# SECTION BR
# BRAKE SYSTEM

## CONTENTS

# PRECAUTION

## PRECAUTIONS

### Precaution for Technicians Using Medical Electric

INFOID:0000000007071889

#### OPERATION PROHIBITION

**WARNING:**

- **Parts with strong magnet is used in this vehicle.**
- **Technicians using a medical electric device such as pacemaker must never perform operation on the vehicle, as magnetic field can affect the device function by approaching to such parts.**

#### NORMAL CHARGE PRECAUTION

**WARNING:**

- **If a technician uses a medical electric device such as an implantable cardiac pacemaker or an implantable cardioverter defibrillator, the possible effects on the devices must be checked with the device manufacturer before starting the charge operation.**
- **As radiated electromagnetic wave generated by on board charger at normal charge operation may effect medical electric devices, a technician using a medical electric device such as implantable cardiac pacemaker or an implantable cardioverter defibrillator must not enter the vehicle compartment (including luggage room) during normal charge operation.**

#### Precaution at telematics system operation

**WARNING:**

- **If a technician uses implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), avoid the device implanted part from approaching within approximately 220 mm (8.66 in) from interior/exterior antenna.**
- **The electromagnetic wave of TCU might affect the function of the implantable cardiac pacemaker or the implantable cardioverter defibrillator (ICD), when using the service, etc.**
- **If a technician uses other medical electric devices than implantable cardiac pacemaker or implantable cardioverter defibrillator(ICD), the electromagnetic wave of TCU might affect the function of the device. The possible effects on the devices must be checked with the device manufacturer before TCU use.**

#### Precaution at intelligent key system operation

**WARNING:**

- **If a technician uses implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), avoid the device implanted part from approaching within approximately 220 mm (8.66 in) from interior/exterior antenna.**
- **The electromagnetic wave of intelligent key might affect the function of the implantable cardiac pacemaker or the implantable cardioverter defibrillator (ICD), at door operation, at each request switch operation, or at engine starting.**
- **If a technician uses other medical electric devices than implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), the electromagnetic wave of intelligent key might affect the function of the device. The possible effects on the devices must be checked with the device manufacturer before intelligent key use.**

### Point to Be Checked Before Starting Maintenance Work

INFOID:0000000007079420

**The high voltage system may starts automatically. It is required to check that the timer air conditioner and timer charge (during EVSE connection) are not set before starting maintenance work.**
**NOTE:**
If the timer air conditioner or timer charge (during EVSE connection) is set, the high voltage system starts automatically even when the power switch is in OFF state.

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

INFOID:0000000006991374

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS

system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

**WARNING:**

**Always observe the following items for preventing accidental activation.**

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

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

**WARNING:**

**Always observe the following items for preventing accidental activation.**

- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the power switch ON, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the power switch OFF, disconnect the 12V battery, and wait at least 3 minutes before performing any service.**

## Precaution for Removing 12V Battery

INFOID:0000000006991375

When removing the 12V battery, turn ON/OFF the power switch and check that the charging status indicator does not blink. The 12V battery must be removed within one hour after checking the indicator lamp.

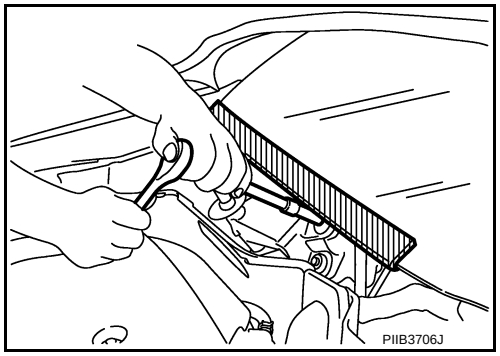
**NOTE:**

- The automatic 12V battery charge control may start even when the power switch is in OFF state.
- The automatic 12V battery charge control does not start within approximately one hour when the power switch is turned ON/OFF.

## Precaution for Procedure without Cowl Top Cover

INFOID:0000000006991376

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.




## Precaution for Brake System

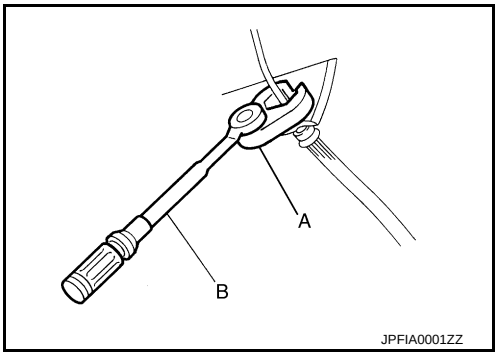
INFOID:0000000006960634

**WARNING:**

**Since dust covering the front and rear brakes has an affect on human body, the dust must be removed with a dust collector. Never splatter the dust with an air blow gun.**

- Brake fluid use refer to MA-9, "Fluids and Lubricants".
- Never reuse drained brake fluid.
- Never 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. For brake component parts, never wash them with water.
- 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.
- Always clean with new brake fluid when cleaning the brake caliper and other components.
- Never 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 crow-foot (A) and torque wrench (B).
- Turn the power switch OFF and disconnect the ABS actuator and electric unit (control unit) harness connector or the 12 V battery negative terminal before performing the work.
- Check that no brake fluid leakage is present after replacing thep-arts.
- Burnish the brake contact surfaces after refinishing or replacing rotors, after replacing pads, or if a soft pedal occurs at very low mileage.



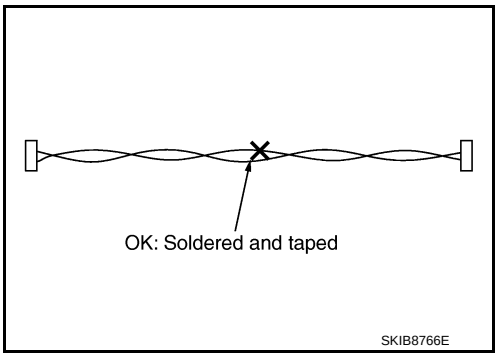

- Front brake pad: Refer to BR-207, "BRAKE PAD : Inspection and Adjustment".
- Front disc rotor: Refer to BR-207, "DISC ROTOR : Inspection and Adjustment".
- Rear brake pad: Refer to BR-209, "BRAKE PAD : Inspection and Adjustment".
- Rear disc rotor: Refer to BR-209, "DISC ROTOR : Inspection and Adjustment".

- When the brake pedal is operated, an operating sound may be heard from the electrically-driven intelligent brake unit. This occurs when the electrically-driven intelligent brake unit is operating normally and is not a malfunction.
- When the brake pedal is depressed when the EV system is not started, the brake pedal will feel heavy and the stroke will be shorter. When the unfamiliar feeling disappears and the brake warning lamp is OFF after the brake pedal was depressed, then this is not a malfunction. When the brake warning lamp is ON, use CONSULT and perform the “BRAKE” self diagnosis.
- When there is a malfunction in the power system of the electrically-driven intelligent brake unit (no voltage is generated), voltage is temporarily supplied to the electrically-driven intelligent brake unit from the brake power supply backup unit. At the same time, the brake warning lamp (red) and brake system warning lamp (yellow) turn ON, and the warning buzzer sounds.
- When a malfunction occurs in the electrically-driven intelligent brake unit, the VDC function performs control (boost operation).
- When a malfunction occurs in the DC/DC-J-B and 12V battery, the braking force is determined by the force pressing on the brake pedal (no boost operation). At the same time, the brake warning lamp (red) and the brake system warning lamp (yellow) turns ON.
- When a malfunction occurs in the electrically-driven intelligent brake and in the VDC function, the braking force is determined by the force pressing on the brake pedal (no boost operation). At the same time, the brake warning lamp (red) and brake system warning lamp (yellow) turn ON.
- When a malfunction occurs in the electrically-driven intelligent brake, VDC function, and power system, then cooperative regenerative brake control is not performed.
- When a malfunction occurs in the brake power supply backup unit, the brake system warning lamp (yellow) turns ON.

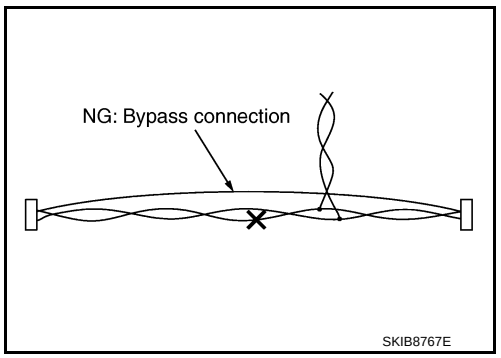
## Precaution for Harness Repair

*INFOID:0000000006960635*

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



- Never bypass the repair point with wire. (If it is bypassed, the turn-out point cannot be separated and the twisted wire characteristics are lost.)

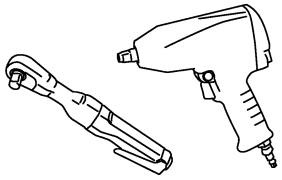
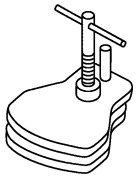


# PREPARATION

## PREPARATION

### Commercial Service Tools

INFOID:0000000006960636

| Tool name | Description |
|---|---|
| Power tool  PBIC0190E | Loosening bolts and nuts |
| Brake caliper wrench  NNFIA0040ZZ | Return the piston |

# SYSTEM DESCRIPTION

## COMPONENT PARTS

### Component Parts Location

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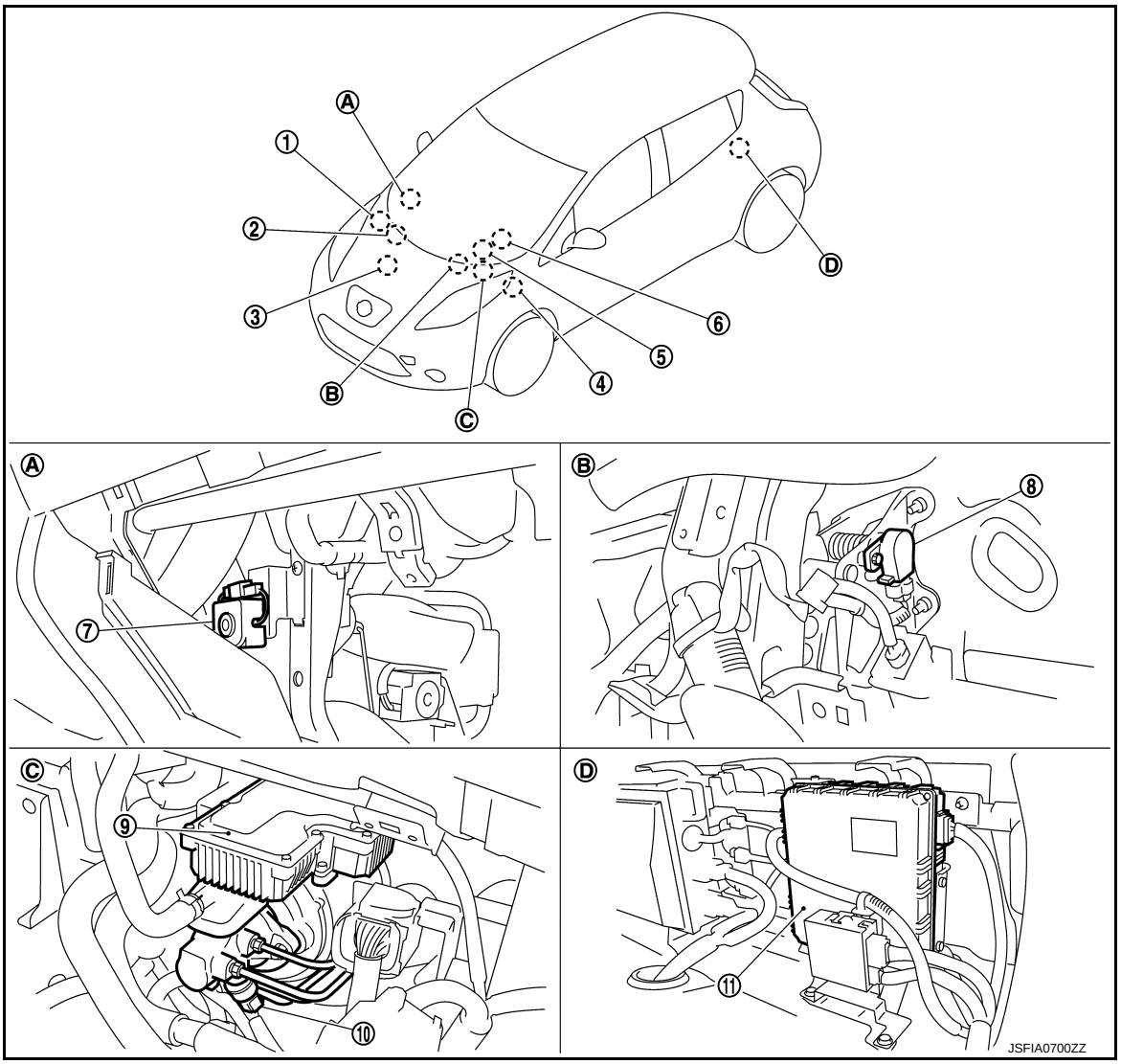



