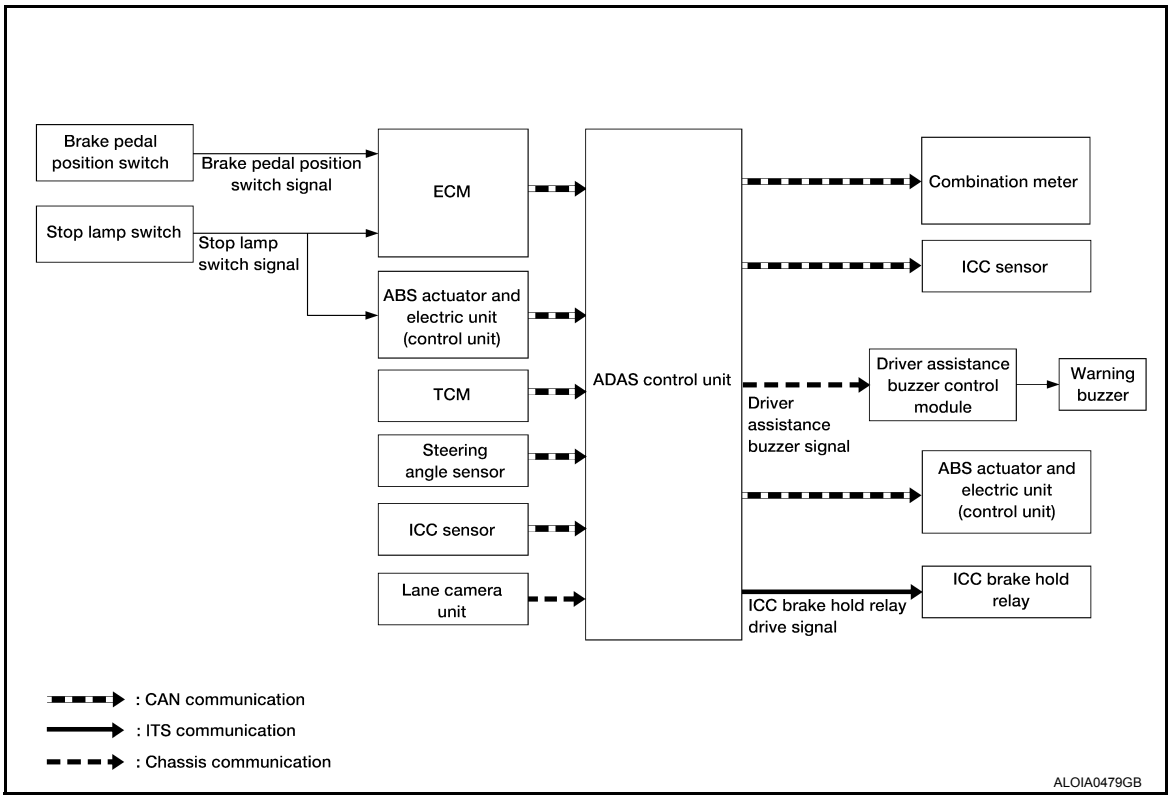


SYSTEM

System Description

INFOID:0000000014170325

SYSTEM DIAGRAM



ADAS CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

Transmit unit	Signal name		Description
ECM	CAN communication	Closed throttle position signal	Receives idle position state (ON/OFF)
		Accelerator pedal position signal	Receives accelerator pedal position (angle)
		Engine speed signal	Receives engine speed
		Stop lamp switch signal	Receives an operational state of the brake pedal
		Brake pedal position switch signal	Receives an operational state of the brake pedal
TCM	CAN communication	Input speed signal	Receives the number of revolutions of input shaft
		Current gear position signal	Receives a current gear position
		Shift position signal	Receives a selector lever position
		Output shaft revolution signal	Receives the number of revolutions of output shaft

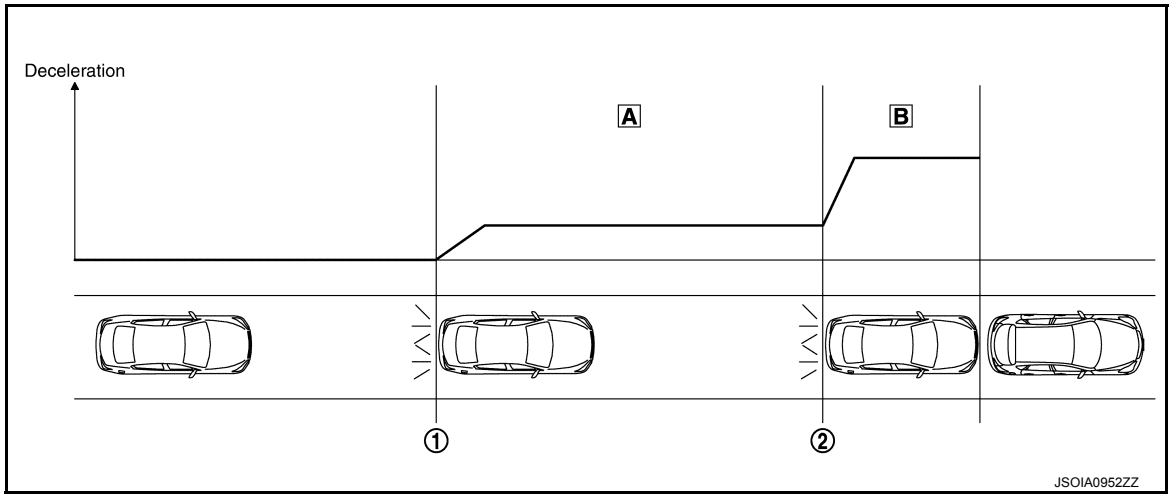
Transmit unit	Signal name		Description
ABS actuator and electric unit (control unit)	CAN communication	ABS malfunction signal	Receives a malfunction state of ABS
		ABS operation signal	Receives an operational state of ABS
		ABS warning lamp signal	Receives an ON/OFF state of ABS warning lamp
		TCS malfunction signal	Receives a malfunction state of TCS
		TCS operation signal	Receives an operational state of TCS
		VDC OFF switch signal	Receives an ON/OFF state of VDC
		VDC malfunction signal	Receives a malfunction state of VDC
		VDC operation signal	Receives an operational state of VDC
		Vehicle speed signal (ABS)	Receives wheel speeds of four wheels
		Yaw rate signal	Receives yaw rate acting on the vehicle
		Stop lamp switch signal	Receives an operational state of the brake pedal
Steering angle sensor	CAN communication	Steering angle sensor malfunction signal	Receives a malfunction state of steering angle sensor
		Steering angle sensor signal	Receives the number of revolutions, turning direction of the steering wheel
		Steering angle speed signal	Receives the turning angle speed of the steering wheel
Display control unit	CAN communication	System selection signal	Receives a selection state of each item in “Driver Aids” selected with the integral switch
ICC sensor	ITS communication	ICC sensor signal	Receives detection results, such as the presence or absence of a leading vehicle and distance from the vehicle
Accelerator pedal actuator	ITS communication	Accelerator pedal actuator operation status signal	Receives an operational state of accelerator pedal actuator
Lane camera unit	ITS communication	Pedestrian ahead signal	Receives detection results of pedestrian ahead of vehicle

Output Signal Item

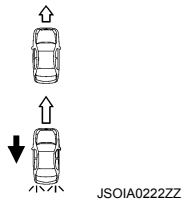
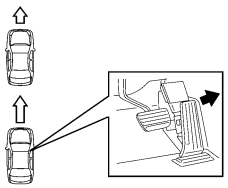
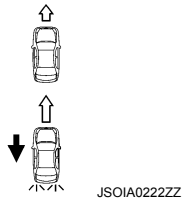
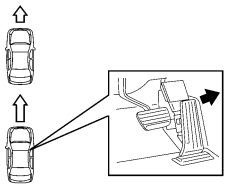
Reception unit	Signal name			Description
Electrically-driven intelligent brake unit	CAN communication	Brake fluid pressure control signal		Transmits a brake fluid pressure control signal to activates the brake
Combination meter	CAN communication	Meter display signal	Vehicle ahead detection indicator signal	Transmits a signal to display a state of the system on the information display
			FEB/PFCW system display signal	
			FEB warning signal	
ICC sensor	ITS communication	Vehicle speed signal		Transmits a vehicle speed calculated by the ADAS control unit
		Steering angle sensor signal		Transmits a steering angle sensor signal received from the steering angle sensor
Accelerator pedal actuator	ITS communication	Accelerator pedal position signal		Transmits an accelerator pedal angle calculated by the ADAS control unit
		Accelerator pedal feedback force control signal		Transmits a target actuation force value calculated by the ADAS control unit
Driver assistance buzzer control module	ITS communication	Driver assistance buzzer signal		Transmits a driver assistance buzzer signal to active the buzzer
ICC brake hold relay	ICC brake hold relay drive signal			Activates the brake hold relay and turns ON the stop lamp

FUNCTION DESCRIPTION

- The FEB system measures the distance from a vehicle ahead using the ICC sensor installed in the front bumper.
- When the system judges that a vehicle is being approached, “approach warning” is displayed in the combination meter and at the same time a warning buzzer sounds, the accelerator pedal is moved upward, and the brake is operated.
- When it is further judged that the vehicle may collide with the vehicle ahead, the system operates the brake strongly to avoid collision while it displays FEB warning on the combination meter and rings a warning chime.



① Start of warning and partial brake
② Start of harder brake
A Applies partial braking and moves the accelerator pedal to upward direction
B Harder brake

Situation		Brake	Accelerator pedal actuator	Warning
No obstacle approached		No operation	No operation	—
①	Start of warning and partial brake	Partial brake  JSOIA0222ZZ	Operation  JSOIA0094ZZ	• Sounds the buzzer • Blinks vehicle ahead indicator
②	Start of harder brake	Harder brake  JSOIA0222ZZ	Operation  JSOIA0094ZZ	• Sounds the buzzer (Higher pitched buzzer) • Indicates FEB warning

CAUTION:
It is the driver′s responsibility to stay alert, drive safely and be in control of the vehicle at all times. As there is a performance limit, it may not provide a warning or brake in certain conditions.
NOTE:
The FEB system shares component parts and diagnosis with the ICC/DCA system.

OPERATION DESCRIPTION

- The ICC sensor measures the distance from the obstacle ahead and transmits the ICC sensor signal to the ADAS control unit.

- The lane camera measures the distance from a pedestrian and transmits the pedestrian ahead signal to the ADAS control unit.
- The ADAS control unit judges the possibility of a collision from the ICC sensor signal and the vehicle speed.
- The ADAS control unit judges the possibility of a collision from the ICC sensor signal, the pedestrian ahead signal and the vehicle speed.
- The ADAS control unit performs the following operations according to the degree of possibility of a collision.
- Transmits the driver assistance buzzer signal to the driver assistance buzzer control module and sounds the buzzer.
- Transmits the meter display signal to the combination meter and displays the vehicle ahead indicator/FEB warning.
- Transmits the accelerator pedal feedback force signal to the accelerator pedal actuator and moves the accelerator pedal upward to assist the driver to release the accelerator pedal.
- Transmits the brake fluid pressure control signal to the electrically-driven intelligent brake unit and performs the brake control.
- Transmits the ICC brake hold relay drive signal to the ICC brake hold relay and turns ON the stop lamp.

NOTE:
- ON/OFF of FEB/PFCW system is performed with the integral switch.
- The system ON/OFF condition will be memorized even if the ignition switch turns OFF.
- The FEB system operates under the following conditions.
- The FEB system will function when the vehicle is driven at speeds of approximately 5 km/h (3 MPH) and above, and when the vehicle′s speed is approximately 5 km/h (3 MPH) faster than that of the vehicle ahead.
- Setting of FEB is performed in synchronization with the log-in function of on-board personal assistant. For details of the log-in function, refer to BRC-190, "System Description".

Operation Condition

ADAS control unit performs the control when the following conditions are satisfied.
- When the FEB/PFCW system setting on the integral switch is ON.
- When the vehicle speed is above approximately 5 km/h (3 MPH).
- There is a possibility of a collision with the vehicle ahead.

No Operation Condition

The ADAS control unit is not operate when the system is under the conditions of the no operation condition.
- When the FEB system setting on the integral switch is OFF.
- When the vehicle ahead is not detected.
- When the vehicle speed is below approximately 5 km/h (3 MPH).

Operation Cancellation Condition

The ADAS control unit cancels the operation when the system is under any conditions of the operation cancellation condition.
- When the system judges that the vehicle comes to a standstill by the system control.
- When the system malfunction occurs.
- When the ICC sensor area of the front bumper is dirty and the measurement of the distance between the vehicles becomes difficult.

Fail-safe (ADAS Control Unit)

INFOID:0000000014237591

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

System	Buzzer	Warning lamp/Warning display	Description
Vehicle-to-vehicle distance control mode	High-pitched tone	ICC system warning	Cancel
Conventional (fixed speed) cruise control mode	High-pitched tone	ICC system warning	Cancel
Forward Emergency Braking (FEB)	High-pitched tone	FEB warning	Cancel
Predictive Forward Collision Warning (PFCW)	High-pitched tone	Warning message	Cancel

System	Buzzer	Warning lamp/Warning display	Description
Distance Control Assist (DCA)	High-pitched tone	DCA system warning	Cancel
Lane Departure Warning (LDW)	—	Lane departure warning lamp	Cancel
Lane Departure Prevention (LDP)	Low-pitched tone	Lane departure warning lamp	Cancel
Blind Spot Warning (BSW)	—	Blind Spot Warning warning lamp	Cancel
Blind Spot Intervention	Low-pitched tone	Blind Spot Intervention warning lamp	Cancel
Backup Collision Intervention (BCI)	High-pitched tone	Backup Collision Intervention warning indicator	Cancel
Rear Cross Traffic Alert (RCTA)	—	Rear Cross Traffic Alert warning	Cancel

WARNING/INDICATOR/CHIME LIST

WARNING/INDICATOR/CHIME LIST : Warning Lamp/Indicator Lamp

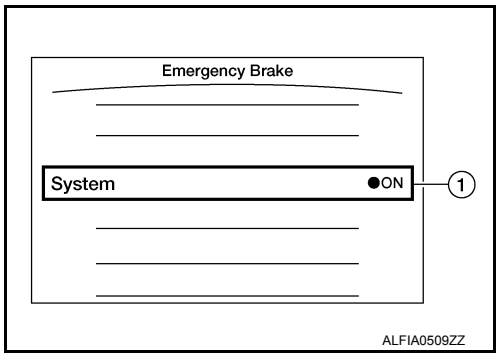
INFOID:0000000014170327

Name	Design	Function
FEB warning lamp	 ALFIA0508ZZ	• For layout, refer to MWI-10, "METER SYSTEM : Arrangement of Combination Meter".

OPERATION

Switch Name and Function

INFOID:0000000014170328

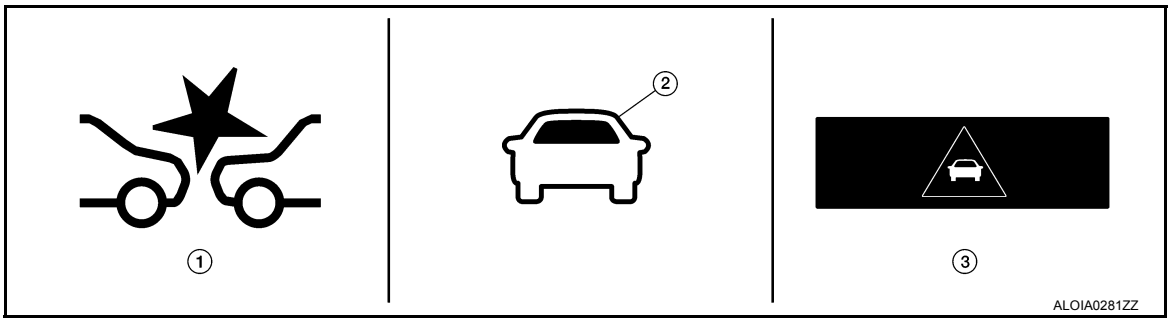


No.	Switch name	Description
①	FEB system setting screen (Integral switch settings screen)	The setting of FEB/PFCW system can be switched between ON and OFF

Menu Displayed by Pressing Each Switch

INFOID:0000000014170329

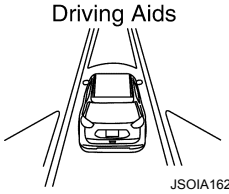
SYSTEM DISPLAY



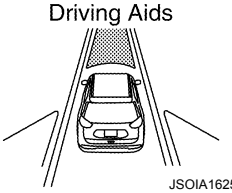
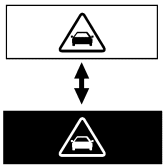
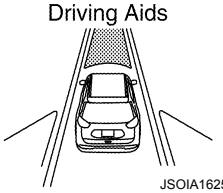
No.	Switch name	Description
①	FEB warning lamp	• FEB warning lamp indicates that an abnormal condition is present in FEB system • When the FEB system turns OFF, the FEB warning lamp will illuminate.
②	Vehicle ahead indicator	• Indicates whether it detects a vehicle ahead. • Blinks when there is a possibility of a collision with the vehicle ahead.
③	FEB warning	Displays immediately before the harder brake operates

DISPLAY AND WARNING

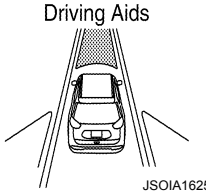
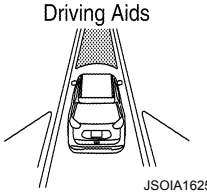
Setting Display

System status	Condition	Display on combination meter	Display on combination meter	FEB warning lamp	Buzzer
		Upper part	Middle part		
FEB OFF	—	—	Driving Aids  JSOIA1624ZZ		—
FEB ON	System ON	—	White Driving Aids  JSOIA1625ZZ	OFF	—

Warning Operation

System status	Action	Display on combination meter	Display on combination meter	FEB warning lamp	Buzzer
		Upper part	Middle part		
There is a possibility of a collision with the vehicle ahead	Partial brake	Yellow (Blink)  ALFIA0531ZZ	Driving Aids  JSOIA1625ZZ		Short continuous beeps
An obstacle ahead is avoided due to the system applying braking.	Harder brake	Red⇔White  JSOIA1477ZZ	Driving Aids  JSOIA1625ZZ		Continuous beeps

Warning Display

System status	Condition	Display on combination meter	Display on combination meter	FEB warning lamp	Master warning lamp	Buzzer
		Upper part	Middle part			
FEB system malfunction	The FEB system is automatically canceled.*	Yellow (Blink)  ALFIA0532ZZ	Driving Aids  JSOIA1625ZZ	 ALFIA0508ZZ	Yellow 	Beep
Dirt around the distance sensor		Yellow (Blink)  ALFIA0532ZZ	Driving Aids  JSOIA1625ZZ	 ALFIA0508ZZ	Yellow 	Beep

NOTE:
*: The system operates if the ignition switch is turned OFF⇒ON after the condition improves

HANDLING PRECAUTION

Description

INFOID:0000000014170330

PRECAUTIONS FOR FORWARD EMERGENCY BRAKING

- The forward emergency braking system is a supplemental aid to the driver. It is not a replacement for the driver′s attention to traffic conditions or responsibility to drive safely. It cannot prevent accidents due to carelessness or dangerous driving techniques.
- The forward emergency braking system does not function in all driving, traffic, weather and road conditions.
- The automatic braking will cease under the following conditions:
  - When the steering wheel is turned as far as necessary to avoid a collision.
  - When the accelerator pedal is depressed.
  - When there is no longer a vehicle detected ahead.
- If the forward emergency braking system has stopped the vehicle, the vehicle will remain at a standstill for approximately 2 seconds before the brakes are released.
- The system will not detect the following objects:
  - Pedestrians, animals, or obstacles in the roadway
  - Oncoming vehicles in the same lane
  - Crossing vehicles
- The radar sensor has some performance limitations. For stationary vehicles, the forward emergency braking system can function at speeds up to approximately 70 km/h (45 MPH).
- The radar sensor may not detect a vehicle ahead in the following conditions:
  - Dirt, ice, snow or other material covering the radar sensor.
  - Interference by other radar sources.
  - Snow or road spray from traveling vehicles.
  - If the vehicle ahead is narrow (e.g.motorcycle)
  - When driving on a steep downhill slope or roads with sharp curves.
- In some road or traffic conditions, the forward emergency braking system may unexpectedly push the accelerator pedal up or apply partial braking. When acceleration is necessary, continue to depress the accelerator pedal to override the system.
- Braking distances increase on slippery surfaces.
- Excessive noise will interfere with the warning chime sound, and the chime may not be heard.

DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

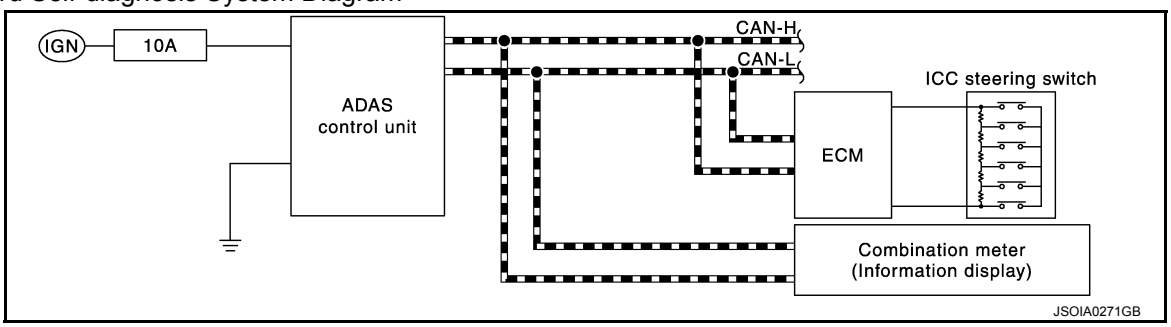
On Board Diagnosis Function

INFOID:0000000014224816

DESCRIPTION

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

On Board Self-diagnosis System Diagram



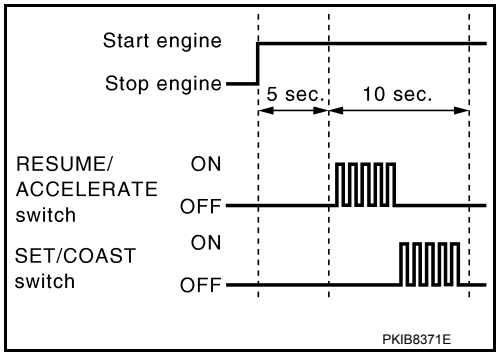
METHOD OF STARTING

CAUTION:

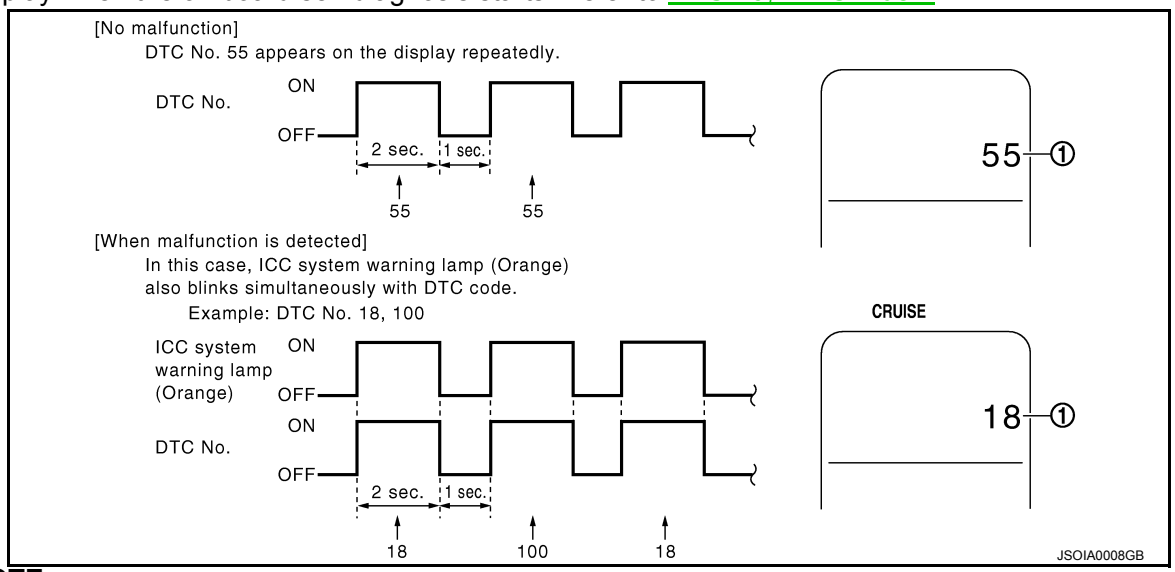
Start condition of on board self-diagnosis

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

1. Turn the ignition switch OFF.
2. Start the engine.
3. Wait for 5 seconds after starting the engine. Push up the RESUME/ACCELERATE switch 5 times and push down the SET/COAST switch 5 times within 10 seconds.
   NOTE:
   If the above operation cannot be performed within 10 seconds after waiting for 5 seconds after starting the engine, repeat the procedure from step 1.



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



NOTE:

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

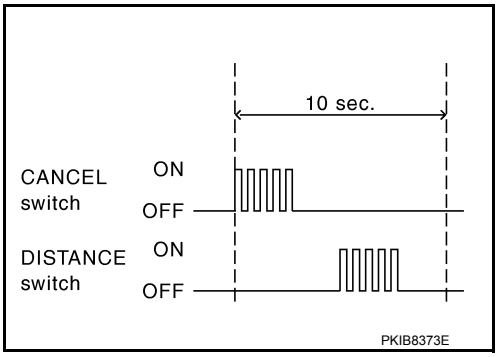
WHEN THE ON BOARD SELF-DIAGNOSIS DOES NOT START

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

Assumed abnormal part		Inspection item
Information display	Combination meter malfunction	Check that the self-diagnosis function of the combination meter operates. Refer to MWI-17, "Description".
ICC steering switch malfunction		Perform the inspection for DTC “C1A06”. Refer to DAS-80, "DTC Logic".
Harness malfunction between ICC steering switch and ECM		
ECM malfunction		
ADAS control unit malfunction		• Check power supply and ground circuit of ADAS control unit. Refer to DAS-169, "Diagnosis Procedure". • Perform SELF-DIAGNOSIS for “ICC/ADAS”with CONSULT, and then check the malfunctioning parts. Refer to DAS-40, "DTC Index".

HOW TO ERASE ON BOARD SELF-DIAGNOSIS

1. Turn the ignition switch OFF.
2. Start the engine, and then start the on board self-diagnosis.
3. Press the CANCEL switch 5 times, and then press the DISTANCE switch 5 times under the condition that the on board self-diagnosis starts.
   NOTE:
   - Complete the operation within 10 seconds after pressing the CANCEL switch first.
   - If the operation is not completed within 10 seconds, repeat the procedure from step 1.
4. DTC 55 is displayed after erasing.
   NOTE:
   DTCs for existing malfunction can not be erased.
5. Turn ignition switch OFF, and finish the diagnosis.



CONSULT Function (ICC/ADAS)

INFOID:0000000014224817

APPLICATION ITEMS

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

Diagnosis mode	Description
Configuration	• The vehicle specification that is written in ADAS control unit can be displayed or stored • The vehicle specification can be written when ADAS control unit is replaced
Work support	Displays causes of automatic system cancellation occurred during system control
Self Diagnostic Result	Displays the name of a malfunctioning system stored in the ADAS control unit
Data Monitor	Displays ADAS control unit input/output data in real time
Active Test	Enables an operational check of a load by transmitting a driving signal from the ADAS control unit to the load
ECU Identification	Displays ADAS control unit part number
CAN Diag Support Monitor	Displays a reception/transmission state of CAN communication and ITS communication

CONFIGURATION

Configuration includes functions as follows.

Function		Description
Read/Write Configuration	Before Replace ECU	Allows the reading of vehicle specification written in ADAS control unit to store the specification in CONSULT.
	After Replace ECU	Allows the writing of the vehicle information stored in CONSULT into the ADAS control unit.
Manual Configuration		Allows the writing of the vehicle specification into the ADAS control unit by hand.

WORK SUPPORT

Work support items	Description
CAUSE OF AUTO-CANCEL 1	Displays causes of automatic system cancellation occurred during control of the following systems • Vehicle-to-vehicle control mode • Conventional (fixed speed) control mode • Distance Control Assist (DCA) • Forward Emergency Braking (FEB)
CAUSE OF AUTO-CANCEL 2	Displays causes of automatic system cancellation occurred during control of the following systems • Lane Departure Prevention (LDP) • Blind Spot Intervention
CAUSE OF AUTO-CANCEL 3	Displays causes of automatic system cancellation occurred during control of the Back-up Collision Intervention (BCI)

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

Display Items for The Cause of Automatic Cancellation 1

Cause of cancellation	Vehicle-to-vehicle distance control mode	Conventional (fixed speed) cruise control mode	Distance Control Assist	Forward Emergency Braking	Description
OPERATING ABS	×		×	×	ABS function was operated
OPERATING TCS	×	×	×		TCS function was operated
OPERATING VDC	×	×	×	×	VDC function was operated
ECM CIRCUIT	×	×			ECM did not permit ICC operation
OPE SW VOLT CIRC	×	×	×		The ICC steering switch input voltage is not within standard range
SNOW MODE SW	×		×		Shifting of the drive mode selector to SNOW position
OP SW DOUBLE TOUCH	×	×			ICC steering switches were pressed at the same time

VHCL SPD DOWN	×	×	×		Vehicle speed lower than the speed as follows • Vehicle-to-vehicle distance control mode is 24 km/h (15 MPH) • Conventional (fixed speed) cruise control mode is 32 km/h (20 MPH)
WHL SPD ELEC NOISE	×	×	×		Wheel speed sensor signal caught electromagnetic noise
VDC/TCS OFF SW	×		×	×	VDC OFF switch was pressed
VHCL SPD UNMATCH	×	×	×		Wheel speed became different from A/T vehicle speed
TIRE SLIP	×	×			Wheel slipped
IGN LOW VOLT	×	×	×	×	Decrease in ADAS control unit ignition voltage
PARKING BRAKE ON	×	×			The parking brake is operating
WHEEL SPD UNMATCH	×	×	×		The wheel speeds of 4 wheels are out of the specified values
INCHING LOST	×				A vehicle ahead is not detected during the following driving when the vehicle speed is approximately 24 km/h (15 MPH) or less
CAN COMM ERROR	×	×	×	×	ADAS control unit received an abnormal signal with CAN communication
ABS/TCS/VDC CIRC	×	×	×	×	An abnormal condition occurs in VDC/TCS/ABS system
ECD CIRCUIT	×	×	×	×	An abnormal condition occurs in ECD system
ENG SPEED DOWN	×	×			Engine speed became extremely low while controlling ICC system
ASCD VHCL SPD DTAC		×			Vehicle speed is detached from set vehicle speed
ASCD DOUBLE COMD		×			Cancel switch and operation switch are detected simultaneously
APA HI TEMP			×		The accelerator pedal actuator integrated motor temperature is high
ICC SENSOR CAN COMM ERR	×		×	×	Communication error between ADAS control unit and the ICC sensor
ABS WARNING LAMP	×		×		ABS warning lamp ON
FR RADAR BLOCKED	×		×	×	Inclusion of dirt or stains on the ICC sensor area of the front bumper
FEB) CURVATURE				×	Road curve was more than the specified value
FEB) YAW RATE				×	Detected yawing speed was more than the specified value
FEB) LTRL ACCELERATION				×	Detected lateral speed is the specified value or more
RADAR INTERFERENCE	×		×	×	ICC sensor receives electromagnetic interference
NO RECORD	×	×	×		—

Display Items for The Cause of Automatic Cancellation 3

Cause of cancellation	Back-up Collision Intervention	Description
CAN COMM ERROR (CAN)	×	ADAS control unit received an abnormal signal with CAN communication
CAN COMM ERROR (ECD)	×	ADAS control unit received an abnormal signal with CAN communication
IGN LOW VOLT	×	Decrease in ADAS control unit ignition voltage
VEHICLE SPEED UP	×	Vehicle speed higher than 8 km/h (5 MPH)
ACCEL IS OPERATED	×	Accelerator pedal was depressed

Cause of cancellation	Back-up Collision Intervention	Description
BRAKE IS OPERATED	×	Brake pedal was operated
APA HI TEMP	×	The accelerator pedal actuator integrated motor temperature is high
APA POWER	×	Decrease in accelerator pedal actuator ignition or battery voltage
NO RECORD	×	—

SELF DIAGNOSTIC RESULT

Refer to DAS-40, "DTC Index".