A. View with the glove box assembly removed
B. Brake pedal
C. Inside motor room (left)
D. Back of rear seat (left)

## COMPONENT DESCRIPTION

| No. | Component parts | Function |
|---|---|---|
| 1. | ABS actuator and electric unit (control unit) | Mainly transmits the following signals to electrically-driven intelligent brake unit via CAN communication.<br>• Stop lamp switch signal<br>• ABS actuator and electric unit (control unit) control signal<br>• Vehicle speed signal (ABS)<br>• Decel G signal<br>• Front LH wheel speed signal<br>• Rear LH wheel speed signal<br>• Front RH wheel speed signal<br>• Rear RH wheel speed signal<br>• Yaw rate signal<br>• Side G signal<br>Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication.<br>• Brake assist request signal<br>• Brake backup operation signal<br>• Brake fluid pressure command signal<br>• Electrically-driven intelligent brake control signal |
| 2. | VCM | Mainly transmits the following signals to electrically-driven intelligent brake unit via CAN communication.<br>• VCM control signal |
| 3. | Traction Motor Inverter | Mainly transmits the following signals to traction motor inverter via CAN communication.<br>• Required braking force calculation signal<br>Mainly receives the following signals to traction motor inverter via CAN communication.<br>• Regenerative braking force calculation signal |
| 4. | BCM | Mainly transmits the following signals to traction motor inverter via CAN communication.<br>• Power switch ON signal<br>• Door switch signal |
| 5. | Brake warning lamp (in combination meter)<br>Brake system warning lamp (in combination meter) | BR-12, "System Description" |
| 6. | Steering angle sensor | Mainly transmits the following signals from ABS actuator and electric unit (control unit) to electrically-driven intelligent brake unit via CAN communication.<br>• Steering angle sensor signal |
| 7. | Warning buzzer | BR-11, "Warning Buzzer" |
| 8. | Pedal stroke sensor | BR-11, "Pedal Stroke Sensor" |
| 9. | Electrically-driven intelligent brake unit | BR-10, "Electrically-driven Intelligent Brake" |
| 10. | Master cylinder pressure sensor1 | BR-11, "Master Cylinder Pressure Sensor 1" |
| 11. | Brake power supply backup unit | BR-11, "Brake Power Supply Backup Unit" |

## Electrically-driven Intelligent Brake

INFOID:0000000006960638

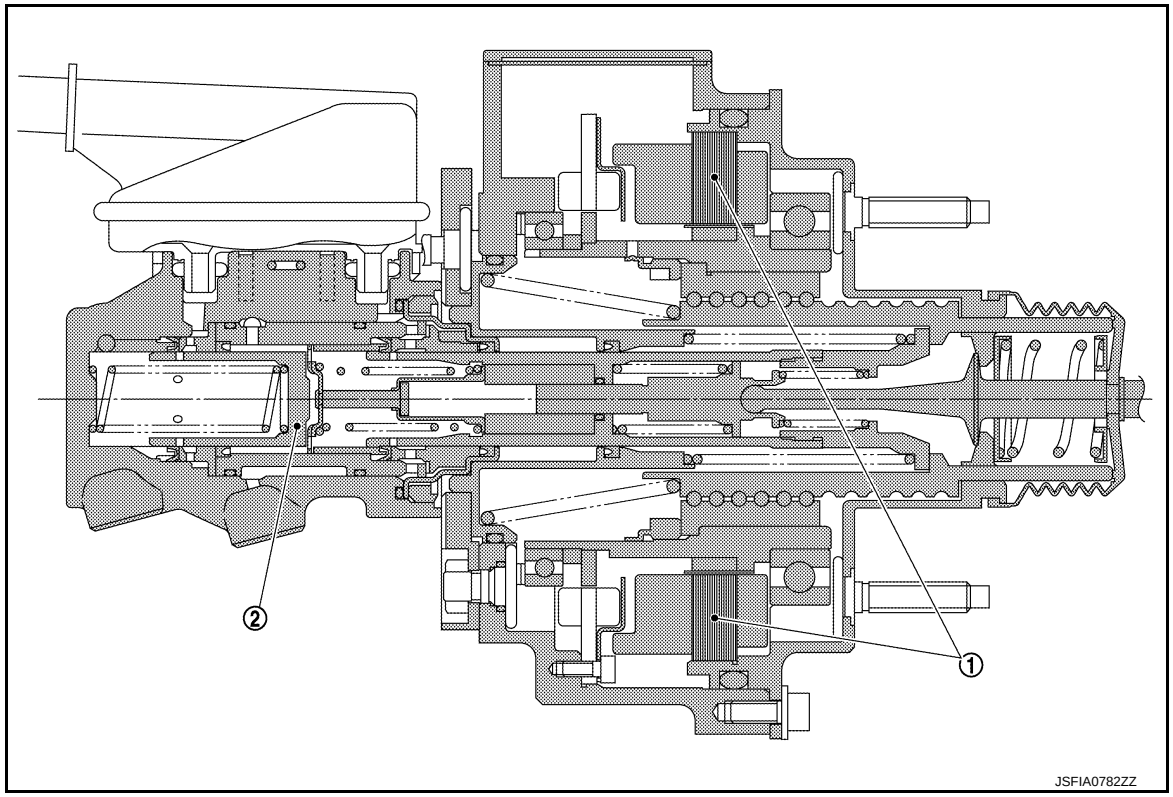
Integrates the control module, master cylinder, and brake booster, and it controls the fluid pressure that is sent to the ABS actuator and electric unit (control unit).

### CONTROL MODULE

- Controls the fluid pressure that is applied to the brake calipers, based on the signals from each sensor and unit.
- Performs cooperative regenerative brake control.
- When a malfunction is detected, the system enters fail-safe mode.

### MASTER CYLINDER

- Generates brake fluid pressure according to the amount of piston movement.
- The fluid pressure generated by the master cylinder is sent to the ABS actuator and electric unit (control unit).




1. Motor
2. Piston

- Contains a motor and generates boost force according to the amount that the brake pedal is depressed and the amount of cooperative regenerative brake control.
- Uses the boost force to generate fluid pressure in the master cylinder.

## Master Cylinder Pressure Sensor 1

INFOID:0000000006960639

Detects the brake fluid pressure and transmits signals to the electrically-driven intelligent brake unit.

## Pedal Stroke Sensor

INFOID:0000000006960640

Detects the amount that the brake pedal is depressed and sends it to the electrically-driven intelligent brake unit.

## Warning Buzzer

INFOID:0000000006960641

The warning buzzer operates based on the signal from the electrically-driven intelligent brake unit to notify the driver of the change in power supply circuits.

## Brake Power Supply Backup Unit

INFOID:0000000006960642

When there is a malfunction in the power system of the electrically-driven intelligent brake unit (no voltage is generated), this unit temporarily supplies voltage to the electrically-driven intelligent brake unit.

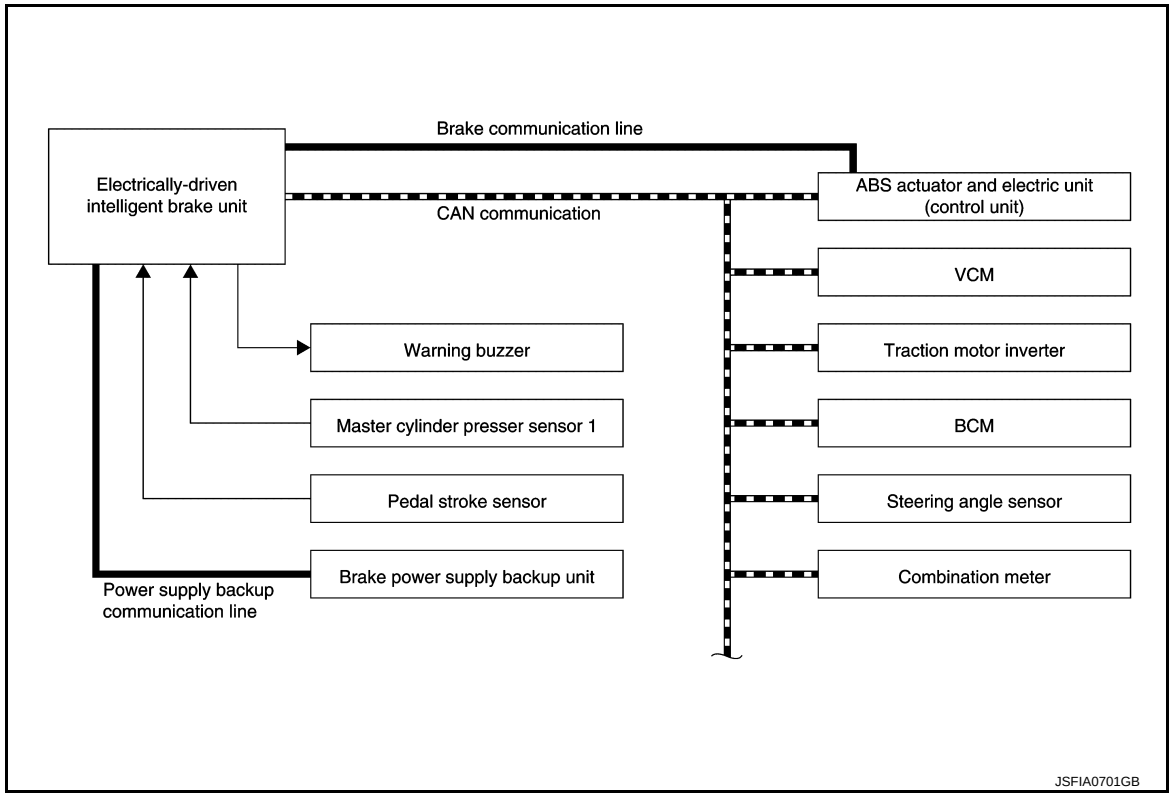
# SYSTEM

## System Description

INFOID:0000000006960643

- An electrically-driven intelligent brake is a booster system that generates assist force by using an internal motor to operate a piston inside the master cylinder.
- When the brake pedal is depressed during driving, cooperative control of the braking force from the friction brake (regular brake) and the regenerative brake from the traction motor is used.
- The system performs cooperative control of the regenerative brake and friction brake (same brake as in conventional vehicles) and enables highly efficient energy recovery.
- The fluid pressure which is applied to each brake caliper is controlled according to the amount of traction motor regeneration.
- The amount of brake pedal operation is detected by the pedal stroke sensor, and sent to the control module of the electrically-driven intelligent brake unit.
- Based on the commands from the control module of the electrically-driven intelligent brake unit, the motor inside the electrically-driven intelligent brake unit is operated and presses the master cylinder piston.
- Pressing the master cylinder piston, and brake fluid is sent to the ABS actuator and electric unit (control unit).
- CONSULT can be used to diagnose the system diagnosis.
- When there is a malfunction in the power system of the electrically-driven intelligent brake unit (no voltage is generated), voltage is temporarily supplied to the electrically-driven intelligent brake unit from the brake power supply backup unit. At the same time, the brake warning lamp (red) and brake system warning lamp (yellow) turn ON, and the warning buzzer sounds.
- When a malfunction occurs in the electrically-driven intelligent brake unit, the VDC function performs control (boost operation). At the same time, the brake warning lamp (red) and brake system warning lamp (yellow) turn ON.
- When a malfunction occurs in the DC/DC-J-B and 12V battery, the braking force is determined by the force pressing on the brake pedal (no boost operation). At the same time, the brake warning lamp (red) and the brake system warning lamp (yellow) turns ON.
- When a malfunction occurs in the brake power supply backup unit, the brake system warning lamp (yellow) turns ON.
- When a malfunction occurs in the electrically-driven intelligent brake and in the VDC function, the braking force is determined by the force pressing on the brake pedal (no boost operation). At the same time, the brake warning lamp (red) and brake system warning lamp (yellow) turn ON.
- When a malfunction occurs in the electrically-driven intelligent brake, the VDC function, and the power system, then cooperative regenerative brake control is not performed.
- A fail-safe function is available and is activated when a system malfunction occurs. Refer to BR-18, "Fail-Safe".