NOTE:

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

DATA MONITOR

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitored item [Unit]	ALL SIG (ICC)	MAIN SIG (ICC)	MAIN SIG (LDW/LDP)	MAIN SIG (BSW/BSI)	MAIN SIG (BCI)	Description
MAIN SW [On/Off]	×	×	×	×		Indicates [On/Off] status as judged from ICC steering switch
SET/COAST SW [On/Off]	×	×				Indicates [On/Off] status as judged from ICC steering switch
CANCEL SW [On/Off]	×	×				Indicates [On/Off] status as judged from ICC steering switch
RESUME/ACC SW [On/Off]	×	×				Indicates [On/Off] status as judged from ICC steering switch
DISTANCE SW [On/Off]	×					Indicates [On/Off] status as judged from ICC steering switch
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)

Monitored item [Unit]	ALL SIG (ICC)	MAIN SIG (ICC)	MAIN SIG (LDW/LDP)	MAIN SIG (BSW/BSI)	MAIN SIG (BCI)	Description
IDLE SW [On/Off]	×				×	Indicates [On/Off] status of idle switch read from ADAS control unit through CAN communication (ECM transmits On/Off status through CAN communication)
SET DISTANCE [Short/Mid/Long]	×	×				Indicates set distance memorized in ADAS control unit
CRUISE LAMP [On/Off]	×	×				Indicates [On/Off] status of MAIN switch indicator 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 ADAS control unit through CAN communication [ABS actuator and electric unit (control unit) transmits vehicle speed signal (wheel speed) through CAN communication]
SET VHCL SPD [km/h] or [mph]	×	×				Indicates set vehicle speed memorized in ADAS control unit
BUZZER O/P [On/Off]	×				×	Indicates [On/Off] status of ICC warning chime output
THRTL SENSOR [deg]	×	×				**NOTE:** The item is displayed, but it is not monitored
ENGINE RPM [rpm]	×					Indicates engine speed read from ADAS control unit through CAN communication (ECM transmits engine speed signal through CAN communication)
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:** The item is displayed, but it is not monitored
BA WARNING [On/Off]	×					Indicates [On/Off] status of FEB indicator lamp output
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” or “M” positions read from ADAS control unit through CAN communication; ON when position “D” or “M” (TCM transmits shift position signal through CAN communication).
NP RANGE SW [On/Off]	×					Indicates shift position signal read from ADAS control unit through CAN communication (TCM transmits shift position signal through CAN communication)
PKB SW [On/Off]	×					Parking brake switch status [On/Off] judged from the parking brake switch signal that ADAS control unit readout via CAN communication is displayed (combination meter transmits the parking brake switch signal via CAN communication)
PWR SUP MONI [V]	×	×				Indicates IGN voltage input by ADAS control unit
VHCL SPD AT [km/h] or [mph]	×					Indicates vehicle speed calculated from A/T vehicle speed sensor read from ADAS control unit through CAN communication (TCM transmits A/T vehicle speed sensor signal through CAN communication)
THRTL OPENING [%]	×	×			×	Indicates throttle position read from ADAS control unit through CAN communication (ECM transmits accelerator pedal position signal through CAN communication).

Monitored item [Unit]	ALL SIG (ICC)	MAIN SIG (ICC)	MAIN SIG (LDW/LDP)	MAIN SIG (BSW/BSI)	MAIN SIG (BCI)	Description
GEAR [1, 2, 3, 4, 5, 6, 7]	×					Indicates A/T gear position read from ADAS control unit through CAN communication (TCM transmits current gear position signal through CAN communication)
MODE SIG [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
DYNA ASIST SW [On/Off]	×	×		×		Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication)
DCA ON IND [On/Off]	×					The status [ON/OFF] of DCA system switch indicator output is displayed
DCA VHL AHED [On/Off]	×					The status [ON/OFF] of vehicle ahead detection indicator output in DCA system is displayed
APA TEMP [°C]	×				×	Accelerator pedal actuator integrated motor temperature that the ADAS control unit readout via ITS communication is displayed (Accelerator pedal actuator transmits the integrated motor temperature via ITS communication)
APA PWR [V]	×				×	Accelerator pedal actuator power supply voltage that the ADAS control unit readout via ITS communication is displayed (Accelerator pedal actuator transmits the power supply voltage via ITS communication)
NAVI ICC DISP [On/Off]						**NOTE:** The item is displayed, but it is not monitored
LDW SYSTEM ON [On/Off]			×			Indicates [On/Off] status of LDW system
LDW ON LAMP [On/Off]			×			Indicates [On/Off] status of LDW system display output
LDP ON IND [On/Off]			×			Indicates [On/Off] status of LDP system display output
LANE DPRT W/L [On/Off]			×			Indicates [On/Off] status of LDW/LDP warning display (Yellow) output
LDW BUZZER OUTPUT [On/Off]			×			Indicates [On/Off] status of warning buzzer output
LDP SYSTEM ON [On/Off]			×			Indicates [On/Off] status of LDP system
WARN REQ [On/Off]			×			Indicates an ADAS control unit judged warning state (ON/OFF) of LDP system
READY signal [On/Off]			×			Indicates LDP system settings
Camera lost [Detect/Deviate/Both]			×	×		Indicates a lane marker detection state judged from a lane marker detection signal read by the ADAS control unit via Chassis communication (Lane camera unit transmits a lane marker signal via Chassis communication)
Lane unclear [On/Off]			×	×		Indicates an ON/OFF state of the lane marker. The ON/OFF state is judged from a detected lane condition signal read by the ADAS control unit via Chassis communication (The lane camera unit transmits a detected lane condition signal via Chassis communication)

Monitored item [Unit]	ALL SIG (ICC)	MAIN SIG (ICC)	MAIN SIG (LDW/LDP)	MAIN SIG (BSW/BSI)	MAIN SIG (BCI)	Description
STATUS signal [Stnby/Warn/Cancl/ Off]			×			Indicates a control state of LDP system
Shift position [Off, P, R, N, D, M/T1 - 7]			×	×	×	Indicates shift position read from ADAS control unit through CAN communication (TCM transmits shift position signal through CAN communication)
Turn signal [OFF/LH/RH/LH&RH]			×	×		Indicates turn signal operation status read from ADAS control unit through CAN communication (BCM transmits turn indicator signal through CAN communication)
SIDE G [G]			×	×		Indicates lateral G acting on the vehicle. This lateral G is judged from a side G sensor signal read by ADAS control unit via CAN communication (The ABS actuator and electric unit (control unit) transmits a side G sensor signal via CAN communication)
FUNC ITEM (FCW) [On/Off]	×	×	×	×		Indicates systems which can be set to ON/OFF by selecting “Driver Aids” ⇒“Emergency Assist” of the integral switch Forward Emergency Braking
FUNC ITEM (LDW) [On/Off]	×	×	×	×		Indicates systems which can be set to ON/OFF by selecting “Driver Aids” ⇒“Lane” of the integral switch Lane Departure Warning
FUNC ITEM (BSW) [On/Off]	×	×	×	×		Indicates systems which can be set to ON/OFF by selecting “Driver Aids” ⇒“Blind spot” of the integral switch Blind Spot Warning
DCA SELECT [On/Off]	×	×	×	×		Indicates an ON/OFF state of the DCA system. The DCA system can be set to ON/OFF by selecting “Driving Aids”⇒“Front assist” of the integral switch
LDP SELECT [On/Off]	×	×	×	×		Indicates an ON/OFF state of LDP system. LDP system can be set to ON/OFF by selecting “Driving Aids”⇒“Lane”of the integral switch
BSI SELECT [On/Off]	×	×	×	×		Indicates an ON/OFF state of Blind Spot Intervention system. Blind Spot Intervention system can be set to ON/OFF by selecting “Driving Aids”⇒ “Blind Spot”of the integral switch
FCW SELECT [On/Off]	×	×	×	×		Indicates an ON/OFF state of the PFCW system. The PFCW system can be set to ON/OFF by selecting “Driving Aids”⇒“Emergency Assist” of the integral switch
LDW SELECT [On/Off]	×	×	×	×		Indicates an ON/OFF state of the LDW system. The LDW system can be set to ON/OFF by selecting “Driving Aids”⇒“Lane” of the integral switch
BSW SELECT [On/Off]	×	×	×	×		Indicates an ON/OFF state of the BSW system. The BSW system can be set to ON/OFF by selecting “Driving Aids”⇒“Blind spot” of the integral switch
DRIVE MODE STATS [STD/SPT/ECO/SNO]	×	×	×	×		Indicates a drive mode selector select position judged from a drive mode select switch position signal read by the ADAS control unit via CAN communication
WARN SYS SW [On/Off]	×	×	×	×		Indicates [On/Off] status of warning systems switch
BSW/BSI WARN LMP [On/Off]				×		Indicates [On/Off] status of Blind Spot warning malfunction
BSI ON IND [On/Off]				×		Indicates [On/Off] status of Blind Spot Intervention system display
BSW SYSTEM ON [On/Off]				×		Indicates [On/Off] status of BSW system
BSI SYSTEM ON [On/Off]				×		Indicates [On/Off] status of Blind Spot Intervention system
FCW SYSTEM ON [On/Off]	×	×				Indicates [On/Off] status of PFCW system

Monitored item [Unit]	ALL SIG (ICC)	MAIN SIG (ICC)	MAIN SIG (LDW/LDP)	MAIN SIG (BSW/BSI)	MAIN SIG (BCI)	Description
BCI SYSTEM ON [On/Off]					×	Indicates [On/Off] status of BCI system
BCI SWITCH [On/Off]					×	Indicates [On/Off] status of Backup Collision Intervention system switch
BATTERY CIRCUIT OFF [On/Off]	×					**NOTE:** The item is displayed, but it is not used
LDP WARNING INDICATOR [On/Off]			×			Indicates [On/Off] status of LDP warning display (Yellow) output
LDW ON INDICATOR [On/Off]			×			Indicates [On/Off] status of LDW system ON display output
LDW WARNING INDICATOR [On/Off]			×			Indicates [On/Off] status of LDW system warning display output
SYSTEM CANCEL MESSAGE [NOREQ/SLIP/SNOW/VDC OFF]	×	×	×	×		Indicates status of system cancel display output
CAMERA HI TEMP MSG [On/Off]			×	×		Indicates [On/Off] status of lane camera unit high temperature warning display output
ITS SETTING ITEM(DCA) [On/Off]	×	×	×	×		Indicates the presence or absence of DCA system.
ITS SETTING ITEM(LDP) [On/Off]	×	×	×	×		Indicates the presence or absence of LDP system.
ITS SETTING ITEM(BSI) [On/Off]	×	×	×	×		Indicates the presence or absence of Blind Spot Intervention system.
BSI WARNING INDICATOR [On/Off]				×		Indicates [On/Off] status of Blind Spot Intervention warning display output
BSW ON INDICATOR [On/Off]				×		Indicates [On/Off] status of BSW system ON display output
SIDE RADAR BLOCK COND [On/Off]				×		Indicates [On/Off] status of side radar with dirt or foreign materials
LDW WARNING ALERT TIMING [Nothing/Early/Late]			×			**NOTE:** The item is displayed, but it is not monitored
BSW IND BRIGHTNESS [Nothing/Bright/Normal/Dark]				×		Indicates status of brightness of Blind Spot Warning/Blind Spot Intervention indicator

ACTIVE TEST

CAUTION:

- **Never perform “Active Test” while driving the vehicle.**
- **The “Active Test” cannot be performed when the following systems malfunction is displayed.**

- ICC system
- DCA
- LDW

- LDP
- Blind Spot Warning
- Blind Spot Intervention
- BCI
• The “Active Test” cannot be performed when the FEB warning lamp is illuminated.
• Shift the selector lever to “P” position, and then perform the test.

Test item	Description
METER LAMP	The MAIN switch indicator and FEB warning lamp can be illuminated by ON/OFF operations as necessary
STOP LAMP	The ICC brake hold relay can be operated by ON/OFF operations as necessary, and the stop lamp can be illuminated
ICC BUZZER	Sounds a buzzer used for following systems by arbitrarily operating ON/OFF • Intelligent Cruise Control (ICC) • Distance Control Assist (DCA) • Predictive Forward Collision Warning (PFCW) • Forward Emergency Brake (FEB)
BRAKE ACTUATOR	Activates the brake by an arbitrary operation
ACTIVE PEDAL	The accelerator pedal actuator can be operated as necessary
DCA INDICATOR	The DCA system display can be illuminated by ON/OFF operations as necessary
LDP BUZZER	Sounds a buzzer used for following systems by arbitrarily operating ON/OFF • Lane Departure Warning (LDW) • Lane Departure Prevention (LDP) • Blind Spot Warning (BSW) • Blind Spot Intervention
WARNING SYSTEM IND	Warning systems ON indicator (on warning systems switch) can be illuminated by ON/OFF operations as necessary
LDP ON IND	The LDP system display can be illuminated by ON/OFF operations as necessary
LANE DEPARTURE W/L	The LDW/LDP warning can be illuminated by ON/OFF operations as necessary
BSW/BSI WARNING LAMP	The Blind Spot Warning/Blind Spot Intervention warning lamp can be illuminated by ON/OFF operations as necessary
BSW ON INDICATOR	The Blind Spot Warning system display can be illuminated by ON/OFF operations as necessary
BSI ON INDICATOR	The Blind Spot Intervention system display can be illuminated by ON/OFF operations as necessary
LDW ON INDICATOR	The LDW system display can be illuminated by ON/OFF operations as necessary
LDP WARNING INDICATOR	The LDP malfunction can be illuminated by ON/OFF operations as necessary
LDW WARNING INDICATOR	The LDW malfunction can be illuminated by ON/OFF operations as necessary
BSW WARNING INDICATOR	The BSW malfunction can be illuminated by ON/OFF operations as necessary
BSI WARNING INDICATOR	The Blind Spot Intervention malfunction can be illuminated by ON/OFF operations as necessary

METER LAMP
NOTE:
The test can be performed only when the engine is running.

Test item	Operation	Description	• MAIN switch indicator • ICC system warning • FEB warning lamp
METER LAMP	Off	Stops sending the following signals to exit from the test • Meter display signal • FEB warning lamp signal	OFF
	On	Transmits the following signals to the combination meter via CAN communication • Meter display signal • FEB warning lamp signal	ON

STOP LAMP

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

ICC BUZZER

Test item	Operation	Description	Operation sound
ICC BUZZER	MODE1	Transmits the buzzer output signals to the driver assistance buzzer control module via ITS communication	Intermittent beep sound
	Test start	Starts the tests of “MODE1”	—
	Reset	Stops transmitting the buzzer output signal below to end the test	—
	End	Returns to the “SELECT TEST ITEM” screen	—

BRAKE ACTUATOR

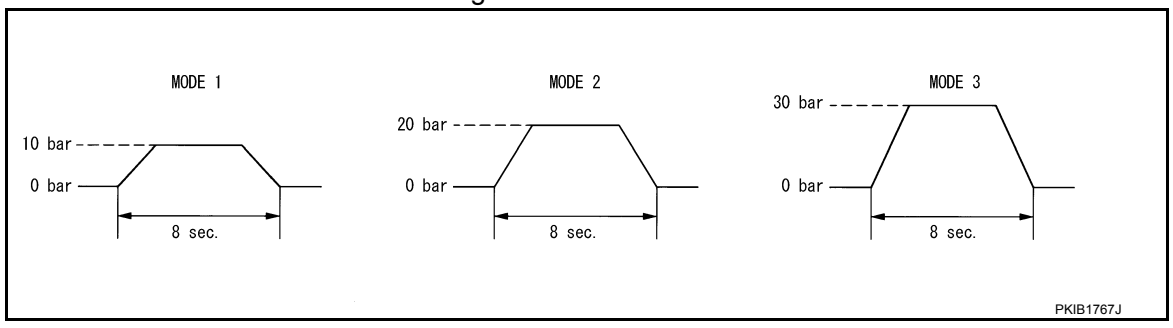
NOTE:

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

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

NOTE:

The test is finished in 10 seconds after starting



Active Pedal

CAUTION:

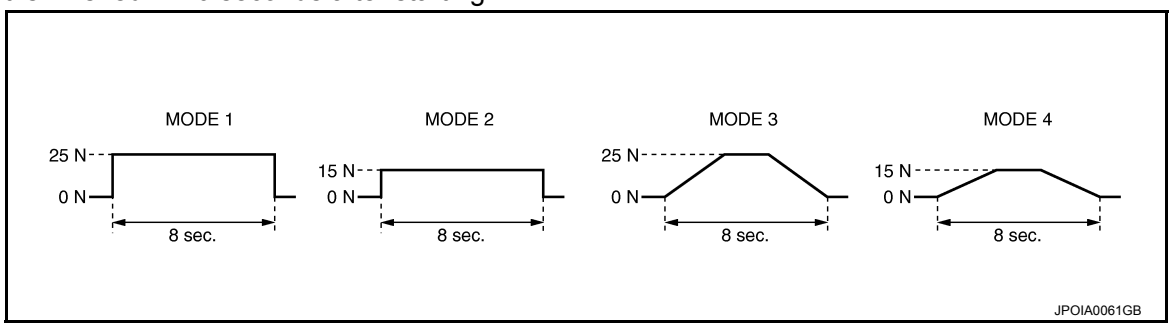
- **Shift the selector lever to “P” position, and then perform the test.**
- **Never depress the accelerator pedal excessively. (The engine speed may rise unexpectedly when finishing the test.)**

NOTE:

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

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

NOTE:
The test is finished in 10 seconds after starting



DCA INDICATOR
NOTE:
The test can be performed only when the engine is running.

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

LDP BUZZER

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

WARNING SYSTEM IND

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

LDP ON IND

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

LANE DEPARTURE W/L

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

BSW/BSI WARNING LAMP

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

BSW ON INDICATOR

Test item	Operation	Description	Blind Spot Warning system display (Yellow)
BSW ON INDICATOR	Off	Stops transmitting the meter display signal below to end the test	—
	On	Transmits the meter display signal to the combination meter via CAN communication	ON

BSI ON INDICATOR

Test item	Operation	Description	Blind Spot Intervention system display (Green)
BSI ON INDICATOR	Off	Stops transmitting the meter display signal below to end the test	—
	On	Transmits the meter display signal to the combination meter via CAN communication	ON

LDW ON INDICATOR

Test item	Operation	Description	LDW system display (White)
LDW ON INDICATOR	Off	Stops transmitting the meter display signal below to end the test	—
	On	Transmits the meter display signal to the combination meter via CAN communication	ON

LDP WARNING INDICATOR

Test item	Operation	Description	LDP malfunction (Yellow)
LDP WARNING INDICATOR	Off	Stops transmitting the meter display signal below to end the test	—
	On	Transmits the meter display signal to the combination meter via CAN communication	ON

LDW WARNING INDICATOR

Test item	Operation	Description	LDW malfunction (Yellow)
LDW WARNING INDICATOR	Off	Stops transmitting the meter display signal below to end the test	—
	On	Transmits the meter display signal to the combination meter via CAN communication	ON

BSW WARNING INDICATOR

Test item	Operation	Description	BSW malfunction (Yellow)
BSW WARNING INDICATOR	Off	Stops transmitting the meter display signal below to end the test	—
	On	Transmits the meter display signal to the combination meter via CAN communication	ON

BSI WARNING INDICATOR

Test item	Operation	Description	Blind Spot Intervention malfunction (Yellow)
BSI WARNING INDICATOR	Off	Stops transmitting the meter display signal below to end the test	—
	On	Transmits the meter display signal to the combination meter via CAN communication	ON

ECU IDENTIFICATION

Displays ADAS control unit parts number.

DIAGNOSIS SYSTEM (ICC SENSOR)

CONSULT Function (LASER/RADAR)

INFOID:0000000014203343

CAUTION:
After disconnecting the CONSULT vehicle interface (VI) from the data link connector, the ignition must be cycled OFF → ON (for at least 5 seconds) → OFF. If this step is not performed, the BCM may not go to "sleep mode", potentially causing a discharged battery and a no-start condition.

APPLICATION ITEMS

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

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

SELF DIAGNOSTIC RESULT

Refer to CCS-60, "DTC Index".

DATA MONITOR

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

WORK SUPPORT

Work support items	Description
MILLIWAVE RADAR ADJUST	Outputs millimeter waves, calculates the displacement in radar direction, and indicates an adjustment direction

ICC sensor Adjust

ECU IDENTIFICATION

ICC sensor part number is displayed.

DIAGNOSIS SYSTEM (LANE CAMERA UNIT)

CONSULT Function (LANE CAMERA)

INFOID:0000000014224818

APPLICATION ITEMS

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

Diagnosis mode	Description
Work Support	Performs the camera aiming.
Self Diagnostic Result	Displays the name of a malfunctioning system stored in the lane camera unit
Data Monitor	Displays lane camera unit input/output data in real time
Ecu Identification	Displays lane camera unit part number
CAN Diag Support Monitor	Displays a reception/transmission state of chassis communication

WORK SUPPORT

Work support items	Description
AUTO AIM	Outputs camera unit, calculates dislocation of the camera, and displays adjustment direction.
AIM CHECK	**NOTE:** The item is displayed, but it is not used.

SELF DIAGNOSTIC RESULT

Refer to DAS-283, "DTC Index".

FREEZE FRAME DATA (FFD)

Lane camera unit records the following vehicle condition at the time a particular DTC is detected, and displays on CONSULT.

CONSULT screen item (Indication/Unit)	Description
ODO/TRIP METER (km/h)	Vehicle speed of the moment a particular DTC is detected.

DATA MONITOR

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitored item (Unit)	Description
CAMERA HIGH TEMP (NORMAL/HIGH)	Displays status of lane camera unit high temperature judgment.
WIPER (Off/Lo/Hi)	Displays the wiper operating status.
TURN SIGNAL (Off/LH/ RH/LH&RH)	Displays status of “Turn signal” received from BCM via CAN communication.
VEHICLE SPEED (km/h)	Displays vehicle speed received from ABS actuator and electric unit (control unit) via CAN communication.
DRIVER ASSIST SYSTEM SET (NO REQ)	**NOTE:** The item is indicated, but not monitored.
BRAKE OPERATION STATUS (Off/On/CNFRM/UNKWN)	Displays the brake operating status.
AIMING DONE (not finished/finished)	Displays status that camera aiming is done.
AIMING RESULT (NOK/OK)	Displays result of camera aiming.

Monitored item (Unit)	Description
STEERING ANGLE (deg)	Displays the steering angle sent from the steering angle sensor.
YAW RATE (deg/s)	Displays the yaw rate.
FCTRY AIM YAW (deg)	Displays the yaw angle result of camera aiming.
FCTRY AIM ROL (deg)	Displays the roll angle result of camera aiming.
FCTRY AIM PIT (deg)	Displays the pitch angle result of camera aiming.
LDW FUNCTION (NORMAL/MALF)	Displays LDW function status.
LDW SETTING DISPLAY (NTHNG)	**NOTE:** The item is indicated, but not monitored.
DRIVER ASSIST SYSTEM BZZR (NO REQ)	**NOTE:** The item is indicated, but not monitored.
LDW LEFT (Off/On)	Displays the deviating status on the LH side lane.
LDW RIGHT (Off/On)	Displays the deviating status on the RH side lane.
LDW STATUS DISPLAY (Off/ON/TMP MF/ MF)	**NOTE:** The item is indicated, but not monitored.
HBA FUNCTION	**NOTE:** The item is indicated, but not monitored.
DISTANCE (m)	Displays the distance between the vehicle and an object detected by the lane camera unit.
RELATIVE SPEED (m/s)	Displays the relative velocity to an object detected by the lane camera unit.
HBA REQUEST (NO REQ)	**NOTE:** The item is indicated, but not monitored.
LOW BEAM STATUS (Off)	**NOTE:** The item is indicated, but not monitored.
HIGH BEAM STATUS (Off)	**NOTE:** The item is indicated, but not monitored.
NO-ENTRY SIGN DISPLAY	**NOTE:** The item is indicated, but not monitored.

DIAGNOSIS SYSTEM (ACCELERATOR PEDAL ACTUATOR)

CONSULT Function (ACCELERATOR PEDAL ACT)

INFOID:0000000014224819

DESCRIPTION

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

Test mode	Function
Self Diagnostic Result	• Displays malfunctioning system memorized in accelerator pedal actuator • Displays the Freeze Frame Data when the malfunction is detected
DATA MONITOR	Displays real-time input/output data of accelerator pedal actuator
ACTIVE TEST	Enables operation check of electrical loads by sending driving signal to them
ECU Identification	Displays accelerator pedal actuator parts number
CAN Diag Support Monitor	The results of transmit/receive diagnosis of ITS communication can be read

SELF DIAGNOSTIC RESULT

Self Diagnostic Result
Refer to DAS-271, "DTC Index".

FFD (Freeze Frame Data)
The accelerator pedal actuator records the following data when the malfunction is detected.

Freeze Frame Data item [Unit]	Description
TGT FBK FRC [N]	It displays the target accelerator pedal actuation force that the accelerator pedal actuator read out from the accelerator pedal feedback force control signal received via ITS communication at the time when the malfunction is detected
TGT MOT POSI [%]	It displays the target motor position that the accelerator pedal actuator read out from the accelerator pedal feedback force control signal received via ITS communication at the time when the malfunction is detected
ACT MOT POSI [%]	It displays the integrated motor position that the accelerator pedal actuator read out at the time when the malfunction is detected
AP OPEN [%]	It displays the accelerator pedal position signal that the accelerator pedal actuator read out via ITS communication at the time when the malfunction is detected
APA TEMP [°C]	It displays the integrated motor temperature that the accelerator pedal actuator read out at the time when the malfunction is detected
APA CURRENT [A]	It displays the integrated motor consumption current that the accelerator pedal actuator read out at the time when the malfunction is detected
APA PWR [V]	It displays the power supply voltage that the accelerator pedal actuator read out at the time when the malfunction is detected
APA OPE STATS [On/Off]	It displays the activation permission status of accelerator pedal actuator at the time when the malfunction is detected
APA STATS [READY/NG/TP NG/INIT]	It displays the condition of accelerator pedal actuator at the time when the malfunction is detected
ODO/TRIP METER	Total mileage (Odometer value) of the moment a particular.

DATA MONITOR

NOTE:
The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

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

ACTIVE TEST

CAUTION:

Never perform ACTIVE TEST while driving the vehicle.

NOTE:

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

Item list

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

ACCELERATOR PEDAL ACTUATOR TEST 1

NOTE:

Check the accelerator pedal by depressing when performing the test.

Active test item	Operation	Description
ACCELERATOR PEDAL ACTUATOR TEST1	STOP	Finish the test
	START	Generate the constant accelerator pedal actuation force for accelerator pedal

ACCELERATOR PEDAL ACTUATOR TEST 2

NOTE:

Check the accelerator pedal by depressing when performing the test.

Active test item	Operation	Description
ACCELERATOR PEDAL ACTUATOR TEST 2	STOP	Finish the test
	START	Generate the vibration for accelerator pedal

ECU IDENTIFICATION

Displays accelerator pedal assembly parts number.

ECU DIAGNOSIS INFORMATION

ADAS CONTROL UNIT

Reference Value

INFOID:0000000014224821

VALUES ON THE DIAGNOSIS TOOL

NOTE:
The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor item	Condition		Value/Status
MAIN SW	Ignition switch ON	When MAIN switch is pressed	On
		When MAIN switch is not pressed	Off
SET/COAST SW	Ignition switch ON	When SET/COAST switch is pressed	On
		When SET/COAST switch is not pressed	Off
CANCEL SW	Ignition switch ON	When CANCEL switch is pressed	On
		When CANCEL switch is not pressed	Off
RESUME/ACC SW	Ignition switch ON	When RESUME/ACCELERATE switch is pressed	On
		When RESUME/ACCELERATE switch is not pressed	Off
DISTANCE SW	Ignition switch ON	When DISTANCE switch is pressed	On
		When DISTANCE switch is not pressed	Off
CRUISE OPE	Drive the vehicle and activate the vehicle-to-vehicle distance control mode	When ICC system is controlling	On
		When ICC system is not controlling	Off
BRAKE SW	Ignition switch ON	When brake or clutch pedal is depressed	Off
		When brake or clutch pedal is not depressed	On
STOP LAMP SW	Ignition switch ON	When brake pedal is depressed	On
		When brake pedal is not depressed	Off
IDLE SW	Engine running	Idling	On
		Except idling (depress accelerator pedal)	Off
SET DISTANCE	• Start the engine and turn the ICC system ON • Press the DISTANCE switch to change the vehicle-to-vehicle distance setting	When set to “long”	Long
		When set to “middle”	Mid
		When set to “short”	Short
CRUISE LAMP	Start the engine and press MAIN switch	ICC system ON (MAIN switch indicator ON)	On
		ICC system OFF (MAIN switch indicator OFF)	Off
OWN VHCL	**NOTE:** The item is indicated, but not monitored		Off
VHCL AHEAD	Drive the vehicle and activate the vehicle-to-vehicle distance control mode	When a vehicle ahead is detected (vehicle ahead detection indicator ON)	On
		When a vehicle ahead is not detected (vehicle ahead detection indicator OFF)	Off
ICC WARNING	Start the engine and press MAIN switch	When ICC system is malfunctioning (ICC system malfunction ON)	On
		When ICC system is normal (ICC system malfunction OFF)	Off

Monitor item	Condition		Value/Status
VHCL SPEED SE	While driving		Displays the vehicle speed calculated by ADAS control unit
SET VHCL SPD	While driving	When vehicle speed is set	Displays the set vehicle speed
BUZZER O/P	Engine running	When the buzzer of the following system operates • Vehicle-to-vehicle distance control mode • DCA system • PFCW system • FEB system	On
		When the buzzer of the following system not operates • Vehicle-to-vehicle distance control mode • DCA system • PFCW system • FEB system	Off
THRTL SENSOR	**NOTE:** The item is indicated, but not monitored		0.0
ENGINE RPM	Engine running		Equivalent to tachometer reading
WIPER SW	Ignition switch ON	Wiper not operating	Off
		Wiper LO operation	Low
		Wiper HI operation	High
YAW RATE	**NOTE:** The item is indicated, but not monitored		0.0
BA WARNING	Engine running	FEB OFF indicator lamp ON • When FEB system is malfunctioning • When FEB system is turned to OFF	On
		FEB OFF indicator lamp OFF • When FEB system is normal • When FEB system is turned to ON	Off
STP LMP DRIVE	Drive the vehicle and activate the vehicle-to-vehicle distance control mode	When ICC brake hold relay is activated	On
		When ICC brake hold relay is not activated	Off
D RANGE SW	Engine running	When the selector lever is in “D” position or manual mode	On
		When the selector lever is in any position other than “D” or manual mode	Off
NP RANGE SW	Engine running	When the selector lever is in “N”, “P” position	On
		When the selector lever is in any position other than “N”, “P”	Off
PKB SW	Ignition switch ON	When the parking brake is applied	On
		When the parking brake is released	Off
PWR SUP MONI	Engine running		Power supply voltage value of ADAS control unit
VHCL SPD AT	While driving		Value of A/T vehicle speed sensor signal
THRTL OPENING	Engine running	Depress accelerator pedal	Displays the throttle position

Monitor item	Condition		Value/Status
GEAR	While driving		Displays the gear position
MODE SIG	Start the engine and press MAIN switch	When ICC system is deactivated	Off
		When vehicle-to-vehicle distance control mode is activated	ICC
		When conventional (fixed speed) cruise control mode is activated	ASCD
SET DISP IND	• Drive the vehicle and activate the conventional (fixed speed) cruise control mode • Press SET/COAST switch	SET switch indicator ON	On
		SET switch indicator OFF	Off
DISTANCE	Drive the vehicle and activate the vehicle-to-vehicle distance control mode	When a vehicle ahead is detected	Displays the distance from the preceding vehicle
		When a vehicle ahead is not detected	0.0
RELATIVE SPD	Drive the vehicle and activate the vehicle-to-vehicle distance control mode	When a vehicle ahead is detected	Displays the relative speed.
		When a vehicle ahead is not detected	0.0
DYNA ASIST SW	Ignition switch ON	When dynamic driver assistance switch is pressed	On
		When dynamic driver assistance switch is not pressed	Off
DCA ON IND	Start the engine and press dynamic driver assistance switch (When DCA setting is ON)	DCA system OFF	Off
		DCA system ON	On
DCA VHL AHED	Drive the vehicle and activate the DCA system	When a vehicle ahead is not detected (vehicle ahead detection indicator OFF)	Off
		When a vehicle ahead is detected (vehicle ahead detection indicator ON)	On
FCW SYSTEM ON	Ignition switch ON	When the PFCW system is ON	On
		When the PFCW system is OFF	Off
APA TEMP	Engine running		Display the accelerator pedal actuator integrated motor temperature
APA PWR	Ignition switch ON		Power supply voltage value of accelerator pedal actuator
LDW SYSTEM ON	Ignition switch ON	When the LDW system is ON	On
		When the LDW system is OFF	Off
LDW ON LAMP	Ignition switch ON	When the LDW system is ON	On
		When the LDW system is OFF	Off
LDP ON IND	Start the engine and press dynamic driver assistance switch (When LDP system setting is ON)	LDP ON indicator lamp ON	On
		LDP ON indicator lamp OFF	Off
LANE DPRT W/L	Drive the vehicle and activate the LDW system or LDP system	Lane departure warning lamp ON	On
		Lane departure warning lamp OFF	Off

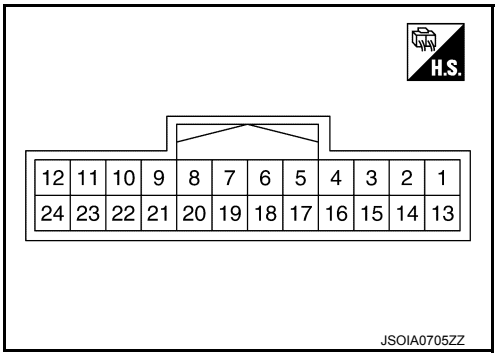
Monitor item	Condition		Value/Status
LDW BUZZER OUTPUT	Drive the vehicle and activate the LDW/LDP system or Blind Spot Warning/Blind Spot Intervention system	When the buzzer of the following system operates • LDW/LDP system • Blind Spot Warning/Blind Spot Intervention system	On
		When the buzzer of the following system does not operate • LDW/LDP system • Blind Spot Warning/Blind Spot Intervention system	Off
LDP SYSTEM ON	Start the engine and press dynamic driver assistance switch (When LDP system setting is ON)	When the LDP system is ON	On
		When the LDP system is OFF	Off
WARN REQ	Drive the vehicle and activate the LDP system	Lane departure warning is operating	On
		Lane departure warning is not operating	Off
READY signal	Start the engine and press dynamic driver assistance switch (When LDP system setting is ON)	When the LDP system is ON	On
		When the LDP system is OFF	Off
Camera lost	Drive the vehicle and activate the LDW system, LDP system or Blind Spot Intervention system	Both side lane markers are detected	Detect
		Deviate side lane marker is lost	Deviate
		Both side lane markers are lost	Both
Lane unclear	While driving	Lane marker is unclear	On
		Lane marker is clear	Off
STATUS signal	Drive the vehicle and activate the LDP system	When the LDP system is ON	Stnby
		When the LDP system is operating	Warn
		When the LDP system is canceled	Cancl
		When the LDP system is OFF	Off
Shift position	• Engine running • While driving		Displays the shift position
Turn signal	Turn signal lamps OFF		Off
	Turn signal lamp LH blinking		LH
	Turn signal lamp RH blinking		RH
	Turn signal lamp LH and RH blinking		LH&RH
SIDE G	While driving	Vehicle turning right	Negative value
		Vehicle turning left	Positive value
FUNC ITEM	Ignition switch ON		FUNC3
FUNC ITEM (FCW)	Engine running		On
FUNC ITEM (LDW)	Engine running		On
FUNC ITEM (BSW)	Engine running		On
DCA SELECT	Ignition switch ON	“Distance Control Assist” set with the integral switch is ON	On
		“Distance Control Assist” set with the integral switch is OFF	Off
LDP SELECT	Ignition switch ON	“Lane Departure Intervention” set with the integral switch is ON	On
		“Lane Departure Intervention” set with the integral switch is OFF	Off
BSI SELECT	Ignition switch ON	“Blind Spot Intervention” set with the integral switch is ON	On
		“Blind Spot Intervention” set with the integral switch is OFF	Off

Monitor item	Condition		Value/Status
FCW SELECT	Ignition switch ON	"Forward Emergency Braking" set with the integral switch is ON	On
		"Forward Emergency Braking" set with the integral switch is OFF	Off
LDW SELECT	Ignition switch ON	"Lane Departure Warning" set with the integral switch is ON	On
		"Lane Departure Warning" set with the integral switch is OFF	Off
BSW SELECT	Ignition switch ON	"Blind Spot Warning" set with the integral switch is ON	On
		"Blind Spot Warning" set with the integral switch is OFF	Off
DRIVE MODE STATS	Ignition switch ON	When drive mode select switch position is STANDARD	STD
		When drive mode select switch position is in SPORT	SPORT
		When drive mode select switch position is in ECO	ECO
		When drive mode select switch position is in SNOW	SNOW
		When drive mode select switch position is in PERSONAL	STD
		A signal other than those above is input	ERROR
WARN SYS SW	Ignition switch ON	When warning systems switch is pressed	On
		When warning systems switch is not pressed	Off
BSW/BSI WARN LMP	Engine running	When the BSW system is malfunctioning	On
		When the BSW system is normal	Off
BSI ON IND	Engine running	Blind Spot Intervention warning ON	On
		Blind Spot Intervention warning OFF	Off
BSW SYSTEM ON	Ignition switch ON	When the BSW system is ON	On
		When the BSW system is OFF	Off
BSI SYSTEM ON	Start the engine and press dynamic driver assistance switch (When Blind Spot Intervention system setting is ON)	When the Blind Spot Intervention system is ON	On
		When the Blind Spot Intervention system is OFF	Off
FCW SYSTEM ON	Engine running	When the FEB/PFCW system is ON	On
		When the FEB/PFCW system is OFF	Off
BCI SYSTEM ON	Engine running	When the BCI system is ON	On
		When the BCI system is OFF	Off
BCI SWITCH	**NOTE:** The item is indicated, but not monitored		Off
BATTERY CIRCUIT OFF	**NOTE:** The item is indicated, but not used		Off
LDP WARNING INDICATOR	Engine running	When the LDP system is malfunctioning	On
		When the LDP system is normal	Off
LDW ON INDICATOR	Engine running	LDW system display ON	On
		LDW system display OFF	Off
LDW WARNING INDICATOR	Engine running	When the LDW system is malfunctioning	On
		When the LDW system is normal	Off
SYSTEM CANCEL MESSAGE	Engine running	When the vehicle is normal	NOREQ
		When the wheel is slipping	SLIP
		When the drive mode selector is SNOW mode	SNOW
		When the VDC is OFF	VDC OFF

Monitor item	Condition		Value/Status
CAMERA HI TEMP MSG	Engine running	Lane camera unit high temperature warning display ON	On
		Lane camera unit high temperature warning display OFF	Off
ITS SETTING ITEM(DCA)	Ignition switch ON		On
ITS SETTING ITEM(LDP)	Ignition switch ON		On
ITS SETTING ITEM(BSI)	Ignition switch ON		On
BSI WARNING INDICATOR	Engine running	When the Blind Spot Intervention is malfunctioning	On
		When the Blind Spot Intervention is normal	Off
BSW ON INDICATOR	Engine running	BSW system display ON	On
		BSW system display OFF	Off
SIDE RADAR BLOCK COND	Engine running	Front bumper or side radar is dirty	On
		Front bumper and side radar is clean	Off
LDW WARNING ALERT TIMING	Ignition switch ON	LDW system OFF	Nothing
		Lane departure warning timing is early setting	Early
		Lane departure warning timing is late setting	Late
BSW IND BRIGHTNESS	Ignition switch ON	BSW system OFF	Nothing
		Blind Spot Warning/Blind Spot Intervention indicator brightness bright	Bright
		Blind Spot Warning/Blind Spot Intervention indicator brightness normal	Normal
		Blind Spot Warning/Blind Spot Intervention indicator brightness dark	Dark

TERMINAL LAYOUT

PHYSICAL VALUES



Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	−	Signal name	Input/ Output			
1 (B)	Ground	CAN high	—	—	—	—
2 (W)		CAN low	—	—	—	—
5 (B)		Ground	—	Ignition switch ON	—	0 V
6 (L)		ITS communication high	—	—	—	—
7 (Y)		ITS communication low	—	—	—	—
8 (L)		Chassis communication high	—	—	—	—
9 (Y)		Chassis communication low	—	—	—	—
12 (R)		Ignition power supply	Input	Ignition switch ON		Battery voltage
17 (G)		ICC brake hold relay drive signal	Output	Ignition switch ON	—	Battery voltage
					At “STOP LAMP” test of “Active test”	0 V
18 (BR)		Warning systems switch	Input	Ignition switch ON	When warning systems switch is not pressed	Battery voltage
					When warning systems switch is pressed	0 V
19 (W)		Warning systems ON indicator	Output	Ignition switch ON	Warning systems ON indicator ON	0 V
					Warning systems ON indicator OFF	Battery voltage
22 (BG)		BCI OFF switch	Input	Ignition switch ON	When BCI OFF switch is not pressed	Battery voltage
					When BCI OFF switch is pressed	0 V

Fail-safe (ADAS Control Unit)

INFOID:0000000014224822

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

System	Buzzer	Warning lamp/Warning display	Description
Vehicle-to-vehicle distance control mode	High-pitched tone	ICC system warning	Cancel
Conventional (fixed speed) cruise control mode	High-pitched tone	ICC system warning	Cancel
Forward Emergency Braking (FEB)	High-pitched tone	FEB warning	Cancel
Predictive Forward Collision Warning (PFCW)	High-pitched tone	Warning message	Cancel
Distance Control Assist (DCA)	High-pitched tone	DCA system warning	Cancel
Lane Departure Warning (LDW)	—	Lane departure warning lamp	Cancel

System	Buzzer	Warning lamp/Warning display	Description
Lane Departure Prevention (LDP)	Low-pitched tone	Lane departure warning lamp	Cancel
Blind Spot Warning (BSW)	—	Blind Spot Warning warning lamp	Cancel
Blind Spot Intervention	Low-pitched tone	Blind Spot Intervention warning lamp	Cancel
Backup Collision Intervention (BCI)	High-pitched tone	Backup Collision Intervention warning indicator	Cancel
Rear Cross Traffic Alert (RCTA)	—	Rear Cross Traffic Alert warning	Cancel

DTC Inspection Priority Chart

INFOID:0000000014224823

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

Priority	Detected items (DTC)	
1	• U1507: LOST COMM (SIDE RDR R) • U1508: LOST COMM (SIDE RDR L)	
2	• 1CA0A: CONFIG UNFINISHED • U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)	
3	• C1B00: CAMERA UNIT MALF • C1F02: APA C/U MALF • C1B53: SIDE RDR R MALF • C1B54: SIDE RDR L MALF • C1B84: DIST SEN MALFUNCTION	
4	• C1A01: POWER SUPPLY CIR • C1A02: POWER SUPPLY CIR 2 • C1A04: ABS/TCS/VDC CIRC • C1A05: BRAKE SW/STOP L SW • C1A06: OPERATION SW CIRC • C1A13: STOP LAMP RLY FIX • C1A14: ECM CIRCUIT • C1A24: NP RANGE • C1A26: ECD MODE MALF • C1A27: ECD PWR SUPLY CIR • C1A33: CAN TRANSMISSION ERR • C1A34: COMMAND ERROR • C1A35: APA CIR • C1A36: APA CAN COMM CIR • C1A37: APA CAN CIR 2 • C1A38: APA CAN CIR 1 • C1A39: STRG SEN CIR • C1A40: SYSTEM SW CIR • C1B01: CAM AIMING INCMP • C1B03: CAM ABNRMAL TMP DETCT • C1B56: SONAR CIRCUIT • C1B57: AVM CIRCUIT • C1B58: DR ASSIST BUZZER CIRCUIT • C1B82: DIST SEN OFF-CENTER • C1B85: DIST SEN ABNORMAL TEMP • C1B86: DIST SEN PWR SUP CIR • C1F01: APA MOTOR MALF • C1F05: APA PWR SUPLY CIR	• U0121: VDC CAN CIR 2 • U0126: STRG SEN CAN CIR 1 • U0235: ICC SENSOR CAN CIRC 1 • U0401: ECM CAN CIR 1 • U0402: TCM CAN CIR 1 • U0415: VDC CAN CIR 1 • U0424: HVAC CAN CIR 1 • U0428: STRG SEN CAN CIR 2 • U1500: CAM CAN CIR 2 • U1501: CAM CAN CIR 1 • U1502: ICC SEN CAN COMM CIR • U1503: SIDE RDR L CAN CIR 2 • U1504: SIDE RDR L CAN CIR 1 • U1505: SIDE RDR R CAN CIR 2 • U1506: SIDE RDR R CAN CIR 1 • U150B: ECM CAN CIRC 3 • U150C: VDC CAN CIRC 3 • U150D: TCM CAN CIRC 3 • U150E: BCM CAN CIRC 3 • U1512: HVAC CAN CIRC3 • U1513: METER CAN CIRC 3 • U1514: STRG SEN CAN CIRC 3 • U1515: ICC SENSOR CAN CIRC 3 • U1516: CAM CAN CIR 3 • U1517: APA CAN CIRC 3 • U1518: SIDE RDR L CAN CIRC 3 • U1519: SIDE RDR R CAN CIRC 3 • U1521: SONAR CAN COMMUNICATION 2 • U1522: SONAR CAN COMMUNICATION 1 • U1523: SONAR CAN COMMUNICATION 3 • U1524: AVM CAN COMMUNICATION 1 • U1525: AVM CAN COMMUNICATION 3 • U1530: DR ASSIST BUZZER CAN CIR 1

Priority	Detected items (DTC)
5	• C1A03: VHCL SPEED SE CIRC
6	• C1A15: GEAR POSITION
7	• C1A00: CONTROL UNIT

DTC Index

INFOID:0000000014224824

Systems for fail-safe
- A: Vehicle-to-vehicle distance control mode
- B: Conventional (fixed speed) cruise control mode
- C: Distance Control Assist (DCA)
- D: Forward Emergency Braking (FEB)
- E: Predictive Forward Collision Warning (PFCW)
- F: Blind Spot Warning (BSW)/Blind Spot Intervention (BSI)/Rear Cross Traffic Alert (RCTA)
- G: Back-up Collision Intervention (BCI)
- H: Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)

DTC		CONSULT display	Fail-safe	Reference
CONSULT	On board display		System	
NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED	55	NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED	—	—
C1A0A	41	CONFIG UNFINISHED	A, B, C, D, E, F, G, H	DAS-68
C1A00	0	CONTROL UNIT	A, B, C, D, E, F, G, H	DAS-69
C1A01	1	POWER SUPPLY CIR	A, B, C, D, E, F, G, H	DAS-70
C1A02	2	POWER SUPPLY CIR 2	A, B, C, D, E, F, G, H	DAS-70
C1A03	3	VHCL SPEED SE CIRC	A, B, C, D, E, F, G, H	DAS-71
C1A04	4	ABS/TCS/VDC CIRC	A, B, C, D, E, F, G, H	DAS-73
C1A05	5	BRAKE SW/STOP L SW	A, B, C, D, G, H	DAS-75
C1A06	6	OPERATION SW CIRC	A, B, C, D, E, H	DAS-80
C1A13	13	STOP LAMP RLY FIX	A, B, C, D, E, G	DAS-82
C1A14	14	ECM CIRCUIT	A, B, C, D, E	DAS-89
C1A15	15	GEAR POSITION	A, B, C, D, E	DAS-91
C1A24	24	NP RANGE	A, B, C, D, E, F, G	DAS-93
C1A26	26	ECD MODE MALF	A, B, C, D, G	DAS-95
C1A27	27	ECD PWR SUPLY CIR	A, B, C, D, G	DAS-97
C1A33	33	CAN TRANSMISSION ERR	A, B, C, D, E	DAS-99
C1A34	34	COMMAND ERROR	A, B, C, D, E	DAS-100
C1A35	35	APA CIR	A, C, D, E	DAS-101
C1A36	36	APA CAN COMM CIR	A, C, D, E	DAS-102
C1A37	133	APA CAN CIR 2	A, C, D, E	DAS-103
C1A38	132	APA CAN CIR 1	A, C, D, E	DAS-104
C1A39	39	STRG SEN CIR	A, B, C, D, E, F, G	DAS-105
C1A40	40	SYSTEM SW CIR	G	DAS-105
C1B00	81	CAMERA UNIT MALF	F, H	DAS-108
C1B01	82	CAM AIMING INCMP	F, H	DAS-109
C1B03	83	ABNRML TMP DETCT	F, H	DAS-110
C1B53	84	SIDE RDR R MALF	F, G	DAS-111

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DTC		CONSULT display	Fail-safe	Reference
CONSULT	On board display		System	
C1B54	85	SIDE RDR L MALF	F, G	DAS-112
C1B56	86	SONAR CIRCUIT	G	DAS-113
C1B57	87	AVM CIRCUIT	G	DAS-114
C1A58	182	DR ASSIST BUZZER CIRCUIT		DAS-115
C1B82	12	DIST SEN OFF-CENTER	A, C, D, E	DAS-116
C1B83	16	DIST SEN BLOCKED	A, C, D, E	DAS-117
C1B84	17	DIST SEN MALFUNCTION	A, C, D, E	DAS-118
C1B85	21	DIST SEN ABNORMAL TEMP	A, C, D, E	DAS-119
C1B86	80	DIST SEN PWR SUP CIR	A, C, D, E	DAS-120
C1F01	91	APA MOTOR MALF	A, C, D, E	DAS-122
C1F02	92	APA C/U MALF	A, C, D, E	DAS-123
C1F05	95	APA PWR SUPLY CIR	A, C, D, E	DAS-124
U0121	127	VDC CAN CIR 2	A, B, C, D, E, F, G, H	DAS-125
U0126	130	STRG SEN CAN CIR 1	A, B, C, D, E, F, G	DAS-126
U0235	144	ICC SENSOR CAN CIRC 1	A, C, D, E	DAS-127
U0401	120	ECM CAN CIR 1	A, B, C, D, E, F, G	DAS-128
U0402	122	TCM CAN CIR 1	A, B, C, D, E, F, G, H	DAS-129
U0415	126	VDC CAN CIR 1	A, B, C, D, E, F, G, H	DAS-131
U0424	156	HVAC CAN CIR 1		DAS-133
U0428	131	STRG SEN CAN CIR 2	A, B, C, D, E, F, G	DAS-134
U1000[NOTE]	100	CAN COMM CIRCUIT	A, B, C, D, E, F, G, H	DAS-135
U1010	110	CONTROL UNIT (CAN)	A, B, C, D, E, F, G, H	DAS-137
U150B	157	ECM CAN CIRC 3	A, B, C, D, E, F, G, H	DAS-138
U150C	158	VDC CAN CIRC 3	A, B, C, D, E, F, G, H	DAS-140
U150D	159	TCM CAN CIRC 3	A, B, C, D, E, F, G, H	DAS-142
U150E	160	BCM CAN CIRC 3	A, B, C, D, F, G, H	DAS-144
U1500	145	CAM CAN CIR2	F, H	DAS-145
U1501	146	CAM CAN CIR 1	F, H	DAS-146
U1502	147	ICC SEN CAN COMM CIR	A, C, D, E	DAS-147
U1503	150	SIDE RDR L CAN CIR 2	F, G	DAS-148
U1504	151	SIDE RDR L CAN CIR 1	F, G	DAS-149
U1505	152	SIDE RDR R CAN CIR 2	F, G	DAS-150
U1506	153	SIDE RDR R CAN CIR 1	F, G	DAS-151
U1507	154	LOST COMM (SIDE RDR R)	F, G	DAS-152
U1508	155	LOST COMM (SIDE RDR L)	F, G	DAS-153
U1512	162	HVAC CAN CIRC3		DAS-154

Systems for fail-safe
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DTC		CONSULT display	Fail-safe	Reference
CONSULT	On board display		System	
U1513	163	METER CAN CIRC 3	A, B, C, D, E, F, G, H	DAS-155
U1514	164	STRG SEN CAN CIRC 3	A, B, C, D, E, F, G	DAS-156
U1515	165	ICC SENSOR CAN CIRC 3	A, C, D, E	DAS-157
U1516	166	CAM CAN CIRC 3	F, H	DAS-158
U1517	167	APA CAN CIRC 3	A, C, D, E	DAS-159
U1518	168	SIDE RDR L CAN CIRC 3	F, G	DAS-160
U1519	169	SIDE RDR R CAN CIRC 3	F, G	DAS-161
U1521	177	SONAR CAN COMMUNICATION 2	G	DAS-163
U1522	178	SONAR CAN COMMUNICATION 1	G	DAS-164
U1523	179	SONAR CAN COMMUNICATION 3	G	DAS-165
U1524	180	AVM CAN COMMUNICATION 1	G	DAS-166
U1525	181	AVM CAN COMMUNICATION 3	G	DAS-167
U1530	183	DR ASSIST BUZZER CAN CIR1		DAS-168

NOTE:
With the detection of “U1000” some systems do not perform the fail-safe operation.
A system controlling based on a signal received from the control unit performs fail-safe operation when the communication with the ADAS control unit becomes inoperable.

ICC SENSOR

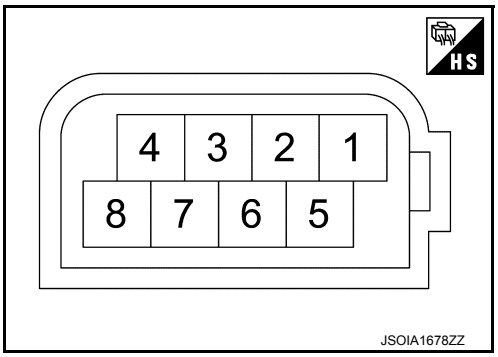
Reference Value

INFOID:0000000014222590

VALUES ON THE DIAGNOSIS TOOL

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

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Standard value	Reference value (Approx.)
+	–	Signal name	Input/ Output			
1 (P)	8 (B)	Ignition power supply	Input	Ignition switch ON	9.5 - 16 V	Battery voltage
3 (L)	—	ITS communication-L	—	—	—	—
6 (Y)		ITS communication-H	—	—	—	—
8 (B)	Ground	Ground	—	Ignition switch ON	0 - 0.1 V	0 V

Fail-safe (ICC Sensor)

INFOID:0000000014222591

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

DTC Inspection Priority Chart

INFOID:0000000014222592

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

Priority	Detected items (DTC)
1	• U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)
2	• C1A50: ADAS MALFUNCTION

Priority	Detected items (DTC)
3	• C1A01: POWER SUPPLY CIR • C1A02: POWER SUPPLY CIR 2 • C1A03: VHCL SPEED CIRC • C1A04: ABS/TCS/VDC CIRC • C1A05: BRAKE SW/STOP L SW • C1A06: OPERATION SW • C1A13: STOP LSMP RLY FIX • C1A14: ECM CIRCUIT • C1A15: GEAR POSITION • C1A23: UNIT LOW TEMP • C1A24: NP RANGE • C1A26: ECD MODE MALF • C1A27: ECD PWR SUPLY CIR • C1A33: CAN TRANSMISSION ERR • C1A34: COMMAND ERROR • C1A35: APA CIR • C1A36: APA CAN COMM CIR • C1A37: APA CAN CIR2 • C1A38: APA CAN CIR1 • C1A39: STRG SEN CIR • C1B58: DR ASSIST BUZZER CIRCUIT • C1B83: DIST SEN BLOCKED • C1F01: APA MOTOR MALF • C1F02: APA C/U MALF • C1F05: APA PWR SUPLY CIR • U0104: ADAS CAN CIR1 • U0121: VDC CAN CIR2 • U0126: STRG SEN CAN CIR1 • U0235: ICC SENSOR CAN CIR1 • U0401: ECM CAN CIR2 • U0402: TCM CAN CIR2 • U0415: VDC CAN CIR1 • U150B: ECM CAN CIR3 • U150C: VDC CAN CIRC3 • U150D: TCM CAN CIRC3 • U150E:BCM CAN CIRC3 • U1513: METER CAN CIRC3 • U1514: STRG SEN CAN CIRC3 • U1515: ICC SENSOR CAN CIRC3 • U1517: APA CAN CIRC3
4	• C1A00: CONTROL UNIT

DTC Index

INFOID:0000000014222593

NOTE:

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

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

×: Applicable

DTC	CONSULT display	ICC system warning lamp	Fail-safe function					Reference
CONSULT			Vehicle-to-vehicle distance control mode	Conventional (fixed speed) cruise control mode	Distance Control Assist (DCA)	Forward Collision Warning (FCW)	Forward Emergency Braking (FEB)	
C1A00	CONTROL UNIT	ON	×	×	×	×	×	CCS-96, "ICC SENSOR : DTC Logic"
C1A01	POWER SUPPLY CIR	ON	×	×	×	×	×	CCS-98, "ICC SENSOR : DTC Logic"
C1A02	POWER SUPPLY CIR2	ON	×	×	×	×	×	CCS-98, "ICC SENSOR : DTC Logic"
C1A03	VHCL_SPEED SE CIRC	ON	×	×	×	×	×	CCS-100, "DTC Logic"
C1A04	ABS/TCS/VDC_CIRC	ON	×	×	×	×	×	CCS-102, "DTC Logic"
C1A05	BRAKE_SW/STOP_L_SW	ON	×	×	×	×	×	CCS-104, "DTC Logic"
C1A06	OPERATION_SW_CIRC	ON	×	×	×	×	×	CCS-109, "DTC Logic"
C1A13	STOP_LAMP_RLY_FIX	ON	×	×	×	×	×	CCS-112, "DTC Logic"
C1A14	ECM_CIRCUIT	ON	×	×	×	×	×	CCS-118, "DTC Logic"
C1A15	GEAR_POSITION	ON	×	×	×	×	×	CCS-119, "DTC Logic"
C1A23	UNIT HIGH TEMP	ON	×	×	×	×	×	CCS-121, "DTC Logic"
C1A24	NP_RANGE	ON	×	×	×	×	×	CCS-122, "DTC Logic"
C1A26	ECD_MODE_MALF	ON	×	×	×	×	×	CCS-124, "DTC Logic"
C1A27	ECD_PWR_SUPLY_CIR	ON	×	×	×	×	×	CCS-126, "DTC Logic"
C1A33	CAN TRANSMISSION ERROR	ON	×	×	×	×	×	CCS-128, "DTC Logic"
C1A34	COMMAND ERROR	ON	×	×	×	×	×	CCS-129, "DTC Logic"
C1A35	APA CIR	ON	×	×	×	×	×	CCS-130, "DTC Logic"