SYSTEM DIAGRAM



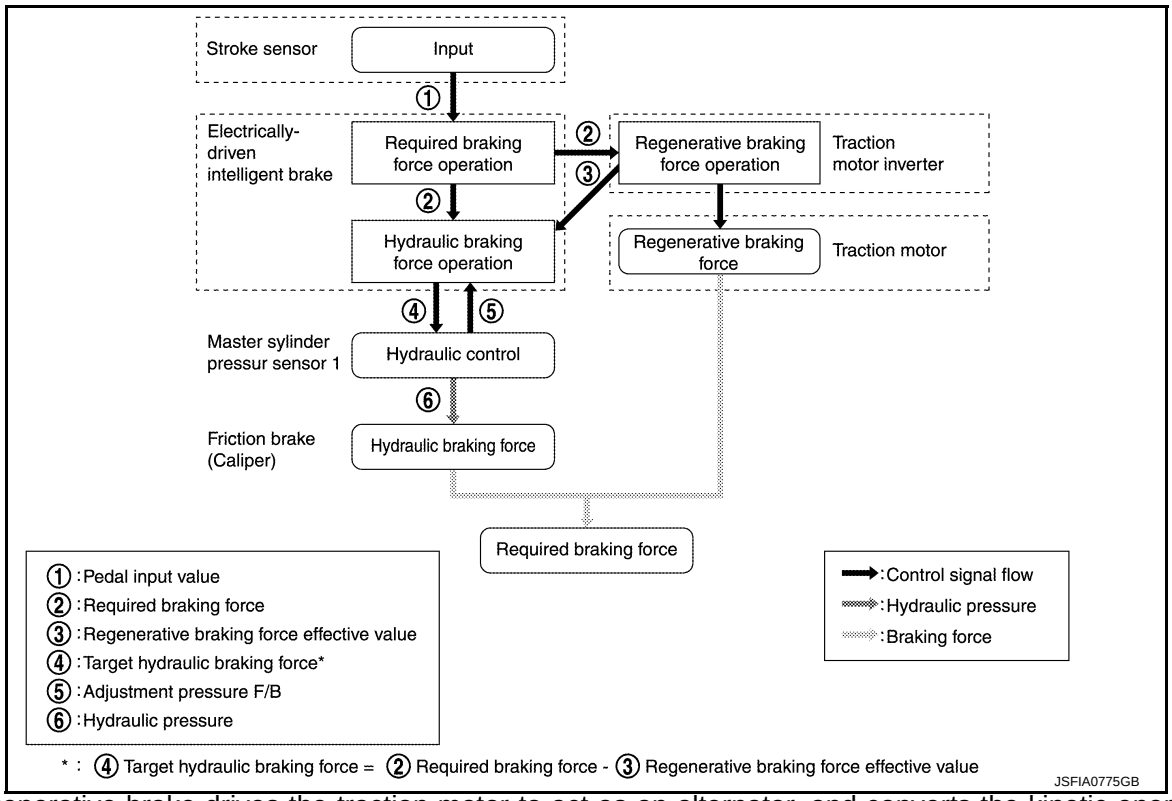

## INPUT SIGNAL AND OUTOUT SIGNAL

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

| Component | Signal description |
|---|---|
| ABS actuator and electric unit (control unit) | Mainly transmits the following signals to electrically-driven intelligent brake unit via CAN communication.<br>• Stop lamp switch signal<br>• ABS actuator and electric unit (control unit) control signal<br>• Vehicle speed signal (ABS)<br>• Decel G signal<br>• Front LH wheel speed signal<br>• Rear LH wheel speed signal<br>• Front RH wheel speed signal<br>• Rear RH wheel speed signal<br>• Yaw rate signal<br>• Side G signal<br>Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication.<br>• Brake assist request signal<br>• Brake backup operation signal<br>• Brake fluid pressure command signal<br>• Electrically-driven intelligent brake control signal |
| VCM | Mainly transmits the following signals to electrically-driven intelligent brake unit via CAN communication.<br>• VCM control signal |
| Traction Motor Inverter | Mainly transmits the following signals to traction motor inverter via CAN communication.<br>• Required braking force calculation signal<br>Mainly receives the following signals to traction motor inverter via CAN communication.<br>• Regenerative braking force calculation signal |

| Component | Signal description |
|---|---|
| BCM | Mainly transmits the following signals to traction motor inverter via CAN communication.<br>• Power switch ON signal<br>• Door switch signal |
| Steering angle sensor | Mainly transmits the following signals from ABS actuator and electric unit (control unit) to electrically-driven intelligent brake unit via CAN communication.<br>• Steering angle sensor signal |

## COOPERATIVE REGENERATIVE BRAKE CONTROL

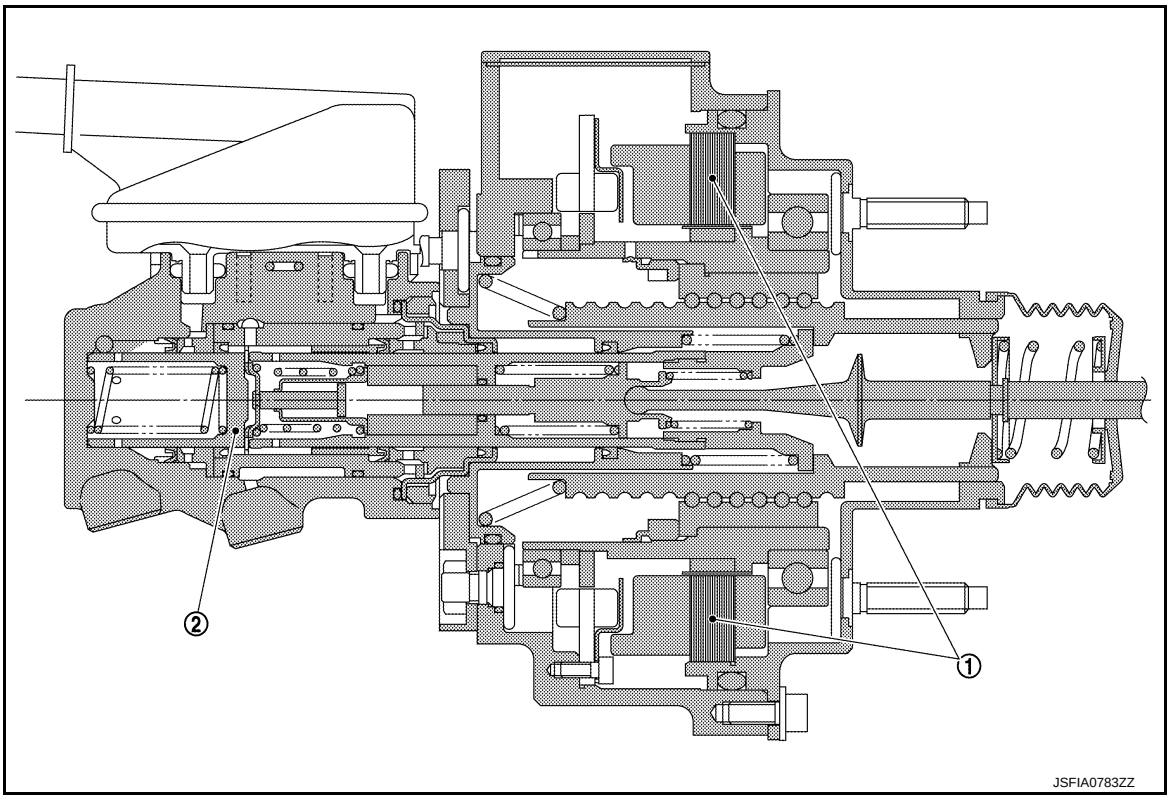



- A regenerative brake drives the traction motor to act as an alternator, and converts the kinetic energy produced by rotation of the tires into electrical energy. The converted electrical energy charges the Li-ion battery. In the same way as engine braking, this can also reduce the load on the ordinary brakes.
- When the brakes are operated (during driving), the electrically-driven intelligent brake unit calculates the required braking force based on the input value from the stroke sensor (indicating the amount of brake pedal operation), and it sends the result to the traction motor inverter. At the same time, it calculates the hydraulic braking force needed to produce the required braking force.
- The traction motor inverter calculates the regenerative braking force needed to produce the required braking force, and it sends the result to the electrically-driven intelligent brake unit. At the same time, the traction motor inverter uses the traction motor to perform regenerative braking.
- The electrically-driven intelligent brake unit calculates the hydraulic braking force again based on the regenerative braking force result from the tracking motor inverter and the calculated result for hydraulic braking force.
- Based on the calculated result for hydraulic braking force, the electrically-driven intelligent brake unit uses the motor inside the electrically-driven intelligent brake unit to move the master cylinder piston, adjusting the fluid pressure inside the master cylinder to the master fluid pressure. It also performs adjustment so that the fluid pressure that is actually applied matches the target fluid pressure.
  **NOTE:**
  The fluid pressure applied to the master cylinder is detected by master cylinder pressure sensor 1.
- The fluid pressure generated by the master cylinder is sent to each brake caliper via the ABS actuator and electric unit (control unit).
- When the cooperative regenerative brake is operating, the motor inside the electrically-driven intelligent brake unit moves the master cylinder piston according to the amount of regeneration.
- Moving the master cylinder piston increases the fluid pressure applied to the ABS actuator and electric unit (control unit). (The brake pedal stroke does not change.)

- When brake control is stopped (immediately before vehicle stop or while vehicle is stopped), cooperative regenerative brake control is not performed.

## OPERATION

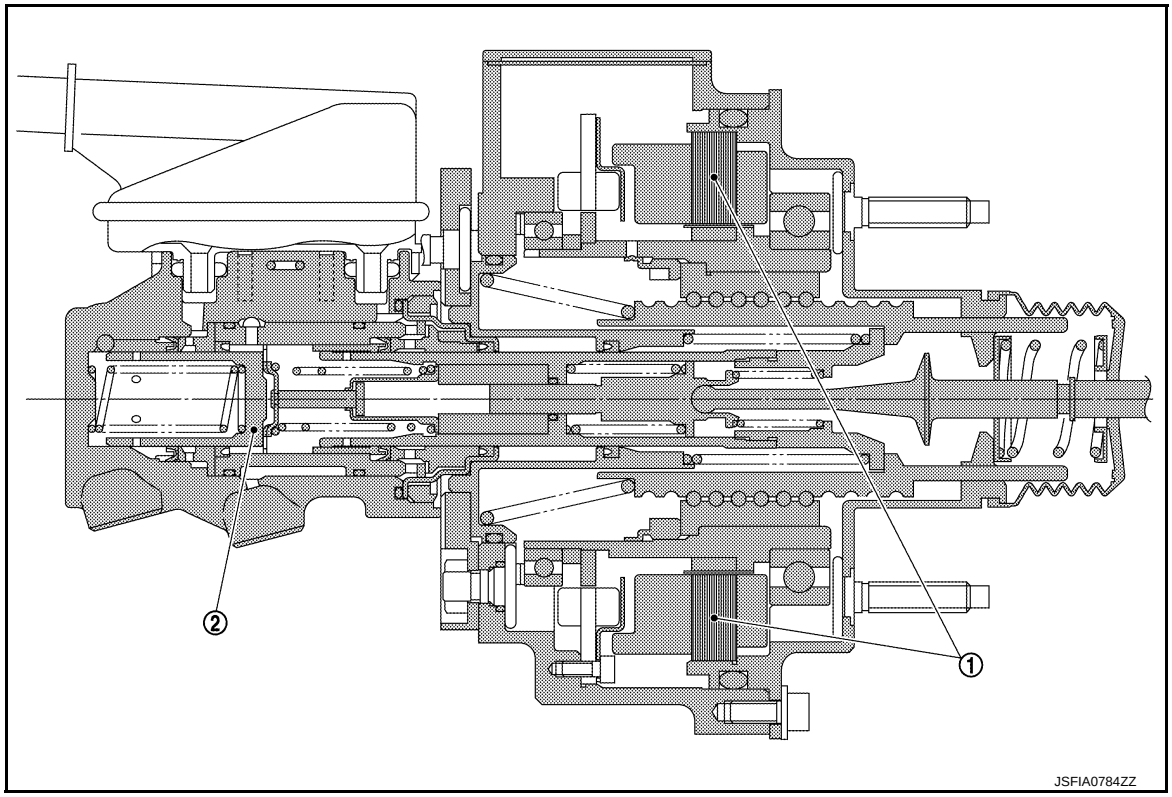
During Normal Braking




1. Motor
2. Piston

The stroke sensor detects the brake pedal stroke, and the motor inside the electrically-driven intelligent brake unit presses the master cylinder piston, generating boost operation (brake pedal assist force) and increasing the fluid pressure.