DTC	CONSULT display	ICC system warning lamp	Fail-safe function					Reference
CONSULT			Vehicle-to-vehicle distance control mode	Conventional (fixed speed) cruise control mode	Distance Control Assist (DCA)	Forward Collision Warning (FCW)	Forward Emergency Braking (FEB)	
C1A36	APA CAN COMM CIR	ON	×	×	×	×	×	CCS-131, "DTC Logic"
C1A37	APA CAN CIR2	ON	×	×	×	×	×	CCS-132, "DTC Logic"
C1A38	APA CAN CIR2	ON	×	×	×	×	×	CCS-133, "DTC Logic"
C1A39	STRG SEN CIR	ON	×	×	×	×	×	CCS-135, "ICC SENSOR : DTC Logic"
C1B58	DR ASSIST BUZZER CIRCUIT	ON	×	×	×	×	×	CCS-169, "DTC Logic"
C1B83	DIST SEN BLOCKED	ON	×	×	×	×	×	CCS-137, "DTC Logic"
C1F01	APA MOTOR MALF	ON	×	×	×	×	×	CCS-138, "DTC Logic"
C1F02	APA C/U MALF	ON	×	×	×	×	×	CCS-139, "DTC Logic"
C1F05	APA PWR SUPLY CIR	ON	×	×	×	×	×	CCS-140, "DTC Logic"
U0121	VDC CAN CIR2	ON	×	×	×	×	×	CCS-142, "ICC SENSOR : DTC Logic"
U0126	STRG SEN CAN CIR1	ON	×	×	×	×	×	CCS-144, "ICC SENSOR : DTC Logic"
U0235	ICC SENSOR CAN CIR1	ON	×	×	×	×	×	CCS-146, "DTC Logic"
U0401	ECM CAN CIR1	ON	×	×	×	×	×	CCS-147, "DTC Logic"
U0402	TCM CAN CIRC1	ON	×	×	×	×	×	CCS-148, "DTC Logic"
U0415	VDC CAN CIR1	ON	×	×	×	×	×	CCS-151, "ICC SENSOR : DTC Logic"

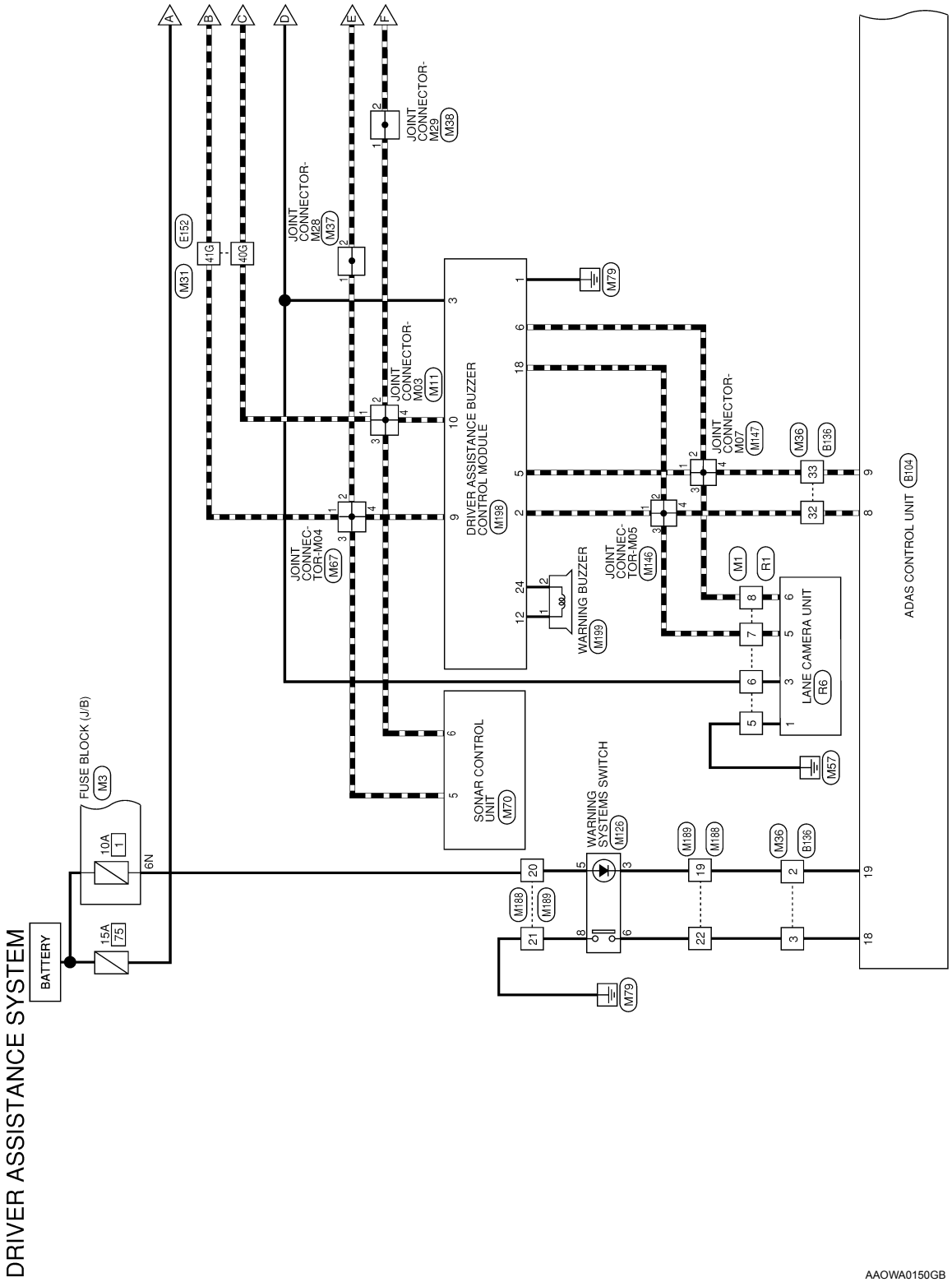
DTC	CONSULT display	ICC system warning lamp	Fail-safe function					Reference
CONSULT			Vehicle-to-vehicle distance control mode	Conventional (fixed speed) cruise control mode	Distance Control Assist (DCA)	Forward Collision Warning (FCW)	Forward Emergency Braking (FEB)	
U0428	STRG SEN CAN CIR2	ON	×	×	×	×	×	CCS-153, "ICC SENSOR : DTC Logic"
U1000	CAN COMM CIRCUIT	ON	×	×	×	×	×	CCS-155, "ICC SENSOR : DTC Logic"
U1010	CONTROL UNIT (CAN)	ON	×	×	×	×	×	CCS-157, "ICC SENSOR : DTC Logic"
U150B	ECM CAN CIRC3	ON	×	×	×	×	×	CCS-158, "DTC Logic"
U150C	VDC CAN CIRC3	ON	×	×	×	×	×	CCS-160, "DTC Logic"
U150D	TCM CAN CIRC3	ON	×	×	×	×	×	CCS-162, "DTC Logic"
U150E	BCM CAN CIRC3	ON	×	×	×	×	×	CCS-164, "DTC Logic"
U1513	METER CAN CIRC#	ON	×	×	×	×	×	CCS-165, "DTC Logic"
U1514	STRG SEN CAN CIRC3	ON	×	×	×	×	×	CCS-166, "DTC Logic"
U1515	ICC SENSOR CAN CIRC3	ON	×	×	×	×	×	CCS-167, "DTC Logic"
U1517	APA CAN CIRC3	ON	×	×	×	×	×	CCS-168, "DTC Logic"

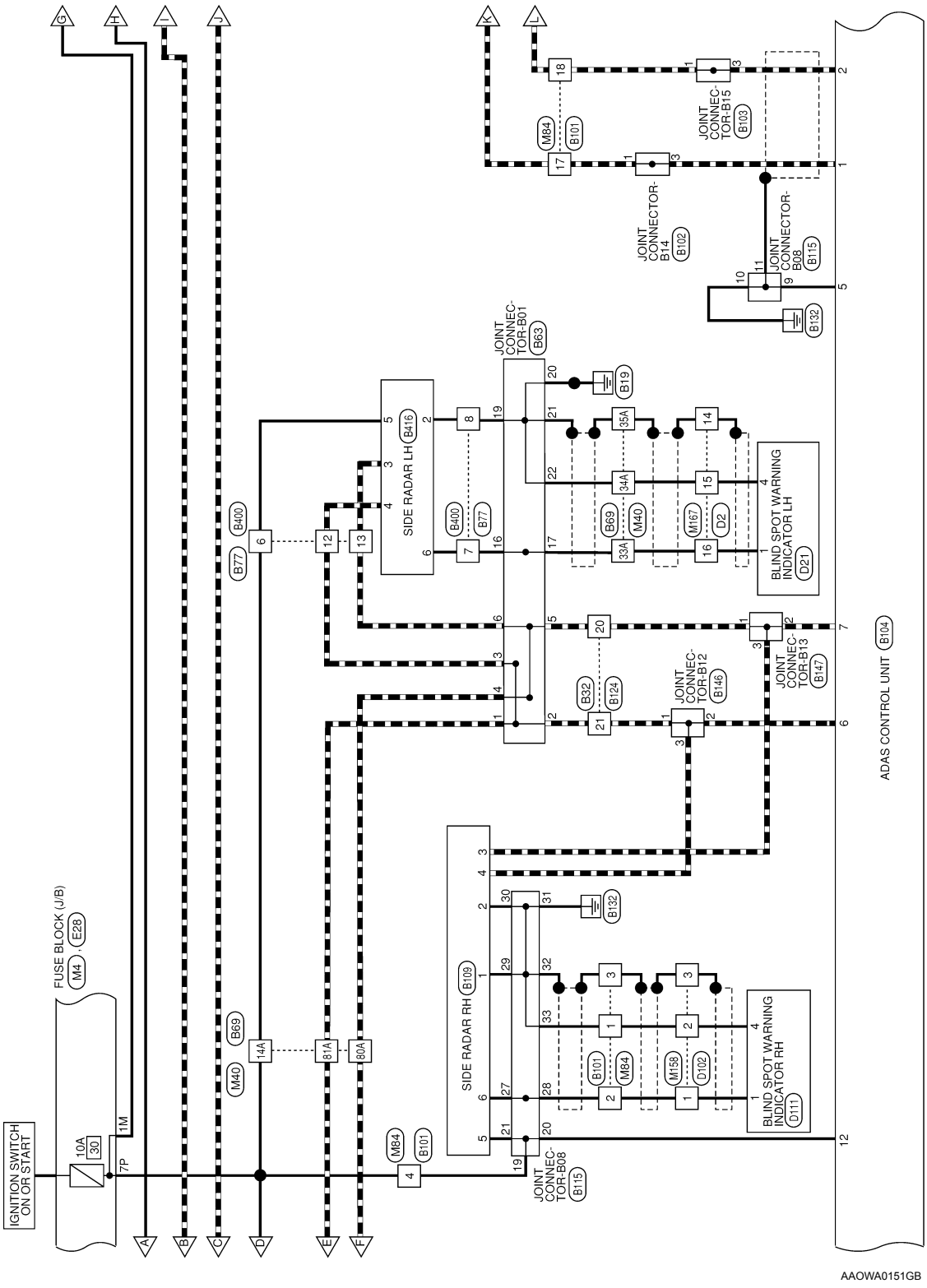
WIRING DIAGRAM

DRIVER ASSISTANCE SYSTEMS

Wiring Diagram

INFOID:0000000014224838




ADAS CONTROL UNIT B104
JOINT CONNECTOR-B15 B103
JOINT CONNECTOR-B14 B102
JOINT CONNECTOR-B08 B115
JOINT CONNECTOR-B01 B63
JOINT CONNECTOR-B13 B147
JOINT CONNECTOR-B12 B146
JOINT CONNECTOR-B08 B115
SIDE RADAR LH B416
SIDE RADAR RH B109
BLIND SPOT WARNING INDICATOR LH D21
BLIND SPOT WARNING INDICATOR RH D111
FUSE BLOCK (J/B) M4 E28
IGNITION SWITCH ON OR START
10A 30
1M
7P
14A
81A
80A
B19
B132
B400
B77
B69
M40
B32
B124
M84
B101
M167
D2
M158
D102
35A
34A
33A
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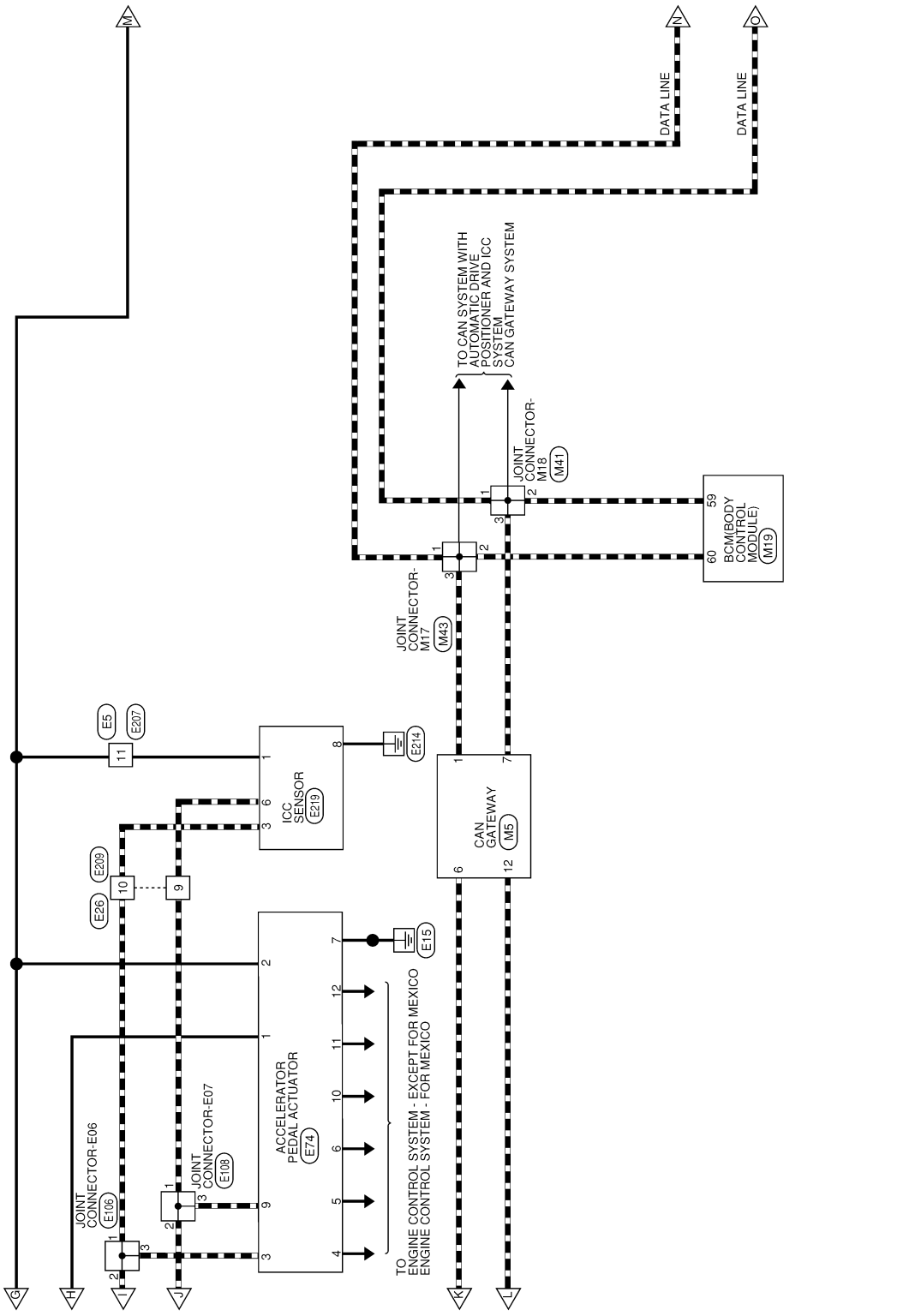

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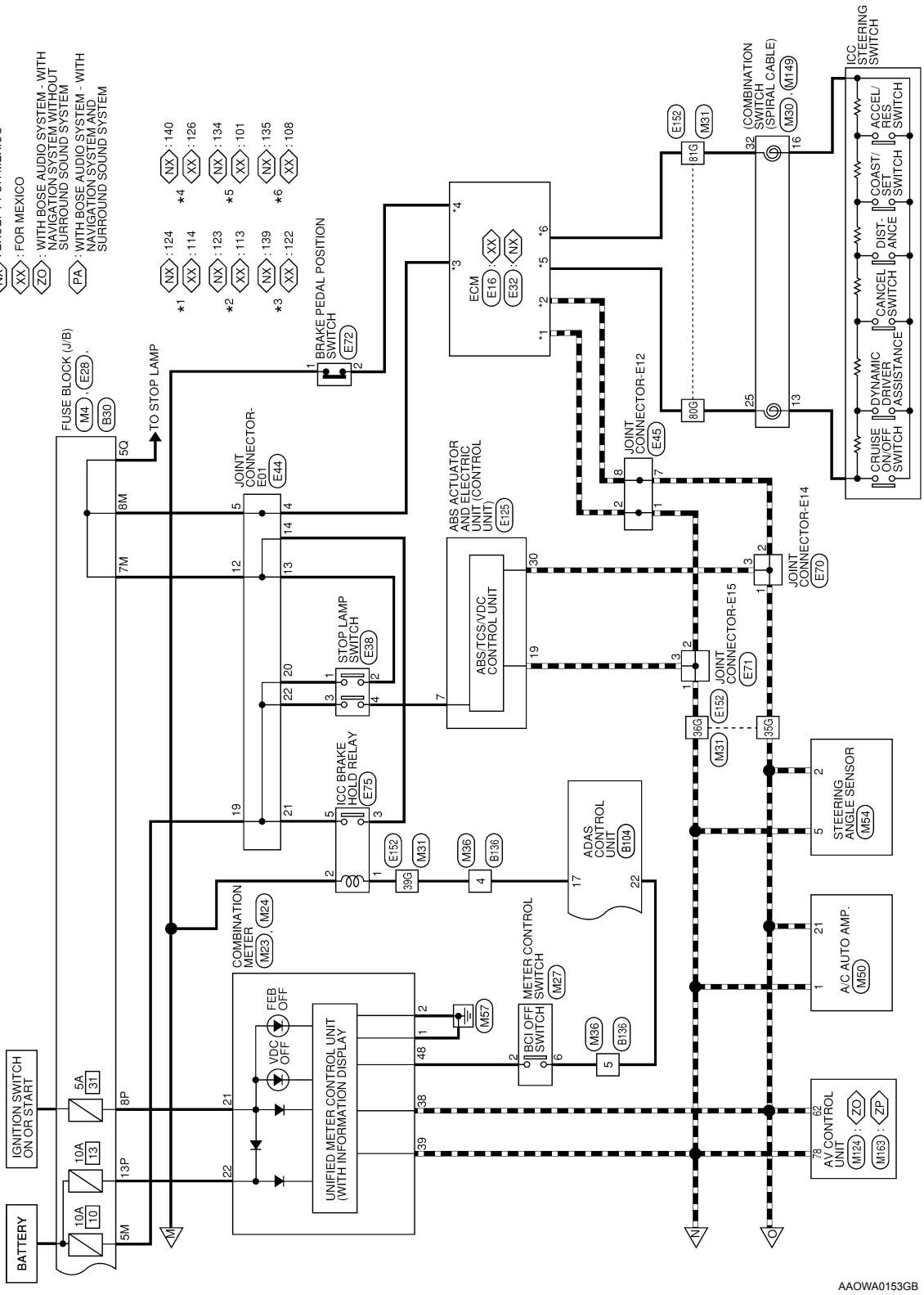
NX : EXCEPT FOR MEXICO
XX : FOR MEXICO
ZO : WITH BOSE AUDIO SYSTEM - WITH NAVIGATION SYSTEM WITHOUT SURROUND SOUND SYSTEM
PA : WITH BOSE AUDIO SYSTEM - WITH NAVIGATION SYSTEM AND SURROUND SOUND SYSTEM
BATTERY
IGNITION SWITCH ON OR START
FUSE BLOCK (J/B) M4, E28, B30
TO STOP LAMP
BRAKE PEDAL POSITION SWITCH E72
ECM E16, E32
JOINT CONNECTOR-E01 E44
JOINT CONNECTOR-E12 E45
JOINT CONNECTOR-E14 E70
JOINT CONNECTOR-E15 E71
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) E125
ABS/TCS/VDC CONTROL UNIT
STOP LAMP SWITCH E38
ICC BRAKE HOLD RELAY E75
ADAS CONTROL UNIT B104
COMBINATION METER M23, M24
UNIFIED METER CONTROL UNIT (WITH INFORMATION DISPLAY)
FEB OFF
VDC OFF
METER CONTROL SWITCH M27
BCI OFF SWITCH
STEERING ANGLE SENSOR M54
A/C AUTO AMP. M50
AV CONTROL UNIT M124, M163
(COMBINATION SWITCH (SPIRAL CABLE) M30, M149
ICC STEERING SWITCH
ACCEL/RES SWITCH
COAST/SET SWITCH
DIST-ANCE
CANCEL SWITCH
DYNAMIC DRIVER ASSISTANCE
CRUISE ON/OFF SWITCH
AAOWA0153GB

DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	B30
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS08FW-CS
Connector Color	WHITE

H.S.

3Q		2Q	1Q
8Q	7Q	6Q	5Q	4Q

Terminal No.	Color of Wire	Signal Name
1Q	–	–
2Q	–	–
3Q	–	–
4Q	–	–
5Q	G	BRAKE PEDAL POSITION SWITCH
6Q	P	BATTERY
7Q	–	–
8Q	–	–

Connector No.	B32
Connector Name	WIRE TO WIRE
Connector Type	TH32FW-NH
Connector Color	WHITE

H.S.

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
1	–	TO BODY HARNESS RH
2	–	TO BODY HARNESS RH
3	–	TO BODY HARNESS RH
4	–	TO BODY HARNESS RH
5	G	TO BODY HARNESS RH
6	R	TO BODY HARNESS RH
7	B	TO BODY HARNESS RH
8	R	TO BODY HARNESS RH
9	W	TO BODY HARNESS RH
10	SHIELD	TO BODY HARNESS RH
11	B	TO BODY HARNESS RH
12	L	TO BODY HARNESS RH
13	B	TO BODY HARNESS RH
14	R	TO BODY HARNESS RH
15	W	TO BODY HARNESS RH
16	SHIELD	TO BODY HARNESS RH
17	L	TO BODY HARNESS RH
18	L	TO BODY HARNESS RH
19	P	TO BODY HARNESS RH
20	Y	TO BODY HARNESS RH
21	L	TO BODY HARNESS RH
22	B	TO BODY HARNESS RH
23	W	TO BODY HARNESS RH
24	SHIELD	TO BODY HARNESS RH
25	BR	TO BODY HARNESS RH
26	V	TO BODY HARNESS RH
27	–	TO BODY HARNESS RH
28	–	TO BODY HARNESS RH
29	–	TO BODY HARNESS RH
30	–	TO BODY HARNESS RH
31	–	TO BODY HARNESS RH
32	–	TO BODY HARNESS RH

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Type	BJ30FW
Connector Color	WHITE

H.S.

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12
33	32	31	30	29	28	27	26	25	24	23

Terminal No.	Color of Wire	Signal Name
1	L	ITS CAN-H
2	L	ITS CAN-H
3	L	ITS CAN-H
4	Y	ITS CAN-L
5	Y	ITS CAN-L
6	Y	ITS CAN-L
7	–	–
8	SHIELD	GND
9	B	GND
10	B	GND
11	B	GND
12	LG	ILLUMI CONT OUT
13	LG	ILLUMI CONT OUT
14	LG	ILLUMI CONT OUT
15	–	–
16	W	ALERT SIGNAL
17	W	ALERT SIGNAL
18	–	–
19	B	GND
20	B	GND
21	SHIELD	SHIELD
22	B	GND
23	–	–
24	–	–
25	SHIELD	SHIELD
26	B	GND
27	B	GND
28	B	GND
29	W	TAIL
30	W	TAIL
31	W	TAIL
32	W	TAIL
33	W	TAIL

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	B69
Connector Name	WIRE TO WIRE
Connector Type	TH80MDGY-CS16-TM4
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1A	–	TO MAIN HARNESS
2A	Y	TO MAIN HARNESS
3A	Y	TO MAIN HARNESS
4A	G	TO MAIN HARNESS
5A	–	TO MAIN HARNESS
6A	LG	TO MAIN HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
6A	R	TO MAIN HARNESS - (WITH CLIMATE CONTROLLED SEAT)
7A	BR	TO MAIN HARNESS
8A	G	TO MAIN HARNESS
9A	P	TO MAIN HARNESS
10A	–	TO MAIN HARNESS
11A	W	TO MAIN HARNESS
12A	G	TO MAIN HARNESS
13A	–	TO MAIN HARNESS
14A	R	TO MAIN HARNESS
15A	G	TO MAIN HARNESS
16A	W	TO MAIN HARNESS
17A	B	TO MAIN HARNESS
18A	B	TO MAIN HARNESS
19A	SHIELD	TO MAIN HARNESS
20A	W	TO MAIN HARNESS
21A	SHIELD	TO MAIN HARNESS
22A	–	TO MAIN HARNESS
23A	W	TO MAIN HARNESS
24A	B	TO MAIN HARNESS
25A	SHIELD	TO MAIN HARNESS
26A	B	TO MAIN HARNESS
27A	B	TO MAIN HARNESS
28A	SHIELD	TO MAIN HARNESS
29A	R	TO MAIN HARNESS
30A	B	TO MAIN HARNESS
31A	BR	TO MAIN HARNESS
32A	–	TO MAIN HARNESS
33A	W	TO MAIN HARNESS
34A	B	TO MAIN HARNESS
35A	SHIELD	TO MAIN HARNESS
36A	–	TO MAIN HARNESS
37A	LG	TO MAIN HARNESS
38A	V	TO MAIN HARNESS
39A	SB	TO MAIN HARNESS
40A	BR	TO MAIN HARNESS
41A	Y	TO MAIN HARNESS
42A	–	TO MAIN HARNESS
43A	–	TO MAIN HARNESS
44A	V	TO MAIN HARNESS
45A	G	TO MAIN HARNESS
46A	V	TO MAIN HARNESS
47A	L	TO MAIN HARNESS
48A	SB	TO MAIN HARNESS
49A	G	TO MAIN HARNESS
50A	W	TO MAIN HARNESS
51A	–	TO MAIN HARNESS
52A	–	TO MAIN HARNESS
53A	R	TO MAIN HARNESS
54A	SB	TO MAIN HARNESS
55A	LG	TO MAIN HARNESS
56A	Y	TO MAIN HARNESS
57A	SB	TO MAIN HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
57A	V	TO MAIN HARNESS - (WITH CLIMATE CONTROLLED SEAT)
58A	BR	TO MAIN HARNESS
59A	BR	TO MAIN HARNESS
60A	L	TO MAIN HARNESS
61A	Y	TO MAIN HARNESS
62A	–	TO MAIN HARNESS
63A	P	TO MAIN HARNESS
64A	R	TO MAIN HARNESS
65A	SB	TO MAIN HARNESS
66A	L	TO MAIN HARNESS
67A	LG	TO MAIN HARNESS
68A	P	TO MAIN HARNESS
69A	W	TO MAIN HARNESS
70A	G	TO MAIN HARNESS
71A	BR	TO MAIN HARNESS
72A	–	TO MAIN HARNESS
73A	Y	TO MAIN HARNESS
74A	P	TO MAIN HARNESS
75A	V	TO MAIN HARNESS
76A	R	TO MAIN HARNESS
77A	Y	TO MAIN HARNESS
78A	LG	TO MAIN HARNESS
79A	BR	TO MAIN HARNESS
80A	Y	TO MAIN HARNESS
81A	L	TO MAIN HARNESS
82A	BG	TO MAIN HARNESS
83A	Y	TO MAIN HARNESS
84A	LG	TO MAIN HARNESS
85A	SHIELD	TO MAIN HARNESS
86A	LG	TO MAIN HARNESS
87A	SB	TO MAIN HARNESS
88A	BG	TO MAIN HARNESS
89A	L	TO MAIN HARNESS
90A	P	TO MAIN HARNESS
91A	L	TO MAIN HARNESS
92A	LG	TO MAIN HARNESS
93A	B	TO MAIN HARNESS
94A	–	TO MAIN HARNESS
95A	–	TO MAIN HARNESS
96A	–	TO MAIN HARNESS
97A	BR	TO MAIN HARNESS
98A	L	TO MAIN HARNESS
99A	–	TO MAIN HARNESS
100A	–	TO MAIN HARNESS
14	–	TO BODY NO. 3 HARNESS
15	G	TO BODY NO. 3 HARNESS
16	–	TO BODY NO. 3 HARNESS
17	B	TO BODY NO. 3 HARNESS
18	B	TO BODY NO. 3 HARNESS
19	SHIELD	TO BODY NO. 3 HARNESS
20	R	TO BODY NO. 3 HARNESS
21	B	TO BODY NO. 3 HARNESS
22	W	TO BODY NO. 3 HARNESS
23	SHIELD	TO BODY NO. 3 HARNESS
24	W	TO BODY NO. 3 HARNESS
25	B	TO BODY NO. 3 HARNESS
26	SHIELD	TO BODY NO. 3 HARNESS
27	B	TO BODY NO. 3 HARNESS
28	B	TO BODY NO. 3 HARNESS
29	SHIELD	TO BODY NO. 3 HARNESS
30	LG	TO BODY NO. 3 HARNESS
31	W	TO BODY NO. 3 HARNESS
32	–	TO BODY NO. 3 HARNESS

Connector No.	B77
Connector Name	WIRE TO WIRE
Connector Type	TH32MW-NH
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
1	–	TO BODY NO. 3 HARNESS
2	–	TO BODY NO. 3 HARNESS
3	–	TO BODY NO. 3 HARNESS
4	G	TO BODY NO. 3 HARNESS
5	W	TO BODY NO. 3 HARNESS
6	R	TO BODY NO. 3 HARNESS
7	W	TO BODY NO. 3 HARNESS
8	B	TO BODY NO. 3 HARNESS
9	W	TO BODY NO. 3 HARNESS
10	G	TO BODY NO. 3 HARNESS
11	–	TO BODY NO. 3 HARNESS
12	L	TO BODY NO. 3 HARNESS
13	Y	TO BODY NO. 3 HARNESS

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	B101
Connector Name	WIRE TO WIRE
Connector Type	TH32MW-NH
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
1	B	TO MAIN HARNESS
2	W	TO MAIN HARNESS
3	SHIELD	TO MAIN HARNESS
4	R	TO MAIN HARNESS
5	V	TO MAIN HARNESS - (WITHOUT REAR ENTERTAINMENT SYSTEM)
5	Y	TO MAIN HARNESS - (WITH REAR ENTERTAINMENT SYSTEM)
6	W	TO MAIN HARNESS - (WITHOUT REAR ENTERTAINMENT SYSTEM)
6	B	TO MAIN HARNESS - (WITH REAR ENTERTAINMENT SYSTEM)
7	R	TO MAIN HARNESS - (WITHOUT REAR ENTERTAINMENT SYSTEM)
7	W	TO MAIN HARNESS - (WITH REAR ENTERTAINMENT SYSTEM)
8	B	TO MAIN HARNESS - (WITHOUT REAR ENTERTAINMENT SYSTEM)
8	R	TO MAIN HARNESS - (WITH REAR ENTERTAINMENT SYSTEM)
9	SHIELD	TO MAIN HARNESS
10	G	TO MAIN HARNESS
11	SB	TO MAIN HARNESS
12	P	TO MAIN HARNESS
13	W	TO MAIN HARNESS
14	–	TO MAIN HARNESS
15	–	TO MAIN HARNESS
16	–	TO MAIN HARNESS
17	L	TO MAIN HARNESS
18	P	TO MAIN HARNESS
19	LG	TO MAIN HARNESS
20	BR	TO MAIN HARNESS
21	LG	TO MAIN HARNESS
22	LG	TO MAIN HARNESS
23	W	TO MAIN HARNESS
24	V	TO MAIN HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
24	BR	TO MAIN HARNESS - (WITH CLIMATE CONTROLLED SEAT)
25	SB	TO MAIN HARNESS
26	LG	TO MAIN HARNESS
27	Y	TO MAIN HARNESS
28	Y	TO MAIN HARNESS
29	SB	TO MAIN HARNESS
30	LG	TO MAIN HARNESS
31	G	TO MAIN HARNESS
32	–	TO MAIN HARNESS

Connector No.	B102
Connector Name	JOINT CONNECTOR-B14
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	L	CAN-H
3	B	CAN-H
4	–	–

Connector No.	B103
Connector Name	JOINT CONNECTOR-B15
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	P	CAN-L
2	P	CAN-L
3	W	CAN-L
4	–	–

Connector No.	B104
Connector Name	ADAS CONTROL UNIT
Connector Type	TH24FW-NH
Connector Color	WHITE

H.S.