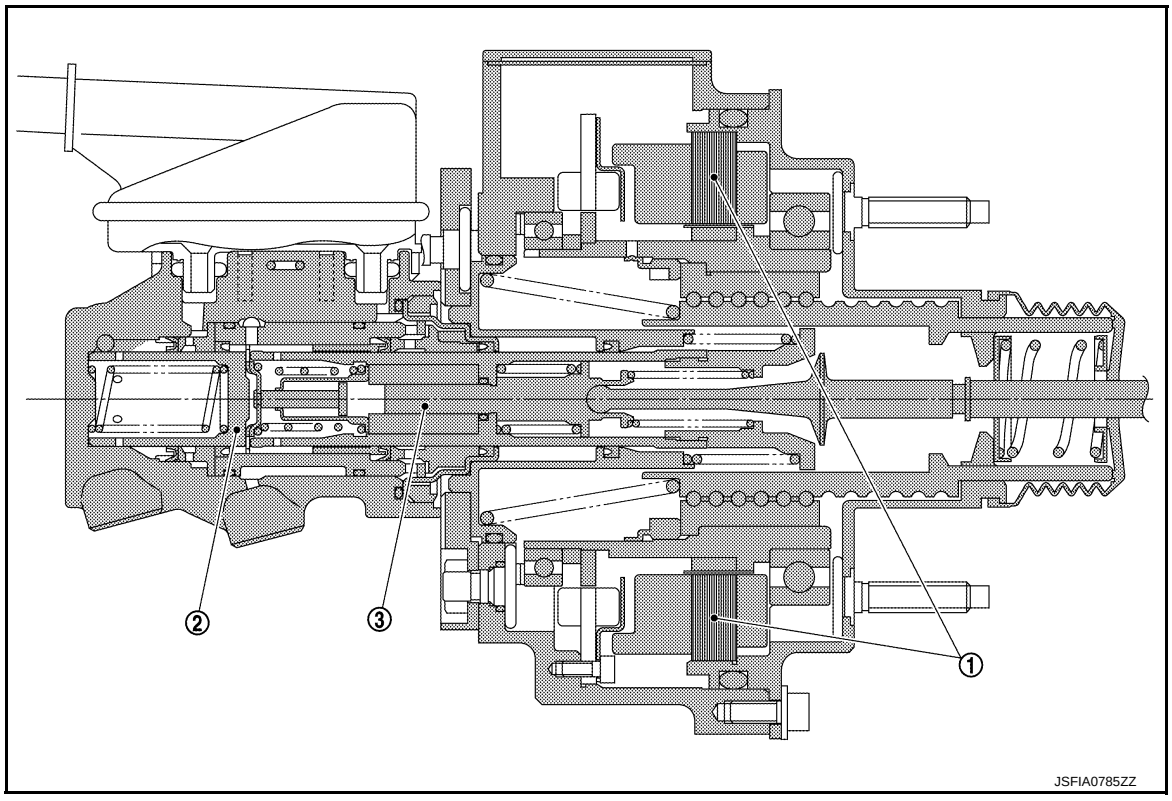
When Cooperative Regenerative Brake Control Is Operating




1. Motor
2. Piston

When the amount of regenerative braking increases, the motor inside the electrically-driven intelligent brake unit returns the master cylinder piston, lowering the fluid pressure. While the vehicle is stopped, because the amount of regenerative braking decreases, the motor inside the electrically-driven intelligent brake unit presses the master cylinder piston, increasing the fluid pressure.

When Control Is Stopped



1. Motor 2. Piston 3. Input rod

The input rod crosses the cooperative regenerative brake control gap and contacts the master cylinder piston, generating fluid pressure. There is no boost force (assist force), and the braking force is determined by the force pressing on the brake pedal.

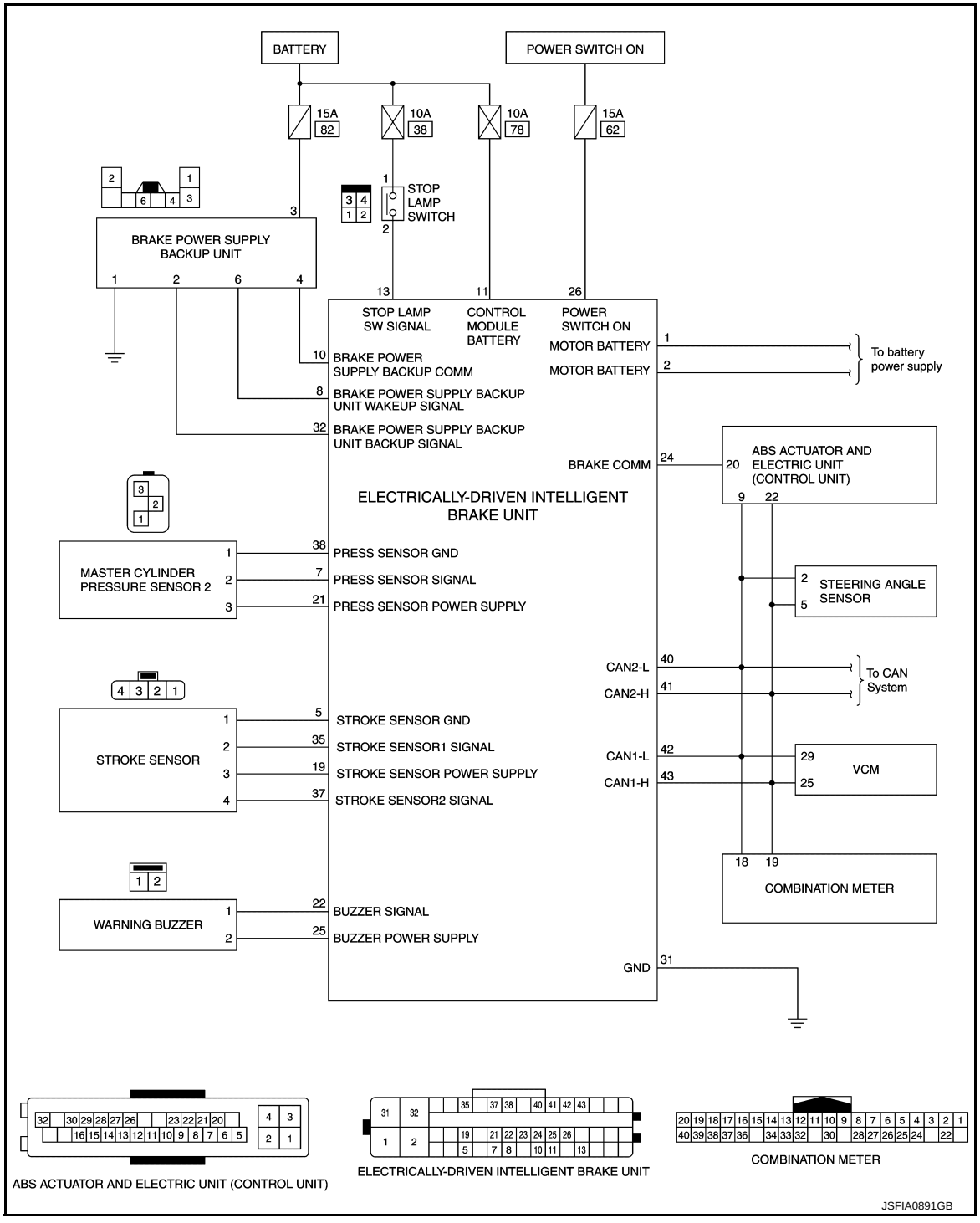
## CONDITION FOR TURN ON THE WARNING LAMP AND OPERATION THE WARNING BUZZER

Turns ON when Power switch ON and OFF when the system is normal, for bulb check purposes.

| Condition (status) | Brake warning lamp (red) | Brake system warning lamp (yellow) | Warning buzzer |
|---|---|---|---|
| Power switch OFF | OFF | OFF | OFF |
| For approx. 1 seconds after the power switch is ON | ON | ON | OFF |
| Approx. 1 seconds after power switch ON (when the system is in normal operation) | OFF | OFF | OFF |
| When the power supply of the electrically-driven intelligent brake is changed to the brake power supply backup unit | ON | ON | ON |
| Brake power supply backup unit is malfunctioning | OFF | ON | OFF |
| Electrically-driven intelligent brake is malfunctioning | ON | ON | OFF |

## Schematic

INFOID:0000000006960644




## Fail-Safe

INFOID:0000000006960645

- When there is a malfunction in the power system of the electrically-driven intelligent brake unit (no voltage is generated), voltage is temporarily supplied to the electrically-driven intelligent brake unit from the brake power supply backup unit. At the same time, the brake warning lamp (red) and brake system warning lamp (yellow) turn ON and the buzzer sounds.
- When a malfunction occurs in the electrically-driven intelligent brake unit, the VDC function performs control (boost operation).

- When a malfunction occurs in the DC/DC-J/B and 12V battery, the braking force is determined by the force pressing on the brake pedal (no boost operation). At the same time, brake warning lamp (red) and the brake system warning lamp (yellow) turns ON.
- When a malfunction occurs in the brake power supply backup unit, the brake system warning lamp (yellow) turns ON.
- When a malfunction occurs in the electrically-driven intelligent brake and in the VDC function, the braking force is determined by the force pressing on the brake pedal (no boost operation). At the same time, the brake warning lamp (red) and brake system warning lamp (yellow) turn ON.
- When a malfunction occurs in the electrically-driven intelligent brake, VDC function, and power system, cooperative regenerative brake control is not performed.

| DTC | Vehicle condition |
|---|---|
| C1A60 | The following functions are suspended.<br>• Boost operation by the electrically-driven intelligent brake<br>• Cooperative regenerative brake control<br>• Power supply from the brake power supply backup unit |
| C1A61 | |
| C1A62 | |
| C1A63 | The following functions are suspended.<br>• Power supply from the brake power supply backup unit |
| C1A64 | The following functions are suspended.<br>• Boost operation by the electrically-driven intelligent brake<br>• Cooperative regenerative brake control<br>• Power supply from the brake power supply backup unit |
| C1A65 | |
| C1A66 | The following functions are suspended.<br>• Cooperative regenerative brake control |
| C1A67 | Normal control |
| C1A69 | The following functions are suspended.<br>• Boost operation by the electrically-driven intelligent brake<br>• Cooperative regenerative brake control<br>• Power supply from the brake power supply backup unit |
| C1A6A | |
| C1A6B | The following functions are suspended.<br>• Backup power supply from the brake power supply backup unit |
| C1A6C | |
| C1A6D | |
| C1A6E | The following functions are suspended.<br>• Cooperative regenerative brake control |
| C1A6F | Normal control |
| C1A70 | The following functions are suspended.<br>• Cooperative regenerative brake control |
| C1A74 | The following functions are suspended.<br>• Cooperative regenerative brake control |
| U1000 | |
| U1010 | |
| U1510 | Normal control |
| U1511 | |

# DIAGNOSIS SYSTEM (ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT)

## CONSULT Function

INFOID:0000000006960646

### APPLICATION ITEM

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

| Mode | Function description |
|---|---|
| ECU identification | Parts number of electrically-driven intelligent brake unit can be read. |
| Self Diagnostic Results | Self-diagnostic results and freeze frame data can be read and erased quickly.* |
| DATA MONITOR | Input/Output data in the electrically-driven intelligent brake unit can be read. |
| ACTIVE TEST | Diagnostic Test Mode in which CONSULT drives some actuators apart from the electrically-driven intelligent brake 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

Electrically-driven intelligent brake unit part number can be read.