12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
1	B	CAN-H
2	W	CAN-L
3	–	–
4	–	–
5	B	GND
6	L	ITS CAN-H
7	Y	ITS CAN-L
8	L	IC CAN-H
9	Y	IC CAN-L
10	–	–
11	–	–
12	R	IGN
13	–	–
14	–	–
15	–	–
16	–	–
17	G	BRK-RLY
18	BR	ITS ALERT SW
19	W	ITS ALERT SW LED
20	–	–
21	–	–
22	–	–
23	–	–
24	–	–

Connector No.	B109
Connector Name	SIDE RADAR RH
Connector Type	AAC06FB-WP
Connector Color	BLACK

H.S.

1	2	3	4	5	6

Terminal No.	Color of Wire	Signal Name
1	B	ADDRESS
2	B	GND
3	Y	ITS CAN-L
4	L	ITS CAN-H
5	R	POWER (IGN)
6	W	ALERT SIGNAL

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	B115
Connector Name	JOINT CONNECTOR-B08
Connector Type	BJ30FW
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	–	–
2	–	–
3	–	–
4	–	–
5	–	–
6	–	–
7	–	–
8	–	–
9	B	GND
10	GR	GND
11	SHIELD	SHIELD
12	–	–
13	–	–
14	–	–
15	–	–
16	–	–
17	–	–
18	–	–
19	R	IGNITION
20	R	IGNITION
21	R	IGNITION
22	–	–
23	–	–
24	–	–
25	–	–
26	–	–
27	W	ALERT SIGNAL
28	W	ALERT SIGNAL
29	B	ADDPESS
30	B	GND
31	GR	GND
32	SHIELD	SHIELD
33	B	GND

Connector No.	B124
Connector Name	WIRE TO WIRE
Connector Type	TH32MW-NH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	–	TO BODY HARNESS
2	–	TO BODY HARNESS
3	–	TO BODY HARNESS
4	–	TO BODY HARNESS
5	G	TO BODY HARNESS
6	R	TO BODY HARNESS
7	G	TO BODY HARNESS
8	R	TO BODY HARNESS
9	W	TO BODY HARNESS
10	SHIELD	TO BODY HARNESS
11	B	TO BODY HARNESS
12	L	TO BODY HARNESS
13	G	TO BODY HARNESS
14	R	TO BODY HARNESS
15	W	TO BODY HARNESS
16	SHIELD	TO BODY HARNESS
17	Y	TO BODY HARNESS
18	L	TO BODY HARNESS
19	P	TO BODY HARNESS
20	Y	TO BODY HARNESS
21	L	TO BODY HARNESS
22	B	TO BODY HARNESS
23	W	TO BODY HARNESS
24	SHIELD	TO BODY HARNESS
25	BR	TO BODY HARNESS
26	V	TO BODY HARNESS
27	–	TO BODY HARNESS
28	–	TO BODY HARNESS
29	–	TO BODY HARNESS
30	–	TO BODY HARNESS
31	–	TO BODY HARNESS
32	–	TO BODY HARNESS

Connector No.	B136
Connector Name	WIRE TO WIRE
Connector Type	TH40MW-NH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	G	TO MAIN HARNESS
2	W	TO MAIN HARNESS
3	BR	TO MAIN HARNESS
4	G	TO MAIN HARNESS
5	BG	TO MAIN HARNESS
6	B	TO MAIN HARNESS
7	W	TO MAIN HARNESS
8	W	TO MAIN HARNESS
9	B	TO MAIN HARNESS
10	W	TO MAIN HARNESS
11	SHIELD	TO MAIN HARNESS
12	B	TO MAIN HARNESS
13	W	TO MAIN HARNESS
14	SHIELD	TO MAIN HARNESS
15	B	TO MAIN HARNESS
16	W	TO MAIN HARNESS
17	SHIELD	TO MAIN HARNESS
18	W	TO MAIN HARNESS
19	LG	TO MAIN HARNESS - (WITHOUT SURROUND SOUND SYSTEM)
19	B	TO MAIN HARNESS - (WITH SURROUND SOUND SYSTEM)
20	SB	TO MAIN HARNESS - (WITHOUT SURROUND SOUND SYSTEM)
20	W	TO MAIN HARNESS - (WITH SURROUND SOUND SYSTEM)
21	B	TO MAIN HARNESS
22	W	TO MAIN HARNESS
23	SHIELD	TO MAIN HARNESS
24	B	TO MAIN HARNESS
25	W	TO MAIN HARNESS
26	SHIELD	TO MAIN HARNESS
27	B	TO MAIN HARNESS
28	W	TO MAIN HARNESS
29	SHIELD	TO MAIN HARNESS
30	B	TO MAIN HARNESS
31	W	TO MAIN HARNESS
32	L	TO MAIN HARNESS
33	Y	TO MAIN HARNESS
34	–	TO MAIN HARNESS
35	–	TO MAIN HARNESS
36	–	TO MAIN HARNESS
37	BR	TO MAIN HARNESS
38	–	TO MAIN HARNESS
39	–	TO MAIN HARNESS
40	–	TO MAIN HARNESS

Connector No.	B146
Connector Name	JOINT CONNECTOR-B12
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	ITS CAN-H
2	L	ITS CAN-H
3	L	ITS CAN-H
4	–	–

Connector No.	B147
Connector Name	JOINT CONNECTOR-B13
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	Y	ITS CAN-L
2	Y	ITS CAN-L
3	Y	ITS CAN-L
4	–	–

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	B400
Connector Name	WIRE TO WIRE
Connector Type	TH32FW-NH
Connector Color	WHITE

H.S.

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
1	–	TO BODY HARNESS
2	–	TO BODY HARNESS
3	–	TO BODY HARNESS
4	G	TO BODY HARNESS
5	W	TO BODY HARNESS
6	R	TO BODY HARNESS
7	W	TO BODY HARNESS
8	B	TO BODY HARNESS
9	W	TO BODY HARNESS
10	G	TO BODY HARNESS
11	–	TO BODY HARNESS
12	L	TO BODY HARNESS
13	Y	TO BODY HARNESS
14	–	TO BODY HARNESS
15	G	TO BODY HARNESS
16	B	TO BODY HARNESS
17	B	TO BODY HARNESS
18	B	TO BODY HARNESS
19	SHIELD	TO BODY HARNESS
20	R	TO BODY HARNESS
21	B	TO BODY HARNESS
22	W	TO BODY HARNESS
23	SHIELD	TO BODY HARNESS
24	W	TO BODY HARNESS
25	B	TO BODY HARNESS
26	SHIELD	TO BODY HARNESS
27	B	TO BODY HARNESS
28	B	TO BODY HARNESS
29	SHIELD	TO BODY HARNESS
30	LG	TO BODY HARNESS
31	W	TO BODY HARNESS
32	–	TO BODY HARNESS

Connector No.	B416
Connector Name	SIDE RADAR LH
Connector Type	AAC06FB-WP-5P
Connector Color	BLACK

H.S.

1	2	3	4	5	6

Terminal No.	Color of Wire	Signal Name
1	–	–
2	B	GND
3	Y	ITS CAN-L
4	L	ITS CAN-H
5	R	POWER (IGN)
6	W	ALERT SIGNAL

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Type	NS16FW-CS
Connector Color	WHITE

H.S.

7	6	5	4		3	2	1
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
1	B	TO MAIN HARNESS
2	Y	TO MAIN HARNESS
3	G/B	TO MAIN HARNESS
4	BR	TO MAIN HARNESS
5	SB	TO MAIN HARNESS
6	LG	TO MAIN HARNESS
7	Y	TO MAIN HARNESS
8	W	TO MAIN HARNESS
9	G	TO MAIN HARNESS
10	V	TO MAIN HARNESS
11	BR	TO MAIN HARNESS
12	LG	TO MAIN HARNESS
13	L	TO MAIN HARNESS
14	SHIELD	TO MAIN HARNESS
15	B	TO MAIN HARNESS
16	W	TO MAIN HARNESS

Connector No.	D21
Connector Name	BLIND SPOT WARNING LH
Connector Type	TH04MW-NH
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	W	SIGNAL
2	–	–
3	–	–
4	B	GND

Connector No.	D102
Connector Name	WIRE TO WIRE
Connector Type	NS10FW-CS
Connector Color	WHITE

H.S.

4	3		2	1
10	9	8	7	6	5

Terminal No.	Color of Wire	Signal Name
1	W	TO MAIN HARNESS
2	B	TO MAIN HARNESS
3	SHIELD	TO MAIN HARNESS
4	L	TO MAIN HARNESS
5	BR	TO MAIN HARNESS
6	Y	TO MAIN HARNESS
7	LG	TO MAIN HARNESS
8	B	TO MAIN HARNESS
9	G	TO MAIN HARNESS
10	W	TO MAIN HARNESS

Connector No.	D111
Connector Name	BLIND SPOT WARNING RH
Connector Type	TH04MW-NH
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	W	SIGNAL
2	–	–
3	–	–
4	B	GND

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	E5
Connector Name	WIRE TO WIRE
Connector Type	NS16MW-CS
Connector Color	WHITE

H.S.

1	2	3		4	5	6	7
8	9	10	11	12	13	14	15	16

Terminal No.	Color of Wire	Signal Name
1	Y	TO FRONT END MODULE HARNESS
2	SB	TO FRONT END MODULE HARNESS
3	BR	TO FRONT END MODULE HARNESS
4	B	TO FRONT END MODULE HARNESS
5	B	TO FRONT END MODULE HARNESS
6	P	TO FRONT END MODULE HARNESS
7	W/G	TO FRONT END MODULE HARNESS
8	G	TO FRONT END MODULE HARNESS
9	L	TO FRONT END MODULE HARNESS
10	G	TO FRONT END MODULE HARNESS
11	R	TO FRONT END MODULE HARNESS
12	P	TO FRONT END MODULE HARNESS
13	SHIELD	TO FRONT END MODULE HARNESS
14	SHIELD	TO FRONT END MODULE HARNESS
15	P	TO FRONT END MODULE HARNESS
16	B	TO FRONT END MODULE HARNESS

Connector No.	E16
Connector Name	ECM (FOR MEXICO)
Connector Type	RH24FGY-RZ8-R-RH
Connector Color	GRAY

H.S.

128	124	120	116	112	108	104	100
127	123	119	115	111	107	103	99
126	122	118	114	110	106	102	98
125	121	117	113	109	105	101	97

Terminal No.	Color of Wire	Signal Name
97	W	ACCELERATOR PEDAL POSITION SENSOR 1 (WITHOUT ICC SYSTEM)
97	R	ACCELERATOR PEDAL POSITION SENSOR 1 (WITH ICC SYSTEM)
98	P	ACCELERATOR PEDAL POSITION SENSOR 2 (WITHOUT ICC SYSTEM)
98	B	ACCELERATOR PEDAL POSITION SENSOR 2 (WITH ICC SYSTEM)
99	R	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 1) (WITHOUT ICC SYSTEM)
99	G	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 1) (WITH ICC SYSTEM)
100	R	SENSOR GROUND (ACCELERATOR PEDAL POSITION SENSOR 1) (WITHOUT ICC SYSTEM)
100	W	SENSOR GROUND (ACCELERATOR PEDAL POSITION SENSOR 1) (WITH ICC SYSTEM)
101	G	ASCD STEERING SWITCH/ICC STEERING SWITCH
102	O	EVAP CONTROL SYSTEM PRESSURE SENSOR
103	W	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 2) (WITHOUT ICC SYSTEM)
103	Y	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 2) (WITH ICC SYSTEM)
104	P	DATA LINK CONNECTOR
105	–	–
106	Y	EVAP CANISTER VENT CONTROL VALVE
107	W	SENSOR POWER SUPPLY (EVAP CONTROL SYSTEM PRESSURE SENSOR, ENGINE OIL PRESSURE SENSOR)
108	R	SENSOR GROUND (ASCD STEERING SWITCH)
109	SB	IGNITION SWITCH
110	–	–

111	BR	FUEL TANK TEMPERATURE SENSOR
112	G	SENSOR GROUND (EVAP CONTROL SYSTEM PRESSURE SENSOR, ENGINE OIL PRESSURE SENSOR)
113	P	CAN-L
114	L	CAN-H
115	–	–
116	G	SENSOR GROUND (ACCELERATOR PEDAL POSITION SENSOR 2) (WITHOUT ICC SYSTEM)
116	L	SENSOR GROUND (ACCELERATOR PEDAL POSITION SENSOR 2) (WITH ICC SYSTEM)
117	–	–
118	W	PNP SIGNAL
119	–	–
120	LG	SENSOR GROUND (FUEL TANK TEMPERATURE SENSOR)
121	LG	POWER SUPPLY FOR ECM
122	R	STOP LAMP SWITCH
123	B	ECM GND
124	B	ECM GND
125	–	–
126	LG	BRAKE PEDAL POSITION SWITCH
127	B	ECM GND
128	B	ECM GND

Connector No.	E26
Connector Name	WIRE TO WIRE
Connector Type	TH24MW-NH
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
1	R	TO FRONT END MODULE HARNESS
2	W	TO FRONT END MODULE HARNESS
3	B	TO FRONT END MODULE HARNESS
4	SHIELD	TO FRONT END MODULE HARNESS
5	B	TO FRONT END MODULE HARNESS
6	R	TO FRONT END MODULE HARNESS
7	W	TO FRONT END MODULE HARNESS
8	SHIELD	TO FRONT END MODULE HARNESS
9	Y	TO FRONT END MODULE HARNESS
10	BG	TO FRONT END MODULE HARNESS
11	G	TO FRONT END MODULE HARNESS
12	W	TO FRONT END MODULE HARNESS
13	R	TO FRONT END MODULE HARNESS
14	B	TO FRONT END MODULE HARNESS
15	G	TO FRONT END MODULE HARNESS
16	SHIELD	TO FRONT END MODULE HARNESS
17	W	TO FRONT END MODULE HARNESS
18	P	TO FRONT END MODULE HARNESS
19	W	TO FRONT END MODULE HARNESS
20	R	TO FRONT END MODULE HARNESS
21	W	TO FRONT END MODULE HARNESS
22	BR	TO FRONT END MODULE HARNESS
23	V	TO FRONT END MODULE HARNESS
24	SB	TO FRONT END MODULE HARNESS

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS10FW-CS
Connector Color	WHITE

H.S.

4M	3M		2M	1M
10M	9M	8M	7M	6M	5M

Terminal No.	Color of Wire	Signal Name
1M	R	IGNITION
2M	–	–
3M	–	–
4M	–	–
5M	Y	BATTERY
6M	L	TAIL LH
7M	P	BRAKE PEDAL POSITION SWITCH
8M	R	BRAKE PEDAL POSITION SWITCH
9M	–	–
10M	–	–

Connector No.	E32
Connector Name	ECM (EXCEPT FOR MEXICO)
Connector Type	RH24FB-RZ8-L-LH
Connector Color	BLACK

H.S.

121	125	129	133	137	141	145	149
122	126	130	134	138	142	146	150
123	127	131	135	139	143	147	151
124	128	132	136	140	144	148	152

Terminal No.	Color of Wire	Signal Name
121	W	EVAP CONTROL SYSTEM PRESSURE SENSOR
122	–	–
123	P	CAN-L
124	L	CAN-H
125	R	POWER SUPPLY (EVAP CONTROL SYSTEM PRESSURE SENSOR)
126	–	–
127	–	–
128	BR	FUEL TANK TEMPERATURE SENSOR
129	–	–
130	–	–
131	–	–
132	–	–
133	SB	POWER SUPPLY
134	G	ASCD STEERING SWITCH/ICC STEERING SWITCH
135	R	SENSOR GROUND
136	–	–
137	–	–
138	–	–
139	R	STOP LAMP SWITCH
140	LG	BRAKE PEDAL POSITION SWITCH
141	Y	EVAP CANISTER VENT CONTROL VALVE
142	Y	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 2) (WITH ICC SYSTEM)
142	W	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 2) (WITHOUT ICC SYSTEM)
143	B	ACCELE PEDAL POSITION SENSOR 2 (WITH ICC SYSTEM)
143	P	ACCELE PEDAL POSITION SENSOR 2 (WITHOUT ICC SYSTEM)
144	L	SENSOR GROUND [ACCELERATOR PEDAL POSITION SENSOR (SENSOR 2)] (WITH ICC SYSTEM)
144	G	SENSOR GROUND [ACCELERATOR PEDAL POSITION SENSOR (SENSOR 2)] (WITHOUT ICC SYSTEM)
145	LG	POWER SUPPLY FOR ECM
146	G	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 1) (WITH ICC SYSTEM)
146	R	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 1) (WITHOUT ICC SYSTEM)
147	B	SENSOR GROUND
148	LG	SENSOR GROUND
149	B	SENSOR GROUND
150	R	ACCELE PEDAL POSITION SENSOR 1 (WITH ICC SYSTEM)
150	W	ACCELE PEDAL POSITION SENSOR 1 (WITHOUT ICC SYSTEM)
151	W	SENSOR GROUND [ACCELERATOR PEDAL POSITION SENSOR (SENSOR 1)] (WITH ICC SYSTEM)
151	R	SENSOR GROUND [ACCELERATOR PEDAL POSITION SENSOR (SENSOR 1)] (WITHOUT ICC SYSTEM)
152	B	SENSOR GROUND

Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Type	M04FW-LC
Connector Color	WHITE

H.S.

3	4
1	2

Terminal No.	Color of Wire	Signal Name
1	Y	BATT
2	P	BRAKE PEDAL POSITION SWITCH
3	Y	BATT
4	G	STP

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Type	BJ30FW
Connector Color	WHITE

H.S.

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12
33	32	31	30	29	28	27	26	25	24	23

Terminal No.	Color of Wire	Signal Name
1	W	SENSOR POWER SUPPLY
2	W	SENSOR POWER SUPPLY
3	W	SENSOR POWER SUPPLY
4	R	BATTERY
5	R	BATTERY
6	R	BATTERY
7	–	–
8	LG	BATTERY
9	LG	BATTERY
10	LG	BATTERY
11	LG	BATTERY
12	P	BATTERY
13	P	BATTERY
14	P	BATTERY
15	GR	GND
16	B	GND
17	B	GND
18	–	–
19	Y	BATTERY
20	Y	BATTERY
21	Y	BATTERY
22	Y	BATTERY
23	BG	EVAP CONTROL SYSTEM PRESSURE SENSOR
24	O	EVAP CONTROL SYSTEM PRESSURE SENSOR
25	–	–
26	G	GND
27	G	GND
28	G	GND
29	–	–
30	V	BATTERY
31	LG	BATTERY
32	V	BATTERY
33	V	BATTERY

Connector No.	E45
Connector Name	JOINT CONNECTOR-E12
Connector Type	A12FL
Connector Color	BLUE

H.S.

12	11	10	9	8	7	6	5	4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	L	CAN-H
3	L	CAN-H
4	L	CAN-H
5	–	–
6	–	–
7	P	CAN-L
8	P	CAN-L
9	P	CAN-L
10	P	CAN-L
11	–	–
12	–	–

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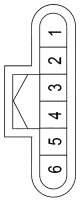
DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	E70
Connector Name	JOINT CONNECTOR-E14
Connector Type	RH06FB
Connector Color	BLACK
H.S.	

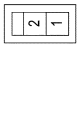


Terminal No.	Color of Wire	Signal Name
1	P	CAN-L
2	P	CAN-L
3	P	CAN-L
4	P	CAN-L
5	–	–
6	–	–

Connector No.	E71
Connector Name	JOINT CONNECTOR-E15
Connector Type	RH06FB
Connector Color	BLACK
H.S.	

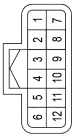
Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	L	CAN-H
3	L	CAN-H
4	L	CAN-H
5	–	–
6	–	–

Connector No.	E72
Connector Name	BRAKE PEDAL POSITION SWITCH (WITH INTELLIGENT CRUISE CONTROL)
Connector Type	M02FBR-LC
Connector Color	BROWN
H.S.	



Terminal No.	Color of Wire	Signal Name
1	R	IGN
2	LG	BRAKE PEDAL POSITION SWITCH

Connector No.	E74
Connector Name	ACCELERATOR PEDAL ACTUATOR (WITH INTELLIGENT CRUISE CONTROL)
Connector Type	RH12FB
Connector Color	BLACK
H.S.	



Terminal No.	Color of Wire	Signal Name
1	BG	+VB
2	R	IGN SW
3	BG	CAN-H
4	L/G	APS1 VDD
5	W	APS1 GND
6	W/L	APS1 OUT
7	GR	GND
8	–	–
9	Y	CAN-L
10	L/Y	APS2 VDD
11	O	APS2 GND
12	O/L	APS2 OUT

Connector No.	E75
Connector Name	ICC BRAKE HOLD RELAY
Connector Type	MS02FL-M2-LC
Connector Color	BLUE
H.S.	

Terminal No.	Color of Wire	Signal Name
1	W	BRAKE HOLD RLY DRIVE SIGNAL
2	R	IGN
3	P	BRAKE PEDAL POSITION SWITCH
5	Y	BATT

Connector No.	E106
Connector Name	JOINT CONNECTOR-E06
Connector Type	TK04FW-J
Connector Color	WHITE
H.S.	

Terminal No.	Color of Wire	Signal Name
1	BG	CAN-H
2	BG	CAN-H
3	BG	CAN-H
4	–	–

Connector No.	E108
Connector Name	JOINT CONNECTOR-E07
Connector Type	TK04FW-J
Connector Color	WHITE
H.S.	

Terminal No.	Color of Wire	Signal Name
1	Y	CAN-L
2	Y	CAN-L
3	Y	CAN-L
4	–	–

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	SAZ34FB-HS2-SJSZ2-UH
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	R	SOLENOID (POWER)
2	B	ECU (GND)
3	W	MOTOR (POWER)
4	B/W	MOTOR (GND)
5	–	–
6	–	–
7	P	STOP LAMP SW (WITHOUT ICC)
7	G	STOP LAMP SW (WITH INTELLIGENT CRUISE CONTROL)
8	–	–
9	R	VDC OFF SW
10	–	–
11	G	FR RH SEN (POWER)
12	W	FR RH SEN (SIGNAL)
13	R	RR LH SEN (POWER)
14	G	RR LH SEN (SIGNAL)
15	–	–
16	–	–
17	–	–
18	–	–
19	L	CAN-H
20	SHIELD	VAC SEN (GND)
21	B	VAC SEN (POWER)
22	W	VAC SEN (SIGNAL)
23	G	FR LH SEN (POWER)
24	W	FR LH SEN (SIGNAL)
25	BG	RR RH SEN (POWER)
26	P	RR RH SEN (SIGNAL)
27	–	–
28	BR	IGN (POWER)
29	–	–
30	P	CAN-L
31	–	–
32	–	–
33	–	–
34	–	–
35	–	–
36	–	–
37	–	–
38	–	–

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1G	G	TO MAIN HARNESS
2G	W	TO MAIN HARNESS
3G	P	TO MAIN HARNESS
4G	R	TO MAIN HARNESS
5G	P	TO MAIN HARNESS
6G	W	TO MAIN HARNESS
7G	SHIELD	TO MAIN HARNESS
8G	G	TO MAIN HARNESS
9G	LG	TO MAIN HARNESS
10G	P	TO MAIN HARNESS
11G	G	TO MAIN HARNESS
12G	P	TO MAIN HARNESS
13G	W	TO MAIN HARNESS
14G	BG	TO MAIN HARNESS
15G	W	TO MAIN HARNESS
16G	R	TO MAIN HARNESS
17G	B	TO MAIN HARNESS
18G	SHIELD	TO MAIN HARNESS
19G	W	TO MAIN HARNESS
20G	G	TO MAIN HARNESS
21G	P	TO MAIN HARNESS
22G	B	TO MAIN HARNESS
23G	SHIELD	TO MAIN HARNESS
24G	R	TO MAIN HARNESS
25G	W	TO MAIN HARNESS
26G	SHIELD	TO MAIN HARNESS
27G	W	TO MAIN HARNESS
28G	R	TO MAIN HARNESS
29G	B	TO MAIN HARNESS
30G	G	TO MAIN HARNESS
31G	L	TO MAIN HARNESS
32G	LG	TO MAIN HARNESS
33G	LG	TO MAIN HARNESS
34G	W	TO MAIN HARNESS
35G	P	TO MAIN HARNESS
36G	L	TO MAIN HARNESS
37G	BG	TO MAIN HARNESS
38G	W	TO MAIN HARNESS
39G	W	TO MAIN HARNESS
40G	Y	TO MAIN HARNESS
41G	BG	TO MAIN HARNESS
42G	P	TO MAIN HARNESS
43G	R	TO MAIN HARNESS
44G	W	TO MAIN HARNESS
45G	Y	TO MAIN HARNESS
46G	SB	TO MAIN HARNESS
47G	V	TO MAIN HARNESS
48G	BR	TO MAIN HARNESS
49G	W	TO MAIN HARNESS
50G	G	TO MAIN HARNESS
51G	B/W	TO MAIN HARNESS
52G	BR	TO MAIN HARNESS
53G	L	TO MAIN HARNESS
54G	P	TO MAIN HARNESS
55G	BR	TO MAIN HARNESS
56G	R	TO MAIN HARNESS
57G	P	TO MAIN HARNESS
58G	BG	TO MAIN HARNESS
59G	W	TO MAIN HARNESS
60G	B	TO MAIN HARNESS
61G	SHIELD	TO MAIN HARNESS
62G	P	TO MAIN HARNESS
63G	L	TO MAIN HARNESS
64G	R	TO MAIN HARNESS
65G	G/R	TO MAIN HARNESS
66G	R	TO MAIN HARNESS
67G	BG	TO MAIN HARNESS
68G	LG/R	TO MAIN HARNESS
69G	W	TO MAIN HARNESS
70G	G	TO MAIN HARNESS
71G	GR	TO MAIN HARNESS
72G	–	TO MAIN HARNESS
73G	–	TO MAIN HARNESS
74G	–	TO MAIN HARNESS
75G	G	TO MAIN HARNESS
76G	Y	TO MAIN HARNESS
77G	BR	TO MAIN HARNESS
78G	–	TO MAIN HARNESS
79G	P	TO MAIN HARNESS
80G	G	TO MAIN HARNESS
81G	R	TO MAIN HARNESS
82G	–	TO MAIN HARNESS
83G	–	TO MAIN HARNESS
84G	–	TO MAIN HARNESS
85G	–	TO MAIN HARNESS
86G	–	TO MAIN HARNESS
87G	–	TO MAIN HARNESS
88G	–	TO MAIN HARNESS
89G	R	TO MAIN HARNESS
90G	L	TO MAIN HARNESS
91G	L	TO MAIN HARNESS
92G	–	TO MAIN HARNESS
93G	–	TO MAIN HARNESS
94G	Y	TO MAIN HARNESS
95G	W	TO MAIN HARNESS
96G	–	TO MAIN HARNESS
97G	–	TO MAIN HARNESS
98G	–	TO MAIN HARNESS
99G	–	TO MAIN HARNESS
100G	SHIELD	TO MAIN HARNESS

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	E207
Connector Name	WIRE TO WIRE
Connector Type	NS16FW-CS
Connector Color	WHITE

H.S.

7	6	5	4		3	2	1
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
1	P	TO ENGINE ROOM HARNESS
2	P	TO ENGINE ROOM HARNESS
3	R	TO ENGINE ROOM HARNESS
4	B	TO ENGINE ROOM HARNESS
5	G	TO ENGINE ROOM HARNESS
6	–	TO ENGINE ROOM HARNESS
7	–	TO ENGINE ROOM HARNESS
8	G	TO ENGINE ROOM HARNESS
9	R	TO ENGINE ROOM HARNESS
10	G	TO ENGINE ROOM HARNESS
11	P	TO ENGINE ROOM HARNESS
12	R	TO ENGINE ROOM HARNESS
13	SHIELD	TO ENGINE ROOM HARNESS
14	SHIELD	TO ENGINE ROOM HARNESS
15	–	TO ENGINE ROOM HARNESS
16	–	TO ENGINE ROOM HARNESS
8	SHIELD	TO ENGINE ROOM HARNESS
9	Y	TO ENGINE ROOM HARNESS
10	L	TO ENGINE ROOM HARNESS
11	SB	TO ENGINE ROOM HARNESS
12	Y	TO ENGINE ROOM HARNESS
13	R	TO ENGINE ROOM HARNESS
14	B	TO ENGINE ROOM HARNESS
15	G	TO ENGINE ROOM HARNESS
16	SHIELD	TO ENGINE ROOM HARNESS
17	W	TO ENGINE ROOM HARNESS
18	L	TO ENGINE ROOM HARNESS
19	Y	TO ENGINE ROOM HARNESS
20	V	TO ENGINE ROOM HARNESS
21	G	TO ENGINE ROOM HARNESS
22	L	TO ENGINE ROOM HARNESS
23	G	TO ENGINE ROOM HARNESS
24	R	TO ENGINE ROOM HARNESS

Connector No.	E219
Connector Name	ICC SENSOR
Connector Type	AAZ08FB
Connector Color	BLACK

H.S.

4	3	2	1
8	7	6	5

Terminal No.	Color of Wire	Signal Name
1	P	UBAT
2	–	–
3	L	CAN 1 H
4	–	–
5	–	–
6	Y	CAN 1 L
7	–	–
8	B	GND

Connector No.	M1
Connector Name	WIRE TO WIRE
Connector Type	TH24MW-NH
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
1	SB	TO ROOM LAMP HARNESS
2	LG	TO ROOM LAMP HARNESS
3	R	TO ROOM LAMP HARNESS
4	–	TO ROOM LAMP HARNESS
5	GR	TO ROOM LAMP HARNESS
6	LG	TO ROOM LAMP HARNESS
7	L	TO ROOM LAMP HARNESS
8	Y	TO ROOM LAMP HARNESS
9	W	TO ROOM LAMP HARNESS
10	LG	TO ROOM LAMP HARNESS
11	BR	TO ROOM LAMP HARNESS
12	P/G	TO ROOM LAMP HARNESS
13	W	TO ROOM LAMP HARNESS
14	B	TO ROOM LAMP HARNESS
15	SHIELD	TO ROOM LAMP HARNESS
16	R	TO ROOM LAMP HARNESS
17	W	TO ROOM LAMP HARNESS
18	–	TO ROOM LAMP HARNESS
19	G	TO ROOM LAMP HARNESS
20	BR	TO ROOM LAMP HARNESS
21	LG	TO ROOM LAMP HARNESS
22	Y	TO ROOM LAMP HARNESS
23	P	TO ROOM LAMP HARNESS
24	B	TO ROOM LAMP HARNESS

Connector No.	M3
Connector Name	FUSE BLOCK (J/B)
Connector Type	CS06FW-M2
Connector Color	WHITE

H.S.

3N		2N	1N
		6N	5N	4N
8N	7N		

Terminal No.	Color of Wire	Signal Name
1N	LG	IGNITION
2N	BG	BATTERY
3N	L	IGNITION
4N	V	BATTERY
5N	Y	BATTERY
6N	W	BATTERY
7N	L	BATTERY
8N	L	IGNITION

Connector No.	E209
Connector Name	WIRE TO WIRE
Connector Type	TH24FW-NH
Connector Color	WHITE

H.S.

12	11	10	9	8	7	6	5	4	3	2	1	13
24	23	22	21	20	19	18	17	16	15	14		

Terminal No.	Color of Wire	Signal Name
1	Y	TO ENGINE ROOM HARNESS
2	L	TO ENGINE ROOM HARNESS
3	B	TO ENGINE ROOM HARNESS
4	SHIELD	TO ENGINE ROOM HARNESS
5	B	TO ENGINE ROOM HARNESS
6	R	TO ENGINE ROOM HARNESS
7	W	TO ENGINE ROOM HARNESS

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS16FW-CS
Connector Color	WHITE

H.S.

7P	6P	5P	4P		3P	2P	1P
16P	15P	14P	13P	12P	11P	10P	9P	8P

Terminal No.	Color of Wire	Signal Name
1P	R	IGNITION
2P	LG	IGNITION
3P	G	IGN ELEC RELAY OUT 2
4P	–	–
5P	P	IGNITION
6P	BG	REAR DEFOGGER RELAY OUT
7P	LG	IGNITION
8P	BG	IGNITION
9P	L	BATTERY
10P	BR	IGNITION
11P	–	–
12P	–	–
13P	W	BATTERY
14P	Y	BATTERY
15P	L	BATT
16P	W	BLOWER FAN RELAY OUT

Connector No.	M5
Connector Name	CAN GATEWAY
Connector Type	TH12FW-NH
Connector Color	WHITE

H.S.

1	2	3	4	5	6
7	8	9	10	11	12

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	–	–
3	BG	BAT
4	L	CAN-H
5	B	GND
6	L	CAN-H
7	P	CAN-L
8	–	–
9	BG	IGN
10	P	CAN-L
11	B	GND
12	P	CAN-L

Connector No.	M11
Connector Name	JOINT CONNECTOR-M03
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	Y	CAN-L
2	Y	CAN-L
3	W	CAN-L
4	Y	CAN-L

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH
Connector Color	BLACK

H.S.

60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
41	–	–
42	–	–
43	–	–
44	–	–
45	–	–
46	–	–
47	–	–
48	R	HIGH SIDE START SW LED
49	–	–
50	–	–
51	–	–
52	W	AUDIO DONGLE
53	–	–
54	W	PW LIN/COM
55	BR	R SENSOR K-LINE
56	–	–
57	–	–
58	–	–
59	P	CAN-L
60	L	CAN-H
61	BG	REAR DEFOGGER RELAY OUT
62	W	STARTER RELAY OUT
63	BG	I-KEY LINK SIGNAL
64	P	BUZZER OUT
65	P	DOOR HANDLE LAMP
66	W	BLOWER FAN RELAY OUT
67	G	IGN ELEC RELAY OUT 2
68	P	MR OUTPUT
69	G	AT DEVICE OUT
70	P	IGN USM OUT 1
71	R	DR REQUEST SW
72	G	AS REQUEST SW
73	–	–
74	–	–
75	BG	COMBI SW OUT 5
76	P	COMBI SW OUT 4
77	P	COMBI SW OUT 3
78	W	COMBI SW OUT 2
79	W	COMBI SW OUT 1
80	R	BACK DOOR OPEN SW

Connector No.	M23
Connector Name	COMBINATION METER
Connector Type	TH12FW-NH
Connector Color	WHITE

H.S.

46	45	44	43	42	41
52	51	50	49	48	47

Terminal No.	Color of Wire	Signal Name
41	LG	TRIP/RESET
42	Y	ILLUMI DOWN SW
43	V	M RANGE SE
44	BG	AT SHIFT UP
45	W	AT SHIFT DOWN
46	P	NOT M RANGE SW
47	BR	ILLUMI UP SW
48	G	SW GND
49	P	WASHER LEVEL SW
50	–	–
51	–	–
52	–	–

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	M24
Connector Name	COMBINATION METER
Connector Type	TH40FW-NH
Connector Color	WHITE

H.S.

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
1	B	GND1
2	B	GND2
3	P	STRG SW INPUT 1
4	BG	STRG SW INPUT 2
5	P	ACC
6	V	SECURITY
7	R	AIR BAG
8	G	AS BELT
9	Y	DR BUCKLE SW
10	–	–
11	BG	ALTERNATOR (CHARGE)
12	G	PKB
13	–	–
14	G	STRG SW OUTPUT 1
15	W	STRG SW OUTPUT 2
16	B	STRG SW OUTPUT GND
17	–	–
18	–	–
19	–	–
20	–	–
21	BG	IGN
22	W	BAT
23	B	ILLUMI CONT OUT
24	R	STRG SW GND
25	G	BRAKE OIL SW
26	R	FUEL SENSOR GND
27	W	FUEL SENSOR
28	–	–
29	–	–
30	–	–
31	–	–
32	–	–
33	BR	SPEED 2 P/R
34	BG	SPEED 8 P/R
35	–	–
36	–	–
37	–	–
38	P	CAN-L
39	L	CAN-H
40	–	–

Connector No.	M27
Connector Name	METER CONTROL SWITCH
Connector Type	TH12FW-NH
Connector Color	WHITE

H.S.

6	5	4	3	2	1
12	11	10	9	8	7

Terminal No.	Color of Wire	Signal Name
1	Y	ILLUMI DOWN SW
2	G	SW GND
3	LG	TRIP/RESET
4	R	ILL PWR
5	B	ILLUMI CONT OUT
6	BG	BCI OFF SWITCH
7	–	–
8	–	–
9	–	–
10	–	–
11	–	–
12	BR	ILLUMI UP SW

Connector No.	M30
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Type	TK08FGY-1V
Connector Color	GRAY

H.S.

25	24	31	32
			33

Terminal No.	Color of Wire	Signal Name
24	P	AUDIO STRG SW REMOTE A
25	W	ASCD
31	BG	AUDIO STRG SW REMOTE B
32	G	ASCDG
33	R	AUDIO STRG SW GND

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1G	SB	TO ENGINE ROOM HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
1G	P	TO ENGINE ROOM HARNESS - (WITH CLIMATE CONTROLLED SEAT)
2G	W	TO ENGINE ROOM HARNESS
3G	P	TO ENGINE ROOM HARNESS
4G	G	TO ENGINE ROOM HARNESS
5G	P	TO ENGINE ROOM HARNESS
6G	SB	TO ENGINE ROOM HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
6G	R	TO ENGINE ROOM HARNESS - (WITH CLIMATE CONTROLLED SEAT)
7G	SHIELD	TO ENGINE ROOM HARNESS
8G	G	TO ENGINE ROOM HARNESS
9G	BG	TO ENGINE ROOM HARNESS
10G	W	TO ENGINE ROOM HARNESS
11G	R	TO ENGINE ROOM HARNESS
12G	G	TO ENGINE ROOM HARNESS
13G	G	TO ENGINE ROOM HARNESS
14G	V	TO ENGINE ROOM HARNESS
15G	W	TO ENGINE ROOM HARNESS
16G	R	TO ENGINE ROOM HARNESS
17G	B	TO ENGINE ROOM HARNESS
18G	SHIELD	TO ENGINE ROOM HARNESS
19G	SB	TO ENGINE ROOM HARNESS
20G	LG	TO ENGINE ROOM HARNESS
21G	R	TO ENGINE ROOM HARNESS
22G	B	TO ENGINE ROOM HARNESS
23G	SHIELD	TO ENGINE ROOM HARNESS
24G	W	TO ENGINE ROOM HARNESS
25G	R	TO ENGINE ROOM HARNESS
26G	SHIELD	TO ENGINE ROOM HARNESS
27G	B	TO ENGINE ROOM HARNESS
28G	W	TO ENGINE ROOM HARNESS
29G	G	TO ENGINE ROOM HARNESS
30G	R	TO ENGINE ROOM HARNESS
31G	L	TO ENGINE ROOM HARNESS
32G	G	TO ENGINE ROOM HARNESS
33G	G	TO ENGINE ROOM HARNESS
34G	G	TO ENGINE ROOM HARNESS
35G	P	TO ENGINE ROOM HARNESS
36G	L	TO ENGINE ROOM HARNESS
37G	L	TO ENGINE ROOM HARNESS
38G	W	TO ENGINE ROOM HARNESS
39G	R	TO ENGINE ROOM HARNESS
40G	Y	TO ENGINE ROOM HARNESS
41G	L	TO ENGINE ROOM HARNESS
42G	P	TO ENGINE ROOM HARNESS
43G	W	TO ENGINE ROOM HARNESS
44G	G	TO ENGINE ROOM HARNESS
45G	R	TO ENGINE ROOM HARNESS
46G	Y	TO ENGINE ROOM HARNESS
47G	Y	TO ENGINE ROOM HARNESS
48G	LG	TO ENGINE ROOM HARNESS
49G	P	TO ENGINE ROOM HARNESS
50G	L	TO ENGINE ROOM HARNESS
51G	B/W	TO ENGINE ROOM HARNESS
52G	BR	TO ENGINE ROOM HARNESS
53G	L	TO ENGINE ROOM HARNESS
54G	BG	TO ENGINE ROOM HARNESS
55G	G	TO ENGINE ROOM HARNESS
56G	P	TO ENGINE ROOM HARNESS
57G	P	TO ENGINE ROOM HARNESS
58G	L	TO ENGINE ROOM HARNESS
59G	B	TO ENGINE ROOM HARNESS
60G	W	TO ENGINE ROOM HARNESS
61G	SHIELD	TO ENGINE ROOM HARNESS
62G	G	TO ENGINE ROOM HARNESS
63G	P	TO ENGINE ROOM HARNESS
64G	W	TO ENGINE ROOM HARNESS
65G	G/R	TO ENGINE ROOM HARNESS
66G	R	TO ENGINE ROOM HARNESS
67G	W	TO ENGINE ROOM HARNESS
68G	LG/R	TO ENGINE ROOM HARNESS
69G	P	TO ENGINE ROOM HARNESS
70G	BG	TO ENGINE ROOM HARNESS
71G	GR	TO ENGINE ROOM HARNESS
72G	-	TO ENGINE ROOM HARNESS
73G	-	TO ENGINE ROOM HARNESS
74G	-	TO ENGINE ROOM HARNESS
75G	G	TO ENGINE ROOM HARNESS
76G	Y	TO ENGINE ROOM HARNESS
77G	BR	TO ENGINE ROOM HARNESS
78G	-	TO ENGINE ROOM HARNESS
79G	R	TO ENGINE ROOM HARNESS
80G	W	TO ENGINE ROOM HARNESS
81G	G	TO ENGINE ROOM HARNESS
82G	P	TO ENGINE ROOM HARNESS
83G	P	TO ENGINE ROOM HARNESS
84G	P	TO ENGINE ROOM HARNESS
85G	P	TO ENGINE ROOM HARNESS
86G	P	TO ENGINE ROOM HARNESS
87G	P	TO ENGINE ROOM HARNESS
88G	P	TO ENGINE ROOM HARNESS
89G	R	TO ENGINE ROOM HARNESS
90G	P	TO ENGINE ROOM HARNESS
91G	L	TO ENGINE ROOM HARNESS
92G	P	TO ENGINE ROOM HARNESS
93G	P	TO ENGINE ROOM HARNESS
94G	O	TO ENGINE ROOM HARNESS
95G	B	TO ENGINE ROOM HARNESS
96G	P	TO ENGINE ROOM HARNESS
97G	P	TO ENGINE ROOM HARNESS
98G	P	TO ENGINE ROOM HARNESS
99G	P	TO ENGINE ROOM HARNESS
100G	SHIELD	TO ENGINE ROOM HARNESS

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Type	TH40FW-NH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	V	TO BODY HARNESS RH
2	G	TO BODY HARNESS RH
3	Y	TO BODY HARNESS RH
4	R	TO BODY HARNESS RH
5	BG	TO BODY HARNESS RH
6	LG	TO BODY HARNESS RH
7	SB	TO BODY HARNESS RH
8	G	TO BODY HARNESS RH
9	B	TO BODY HARNESS RH
10	W	TO BODY HARNESS RH
11	SHIELD	TO BODY HARNESS RH
12	W	TO BODY HARNESS RH
13	B	TO BODY HARNESS RH
14	SHIELD	TO BODY HARNESS RH
15	B	TO BODY HARNESS RH
16	W	TO BODY HARNESS RH
17	SHIELD	TO BODY HARNESS RH
18	SB	TO BODY HARNESS RH
19	LG	TO BODY HARNESS RH
20	SB	TO BODY HARNESS RH
21	B	TO BODY HARNESS RH
22	W	TO BODY HARNESS RH
23	SHIELD	TO BODY HARNESS RH
24	W	TO BODY HARNESS RH
25	B	TO BODY HARNESS RH
26	SHIELD	TO BODY HARNESS RH
27	B	TO BODY HARNESS RH
28	W	TO BODY HARNESS RH
29	SHIELD	TO BODY HARNESS RH
30	B	TO BODY HARNESS RH
31	W	TO BODY HARNESS RH
32	L	TO BODY HARNESS RH
33	Y	TO BODY HARNESS RH
34	–	TO BODY HARNESS RH
35	–	TO BODY HARNESS RH
36	–	TO BODY HARNESS RH
37	BR	TO BODY HARNESS RH
38	–	TO BODY HARNESS RH
39	–	TO BODY HARNESS RH
40	–	TO BODY HARNESS RH

Connector No.	M37
Connector Name	JOINT CONNECTOR-M28
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	L	CAN-H
3	B	CAN-H
4	–	–

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	M38
Connector Name	JOINT CONNECTOR-M29
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	Y	CAN-L
2	Y	CAN-L
3	W	CAN-L
4	–	–

Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Type	TH80FDGY-CS16-TM4
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1A	GR	TO BODY HARNESS
2A	BR	TO BODY HARNESS
3A	Y	TO BODY HARNESS
4A	V	TO BODY HARNESS
5A	L/B	TO BODY HARNESS

6A	L	TO BODY HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
6A	G	TO BODY HARNESS - (WITH CLIMATE CONTROLLED SEAT)
7A	Y	TO BODY HARNESS
8A	W	TO BODY HARNESS
9A	L	TO BODY HARNESS
10A	R	TO BODY HARNESS
11A	R	TO BODY HARNESS
12A	BG	TO BODY HARNESS
13A	O	TO BODY HARNESS
14A	LG	TO BODY HARNESS
15A	R	TO BODY HARNESS
16A	G	TO BODY HARNESS
17A	B	TO BODY HARNESS
18A	B	TO BODY HARNESS
19A	SHIELD	TO BODY HARNESS
20A	B	TO BODY HARNESS
21A	SHIELD	TO BODY HARNESS
22A	–	TO BODY HARNESS
23A	W	TO BODY HARNESS
24A	B	TO BODY HARNESS
25A	SHIELD	TO BODY HARNESS
26A	B	TO BODY HARNESS
27A	B	TO BODY HARNESS
28A	SHIELD	TO BODY HARNESS
29A	R	TO BODY HARNESS
30A	B	TO BODY HARNESS
31A	R	TO BODY HARNESS
32A	Y/R	TO BODY HARNESS
33A	W	TO BODY HARNESS
34A	B	TO BODY HARNESS
35A	SHIELD	TO BODY HARNESS
36A	L/Y	TO BODY HARNESS
37A	LG	TO BODY HARNESS
38A	V	TO BODY HARNESS
39A	SB	TO BODY HARNESS
40A	BR	TO BODY HARNESS
41A	Y	TO BODY HARNESS
42A	G	TO BODY HARNESS
43A	–	TO BODY HARNESS
44A	W	TO BODY HARNESS
45A	R	TO BODY HARNESS
46A	BG	TO BODY HARNESS
47A	LG	TO BODY HARNESS
48A	R	TO BODY HARNESS
49A	P	TO BODY HARNESS
50A	W	TO BODY HARNESS
51A	L	TO BODY HARNESS
52A	P	TO BODY HARNESS
53A	G	TO BODY HARNESS
54A	W	TO BODY HARNESS
55A	BG	TO BODY HARNESS
56A	BR	TO BODY HARNESS

57A	P	TO BODY HARNESS - (WITH CLIMATE CONTROLLED SEAT)
57A	L	TO BODY HARNESS - (WITHOUT CLIMATE CONTROLLED SEAT)
58A	G	TO BODY HARNESS
59A	SB	TO BODY HARNESS
60A	L	TO BODY HARNESS
61A	G	TO BODY HARNESS
62A	BR	TO BODY HARNESS
63A	BR	TO BODY HARNESS
64A	Y	TO BODY HARNESS
65A	W	TO BODY HARNESS
66A	BG	TO BODY HARNESS
67A	Y	TO BODY HARNESS
68A	LG	TO BODY HARNESS
69A	R	TO BODY HARNESS
70A	P	TO BODY HARNESS
71A	BR	TO BODY HARNESS
72A	SB	TO BODY HARNESS
73A	BG	TO BODY HARNESS
74A	BR	TO BODY HARNESS
75A	LG	TO BODY HARNESS
76A	W	TO BODY HARNESS
77A	L	TO BODY HARNESS
78A	V	TO BODY HARNESS
79A	LG	TO BODY HARNESS
80A	Y	TO BODY HARNESS
81A	L	TO BODY HARNESS
82A	BG	TO BODY HARNESS
83A	Y	TO BODY HARNESS
84A	LG	TO BODY HARNESS
85A	SHIELD	TO BODY HARNESS
86A	Y	TO BODY HARNESS
87A	LG	TO BODY HARNESS
88A	BR	TO BODY HARNESS
89A	L	TO BODY HARNESS
90A	P	TO BODY HARNESS
91A	L	TO BODY HARNESS
92A	L	TO BODY HARNESS
93A	B	TO BODY HARNESS
94A	W	TO BODY HARNESS
95A	W	TO BODY HARNESS
96A	–	TO BODY HARNESS
97A	SB	TO BODY HARNESS
98A	Y	TO BODY HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
98A	L	TO BODY HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
99A	–	TO BODY HARNESS
100A	–	TO BODY HARNESS

Connector No.	M41
Connector Name	JOINT CONNECTOR-M18
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	P	CAN-L
2	P	CAN-L
3	P	CAN-L
4	–	–

Connector No.	M43
Connector Name	JOINT CONNECTOR-M17
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	L	CAN-H
3	L	CAN-H
4	–	–

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	M50
Connector Name	A/C AUTO AMP.
Connector Type	TH40FW-NH
Connector Color	WHITE

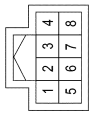
H.S.

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	GR	GND
3	G	BATT
4	–	–
5	G	TX RR
6	–	–
7	G	AMB SENS
8	G	STRG HTR SW
9	W	SUN SENS
10	SB	MODE 1
11	G	MODE 3
12	G	FAN OUT (COOLER)
13	W	IGN 2
14	W	FAN OUT (BOOSTER)
15	–	–
16	Y	ACTR (LIN)
17	LG	VACTR
18	W	FR FAN PWM
19	W	PTC 1
20	BR	STRG HTR RLY
21	P	CAN-L
22	GR	GND (POWER)
23	LG	IGN
24	–	–
25	W	RX RR
26	G	SENS GND
27	W	ING SENS
28	W	INT SENS
29	P	MODE 2
30	R	GAS SENS
31	BG	MODE 4
32	L	FAN F/B (COOLER)
33	–	–
34	L	FAN F/B (BOOSTER)
35	–	–
36	BR	WATER VALVE OPEN B
37	BR	ACTR GND
38	P	IGN ON/OFF

39	L	PTC 2	
40	Y	WATER VALVE CLOSE A	

Connector No.	M54
Connector Name	STEERING ANGLE SENSOR
Connector Type	TH08FW-NH
Connector Color	WHITE

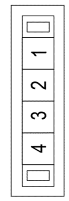
H.S.



Terminal No.	Color of Wire	Signal Name
1	GR	GND
2	P	CAN-L
3	–	–
4	G	IGN
5	L	CAN-H
6	–	–
7	–	–
8	–	–

Connector No.	M67
Connector Name	JOINT CONNECTOR-M04
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	L	CAN-H
3	B	CAN-H
4	L	CAN-H

Connector No.	M70
Connector Name	SONAR CONTROL UNIT
Connector Type	TH24FW-NH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	FIR SENSOR SIGNAL
2	B	FIL SENSOR SIGNAL
3	R	FOL SENSOR SIGNAL
4	R	FOR SENSOR SIGNAL
5	B	V CAN-H
6	W	V CAN-L
7	–	–
8	–	–
9	B	RIR SENSOR SIGNAL
10	B	ROR SENSOR SIGNAL
11	–	–
12	LG	IGN
13	B	FR SENSOR GND
14	B	RR SENSOR GND
15	GR	GND
16	LG	DISABLE SW
17	GR	LED OUTPUT
18	–	–
19	BR	SPEAKER PWR
20	LG	SPEAKER RR SIGNAL
21	B	RIL SENSOR SIGNAL
22	W	ROL SENSOR SIGNAL
23	–	–
24	–	–

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	M84
Connector Name	WIRE TO WIRE
Connector Type	TH32FW-NH
Connector Color	WHITE

H.S.

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
1	B	TO BODY HARNESS RH
2	W	TO BODY HARNESS RH
3	SHIELD	TO BODY HARNESS RH
4	LG	TO BODY HARNESS RH
5	P	TO BODY HARNESS RH - (WITHOUT REAR ENTERTAINMENT SYSTEM)
5	Y	TO BODY HARNESS RH - (WITH REAR ENTERTAINMENT SYSTEM)
6	W	TO BODY HARNESS RH - (WITHOUT REAR ENTERTAINMENT SYSTEM)
6	B	TO BODY HARNESS RH - (WITH REAR ENTERTAINMENT SYSTEM)
7	R	TO BODY HARNESS RH - (WITHOUT REAR ENTERTAINMENT SYSTEM)
7	W	TO BODY HARNESS RH - (WITH REAR ENTERTAINMENT SYSTEM)
8	B	TO BODY HARNESS RH - (WITHOUT REAR ENTERTAINMENT SYSTEM)
8	R	TO BODY HARNESS RH - (WITH REAR ENTERTAINMENT SYSTEM)
9	SHIELD	TO BODY HARNESS RH
10	G	TO BODY HARNESS RH
11	L	TO BODY HARNESS RH
12	G	TO BODY HARNESS RH
13	G	TO BODY HARNESS RH
14	P	TO BODY HARNESS RH
15	O	TO BODY HARNESS RH
16	SB	TO BODY HARNESS RH
17	L	TO BODY HARNESS RH
18	P	TO BODY HARNESS RH
19	R	TO BODY HARNESS RH
20	–	TO BODY HARNESS RH
21	G	TO BODY HARNESS RH
22	R	TO BODY HARNESS RH
23	G	TO BODY HARNESS RH
24	R	TO BODY HARNESS RH - (WITH CLIMATE CONTROLLED SEAT)
24	V	TO BODY HARNESS RH - (WITHOUT CLIMATE CONTROLLED SEAT)

25	W	TO BODY HARNESS RH
26	W	TO BODY HARNESS RH
27	BG	TO BODY HARNESS RH
28	V	TO BODY HARNESS RH
29	SB	TO BODY HARNESS RH
30	L	TO BODY HARNESS RH
31	W	TO BODY HARNESS RH
32	–	TO BODY HARNESS RH

Connector No.	M124
Connector Name	AV CONTROL UNIT (WITH BOSE AUDIO SYSTEM-WITH NAVI WITHOUT SURROUND SOUND SYSTEM)
Connector Type	TH32FW-NH
Connector Color	WHITE

H.S.

49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

Terminal No.	Color of Wire	Signal Name
49	–	–
50	–	–
51	–	–
52	–	–
53	G	PKB SIG
54	–	–
55	W	NAVI COMP 1-
56	B	NAVI COMP 1+
57	BG	I-KEY MEMORY
58	G	AV-ACC (DCM)
59	SHIELD	PKB SIGMIC GND
60	W	MIC VCC
61	W	IT DISP
62	P	CAN-L
63	LG	M CAN-L
64	LG	M CAN-L TRM
65	–	–
66	–	–
67	P	MR OUTPUT
68	LG	IGN
69	R	REVERSE SIG
70	BG	SPEED
71	SHIELD	NAVI COMP 1 SHIELD
72	R	NAVI COMP 1 SYNC
73	–	–
74	–	–

75	B	MIC SIG
76	SHIELD	DISP SHIELD
77	B	DISP IT
78	L	CAN-H
79	SB	M CAN-H
80	SB	M CAN-H TRM

Connector No.	M126
Connector Name	WARNING SYSTEM SWITCH
Connector Type	TH08FB-NH
Connector Color	BLACK

H.S.

4	3	2	1
8	7	6	5

Terminal No.	Color of Wire	Signal Name
1	R	ILL
2	–	–
3	G	WARNING SYSTEM ON IND
4	B	ILL CONT
5	W	BATT
6	Y	WARNING SYSTEM SW
7	–	–
8	B	GND

Connector No.	M146
Connector Name	JOINT CONNECTOR-M05
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	L	ITS CAN-H
2	L	ITS CAN-H
3	L	ITS CAN-H
4	L	ITS CAN-H

Connector No.	M147
Connector Name	JOINT CONNECTOR-M07
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	Y	ITS CAN-L
2	Y	ITS CAN-L
3	Y	ITS CAN-L
4	Y	ITS CAN-L

Connector No.	M149
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Type	TK08FGY
Connector Color	GRAY

H.S.

20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
13	R	ASCD
14	B	AUDIO STRG SW REMOTE A
15	GR	AUDIO STRG SW REMOTE B
16	L	ASCDG
17	BR	AUDIO STRG SW GND
18	G	HORN SWITCH
19	Y	ILL CONT
20	W	ILL

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	M158
Connector Name	WIRE TO WIRE
Connector Type	NS10MW-CS
Connector Color	WHITE

H.S.

1	2		3	4
5	6	7	8	9	10

Terminal No.	Color of Wire	Signal Name
1	W	TO FRONT DOOR RH HARNESS
2	B	TO FRONT DOOR RH HARNESS
3	SHIELD	TO FRONT DOOR RH HARNESS
4	BR	TO FRONT DOOR RH HARNESS
5	Y	TO FRONT DOOR RH HARNESS
6	L	TO FRONT DOOR RH HARNESS
7	LG	TO FRONT DOOR RH HARNESS
8	GR	TO FRONT DOOR RH HARNESS
9	BR	TO FRONT DOOR RH HARNESS - (WITH BASE AUDIO SYSTEM)
9	G	TO FRONT DOOR RH HARNESS - (WITH BOSE AUDIO SYSTEM)
10	Y	TO FRONT DOOR RH HARNESS - (WITH BASE AUDIO SYSTEM)
10	W	TO FRONT DOOR RH HARNESS - (WITH BOSE AUDIO SYSTEM)

Connector No.	M163
Connector Name	AV CONTROL UNIT (WITH BOSE AUDIO SYSTEM-WITH NAVI AND SURROUND SOUND SYSTEM)
Connector Type	TH32FW-NH
Connector Color	WHITE

H.S.

49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

Terminal No.	Color of Wire	Signal Name
49	–	–
50	–	–
51	–	–
52	–	–
53	G	PKB SIG
54	–	–
55	W	NAVI COMP1-
56	B	NAVI COMP1+
57	BG	RESERVE I1
58	G	RESERVE I2
59	SHIELD	MIC GND
60	W	MIC VCC
61	W	IT-DISP
62	P	CAN-L
63	LG	M-CAN L
64	LG	M-CAN L TRM
65	–	–
66	–	–
67	P	MR OUTPUT
68	LG	IGN
69	R	REVERSE SIG
70	BG	SPEED
71	SHIELD	NAVI COMP1 SHIELD
72	R	GND
73	–	–
74	–	–
75	B	MIC SIG
76	SHIELD	DISP SHIELD
77	B	DISP-IT
78	L	CAN-H
79	SB	M-CAN H
80	SB	M-CAN H TRM

Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Type	NS16MW-CS
Connector Color	WHITE

H.S.