### SELF DIAGNOSTIC RESULT

Refer to BR-27, "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)

When DTC is detected, a vehicle state shown below is recorded and displayed on CONSULT.

| Item name | Display item |
|---|---|
| IGN counter<br>(0 – 39) | The number of times that power switch is ON after the DTC is detected is displayed.<br>• When “0” is displayed: It indicates that the system is presently malfunctioning.<br>• When except “0” is displayed: It indicates that system malfunction in the past is detected, but the system is presently normal.<br>**NOTE:**<br>Each time when power 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. |
| PEDAL STROKE VALUE | Displays the brake pedal stroke at the time the malfunction is detected. |
| MASTER CYL PRESSURE | Displays the brake fluid pressure generated in the master cylinder at the time the malfunction is detected. |
| Q axis current | Displays the current at the motor inside the electrically-driven intelligent brake unit at the time the malfunction is detected. |

### DATA MONITOR

| Item (Unit) | Note: |
|---|---|
| MASTER CYL PRESSURE<br>(V) | Master cylinder pressure sensor 1 voltage is displayed. |
| MASTER CYL PRES (VDC)<br>(MPa) | Displays the master cylinder fluid pressure sensor 2 signal sent via CAN communication from the ABS actuator and electric unit (control unit). |

| Item (Unit) | Note: |
|---|---|
| MOTOR TEMPERATURE (°C) | Displays the temperature of the motor inside the electrically-driven intelligent brake unit. |
| CONTROL MODULE TEMP (°C) | Displays the temperature of the control module that is integrated with the electrically-driven intelligent brake unit. |
| MST CYL PRES POWER VOLT (V) | Master cylinder pressure sensor 1 power supply is displayed |
| STROKE SEN 1 POWER VOLT (V) | Stroke sensor power supply is displayed |
| MOTOR POWER SUPPLY (V) | Displays the power voltage of the motor inside the electrically-driven intelligent brake unit. |
| CONTROL MODULE POWER (V) | Displays the power voltage of the control module that is integrated with the electrically-driven intelligent brake unit. |
| STROKE SEN 1 LEARN VALUE (deg) | Displays the stroke sensor 1* learning value. |
| STROKE SEN 2 LEARN VALUE (deg) | Displays the stroke sensor 2* learning value. |
| ALL SENSOR LEARNING (INCOMP/COMP) | Displays the learning values of stroke sensor 1*, stroke sensor 2*, and master cylinder pressure. |
| STROKE SEN 1 OUTPUT VOLT (V) | Displays the stroke sensor 1* output voltage. |
| STEERING ANGLE SENSOR (deg) | Displays the steering angle sensor signal sent via CAN communication from the ABS actuator and electric unit (control unit). |
| DECEL G SENSOR (G) | Displays the decel G sensor signal sent via CAN communication from the ABS actuator and electric unit (control unit). |
| SIDE G SENSOR (G) | Displays the side G sensor signal sent via CAN communication from the ABS actuator and electric unit (control unit). |
| YAW RATE SENSOR SIGNAL (G) | Displays the yaw rate sensor signal sent via CAN communication from the ABS actuator and electric unit (control unit). |
| WHEEL SENSOR FRONT RH (rpm) | Displays the front RH wheel sensor signal sent via CAN communication from the ABS actuator and electric unit (control unit). |
| WHEEL SENSOR FRONT LH (rpm) | Displays the front LH wheel sensor signal sent via CAN communication from the ABS actuator and electric unit (control unit). |
| WHEEL SENSOR REAR RH (rpm) | Displays the rear RH wheel sensor signal sent via CAN communication from the ABS actuator and electric unit (control unit). |
| WHEEL SENSOR REAR LH (rpm) | Displays the rear LH wheel sensor signal sent via CAN communication from the ABS actuator and electric unit (control unit). |
| VEHICLE SPEED (km/h) | Displays the vehicle speed signal sent via CAN communication from the ABS actuator and electric unit (control unit). |
| ACTUAL GEAR POSITION [R/D/(N/R)] | Displays the shift position signal sent via CAN communication from the VCM. |
| BRAKE SWITCH (On/Off) | Stop lamp switch signal input status is displayed. |
| COMMAND WAKE UP SLEEP (sleep/wake-up) | Displays the wake up signal sent via CAN communication from the combination meter. |
| DOOR SWITCH (BACK DOOR) (CLOSE/OPEN) | Displays the operating status of the door switch (back door), sent via CAN communication from the BCM. |
| DOOR SWITCH (REAR RH) (CLOSE/OPEN) | Displays the operating status of the door switch (rear RH), sent via CAN communication from the BCM. |
| DOOR SWITCH (REAR LH) (CLOSE/OPEN) | Displays the operating status of the door switch (rear LH), sent via CAN communication from the BCM. |
| DOOR SWITCH (FRONT RH) (CLOSE/OPEN) | Displays the operating status of the door switch (front RH), sent via CAN communication from the BCM. |

| Item (Unit) | Note: |
|---|---|
| DOOR SWITCH (FRONT LH)<br>(CLOSE/OPEN) | Displays the operating status of the door switch (front LH), sent via CAN communication from the BCM. |
| IGNITION SIGNAL<br>(On/Off) | Displays the operating status of the power switch, sent via CAN communication from the BCM. |
| READY STATUS<br>(On/Off) | Displays the ready status, sent via CAN communication from the VCM. |
| BACKUP UNIT DIAG RESULT<br>(NORMAL/ERR1/ERR2/ERR3/ERR4/<br>ERR5/ERR6/ERR7/ERR8/ERR9/ERR10/<br>ERR11/ERR12/ERR13/ERR14/ERR15) | Displays the diagnosis results for the brake power supply backup unit. |
| BACKUP UNIT MODE | Displays the operating status of the brake power supply backup unit. |
| BACKUP UNIT CHAGE STATUS<br>(CHRG1/CHRG2/FULL) | Displays the charge status of the brake power supply backup unit. |

The stroke sensor is composed of two circuits: stroke sensor 1 and stroke sensor 2.

## WORK SUPPORT

| Item | Description |
|---|---|
| STROKE SENSOR 0 POINT LEARNING | Perform stroke sensor learning. |

# ECU DIAGNOSIS INFORMATION

## ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

### Reference Value

INFOID:0000000006960647

#### CONSULT DATA MONITOR STANDARD VALUE

| Monitor item | Condition | Reference values in normal operation |
|---|---|---|
| MASTER CYL PRESSURE | Gradually depress the brake pedal | Resistance value increases between 0.5 – 4.5 V according to the depth of brake depression. |
| MASTER CYL PRES (VDC) | Gradually depress the brake pedal | Resistance value increases between 0 – 25.6 MPa according to the depth of brake depression. |
| MOTOR TEMPERATURE | Always | 115 °C or less |
| CONTROL MODULE TEMP | Always | 150 °C or less |
| MST CYL PRES POWER VOLT | Always | 5.00 – 5.22 V |
| STROKE SEN 1 POWER VOLT | Always | 5.00 – 5.22 V |
| MOTOR POWER SUPPLY | Always | 4.28 – 28.0 V |
| CONTROL MODULE POWER | Always | 11.7 – 16.2 V |
| STROKE SEN 1 LEARN VALUE*1 | Always | –0.68 – 14.78 deg |
| STROKE SEN 2 LEARN VALUE*1 | Always | –0.68 – 14.78 deg |
| ALL SENSOR LEARNING*2 | Learning not completed | INCOMP |
| | Learning completed | COMP |
| STROKE SEN 1 OUTPUT VOLT*1 | Gradually depress the brake pedal | Resistance value increases between 0.51 – 4.59 V according to the depth of brake depression. |
| STEERING ANGLE SENSOR | When driving straight | 0±3.5° |
| | When steering wheel is steered to RH by 90° | Approx. –90° |
| | When steering wheel is steered to LH by 90° | Approx. +90° |
| DECEL G SENSOR | Vehicle stopped | Approx. 0 G |
| | During acceleration | Positive value |
| | During deceleration | Negative value |
| SIDE G SENSOR | Vehicle stopped | Approx. 0 $m/s^2$ |
| | Right turn | Negative value |
| | Left turn | Positive value |
| YAW RATE SENSOR SIGNAL | Vehicle stopped | Approx. 0 d/s |
| | Right turn | Negative value |
| | Left turn | Positive value |
| WHEEL SENSOR FRONT RH | Vehicle stopped | 0.00 km/h |
| | Driving*3 | Almost same reading as speedometer (within ±10%) |
| WHEEL SENSOR FRONT LH | Vehicle stopped | 0.00 km/h |
| | Driving*3 | Almost same reading as speedometer (within ±10%) |

| Monitor item | Condition | Reference values in normal operation |
|---|---|---|
| WHEEL SENSOR REAR RH | Vehicle stopped | 0.00 km/h |
| | Driving*3 | Almost same reading as speedometer (within ±10%) |
| WHEEL SENSOR REAR LH | Vehicle stopped | 0.00 km/h |
| | Driving*3 | Almost same reading as speedometer (within ±10%) |
| VEHICLE SPEED | Vehicle stopped | 0.00 km/h |
| | Driving*3 | Almost same reading as speedometer (within ±10%) |
| ACTUAL GEAR POSITION | D position | D |
| | R position | R |
| | N or P position | N/P |
| BRAKE SWITCH | Brake pedal is depressed. | On |
| | Brake pedal is not depressed. | OFF |
| COMMAND WAKE UP SLEEP | When command is not input from BCM | SLEEP |
| | When command is input from BCM | WAKEUP |
| DOOR SWITCH (BACK DOOR) | Back door closed | CLOSE |
| | Back door open | OPEN |
| DOOR SWITCH (REAR RH) | Rear RH door closed | CLOSE |
| | Rear RH door open | OPEN |
| DOOR SWITCH (REAR LH) | Rear LH door closed | CLOSE |
| | Rear LH door open | OPEN |
| DOOR SWITCH (FRONT RH) | Front RH door closed | CLOSE |
| | Front RH door open | OPEN |
| DOOR SWITCH (FRONT LH) | Front LH door closed | CLOSE |
| | Front LH door open | OPEN |
| IGNITION SIGNAL | Power switch ON | ON |
| | Power switch other than ON | OFF |
| READY STATUS | READY status | On |
| | Other than READY status | Off |

| Monitor item | Condition | Reference values in normal operation |
|---|---|---|
| BACKUP UNIT DIAG RESULT | Normal | NOMAL |
| | Overvoltage | ERR1 |
| | Communications malfunction | ERR2 |
| | Charging circuit malfunction | ERR3 |
| | Discharge circuit open | ERR4 |
| | Discharge circuit shorted | ERR5 |
| | Cell malfunction | ERR6 |
| | Backup power circuit malfunction | ERR7 |
| | Start signal malfunction | ERR8 |
| | The control part is in abnormal condition | ERR9 |
| | Monitor circuit malfunction | ERR10 |
| | Insulation malfunction | ERR11 |
| | Output circuit malfunction (other than discharge circuit) | ERR12 |
| | Temperature detection circuit malfunction | ERR13 |
| | Deteriorated | ERR14 |
| | Outside the reference voltage | ERR15 |
| BACKUP UNIT MODE | Backup power supply mode is active | On |
| | Backup power supply mode is not activated | Off |
| BACKUP UNIT CHAGE STATUS | 80% or less (backup power supply not possible) | CHRG1 |
| | 80 -– 99%(backup power supply possible) | CHRG2 |
| | 100% (backup power supply possible) | FULL |

*1: The stroke sensor contains two circuits: stroke sensor 1 and stroke sensor 2.
*2: Learning for stroke sensor 1, stroke sensor 2, and master cylinder fluid pressure
*3: Check tire pressure under normal conditions.