1	2	3		4	5	6	7
8	9	10	11	12	13	14	15	16

Terminal No.	Color of Wire	Signal Name
1	B	TO FRONT DOOR LH HARNESS
2	V	TO FRONT DOOR LH HARNESS
3	G/B	TO FRONT DOOR LH HARNESS
4	V	TO FRONT DOOR LH HARNESS
5	SB	TO FRONT DOOR LH HARNESS
6	BR	TO FRONT DOOR LH HARNESS
7	Y	TO FRONT DOOR LH HARNESS
8	W	TO FRONT DOOR LH HARNESS - (WITH BOSE AUDIO SYSTEM)
8	V	TO FRONT DOOR LH HARNESS - (WITH BASE AUDIO SYSTEM)
9	G	TO FRONT DOOR LH HARNESS - (WITH BOSE AUDIO SYSTEM AND SURROUND SOUND SYSTEM)
9	SB	TO FRONT DOOR LH HARNESS - (WITH BASE AUDIO SYSTEM)
9	P	TO FRONT DOOR LH HARNESS - (WITH BOSE AUDIO SYSTEM WITHOUT SURROUND SOUND SYSTEM)
10	L	TO FRONT DOOR LH HARNESS
11	BR	TO FRONT DOOR LH HARNESS
12	Y	TO FRONT DOOR LH HARNESS
13	LG	TO FRONT DOOR LH HARNESS
14	SHIELD	TO FRONT DOOR LH HARNESS
15	B	TO FRONT DOOR LH HARNESS
16	W	TO FRONT DOOR LH HARNESS

Connector No.	M188
Connector Name	WIRE TO WIRE
Connector Type	TH24MW-NH
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
1	–	TO MAIN HARNESS
2	–	TO MAIN HARNESS
3	–	TO MAIN HARNESS
4	–	TO MAIN HARNESS
5	–	TO MAIN HARNESS
6	–	TO MAIN HARNESS
7	B	TO MAIN HARNESS
8	W	TO MAIN HARNESS
9	LG	TO MAIN HARNESS
10	G	TO MAIN HARNESS
11	B	TO MAIN HARNESS
12	R	TO MAIN HARNESS
13	B	TO MAIN HARNESS
14	Y	TO MAIN HARNESS
15	GR	TO MAIN HARNESS
16	G	TO MAIN HARNESS
17	B	TO MAIN HARNESS
18	R	TO MAIN HARNESS
19	G	TO MAIN HARNESS
20	W	TO MAIN HARNESS
21	B	TO MAIN HARNESS
22	Y	TO MAIN HARNESS
23	B	TO MAIN HARNESS
24	R	TO MAIN HARNESS

Connector No.	M189
Connector Name	WIRE TO WIRE
Connector Type	TH24FW-NH
Connector Color	WHITE

H.S.

12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
1	–	TO MAIN HARNESS
2	–	TO MAIN HARNESS
3	–	TO MAIN HARNESS
4	–	TO MAIN HARNESS
5	–	TO MAIN HARNESS
6	–	TO MAIN HARNESS
7	B	TO MAIN HARNESS
8	W	TO MAIN HARNESS
9	LG	TO MAIN HARNESS
10	G	TO MAIN HARNESS
11	B	TO MAIN HARNESS
12	R	TO MAIN HARNESS
13	B	TO MAIN HARNESS
14	Y	TO MAIN HARNESS
15	GR	TO MAIN HARNESS
16	G	TO MAIN HARNESS
17	B	TO MAIN HARNESS
18	R	TO MAIN HARNESS
19	G	TO MAIN HARNESS
20	W	TO MAIN HARNESS
21	B	TO MAIN HARNESS
22	Y	TO MAIN HARNESS
23	B	TO MAIN HARNESS
24	R	TO MAIN HARNESS

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	M198
Connector Name	DRIVER ASSISTANCE BUZZER CONTROL MODULE
Connector Type	TH24FW-NH
Connector Color	WHITE

H.S.

12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
1	B	GND
2	L	ITS CAN-H
3	LG	IGN
4	–	–
5	Y	ITS CAN-L
6	Y	3RD CAN-L
7	–	–
8	–	–
9	L	V-CAN-H
10	Y	V-CAN-L
11	–	–
12	G	SPEAKER +
13	–	–
14	–	–
15	–	–
16	–	–
17	–	–
18	L	3RD CAN-H
19	–	–
20	–	–
21	–	–
22	–	–
23	–	–
24	W	SPEAKER -

Connector No.	M199
Connector Name	WARNING SYSTEM BUZZER
Connector Type	NS02FW-CS
Connector Color	WHITE

H.S.

2	1

Terminal No.	Color of Wire	Signal Name
1	G	SPEAKER_DRIVE(+)
2	W	SPEAKER_DRIVE(-)

Connector No.	R1
Connector Name	WIRE TO WIRE
Connector Type	TH24FW-NH
Connector Color	WHITE

H.S.

12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
1	G	TO MAIN HARNESS
2	R	TO MAIN HARNESS
3	W	TO MAIN HARNESS
4	Y/R	TO MAIN HARNESS
5	B	TO MAIN HARNESS
6	LG	TO MAIN HARNESS
7	BR	TO MAIN HARNESS
8	Y	TO MAIN HARNESS
9	G	TO MAIN HARNESS
10	W	TO MAIN HARNESS
11	SB	TO MAIN HARNESS
12	R/G	TO MAIN HARNESS
13	W	TO MAIN HARNESS
14	B	TO MAIN HARNESS
15	SHIELD	TO MAIN HARNESS
16	P	TO MAIN HARNESS
17	BG	TO MAIN HARNESS
18	–	TO MAIN HARNESS
19	V	TO MAIN HARNESS
20	W	TO MAIN HARNESS

Connector No.	R6
Connector Name	LANE CAMERA UNIT
Connector Type	MUB12FB
Connector Color	BLACK

H.S.

1	2					3	4
5	6	7	8	9	10	11	12

Terminal No.	Color of Wire	Signal Name
1	B	GND
2	–	–
3	LG	IGN
4	–	–
5	BR	CAN-H
6	Y	CAN-L
7	–	–
8	–	–

21	SB	TO MAIN HARNESS
22	L	TO MAIN HARNESS
23	W	TO MAIN HARNESS
24	B	TO MAIN HARNESS

AAOIA0638GB

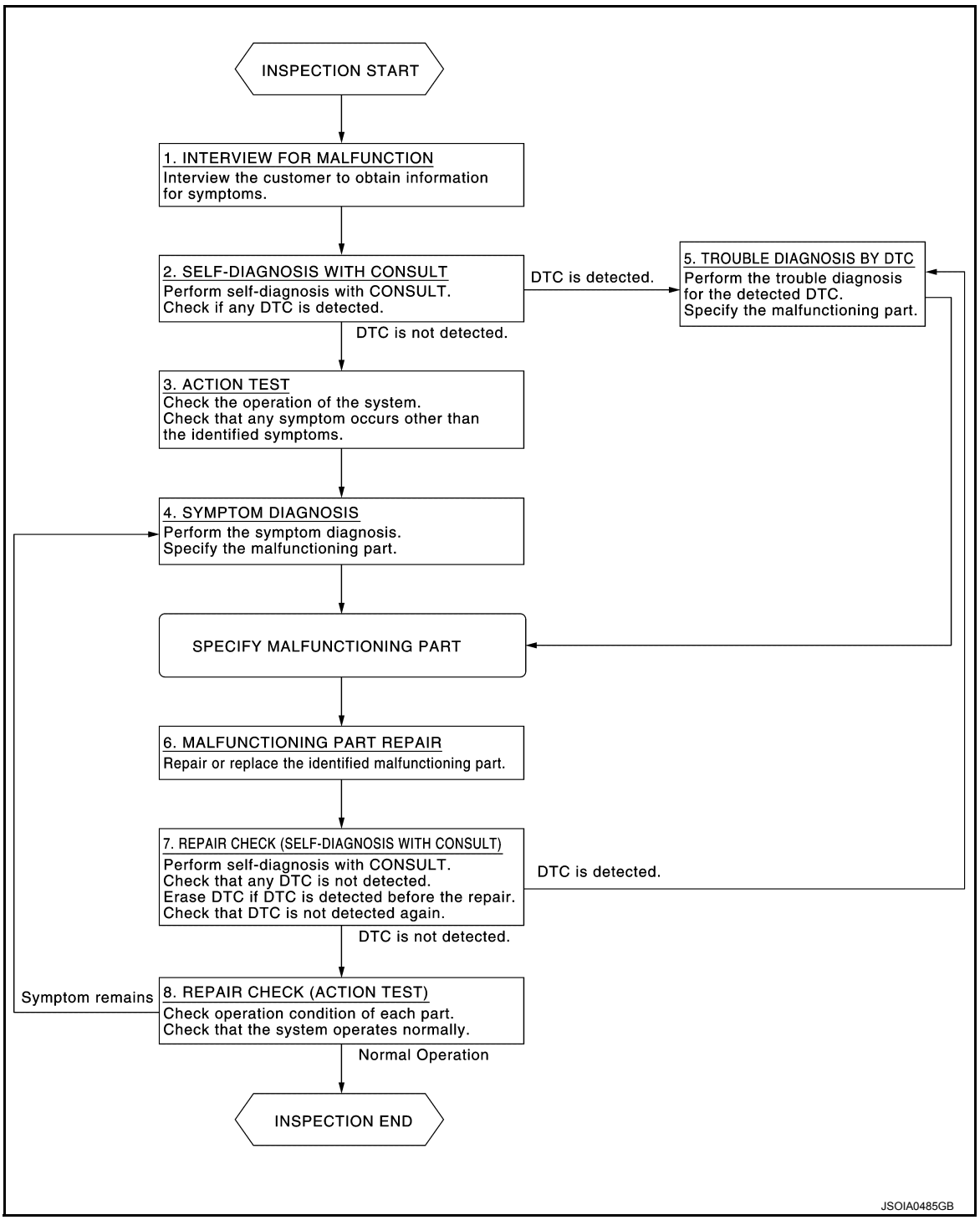
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000014224839

OVERALL SEQUENCE



DETAILED FLOW

1.INTERVIEW FOR MALFUNCTION

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

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

>> GO TO 2.

2.SELF-DIAGNOSIS WITH CONSULT

1. Perform “All DTC Reading” with CONSULT.
2. Check if the DTC is detected on the self-diagnosis results of following.

- “ICC/ADAS”
- “LASER/RADAR”
- “ACCELE PEDAL ACT”
- “LANE CAMERA”
- “SIDE RADAR LEFT”
- “SIDE RADAR RIGHT”
- “BSW/BUZZER”

Is any DTC detected?

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

3.ACTION TEST

Perform Following system action test to check the operation status. Refer to DAS-318, "DCA : Description". Check if any other malfunctions occur.

>> GO TO 4.

4.SYMPTOM DIAGNOSIS

Perform the applicable diagnosis according to the diagnosis chart by symptom. Refer to DAS-371, "Symptom Table".

>> GO TO 6.

5.TROUBLE DIAGNOSIS BY DTC

1. Check the DTC in the self-diagnosis results.
2. Perform trouble diagnosis for the detected DTC following.

- “ICC/ADAS”: Refer to DAS-261, "DTC Index"
- “LASER/RADAR” Refer to DAS-266, "DTC Index"
- “ACCELE PEDAL ACT”: Refer to DAS-271, "DTC Index"
- “LANE CAMERA”: Refer toDAS-283, "DTC Index"
- “SIDE RADAR LEFT”: Refer to DAS-273, "DTC Index"
- “SIDE RADAR RIGHT”: Refer to DAS-276, "DTC Index"
- “BSW/BUZZER”: Refer to DAS-280, "DTC Index"

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

>> GO TO 6.

6.MALFUNCTIONING PART REPAIR

Repair or replace the identified malfunctioning parts.

>> GO TO 7.

7.REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT)

1. Erases self-diagnosis results.
2. Perform “All DTC Reading” again after repairing or replacing the specific items.
3. Check if any DTC is detected in self-diagnosis results of following.

- “ICC/ADAS”
- “LASER/RADAR”

- “ACCELE PEDAL ACT”
- “LANE CAMERA”
- “SIDE RADAR LEFT”
- “SIDE RADAR RIGHT”
- “BSW/BUZZER”

Is any DTC detected?

YES >> GO TO 5.
NO >> GO TO 8.

8. REPAIR CHECK (ACTION TEST)

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

- DCA
- LDW/LDP
- Blind Spot Warning/Blind Spot Intervention
- BCI

Is there a malfunction symptom?

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

ADDITIONAL SERVICE WHEN REPLACING ICC SENSOR

Description

INFOID:0000000014224840

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

Work Procedure

INFOID:0000000014224841

1. RADAR ALIGNMENT

Perform the radar alignment. Refer to CCS-82, "Description".

>> GO TO 2.

2. DCA SYSTEM ACTION TEST

1. Perform the DCA system action test. Refer to DAS-318, "DCA : Description".
2. Check that the DCA system operates normally.

>> INSPECTION END

ADDITIONAL SERVICE WHEN REPLACING ACCELERATOR PEDAL ASSEMBLY

Description

INFOID:0000000014224842

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

Work Procedure

INFOID:0000000014224843

1.ACCELERATOR PEDAL RELEASED POSITION LEARNING

Perform accelerator pedal released position learning. Refer to BRC-262, "Description".

>> GO TO 2.

2.DCA SYSTEM ACTION TEST

1. Perform the DCA system action test. Refer to DAS-318, "DCA : Description".
2. Check that the DCA system operates normally.

>> INSPECTION END

ADDITIONAL SERVICE WHEN REPLACING LANE CAMERA UNIT

Description

INFOID:0000000014224844

Always adjust the camera aiming after removing and installing or replacing the lane camera unit.

CAUTION:

The system does not operate normally unless the camera aiming adjustment is performed. Always perform it.

Work Procedure

INFOID:0000000014224845

1.CAMERA AIMING ADJUSTMENT

Perform the camera aiming adjustment. Refer to BRC-267, "Work Procedure (Camera Aiming Adjustment)".

>> GO TO 2.

2.PERFORM SELF-DIAGNOSIS

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

Is any DTC detected?

YES >> Perform the trouble diagnosis for the detected DTC. Refer to DAS-283, "DTC Index"

NO >> GO TO 3.

3.LDW/LDP SYSTEM ACTION TEST

1. Perform the LDW/LDP system action test. Refer to DAS-319, "LDW/LDP : Description".
2. Check that the LDW/LDP system operates normally.

>> GO TO 4.

4.BLIND SPOT WARNING/BLIND SPOT INTERVENTION SYSTEM ACTION TEST

1. Perform the Blind Spot Warning/Blind Spot Intervention system action test. Refer to DAS-321, "BSW/RCTA : Description".
2. Check that the Blind Spot Warning/Blind Spot Intervention system operates normally.

>> WORK END

PRE-INSPECTION FOR DIAGNOSIS
LANE CAMERA UNIT

LANE CAMERA UNIT : Inspection Procedure

INFOID:0000000014224846

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 BRC-265, "Description".

3.CHECK VEHICLE HEIGHT

Check vehicle height. Refer to FSU-23, "Wheelarch Height".

Is vehicle height appropriate?

YES >> INSPECTION END
NO >> Repair vehicle to appropriate height.

CAMERA AIMING ADJUSTMENT

Description

INFOID:0000000014224847

Always adjust the camera aiming after removing and installing or replacing the lane camera unit.

CAUTION:

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

Work Procedure (Preparation)

INFOID:0000000014224848

1. PERFORM SELF-DIAGNOSIS

Perform self-diagnosis of ADAS control unit and lane camera unit.

Is any DTC detected?

Except “C1B01”>>Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to DAS-40, "DTC Index" (ICC/ADAS) or DAS-283, "DTC Index" (LANE CAMERA).

“C1B01” or no DTC>>GO TO 2.

2. PREPARATION BEFORE CAMERA AIMING ADJUSTMENT

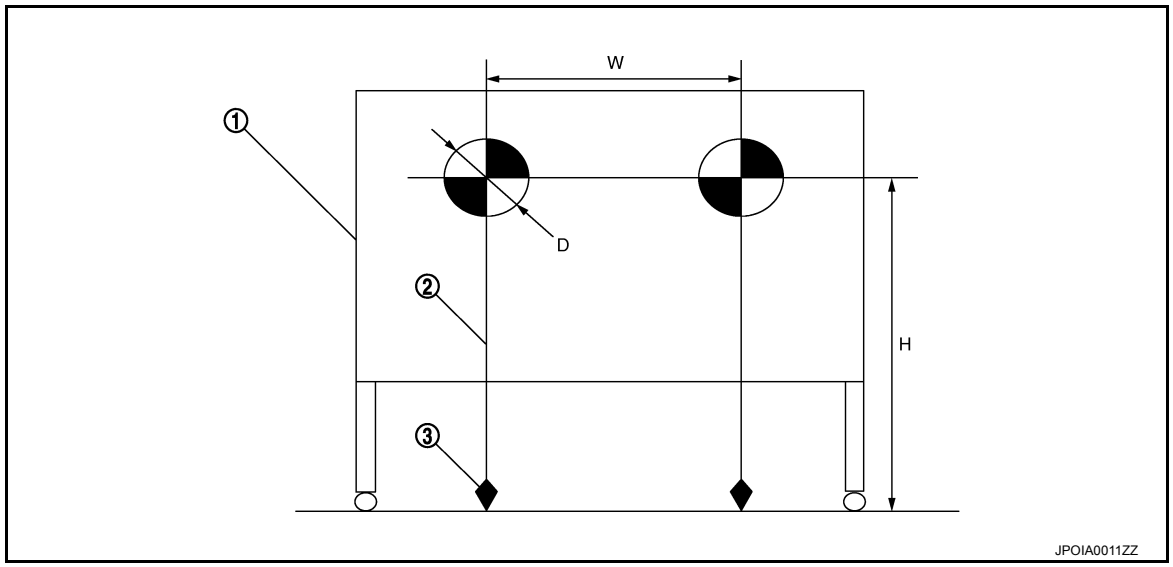
1. Perform pre-inspection for diagnosis. Refer to BRC-264, "LANE CAMERA UNIT : Inspection Procedure".
2. Adjust the tire pressure to the specified pressure value.
3. Maintain no-load in vehicle.
4. Check if coolant and engine oil are filled up to correct level and fuel tank is full.
5. Shift the selector lever to “P” position and release the parking brake.
6. Clean the windshield.
7. Completely clear off the instrument panel.

>> GO TO 3.

3. PREPARATION OF AIMING ADJUSTMENT JIG

Prepare the aiming adjustment jig according to the following procedure and the figure.

1. Print out the target mark attached in this service manual. Refer to BRC-268, "Work Procedure (Target Mark Sample)".
2. Stick a printed target mark on the board with a scotch tape or a piece of double-sided tape.
   NOTE:
   - Use the board that peripheral area of the target is monochrome such as a white-board.
   - Notice that the cross of the target is horizontal and vertical.



① Board ② String ③ Cone

: Target mark

Diameter of a target (D)	**: 200 mm (7.87 in)**
Height of a target center (H)	**: 1,450 mm (57.09 in)**
Width between a right target center from a left target center (W)	**: 600 mm (23.62 in)**

>> Go to BRC-266, "Work Procedure (Target Setting)".

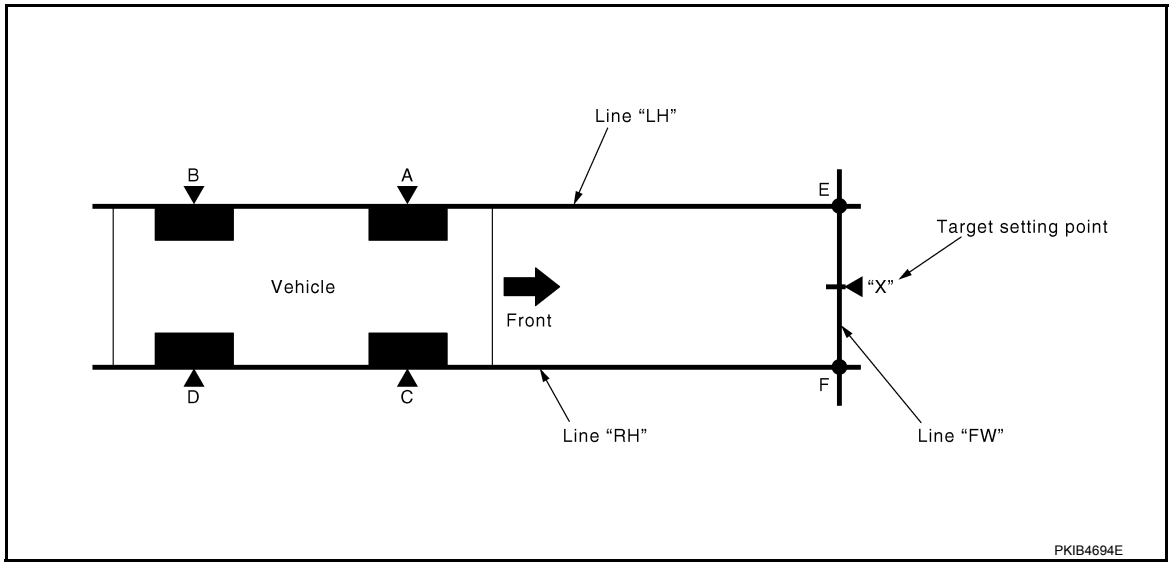
Work Procedure (Target Setting)

INFOID:0000000014224849

CAUTION:

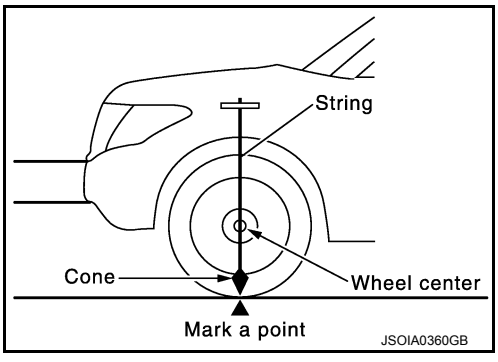
- **Perform this operation in a horizontal position where there is a clear view for 5 m (16.4 ft) forward and 3 m (9.84 ft) wide.**
- **Place the target in a well-lighted location. (Poor lighting may make it hard to adjust.)**
- **The target may not be detected when there is a light source within 1.5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

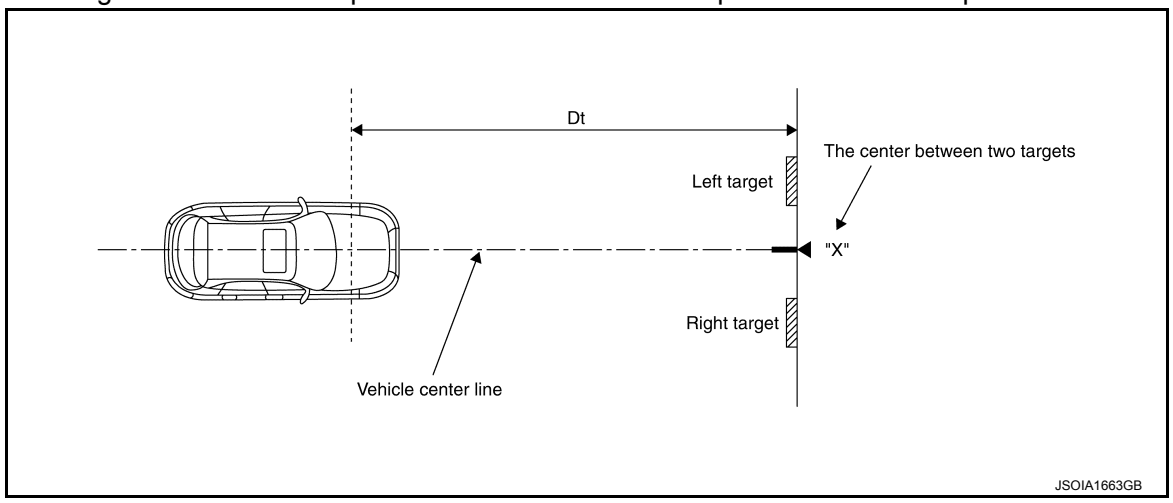


“A”–“E” (“C”–“F”) : 3,000 mm (118.11 in)

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 3,000 mm (118.11 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 3,000 mm (118.11 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. Place a target on either side of point “X”. Each distance from point “X” must be equal each other.



Dt : 3,000 mm (118.11 in)

>> Go to BRC-267, "Work Procedure (Camera Aiming Adjustment)".

Work Procedure (Camera Aiming Adjustment)

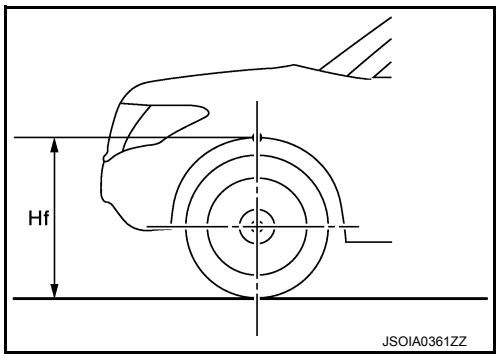
INFOID:0000000014224850

CAUTION:
Perform the adjustment under unloaded vehicle condition.

1. CHECK VEHICLE HEIGHT

Measure the wheelarch height. Calculate “Dh”.

Dh [mm] = (Hfl + Hfr) ÷ 2 – 821 mm (32.32 in)
where,
Hfl: Front left wheelarch height [mm]
Hfr: Front right wheelarch height [mm]



NOTE:
“Dh” may be calculated as a minus value.

>> GO TO 2.

2. CAMERA AIMING ADJUSTMENT

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

1. Select “Work Support” on “LANE CAMERA” with CONSULT.
2. Select “AUTO AIM”.
3. Confirm the following items;

- The target should be accurately placed.
- The vehicle should be stopped.

4. Select “Start” to perform camera aiming.

CAUTION:
- **Never select “Start” when the target is not accurately placed.**
- **Wait 5 seconds or more after selecting “Start”.**

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

CAUTION:
Never change “Ht” and “Dt”.

6. Confirm the displayed item.

- “Normally Completed”: Select “Completion”.
- “SUSPENSION”, “X AIMING NG Y”, “ABNORMALLY COMPLETED”: Perform the following services.

Displayed item		Possible cause	Service procedure
SUSPENSION	—	Temporary malfunction in internal processing of the lane camera unit.	Go back to Step 1
	00H Routine not activated	Lane camera unit malfunction.	Position the target appropriately again. Perform the aiming again. Refer to BRC-266, "Work Procedure (Target Setting)"
	10H Writing error	• Temporary malfunction in internal processing of the lane camera unit. • Lane camera unit malfunction.	
X AIMING NG Y (X: 0 - 7, Y: 1 - 8)	—	• A target is not-yet-placed. (The lane camera unit cannot detect a target.) • The position of the lane camera unit is not correct. • Inappropriate work environment. • Inappropriate vehicle condition.	Position the target appropriately again. Perform the aiming again. Refer to BRC-265, "Work Procedure (Preparation)".
ABNORMALLY COMPLETED	—		

NOTE:
Replace camera unit if “00H Routine not activated” or “10H Writing error” are repeatedly indicated during the above two services are performed.

7. Confirm that “Normally Completed” is displayed and then select “End” to close the aiming adjustment procedure.

>> GO TO 3.

3. PERFORM SELF-DIAGNOSIS

Perform self-diagnosis of lane camera unit with CONSULT.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to DAS-283, "DTC Index".

NO >> GO TO 4.

4. ACTION TEST

Test the LDW/LDP system operation by action test. Refer to DAS-319, "LDW/LDP : Description".

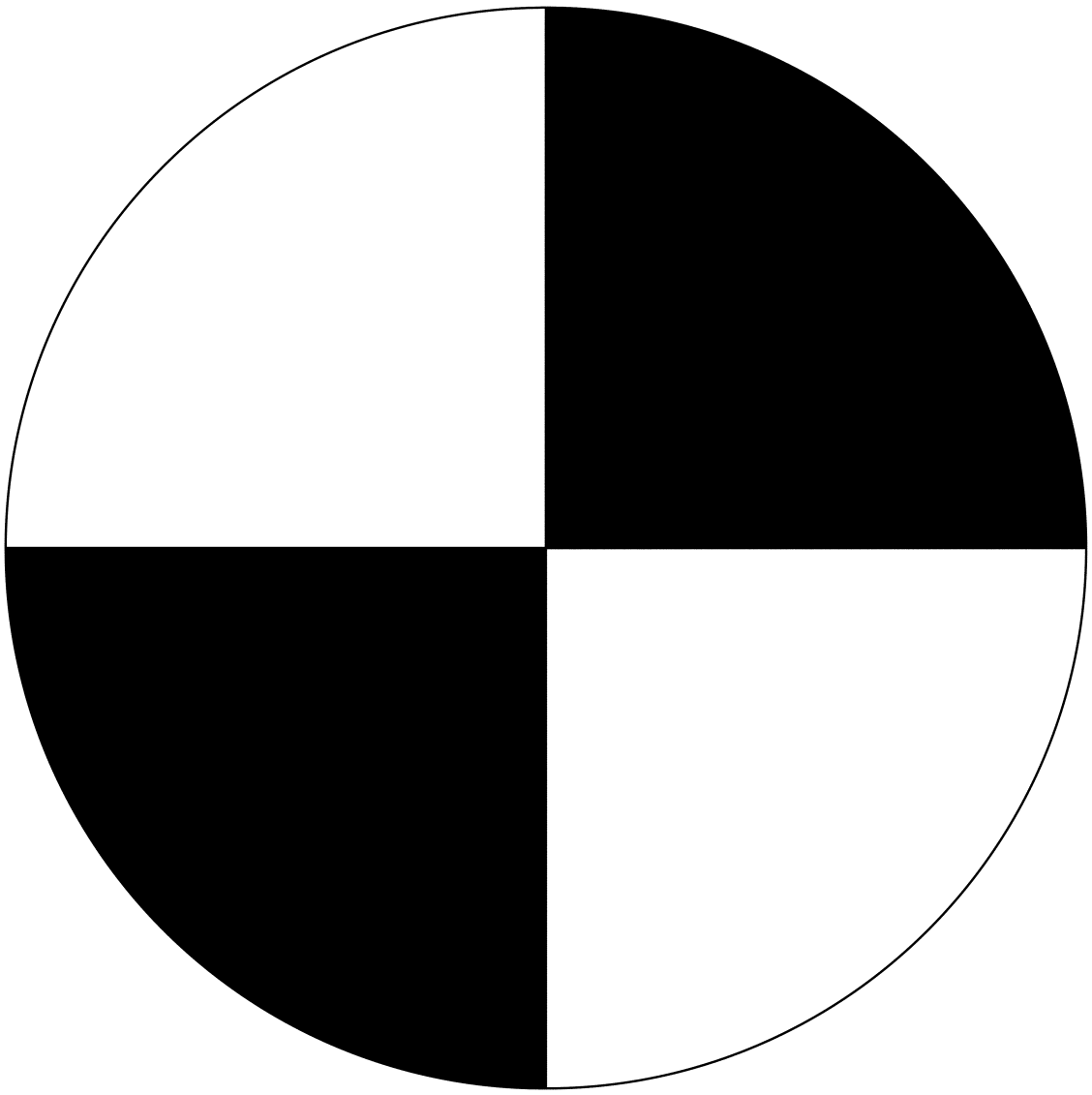
>> WORK END

Work Procedure (Target Mark Sample)

INFOID:0000000014224851

NOTE:

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



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DTC/CIRCUIT DIAGNOSIS

C1B00 CAMERA UNIT MALF
LANE CAMERA UNIT

LANE CAMERA UNIT : DTC Logic

INFOID:0000000014225010

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
C1B00	CAMERA UNIT MALF (Camera unit malfunction)	If lane camera unit is malfunctioning

POSSIBLE CAUSE
Lane camera unit

FAIL-SAFE
The following systems are canceled.
- Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- Blind Spot Warning (BSW)/Blind Spot Intervention

DTC CONFIRMATION PROCEDURE
1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “C1B00” is detected as the current malfunction in “Self Diagnostic Result” of “LANE CAMERA”.

Is “C1B00” detected as the current malfunction?

YES >> Refer to BRC-270, "LANE CAMERA UNIT : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

LANE CAMERA UNIT : Diagnosis Procedure

INFOID:0000000014225011

1.CHECK SELF-DIAGNOSIS RESULTS

Check if any DTC other than “C1B00” is detected in “Self Diagnostic Result” of “LANE CAMERA”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-283, "DTC Index".
NO >> Replace the lane camera unit. Refer to DAS-409, "Removal and Installation".

C1B01 CAM AIMING INCMP
LANE CAMERA UNIT

LANE CAMERA UNIT : DTC Logic

INFOID:0000000014225012

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
C1B01	CAM AIMING INCMP (Camera aiming incomplete)	Camera aiming is not completed

POSSIBLE CAUSE
- Lane camera aiming is not adjusted
- Lane camera aiming adjustment has been interrupted

FAIL-SAFE
The following systems are canceled.
- Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- Blind Spot Warning (BSW)/Blind Spot Intervention

DTC CONFIRMATION PROCEDURE
1.PERFORM DTC CONFIRMATION PROCEDURE
1. Start the engine.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “C1B01” is detected as the current malfunction in “Self Diagnostic Result” of “LANE CAMERA”.

Is “C1B01” detected as the current malfunction?

YES >> Refer to BRC-271, "LANE CAMERA UNIT : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

LANE CAMERA UNIT : Diagnosis Procedure

INFOID:0000000014225013

1.CAMERA AIMING ADJUSTMENT
1. Perform the camera aiming. Refer to BRC-265, "Description".
2. Erase all self-diagnosis results with CONSULT.
3. Perform “All DTC Reading”.
4. Check if the “C1B01” is detected in “Self Diagnostic Result” of “LANE CAMERA”.

Is “C1B01” detected?

YES >> Replace the lane camera unit. Refer to DAS-409, "Removal and Installation".
NO >> INSPECTION END

C1B03 ABNRML TEMP DETECT
LANE CAMERA UNIT
LANE CAMERA UNIT : DTC Logic

INFOID:0000000014225014

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
C1B03	ABNRML TEMP DETECT (Abnormal temperature detect)	Temperature around lane camera unit is excessively high

POSSIBLE CAUSE
Interior room temperature is excessively high

FAIL-SAFE
The following systems are canceled.
- Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- Blind Spot Warning (BSW)/Blind Spot Intervention

DTC CONFIRMATION PROCEDURE
1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “C1B03” is detected as the current malfunction in “Self Diagnostic Result” of “LANE CAMERA”.

Is “C1B03” detected as the current malfunction?

YES >> Refer to BRC-272, "LANE CAMERA UNIT : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

LANE CAMERA UNIT : Diagnosis Procedure

INFOID:0000000014225015

1.COOLING LANE CAMERA UNIT

1. Wait for 10 minutes or more to cool the lane camera unit.
2. Erase all self-diagnosis results with CONSULT.
3. Perform “All DTC Reading”.
4. Check if the “C1B03” is detected in “Self Diagnostic Result” of “LANE CAMERA”.

Is “C1B03” detected?

YES >> Replace the lane camera unit. Refer to DAS-409, "Removal and Installation".
NO >> INSPECTION END

C1B09 POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000014225016

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
C1B09	POWER SUPPLY CIRCUIT (Power supply circuit)	Lane camera unit ignition voltage is greater than 16 V for 5 seconds

POSSIBLE CAUSE

- Harness, connector, or fuse
- Lane camera unit
- Power supply circuit

FAIL-SAFE

The following functions are suspended.

- LDW

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “C1B09” is detected as the current malfunction on the self-diagnosis results of “LANE CAMERA”.

Is “C1B09” detected as the current malfunction?

YES >> Refer to BRC-273, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000014225017

1.CHECK LANE CAMERA UNIT SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit of lane camera unit. Refer to DAS-360, "LANE CAMERA UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES >> Replace the lane camera unit. Refer to DAS-409, "Removal and Installation".
NO >> Repair or replace harness or connectors.

U1000 CAN COMM CIRCUIT

ACCELERATOR PEDAL ACTUATOR

ACCELERATOR PEDAL ACTUATOR : Description

INFOID:0000000014225018

ITS COMMUNICATION

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

ACCELERATOR PEDAL ACTUATOR : DTC Logic

INFOID:0000000014225019

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
U1000	CAN COMM CIRCUIT (CAN communication circuit)	If accelerator pedal actuator is not transmitting or receiving ITS communication signal for 2 seconds or more

POSSIBLE CAUSE

ITS communication system

FAIL-SAFE

The following systems are canceled.

- Vehicle-to-vehicle distance control mode
- Distance Control Assist (DCA)
- Forward Emergency Braking (FEB)
- Back-up Collision Intervention (BCI)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “ICC/ADAS”.

Is “U1000” detected as the current malfunction?

YES >> Refer to BRC-274, "ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure

INFOID:0000000014225020

1.PERFORM THE SELF-DIAGNOSIS

1. Turn the ignition switch ON.
2. Turn the DCA system ON, and then wait for 2 seconds or more.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “ACCELE PEDAL ACT”.

Is “U1000” detected as the current malfunction?

YES >> Refer to LAN-28, "Trouble Diagnosis Flow Chart".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

LANE CAMERA UNIT

LANE CAMERA UNIT : Description

INFOID:0000000014225021

ITS COMMUNICATION

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

LANE CAMERA UNIT : DTC Logic

INFOID:0000000014225022

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
U1000	CAN COMM CIRCUIT (CAN communication circuit)	If lane camera unit is not transmitting or receiving ITS communication signal for 2 seconds or more

POSSIBLE CAUSE

ITS communication system

FAIL-SAFE

The following systems are canceled.

- Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- Blind Spot Warning (BSW)/Blind Spot Intervention

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDP system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “ICC/ADAS”.

Is “U1000” detected as the current malfunction?

YES >> Refer to BRC-275, "LANE CAMERA UNIT : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

LANE CAMERA UNIT : Diagnosis Procedure

INFOID:0000000014225023

1.PERFORM THE SELF-DIAGNOSIS

1. Turn the ignition switch ON.
2. Turn the LDP system ON, and then wait for 2 seconds or more.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “LANE CAMERA”.

Is “U1000” detected as the current malfunction?

YES >> Refer to LAN-28, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-50, "Intermittent Incident".

SIDE RADAR LH

SIDE RADAR LH : Description

INFOID:0000000014225024

CAN COMMUNICATION

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control units, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads the required data only.
CAN communication signal chart. Refer to LAN-49, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

ITS COMMUNICATION

- ITS communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speed by connecting plural units with 2 communication lines.

• ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

SIDE RADAR LH : DTC Logic

INFOID:0000000014225025

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
U1000	CAN COMM CIRCUIT (CAN communication circuit)	If Side radar LH is not transmitting or receiving ITS communication signal for 2 seconds or more

POSSIBLE CAUSE

ITS communication system

FAIL-SAFE

The following systems are canceled.
- Blind Spot Warning (BSW)
- Rear Cross Traffic Alert (RCTA)
- Blind Spot Intervention
- Back-up Collision Intervention (BCI)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the Blind Spot Intervention system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “ICC/ADAS”.

Is “U1000” detected as the current malfunction?

YES >> Refer to BRC-276, "SIDE RADAR LH : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

SIDE RADAR LH : Diagnosis Procedure

INFOID:0000000014225026

1.PERFORM THE SELF-DIAGNOSIS

1. Start the engine.
2. Turn the Blind Spot Intervention system ON, and then wait for 30 seconds or more.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “SIDE RADAR LEFT”.

Is “U1000” detected as the current malfunction?

YES >> Refer to LAN-28, "Trouble Diagnosis Flow Chart".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

SIDE RADAR RH

SIDE RADAR RH : Description

INFOID:0000000014225027

CAN COMMUNICATION

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control units, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads the required data only.
CAN communication signal chart. Refer to LAN-49, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

ITS COMMUNICATION

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

SIDE RADAR RH : DTC Logic

INFOID:0000000014225028

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
U1000	CAN COMM CIRCUIT (CAN communication circuit)	If Side radar RH is not transmitting or receiving ITS communication signal for 2 seconds or more

POSSIBLE CAUSE

ITS communication system

FAIL-SAFE

The following systems are canceled.

- Blind Spot Warning (BSW)
- Rear Cross Traffic Alert (RCTA)
- Blind Spot Intervention
- Back-up Collision Intervention (BCI)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the Blind Spot Intervention system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “ICC/ADAS”.

Is “U1000” detected as the current malfunction?

YES >> Refer to BRC-277, "SIDE RADAR RH : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

SIDE RADAR RH : Diagnosis Procedure

INFOID:0000000014225029

1.PERFORM THE SELF-DIAGNOSIS

1. Start the engine.
2. Turn the Blind Spot Intervention system ON, and then wait for 30 seconds or more.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “SIDE RADAR RIGHT”.

Is “U1000” detected as the current malfunction?

YES >> Refer to LAN-28, "Trouble Diagnosis Flow Chart".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

DRIVER ASSISTANCE BUZZER CONTROL MODULE

DRIVER ASSISTANCE BUZZER CONTROL MODULE : Description

INFOID:0000000014225030

ITS COMMUNICATION

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

DRIVER ASSISTANCE BUZZER CONTROL MODULE : DTC Logic

INFOID:0000000014225031

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
U1000	CAN COMM CIRCUIT (CAN communication circuit)	If driver assistance buzzer control module is not transmitting or receiving ITS communication signal for 2 seconds or more

POSSIBLE CAUSE

ITS communication system

FAIL-SAFE

None

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “ICC/ADAS”.

Is “U1000” detected as the current malfunction?

YES >> Refer to BRC-278, "DRIVER ASSISTANCE BUZZER CONTROL MODULE : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

DRIVER ASSISTANCE BUZZER CONTROL MODULE : Diagnosis Procedure

INFOID:0000000014225032

1.PERFORM THE SELF-DIAGNOSIS

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

Is “U1000” detected as the current malfunction?

YES >> Refer to LAN-28, "Trouble Diagnosis Flow Chart".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

U1010 CONTROL UNIT (CAN)

ACCELERATOR PEDAL ACTUATOR

ACCELERATOR PEDAL ACTUATOR : Description

INFOID:0000000014225033

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

ACCELERATOR PEDAL ACTUATOR : DTC Logic

INFOID:0000000014225034

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
U1010	CONTROL UNIT (CAN) [Control unit (CAN)]	If accelerator pedal actuator detects malfunction by CAN controller initial diagnosis

POSSIBLE CAUSE

Accelerator pedal actuator

FAIL-SAFE

The following systems are canceled.

- Vehicle-to-vehicle distance control mode
- Distance Control Assist (DCA)
- Forward Emergency Braking (FEB)
- Back-up Collision Intervention (BCI)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the DCA system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “ICC/ADAS”.

Is “U1000” detected as the current malfunction?

YES >> Refer to BRC-279, "ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure

INFOID:0000000014225035

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the DCA system ON.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “U1010” is detected as the current malfunction in “Self Diagnostic Result” of “ACCELE PEDAL ACT”.

Is “U1010” detected as the current malfunction?

YES >> Replace the accelerator pedal actuator. Refer to DAS-400, "Removal and Installation".
NO >> INSPECTION END

LANE CAMERA UNIT

LANE CAMERA UNIT : Description

INFOID:0000000014225036

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

LANE CAMERA UNIT : DTC Logic

INFOID:0000000014225037

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
U1010	CONTROL UNIT (CAN) [Control unit (CAN)]	If lane camera unit detects malfunction by CAN controller initial diagnosis

POSSIBLE CAUSE
Lane camera unit

FAIL-SAFE
The following systems are canceled.
- Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- Blind Spot Warning (BSW)/Blind Spot Intervention

DTC CONFIRMATION PROCEDURE
1.PERFORM DTC CONFIRMATION PROCEDURE
1. Start the engine.
2. Turn the LDP system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1010” is detected as the current malfunction in “Self Diagnostic Result” of “ICC/ADAS”.

Is “U1010” detected as the current malfunction?

YES >> Refer to BRC-280, "LANE CAMERA UNIT : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

LANE CAMERA UNIT : Diagnosis Procedure
INFOID:0000000014225038

1.PERFORM DTC CONFIRMATION PROCEDURE
1. Turn the LDP system ON.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “U1010” is detected as the current malfunction in “Self Diagnostic Result” of “LANE CAMERA”.

Is “U1010” detected as the current malfunction?

YES >> Replace the lane camera unit. Refer to DAS-409, "Removal and Installation".
NO >> INSPECTION END

SIDE RADAR LH

SIDE RADAR LH : Description
INFOID:0000000014225039

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

SIDE RADAR LH : DTC Logic
INFOID:0000000014225040

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
U1010	CONTROL UNIT (CAN) [Control unit (CAN)]	If side radar LH detects malfunction by CAN controller initial diagnosis.

POSSIBLE CAUSE
Side radar LH

FAIL-SAFE
The following systems are canceled.
- Blind Spot Warning (BSW)
- Rear Cross Traffic Alert (RCTA)
- Blind Spot Intervention
- Back-up Collision Intervention (BCI)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the Blind Spot Intervention system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “ICC/ADAS”.

Is “U1000” detected as the current malfunction?

YES >> Refer to BRC-281, "SIDE RADAR LH : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

SIDE RADAR LH : Diagnosis Procedure

INFOID:0000000014225041

1.CHECK SELF-DIAGNOSIS RESULT

1. Turn the Blind Spot Intervention system ON.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “U1010” is detected as the current malfunction in “Self Diagnostic Result” of “SIDE RADAR LEFT”.

Is “U1010” detected as the current malfunction?

YES >> Replace the side radar LH. DAS-402, "Removal and Installation".
NO >> INSPECTION END

SIDE RADAR RH

SIDE RADAR RH : Description

INFOID:0000000014225042

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

SIDE RADAR RH : DTC Logic

INFOID:0000000014225043

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
U1010	CONTROL UNIT (CAN) [Control unit (CAN)]	If Side radar RH detects malfunction by CAN controller initial diagnosis.

POSSIBLE CAUSE

Side radar RH

FAIL-SAFE

The following systems are canceled.

- Blind Spot Warning (BSW)
- Rear Cross Traffic Alert (RCTA)
- Blind Spot Intervention
- Back-up Collision Intervention (BCI)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the Blind Spot Intervention system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “ICC/ADAS”.

Is “U1000” detected as the current malfunction?

YES >> Refer to BRC-282, "SIDE RADAR RH : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

SIDE RADAR RH : Diagnosis Procedure

INFOID:0000000014225044

1.CHECK SELF-DIAGNOSIS RESULT

1. Turn the Blind Spot Intervention system ON.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “U1010” is detected as the current malfunction in “Self Diagnostic Result” of “SIDE RADAR RIGHT”.

Is “U1010” detected as the current malfunction?

YES >> Replace the side radar RH. DAS-402, "Removal and Installation".
NO >> INSPECTION END

DRIVER ASSISTANCE BUZZER CONTROL MODULE

DRIVER ASSISTANCE BUZZER CONTROL MODULE : Description

INFOID:0000000014225045

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

DRIVER ASSISTANCE BUZZER CONTROL MODULE : DTC Logic

INFOID:0000000014225046

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
U1010	CONTROL UNIT (CAN) [Control unit (CAN)]	If driver assistance buzzer control module detects malfunction by CAN controller initial diagnosis

POSSIBLE CAUSE

Driver assistance buzzer control module

FAIL-SAFE

None

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “ICC/ADAS”.

Is “U1000” detected as the current malfunction?

YES >> Refer to BRC-282, "DRIVER ASSISTANCE BUZZER CONTROL MODULE : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

DRIVER ASSISTANCE BUZZER CONTROL MODULE : Diagnosis Procedure

INFOID:0000000014225047

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is “U1010” detected as the current malfunction?

YES >> Replace the driver assistance buzzer control module. Refer to DAS-404, "Removal and Installation".
NO >> INSPECTION END

U0104 ADAS CAN 1
SIDE RADAR
SIDE RADAR : DTC Logic

INFOID:0000000014225048

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
U0104	ADAS CAN CIR1 (ADAS control unit CAN circuit 1)	Side radar detected an error of ITS communication signal that was received from ADAS control unit.

POSSIBLE CAUSE
ADAS control unit

FAIL-SAFE
The following systems are canceled.
- Blind Spot Warning (BSW)
- Blind Spot Intervention
- Back-up Collision Intervention (BCI)

DTC CONFIRMATION PROCEDURE
1. CHECK DTC PRIORITY

If DTC “U0104” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to BRC-276, "SIDE RADAR LH : DTC Logic" (SIDE RADAR LH) or BRC-277, "SIDE RADAR RH : DTC Logic" (SIDE RADAR RH).
NO >> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the Blind Spot Intervention system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the U0104 is detected as the current malfunction in “Self Diagnostic Result” of “SIDE RADAR RIGHT/LEFT”.

Is the DTC “U0104” detected?

YES >> Refer to BRC-283, "SIDE RADAR : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

SIDE RADAR : Diagnosis Procedure

INFOID:0000000014225049

1. CHECK DTC PRIORITY

If DTC “U0104” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to BRC-276, "SIDE RADAR LH : DTC Logic" (SIDE RADAR LH) or BRC-277, "SIDE RADAR RH : DTC Logic" (SIDE RADAR RH).
NO >> GO TO 2.

2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “ICC/ADAS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-261, "DTC Index".
NO >> Replace side radar LH or RH. Refer to DAS-402, "Removal and Installation"

DRIVER ASSISTANCE BUZZER CONTROL MODULE

DRIVER ASSISTANCE BUZZER CONTROL MODULE : DTC Logic

INFOID:0000000014225050

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
U0104	ADAS CAN CIR 1 (ADAS control unit CAN circuit 1)	If driver assistance buzzer control module detects an error signal that is received from ADAS control unit via ITS communication

POSSIBLE CAUSE
ADAS control unit

FAIL-SAFE
None

DTC CONFIRMATION PROCEDURE

CHECK DTC PRIORITY

1.CHECK DTC PRIORITY

If DTC “U0104” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to BRC-277, "DRIVER ASSISTANCE BUZZER CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U0104” is detected as the current malfunction in “Self Diagnostic Result” of “BSW/BUZZER”.

Is “U0104” detected as the current malfunction?

YES >> Refer to BRC-284, "DRIVER ASSISTANCE BUZZER CONTROL MODULE : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

DRIVER ASSISTANCE BUZZER CONTROL MODULE : Diagnosis Procedure

INFOID:0000000014225051

1.CHECK DTC PRIORITY

If DTC “U0104” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to BRC-277, "DRIVER ASSISTANCE BUZZER CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “ICC/ADAS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-280, "DTC Index".
NO >> Replace the driver assistance buzzer control module. Refer to DAS-404, "Removal and Installation".

U0126 STRG SEN CAN 1
LANE CAMERA UNIT

LANE CAMERA UNIT : DTC Logic

INFOID:0000000014225052

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
U0126	STRG SEN CAN CIR1 (Steering angle sensor CAN circuit1)	If lane camera unit detects an error signal that is received from steering angle sensor via ADAS control unit

POSSIBLE CAUSE
Steering angle sensor

FAIL-SAFE
The following systems are canceled.
- Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- Blind Spot Warning (BSW)/Blind Spot Intervention

DTC CONFIRMATION PROCEDURE
1.CHECK DTC PRIORITY
If DTC “U0126” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to BRC-275, "LANE CAMERA UNIT : DTC Logic".
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE
1. Start the engine.
2. Turn the LDP system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U0126” is detected as the current malfunction in “Self Diagnostic Result” of “LANE CAMERA”.

Is “U0126” detected as the current malfunction?

YES >> Refer to BRC-285, "LANE CAMERA UNIT : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

LANE CAMERA UNIT : Diagnosis Procedure

INFOID:0000000014225053

1.CHECK DTC PRIORITY
If DTC “U0126” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to BRC-275, "LANE CAMERA UNIT : DTC Logic".
NO >> GO TO 2.

2.CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS
Check if any DTC is detected in “Self Diagnostic Result” of “ICC/ADAS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-261, "DTC Index".
NO >> Replace the lane camera unit. Refer to DAS-170, "Removal and Installation".

U0405 ADAS CAN 2
SIDE RADAR
SIDE RADAR : DTC Logic

INFOID:0000000014225054

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
U0405	ADAS CAN CIR2 (ADAS control unit CAN circuit 2)	Side radar detected an error of ITS communication signal that was received from ADAS control unit.

POSSIBLE CAUSE
ADAS control unit.

FAIL-SAFE
The following systems are canceled.
- Blind Spot Warning (BSW)
- Rear Cross Traffic Alert (RCTA)
- Blind Spot Intervention
- Back-up Collision Intervention (BCI)

DTC CONFIRMATION PROCEDURE
1.CHECK DTC PRIORITY

If DTC “U0405” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to BRC-276, "SIDE RADAR LH : DTC Logic" (SIDE RADAR LH) or BRC-277, "SIDE RADAR RH : DTC Logic" (SIDE RADAR RH).
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the Blind Spot Intervention system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the U0405 is detected as the current malfunction in “Self Diagnostic Result” of “SIDE RADAR RIGHT/LEFT”.

Is the DTC “U0405” detected?

YES >> Refer to BRC-286, "SIDE RADAR : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

SIDE RADAR : Diagnosis Procedure

INFOID:0000000014225055

1.CHECK DTC PRIORITY

If DTC “U0405” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to BRC-276, "SIDE RADAR LH : DTC Logic" (SIDE RADAR LH) or BRC-277, "SIDE RADAR RH : DTC Logic" (SIDE RADAR RH).
NO >> GO TO 2.

2.CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “ICC/ADAS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-274, "ACCELERATOR PEDAL ACTUATOR : DTC Logic".
NO >> Replace side radar LH or RH. Refer to DAS-402, "Removal and Installation".

U0428 STRG SEN CAN 2
LANE CAMERA UNIT

LANE CAMERA UNIT : DTC Logic

INFOID:0000000014225056

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition
U0428	STRG SEN CAN CIR2 (Steering angle sensor CAN circuit2)	If lane camera unit detects an error signal that is received from steering angle sensor via ADAS control unit

POSSIBLE CAUSE
Steering angle sensor

FAIL-SAFE
The following systems are canceled.
- Lane Departure Warning (LDW)/Lane Departure Prevention (LDP)
- Blind Spot Warning (BSW)/Blind Spot Intervention

DTC CONFIRMATION PROCEDURE
1.CHECK DTC PRIORITY
If DTC “U0428” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to BRC-275, "LANE CAMERA UNIT : DTC Logic".
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE
1. Start the engine.
2. Turn the LDP system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U0428” is detected as the current malfunction in “Self Diagnostic Result” of “LANE CAMERA”.

Is “U0428” detected as the current malfunction?

YES >> Refer to BRC-287, "LANE CAMERA UNIT : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-50, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

LANE CAMERA UNIT : Diagnosis Procedure

INFOID:0000000014225057

1.CHECK DTC PRIORITY
If DTC “U0428” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to BRC-275, "LANE CAMERA UNIT : DTC Logic".
NO >> GO TO 2.

2.CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS
Check if any DTC is detected in “Self Diagnostic Result” of “ICC/ADAS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-261, "DTC Index".
NO >> Replace the lane camera unit. Refer to DAS-170, "Removal and Installation".

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:0000000014204035

1.CHECK FUSES

Check if any of the following fuses are blown:

Signal name	Fuse No.
Ignition power supply	30

Is the inspection result normal?

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

2.CHECK LANE CAMERA UNIT POWER SUPPLY CIRCUIT

Check voltage between lane camera unit harness connector and ground.

Terminal			Condition	Voltage (Approx.)
(+)		(–)		
Lane camera unit		Ground	Ignition switch	
Connector	Terminal			
R6	3		OFF	0 V
			ON	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the lane camera unit power supply circuit.

3.CHECK LANE CAMERA UNIT GROUND CIRCUIT

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

Lane camera unit		Ground	Continuity
Connector	Terminal		
R6	1		Yes

Is the inspection result normal?

YES >> Inspection End.
NO >> Repair the lane camera unit ground circuit.

FORWARD EMERGENCY BRAKING

Diagnosis Procedure

INFOID:0000000014170335

1.FORWARD EMERGENCY BRAKE DIAGNOSIS

- The system will be cancelled automatically with a beep sound and FEB warning lamp on the combination meter will illuminate, when the system will not operate properly.
- When the FEB warning lamp continues to illuminate even if the FEB system is turned on after the engine restarts, perform the trouble-diagnosis.

>> Go to ICC. Refer to CCS-79, "Work Flow".

SYMPTOM DIAGNOSIS

SYSTEM SETTINGS CANNOT BE TURNED ON/OFF ON THE INTEGRAL SWITCH

Symptom Table

INFOID:0000000014237581

CAUTION:
Perform the “Self Diagnostic Result” with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

Symptom		Inspection item/Reference page
FEB system does not turn ON/OFF	FEB warning lamp is not turned ON⇔OFF when operating integral switch	BRC-290, "Diagnosis Procedure"

Description

INFOID:0000000014237582

FEB system does not turn ON/OFF.
- FEB warning lamp does not illuminate even if the integral switch is operated when FEB warning lamp is not illuminated.
- FEB warning lamp does not turn off even if the integral switch is operated when FEB warning lamp is illuminated.

NOTE:
The system ON/OFF condition will be memorized even if the ignition switch turns OFF.

Diagnosis Procedure

INFOID:0000000014237583

1.PERFORM SELF DIAGNOSTIC RESULT (LASER/RADAR)

1. Select “Self Diagnostic Result” mode of “ICC/ADAS” with CONSULT.
2. Check if the DTC is detected in “Self Diagnostic Result” mode of “ICC/ADAS” with CONSULT. Refer to CCS-60, "DTC Index".

Is any DTC detected?

YES >> GO TO 9.
NO >> GO TO 2.

2.STEERING SWITCH INSPECTION

1. Start the engine.
2. Check that “FEB SELECT” operates normally in “Data Monitor” of “LASER/RADAR” with CONSULT.

Is inspection result normal?

YES >> GO TO 6.
NO >> GO TO 3.

3.CHECK STEERING SWITCH RESISTANCE

Check resistance between the following steering switch terminals:

Steering switches			Condition	Resistance (Ω) (Approx.)
Terminal		Signal name		
14	17	Display	Depress ▷ switch.	2023
		Back	Depress ◁ switch.	723
15		Enter	Depress OK switch.	2023
		Menu Up	Depress △ switch.	121
		Menu Down	Depress ▽ switch.	321

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace steering wheel switch. Refer to CCS-190, "Removal and Installation".

4.CHECK SPIRAL CABLE

Check continuity between the following spiral cable terminals:

Spiral cable		Continuity
Terminal		
14	24	Yes
15	31	
17	33	

Is the inspection result normal?

YES >> GO TO 5.
NO >> Replace spiral cable. Refer to SR-15, "Removal and Installation".

5.CHECK STEERING SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter harness connector M24 and spiral cable harness connector M30.
3. Check continuity between combination meter harness connector M24 and spiral cable harness connector M30.

Combination meter		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
M24	3	M30	24	Yes
	4		31	
	24		33	

4. Check continuity between combination meter harness connector M24 and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M24	3		No
	4		
	24		

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace harness or connector.

6.PERFORM THE DIAGNOSTIC RESULT (METER/M&A)

1. Select “Self Diagnostic Result” mode of “METER/M&A” with CONSULT.
2. Check if the DTC is detected in “Self Diagnostic Result” mode of “METER/M&A” with CONSULT. Refer to MWI-26, "DTC Index".

Is any DTC detected?

YES >> GO TO 9.
NO >> GO TO 7.

7.FEB WARNING LAMP

1. Select the active test item “METER LAMP” of “ICC/ADAS”.
2. Check if the FEB warning lamp illuminates when the test item is operated.

Is inspection result normal?

YES >> Refer to CCS-79, "Work Flow".
NO >> GO TO 8.

8.CHECK DATA MONITOR OF COMBINATION METER

Check that “BA W/L operates normally in “Data Monitor”“METER/M&A”.

Is inspection result normal?

YES >> Replace the combination meter. Refer to MWI-94, "Removal and Installation".
NO >> Replace the ICC sensor. Refer to CCS-188, "Removal and Installation".

9. REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace malfunctioning parts.

>> GO TO 10.

10. CHECK FEB SYSTEM

Check that FEB warning lamp turned ON⇔OFF, when operating steering switch.

>> Inspection End.

NORMAL OPERATING CONDITION

Description

INFOID:0000000014204034

LANE CAMERA UNIT HANDLING

To maintain the proper operation of the FEB systems and prevent a system malfunction, be sure to observe the following:

- Always keep the windshield clean.
- Do not attach a sticker (including transparent material) or install an accessory near the lane camera unit.
- Do not place reflective materials, such as white paper or a mirror, on the instrument panel. The reflection of sunlight may adversely affect the lane camera unit′s detection capability.
- Do not strike or damage the areas around the camera unit. Do not touch the camera lens or remove the screw located on the camera unit.

PRECAUTIONS FOR FORWARD EMERGENCY BRAKING

- The forward emergency braking system is a supplemental aid to the driver. It is not a replacement for the driver's attention to traffic conditions or responsibility to drive safely. It cannot prevent accidents due to carelessness or dangerous driving techniques.
- The forward emergency braking system does not function in all driving, traffic, weather and road conditions.
- The lane camera unit does not detect the following objects:
  - Children and other people who are of short stature, animals, and bicycles
  - Pedestrians walking at night or in dark areas such as tunnels
  - Oncoming vehicles
  - Crossing vehicles
  - Vehicles parked diagonally
- The lane camera unit may not detect a vehicle or pedestrian ahead in the following conditions:
  - Visibility is poor because of bad weather conditions such as rain, snow, fog, dust storms, sandstorms, and snowstorms.
  - Snow, sand or road spray from traveling vehicles.
  - The windshield in front of the camera is covered with dirt, water drops, ice, snow, etc.
  - The windshield in front of the camera is fogged up.
  - Strong light (for example, sunlight or high beams from oncoming vehicles) enters from the front.
  - The headlamps did not illuminate during the nighttime or in a tunnel, or the headlamp lenses are extremely dirty.
  - Both tail lamps of the vehicle ahead do not illuminate at night or inside a tunnel.
  - When a sudden change in brightness occurs. (For example, when the vehicle enters or exits a tunnel or a shaded area.)
  - On roads where there are sharp curves.
  - The vehicle drives on a slope where the gradient changes.
  - The vehicle drives on a bumpy road surface, such as an uneven dirt road.
  - The system cannot recognize the outline of a person because the pedestrian is carrying large luggage or is wearing clothes that are the same color as the background.
- Depending on the ambient noise, the audible warning may not be heard.
- In the following conditions, the system may not be able to function normally:
  - The vehicle is driven on a slippery road.
  - The vehicle drives on a slope.
  - When excessively heavy baggage is loaded in the rear seat or the luggage room of own vehicle.