## Fail-Safe

INFOID:0000000006960648

- When there is a malfunction in the power system of the electrically-driven intelligent brake unit (no voltage is generated), voltage is temporarily supplied to the electrically-driven intelligent brake unit from the brake power supply backup unit. At the same time, the brake warning lamp (red) and brake system warning lamp (yellow) turn ON and the buzzer sounds.
- When a malfunction occurs in the electrically-driven intelligent brake unit, the VDC function performs control (boost operation).
- When a malfunction occurs in the DC/DC-J/B and 12V battery, the braking force is determined by the force pressing on the brake pedal (no boost operation). At the same time, the brake warning lamp (red) and the brake system warning lamp (yellow) turns ON.
- When a malfunction occurs in the brake power supply backup unit, the brake system warning lamp (yellow) turns ON.
- When a malfunction occurs in the electrically-driven intelligent brake and in the VDC function, the braking force is determined by the force pressing on the brake pedal (no boost operation). At the same time, the brake warning lamp (red) and brake system warning lamp (yellow) turn ON.
- When a malfunction occurs in the electrically-driven intelligent brake, VDC function, and power system, cooperative regenerative brake control is not performed.

| DTC | Vehicle condition |
|---|---|
| C1A60 | The following functions are suspended.<br>• Boost operation by the electrically-driven intelligent brake<br>• Cooperative regenerative brake control<br>• Power supply from the brake power supply backup unit |
| C1A61 | |
| C1A62 | |
| C1A63 | The following functions are suspended.<br>• Power supply from the brake power supply backup unit |
| C1A64 | The following functions are suspended.<br>• Boost operation by the electrically-driven intelligent brake<br>• Cooperative regenerative brake control<br>• Power supply from the brake power supply backup unit |
| C1A65 | |
| C1A66 | The following functions are suspended.<br>• Cooperative regenerative brake control |
| C1A67 | Normal control |
| C1A69 | The following functions are suspended.<br>• Boost operation by the electrically-driven intelligent brake<br>• Cooperative regenerative brake control<br>• Power supply from the brake power supply backup unit |
| C1A6A | |
| C1A6B | The following functions are suspended.<br>• Backup power supply from the brake power supply backup unit |
| C1A6C | |
| C1A6D | |
| C1A6E | The following functions are suspended.<br>• Cooperative regenerative brake control |
| C1A6F | Normal control |
| C1A70 | The following functions are suspended.<br>• Cooperative regenerative brake control |
| C1A74 | The following functions are suspended.<br>• Cooperative regenerative brake control |
| U1000 | |
| U1010 | |
| U1510 | Normal control |
| U1511 | |

## DTC Inspection Priority Chart

INFOID:0000000006960649

When multiple DTCs are displayed simultaneously, check them one by one according to the following priority list.

| Priority | Detected item (DTC) |
|---|---|
| 1 | • U1000 CAN COMM CIRCUIT<br>• U1010 CONTROL UNIT (CAN)<br>• U1510 BRAKE CONTROL COMMUNICATION<br>• U1511 POWER SUPPLY BACKUP UNIT COMM |
| 2 | • C1A60 CONTROL MODULE<br>• C1A6B POWER SUPPLY BACKUP UNIT |
| 3 | • C1A6E EV/HEV SYSTEM<br>• C1A6F TCM/VCM SYSTEM<br>• C1A70 BRAKE CONTROL SYSTEM<br>• C1A74 ST ANG SEN CIRCUIT |

| Priority | Detected item (DTC) |
|---|---|
| 4 | • C1A61 MOTOR POWER SUPPLY<br>• C1A62 CONTROL MODULE POWER SUPPLY<br>• C1A63 BACKUP POWER SUPPLY<br>• C1A6C POWER SUPPLY BACKUP UNIT VOLT |
| 5 | • C1A64 STROKE SENSOR<br>• C1A65 STROKE SENSOR SET<br>• C1A66 MASTER PRESSURE SENSOR<br>• C1A67 STOP LAMP SWITCH<br>• C1A69 MOTOR<br>• C1A6A CONTROL MODULE TEMPERRATURE<br>• C1A6D POWERSUPPLY BACKUP UNIT OUTPUT |

## DTC Index

INFOID:0000000006960650

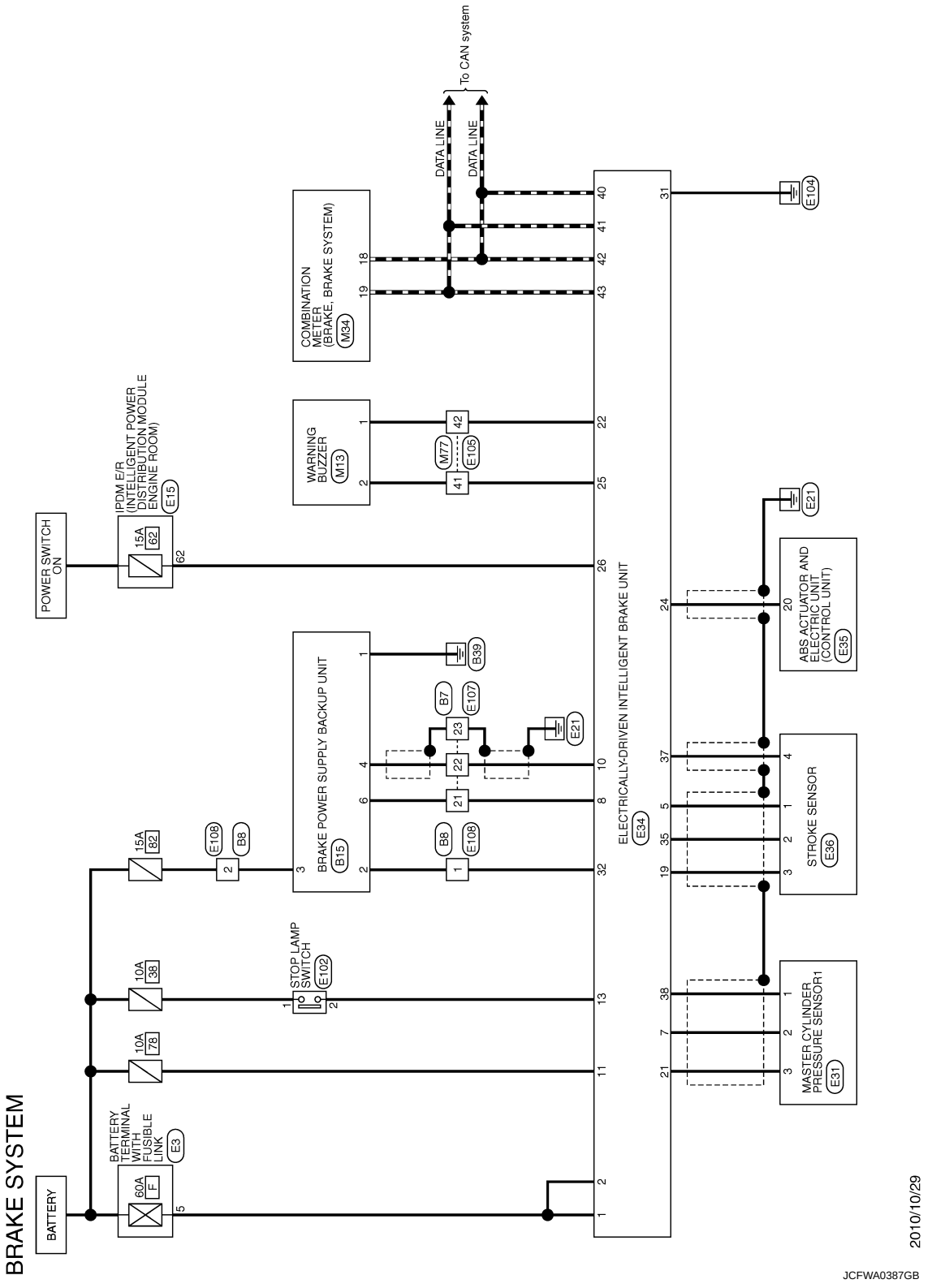
| DTC | Display item | Refer to |
|---|---|---|
| C1A60 | CONTROL MODULE | BR-39, "DTC Logic" |
| C1A61 | MOTOR POWER SUPPLY | BR-45, "DTC Logic" |
| C1A62 | CONTROL MODULE POWER SUPPLY | BR-51, "DTC Logic" |
| C1A63 | BACKUP POWER SUPPLY | BR-58, "DTC Logic" |
| C1A64 | STROKE SENSOR | BR-66, "DTC Logic" |
| C1A65 | STROKE SENSOR SET | BR-76, "DTC Logic" |
| C1A66 | MASTER PRESSURE SENSOR | BR-85, "DTC Logic" |
| C1A67 | STOP LAMP SWITCH | BR-94, "DTC Logic" |
| C1A69 | MOTOR | BR-104, "DTC Logic" |
| C1A6A | CONTROL MODULE TEMPERRATURE | BR-111, "DTC Logic" |
| C1A6B | POWER SUPPLY BACKUP UNIT | BR-118, "DTC Logic" |
| C1A6C | POWER SUPPLY BACKUP UNIT VOLT | BR-127, "DTC Logic" |
| C1A6D | POWERSUPPLY BACKUP UNIT OUTPUT | BR-134, "DTC Logic" |
| C1A6E | EV/HEV SYSTEM | BR-141, "DTC Logic" |
| C1A6F | TCM/VCM SYSTEM | BR-148, "DTC Logic" |
| C1A70 | BRAKE CONTROL SYSTEM | BR-155, "DTC Logic" |
| C1A74 | ST ANG SEN CIRCUIT | BR-162, "DTC Logic" |
| U1000 | CAN COMM CIRCUIT | BR-169, "DTC Logic" |
| U1010 | CONTROL UNIT (CAN) | BR-170, "DTC Logic" |
| U1510 | BRAKE CONTROL COMMUNICATION | BR-172, "DTC Logic" |
| U1511 | POWER SUPPLY BACKUP UNIT COMM | BR-179, "DTC Logic" |

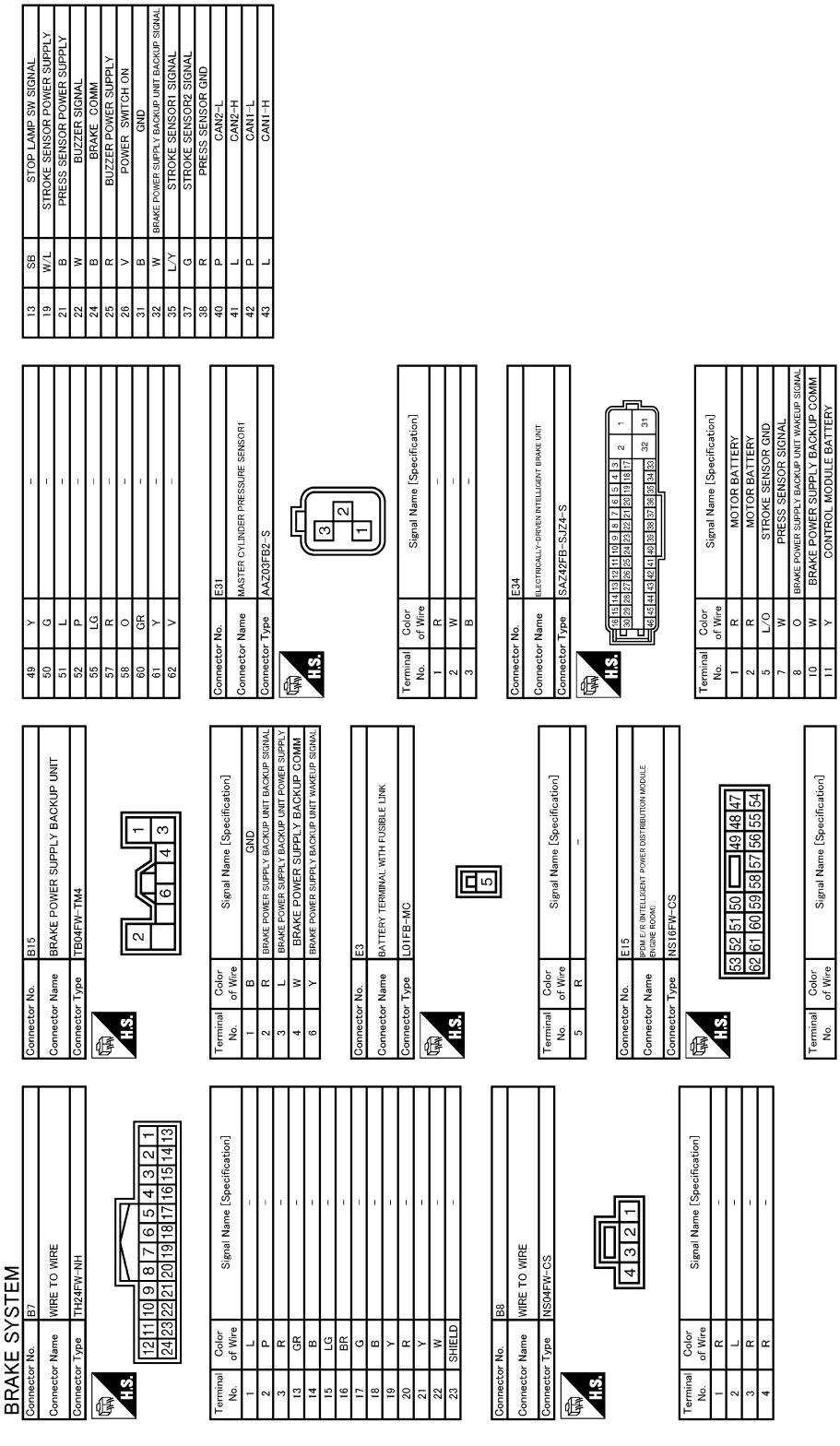
# WIRING DIAGRAM

## BRAKE SYSTEM

### Wiring Diagram

INFOID:0000000006960651






JCFWA0388GB

## BRAKE SYSTEM

| Connector No. | E35 |
|---|---|
| Connector Name | ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) |
| Connector Type | RH28FB-NU4-DH |

H.S.

| 1 | 2 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |
| | | 20 | 21 | 22 | 23 | | 26 | 27 | 28 | 29 | 30 | | 32 | |

| Terminal No. | Color of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | G | MOTOR BATTERY |
| 2 | R | VALVE BATTERY |
| 3 | B | GND |
| 4 | B | GND |
| 5 | P | ESP OFF SW SIGNAL |
| 6 | O | BRAKE SW SIGNAL |
| 7 | L/Y | PRESS SENSOR SIGNAL |
| 8 | SB | STOP LAMP SW SIGNAL |
| 9 | P | CAN-L |
| 10 | W/L | PRESS SENSOR POWER SUPPLY |
| 11 | BR | RR RH WHEEL SENSOR POWER SUPPLY |
| 12 | W | FR RH WHEEL SENSOR SIGNAL |
| 13 | G | G SENSOR POWER SUPPLY |
| 14 | B | G SENSOR SIGNAL (+) |
| 15 | LG | RR RH WHEEL SENSOR SIGNAL |
| 16 | V | POWER SWITCH ON |
| 20 | B | BRAKE COMM |
| 21 | B | FR RH WHEEL SENSOR POWER SUPPLY |
| 22 | L | CAN-H |
| 23 | R | FR LH WHEEL SENSOR POWER SUPPLY |
| 26 | B | RR LH WHEEL SENSOR POWER SUPPLY |
| 27 | Y | FR LH WHEEL SENSOR SIGNAL |
| 28 | R | G SENSOR GND |
| 29 | Y | G SENSOR SIGNAL (-) |
| 30 | G | RR LH WHEEL SENSOR SIGNAL |
| 32 | L/O | PRESS SENSOR GND |

| Connector No. | E36 |
|---|---|
| Connector Name | STROKE SENSOR |
| Connector Type | HS04FB |

H.S.

4 3 2 1

| Terminal No. | Color of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | L/O | – |
| 2 | L/Y | – |
| 3 | W/L | – |
| 4 | G | – |

| Connector No. | E102 |
|---|---|
| Connector Name | STOP LAMP SWITCH |
| Connector Type | M04FW-LC |

H.S.

3 4
1 2

| Terminal No. | Color of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | W | – |
| 2 | SB | – |
| 3 | LG | – |
| 4 | P | – |

| Connector No. | E105 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80MW-CS16-TM4 |

H.S.

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

JCFWA0389GB

BRAKE SYSTEM

| Connector No. | E107 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH24MW-NH |



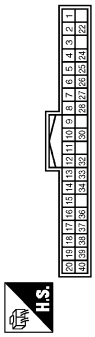
| Terminal No. | Color of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | L | – |
| 2 | P | – |
| 3 | SB | – |
| I3 | G | – |
| I4 | B | – |
| I5 | LG | – |
| I6 | BR | – |
| I7 | G | – |
| I8 | B | – |
| I9 | Y | – |
| 20 | R | – |
| 21 | O | – |
| 22 | W | – |
| 23 | SHIELD | – |

| Connector No. | M13 |
|---|---|
| Connector Name | WARNING BUZZER |
| Connector Type | TK02FBR |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | W | – |
| 2 | R | – |

| Connector No. | M34 |
|---|---|
| Connector Name | COMBINATION METER |
| Connector Type | TH40FW-NH |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | LG | BATTERY POWER SUPPLY |
| 2 | R | BATTERY POWER SUPPLY(FOR UPPER METTER) |
| 3 | GR | POWER SWITCH SUPPLY |
| 4 | BR | POWER SWITCH SUPPLY (FOR UPPER METER) |
| 5 | B | GROUND |
| 6 | B | GROUND |
| 7 | V | ELECTRIC SHIFT WARNING SIGNAL |
| 9 | G | PLUG IN SIGNAL |
| 10 | L | COMMUNICATION SIGNAL (METER — VSP) |
| 11 | P | COMMUNICATION SIGNAL (VSP — METER) |
| 12 | V | METER CONTROLSWITCH GROUND |
| 13 | LG | ENTER SWITCH SIGNAL |
| 14 | W | SELECT SWITCH SIGNAL |
| 15 | BR | TRIP RESET SWITCH SIGNAL |
| 16 | BR | ILLUMINATION CONTROL SWITCH SIGNAL |
| 17 | V | ILLUMINATION CONTROL SIGNAL (FOR UPPER METER) |
| 18 | P | – |
| 19 | L | CAN-H |
| 20 | V | SEAT BELT BUCKLE SWITCH SIGNAL (PASSENGER SIDE) |
| 22 | GR | GROUND (FOR UPPER METER) |

| 24 | BR | ELECTRIC PARKING BRAKE CONTROL MODULE WAKEUP SIGNAL |
|---|---|---|
| 25 | SB | BRAKE FLUID LEVEL SWITCH SIGNAL |
| 26 | B | ILLUMINATION CONTROL SIGNAL |
| 27 | R | AIR BAG SIGNAL |
| 28 | R | SECURITY SIGNAL |
| 30 | GR | VEHICLE SPEED SIGNAL (8-PULSE) |
| 32 | W | COMMUNICATION SIGNAL (METER — UPPER) |
| 33 | LG | COMMUNICATION SIGNAL (UPPER — METER) |
| 34 | L | PLUG IN INDICATOR LAMP SIGNAL |
| 38 | V | LED HEADLAMP (RH) WARNING SIGNAL |
| 39 | LG | LED HEADLAMP (LH) WARNING SIGNAL |
| 40 | Y | SEAT BELT BUCKLE SWITCH SIGNAL (DRIVER SIDE) |

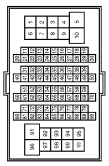
| Connector No. | E108 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | NS04MW-CS |

| Terminal No. | Color of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | W | – |
| 2 | R | – |
| 3 | L | – |
| 4 | R | – |

JCFWA0390GB

BRAKE SYSTEM

| Connector No. | M77 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80FW-CS16-TM4 |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | GR | – |
| 2 | V | – |
| 3 | GR | – |
| 4 | LG | – |
| 6 | W | – |
| 7 | V | – |
| 8 | P | – |
| 9 | SB | – |
| I0 | L | – |
| I1 | LG | – |
| I2 | W | – |
| I3 | R | – |
| I4 | Y | – |
| I5 | R | – |
| I6 | GR | – |
| I7 | BR | – |
| I9 | G | – |
| 20 | G | – |
| 21 | P | – |
| 22 | LG | – |
| 23 | GR | – |
| 24 | L | – |
| 25 | V | – |
| 26 | W | – |
| 27 | L | – |
| 29 | V | – |
| 30 | W | – |
| 31 | SB | – |
| 32 | LG | – |
| 33 | V | – |
| 34 | L | – |
| 35 | SB | – |
| 38 | LG | – |
| 39 | GR | – |
| 40 | Y | – |
| 41 | R | – |
| 42 | W | – |
| 43 | SB | – |
| 44 | GR | – |
| 45 | P | – |
| 46 | R | – |
| 47 | W | – |
| 48 | L | – |
| 49 | G | – |
| 50 | L | – |
| 51 | L | – |
| 54 | W | – |
| 55 | G | – |
| 56 | BR | – |
| 57 | P | – |
| 58 | R | – |
| 60 | Y | – |
| 61 | GR | – |
| 62 | SB | – |
| 64 | G | – |
| 65 | V | – |
| 66 | P | – |
| 67 | Y | – |
| 68 | P | – |
| 69 | BR | – |
| 71 | Y | – |
| 72 | L | – |
| 73 | G | – |
| 74 | L | – |
| 75 | V | – |
| 76 | R | – |
| 80 | W | – |
| 81 | L | – |
| 82 | SB | – |
| 83 | R | – |
| 84 | BR | – |
| 85 | R | – |
| 86 | GR | – |
| 88 | R | – |
| 89 | W | – |
| 90 | SHIELD | – |
| 91 | Y | – |
| 92 | BR | – |
| 93 | W | – |
| 94 | P | – |
| 95 | V | – |
| 96 | P | – |
| 97 | G | – |
| 98 | R | – |
| 99 | LG | – |

JCFWA0391GB

# BASIC INSPECTION

## DIAGNOSIS AND REPAIR WORK FLOW

### Work Flow

INFOID:0000000006960652

DETAILS OF TROUBLE DIAGNOSIS FLOWCHART

#### 1.COLLECT THE INFORMATION FROM THE CUSTOMER

It is also important to clarify customer concerns before starting the inspection. First of all, perform an interview utilizing BR-34, "Diagnostic Work Sheet" and reproduce the symptom as well as fully understand it. Depending on the situations, drive the vehicle with the customer and check the symptom.

**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 by the interview. Also check that the symptom is not caused by fail-safe mode. Refer to BR-25, "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 SELF-DIAGNOSIS

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY status.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   - **Never engage READY status.**
   - **Never depress brake pedal.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC detected?

YES >> Record or print self-diagnosis results. GO TO 4.
NO >> GO TO 6.

#### 4.RECHECK THE SYMPTOM

With CONSULT

1. Erase self-diagnosis results from the memory.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
2. Perform DTC reproduction procedures for the system that is malfunctioning.

**NOTE:**
When multiple DTCs are detected, refer to BR-26, "DTC Inspection Priority Chart" and then determine the order for performing the diagnosis.

Is DTC detected?

YES >> GO TO 5.
NO >> Check harness and connectors based on the information obtained by the interview. Refer to GI-51, "Intermittent Incident".

## 5. REPAIR OR REPLACE MALFUNCTIONING PART

Repair or replace the part that is malfunctioning. Reconnect part or connector after repairing or replacing. Erase DTC from the memory when DTC is detected.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

>> GO TO 7.

## 6. IDENTIFY MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

Estimate which system is malfunctioning according to the possible symptoms based on symptom diagnosis and perform check.

Can the malfunctioning part be identified?

YES >> GO TO 7.
NO >> Check harness and connectors based on the information obtained by the interview. Refer to GI-51, "Intermittent Incident".

## 7. FINAL CHECK

With CONSULT
1. Check the reference value for “BRAKE”. Refer to BR-23, "Reference Value".
2. Perform the operation check. Check that the symptom is not reproduced under the same conditions as when the symptom is reproduced before.

Is the symptom reproduced?

YES >> GO TO 3.
NO >> INSPECTION END

## Diagnostic Work Sheet

INFOID:0000000006960653

### Description

- In general, customers have their own criteria for a symptom. Therefore, it is important to understand the symptom and status well enough by interviewing the customer about the symptom 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 | | Traction motor | | Mileage | km ( Mile) |
| Symptom | | ☐ Does not operate ( ) function | | | |
| | | ☐ Warning lamp for ( ) turns ON. | | | |
| | | ☐ Noise | | ☐ Vibration | |
| | | ☐ Other ( ) | | | |
| First occurrence | | ☐ Recently | ☐ Other ( ) | | |
| Frequency of occurrence | | ☐ Always | ☐ Under a certain conditions of | ☐ Sometimes ( time(s)/day) | |

Interview sheet

| | | | | | |
|---|---|---|---|---|---|
| Customer name | MR/MS | Registration number | | Initial year registration | |
| | | Vehicle type | | VIN | |
| Storage date | | Traction motor | | Mileage | km ( Mile) |
| 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 | | ☐ Urban area ☐ Suburb area ☐ Highway<br>☐ Mountainous road (uphill or downhill) ☐ Rough road | | | |
| Operating condition, etc. | | ☐Irrelevant<br>☐When traction motor starts ☐ During idling<br>☐ During driving ☐ During acceleration ☐ At constant speed driving<br>☐ During deceleration<br>☐ During cornering (right curve or left curve)<br>☐ When steering wheel is steered (to right or to left) | | | |
| Other conditions | | | | | |

Memo

# ADDITIONAL SERVICE WHEN REPLACING ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

## Description

INFOID:0000000006960654

When the electrically-driven intelligent brake unit was replaced, perform stroke sensor 0 point learning. BR-37, "Work Procedure".

# STROKE SENSOR 0 POINT LEARNING

## Description

INFOID:0000000006960655

**CAUTION:**
**Always perform stroke sensor 0 point learning before driving after any of the following operations is performed.**

×: Necessary, -: Not necessary

| Procedure | Stroke sensor 0 point learning |
|---|---|
| Electrically-driven intelligent brake unit is removed. | × |
| Electrically-driven intelligent brake unit is replaced. | × |
| Stroke sensor is removed. | × |
| Stroke sensor is replaced. | × |
| Brake pedal is removed. | × |
| Brake pedal is replaced. | × |
| Brake pedal heights are adjusted. | × |

## Work Procedure

INFOID:0000000006960656

**CAUTION:**
**Make sure to use CONSULT when performing stroke sensor 0 point learning. (It cannot be performed by any means other than CONSULT.)**

### 1.VEHICLE CONDITION

- Stop the vehicle.
- Turn the power switch OFF.

>> GO TO 2.

### 2.CHECK 12V BATTERY

Check the 12V battery.Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Charge or replace the 12V battery. Refer to PG-101, "Work Flow". GO TO 3.

### 3.CHECKING INSTALLATION CONDITIONS OF BRAKE COMPONENTS

Check the installation conditions of brake components.

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace error-detected parts and GO TO 4.

### 4.CHECK BRAKE PEDAL

Check each brake pedal height. Refer to BR-202, "Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Adjust each brake pedal height. Refer to BR-202, "Inspection and Adjustment". GO TO 5.

### 5.PERFORM THE SELF-DIAGNOSIS

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY status.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.

4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY status.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is a malfunction detected?

YES >> Check the DTC. Refer to BR-27, "DTC Index". GO TO 6.
NO >> GO TO 6.

## 6. PERFORM PEDAL STROKE SENSOR 0 POINT LEARNING

With CONSULT
1. Turn the power switch OFF and wait for 10 seconds.
2. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY status.**
3. Select “BRAKE”, “WORK SUPPORT” and “STROKE SENSOR 0 POINT LEARNING” according to this order.
   **CAUTION:**
   **Never depress brake pedal.**
4. Touch “START”.

Was either “COMPLETED” or “The operation is incomplete. Try again after confirming the operation condition.” displayed?

“COMPLETED”>>Touch the “END”. GO TO 7.
“The operation is incomplete. Try again after confirming the operation condition.”>>GO TO 2.

## 7. CHECK DATA MONITOR

With CONSULT
Select “BRAKE”, “DATA MONITOR” and “STROKE SEN 1 OUTPUT VOLT” according to this order. Check that this signal is within the specified value.

**STROKE SEN 1 OUTPUT VOLT : 0.84 – 2.38 V**

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 1.

## 8. ERASE SELF-DIAGNOSIS MEMORY

With CONSULT
1. Turn the power switch OFF, and then turn it ON again.
   **CAUTION:**
   **Be sure to perform the operation above.**
2. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

Are the memories erased?

YES >> INSPECTION END
NO >> Check the items indicated by the self-diagnosis.

# DTC/CIRCUIT DIAGNOSIS

## C1A60 CONTROL MODULE

### DTC Logic

INFOID:0000000006960657

#### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A60 | CONTROL MODULE | A malfunction is detected control module that is integrated with the electrically-driven intelligent brake unit. | Electrically-driven intelligent brake unit |

#### DTC REPRODUCTION PROCEDURE

**1.** PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” is performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

**2.** CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A60” detected?

YES >> Proceed to BR-39, "Diagnosis Procedure".
NO >> INSPECTION END

### Diagnosis Procedure

INFOID:0000000006960658

**1.** CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

**2.** PERFORM SELF-DIAGNOSIS (1)

With CONSULT

1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".

2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A60” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3.CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4.PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A60” detected?

YES >> GO TO 5.
NO >> INSPECTION END

## 5.CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
5. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
6. Disconnect the electrically-driven intelligent brake unit harness connector.
7. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
8. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

9. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
10. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6. CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7. PERFORM SELF-DIAGNOSIS (3)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**

5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A60” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8.CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminals.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminals.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9.CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).
5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A60” detected?

YES >> GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**

8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A60” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE” and “DATA MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A60” detected?

YES >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".
NO >> INSPECTION END

# C1A61 MOTOR

## DTC Logic

INFOID:0000000006960659

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A61 | MOTOR POWER SUPPLY | Power voltage of motor inside electrically-driven intelligent brake unit is as shown below.<br>• Motor power voltage 9 V ≥ Motor power voltage<br>• Motor power voltage: 16 V ≥ Motor power voltage | • Connector or harness<br>• Electrically-driven intelligent brake unit |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1161” detected?

YES >> Proceed to BR-45, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960660

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT

1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.

**CAUTION:**
**Never engage READY state.**

3. Repeat step 2 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

7. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 9 to 10 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A61” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3.CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.

**CAUTION:**
**Never depress brake pedal.**

2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.

**CAUTION:**
**Never engage READY state.**

4. Repeat step 3 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

8. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A61” detected?

YES >> GO TO 5.
NO >> INSPECTION END

## 5.CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.

2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
5. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
6. Disconnect the electrically-driven intelligent brake unit harness connector.
7. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
8. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

9. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
10. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6. CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7. PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Disconnect IPDM E/R harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

9. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A61” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8. CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminals.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

7. Check voltage between the electrically-driven intelligent brake unit harness connector terminals

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9. CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).
5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A61” detected?

YES >> GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**

**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A61” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE” and “DATA MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A61” detected?

YES >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".
NO >> INSPECTION END

# C1A62 CONTROL MODULE

## DTC Logic

INFOID:0000000006960661

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A62 | CONTROL MODULE POWER SUPPLY | Power voltage of control module that is integrated with electrically-driven intelligent brake unit is as shown below.<br>• Control module power voltage: 9 V ≥ Control module power voltage<br>• Control module power voltage: 16 V ≤ Control module power voltage | • Harness or connector<br>• Electrically-driven intelligent brake unit |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A62” detected?

YES >> Proceed to BR-51, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960662

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT
1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A62” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3. CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4. PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A62” detected?

YES >> GO TO 5.

NO >> INSPECTION END

## 5.CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
5. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
6. Disconnect the electrically-driven intelligent brake unit harness connector.
7. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
8. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

9. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
10. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6.CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7.PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".

4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A62” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8.CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminals.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminals.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9.CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).
5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).

6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A62” detected?

YES >> GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.

7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A62” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE” and “DATA MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT
1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A62” detected?

YES >> GO TO 15.
NO >> INSPECTION END

## 15. CHECK BCM SYSTEM

With CONSULT
Perform self-diagnosis for “BCM”. Refer to BCS-26, "BCM : CONSULT Function (BCM - BCM)".

Is any DTC detected?

YES >> Check the DTC. Refer to BCS-54, "DTC Index".
NO >> GO TO 16.

## 16. PERFORM SELF-DIAGNOSIS (7)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A62” detected?

YES >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".
NO >> INSPECTION END

# C1A63 BRAKE POWER SUPPLY BACKUP UNIT

## DTC Logic

INFOID:0000000006960663

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A63 | BACKUP POWER SUPPLY | Malfunction in the backup power circuit is detected. | • Harness or connector<br>• Electrically-driven intelligent brake unit |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A63” detected?

YES >> Proceed to BR-58, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960664

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT

1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.
   **CAUTION:**

**Never engage READY state.**

3. Repeat step 2 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

7. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A63” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3.CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.

**CAUTION:**
**Never depress brake pedal.**

2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.
4. Disconnect the brake power supply backup unit harness connector, then check for failures of pin terminals and connections.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect the brake power supply backup unit harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.

**CAUTION:**
**Never engage READY state.**

5. Repeat step 4 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

9. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A63” detected?

YES >> GO TO 5.
NO >> INSPECTION END

## 5.CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect the brake power supply backup unit harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
6. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
7. Disconnect the electrically-driven intelligent brake unit harness connector.
8. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
9. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

10. Turn the power switch ON.
    **CAUTION:**
    **Never engage READY state.**
11. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6.CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7.PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".

4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A63” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8. CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminals.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminals.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9. CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).
5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).

6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A63” detected?

YES >> GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.

7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A63” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE” and “DATA MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A63”, “C1A6B”, “C1A6C” or “C1A6D” detected?

YES (C1A63)>>GO TO 15.
YES (C1A6B)>>Refer to BR-118, "Diagnosis Procedure".
YES (C1A6C)>>Refer to BR-127, "Diagnosis Procedure".
YES (C1A6D)>>Refer to BR-134, "Diagnosis Procedure".
NO >> INSPECTION END

## 15. CHECK CIRCUIT BETWEEN ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT AND BRAKE

POWER SUPPLY BACKUP UNIT

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Disconnect the electrically-driven intelligent brake unit harness connector.
5. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

6. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 32 | Ground | Not existed |

7. Disconnect the brake power supply backup unit harness connector.
8. Check continuity between electrically-driven intelligent brake unit and brake power supply backup unit.

| Electrically-driven intelligent brake unit | | Brake power supply backup unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 32 | B15 | 2 | Existed |

Is the inspection result normal?

YES >> GO TO 16.
NO >> Repair or replace malfunctioning parts and GO TO 16.

## 16. CHECK BRAKE POWER SUPPLY BACKUP UNIT GROUND CIRCUIT

Check continuity between brake power supply backup unit and ground.

| Brake power supply backup unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| B15 | 1 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 17.
NO >> Repair or replace malfunctioning parts and GO TO 17.

## 17. PERFORM SELF-DIAGNOSIS (7)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect the brake power supply backup unit harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A63” detected?

YES >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".
NO >> INSPECTION END

# C1A64 STROKE SENSOR

## DTC Logic

INFOID:0000000006960665

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A64 | STROKE SENSOR | • Open circuit is detected in rear stroke sensor circuit.<br>• Short circuit is detected in stroke sensor circuit.<br>• Malfunction is detected in stroke sensor circuit. | • Harness or connector<br>• Stroke sensor<br>• Electrically-driven intelligent brake unit<br>• Stroke sensor improper installation |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A64” detected?

YES >> Proceed to BR-66, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960666

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT

1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A64” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3.CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.
4. Check that there is no malfunction in pin terminals and connection of stroke sensor harness connector.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect stroke sensor harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A64” detected?

YES >> GO TO 5.

NO >> INSPECTION END

## 5.CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect stroke sensor harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
6. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
7. Disconnect the electrically-driven intelligent brake unit harness connector.
8. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
9. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

10. Turn the power switch ON.
    **CAUTION:**
    **Never engage READY state.**
11. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6.CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7.PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.

3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A64” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8.CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminals.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9.CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).

5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A64” detected?

YES >> GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**

5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A64” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE”ÅA“DATA MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation"

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A64” detected?

YES >> GO TO 15.
NO >> INSPECTION END

## 15. STROKE SENSOR 0 POINT LEARNING (1)

With CONSULT

Perform stroke sensor 0 point learning. Refer to BR-37, "Work Procedure".

Was either “COMPLETED” or “The operation is incomplete. Try again after confirming the operation condition.” displayed?

“COMPLETED”>>GO TO 16.
“The operation is incomplete. Try again after confirming the operation condition.”>>GO TO 17.

## 16. PERFORM SELF-DIAGNOSIS (7)

With CONSULT
1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A64” detected?

YES >> GO TO 17.
NO >> INSPECTION END

## 17. VISUALLY CHECK STROKE SENSOR

Check the stroke sensor for damage.

Is the inspection result normal?

YES >> GO TO 18.
NO >> Repair or replace error-detected parts and GO TO 21.

## 18. CHECK STROKE SENSOR INSTALLATION

Check the stroke sensor for looseness and disconnection.

Is the inspection result normal?

YES >> GO TO 19.
NO >> Repair or replace error-detected parts and GO TO 21.

## 19. CHECK BRAKE PEDAL HEIGHT

Check each brake pedal height. Refer to BR-202, "Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 20.
NO >> Adjust each height. Refer to BR-202, "Inspection and Adjustment". GO TO 21.

## 20. STROKE SENOR 0 POINT LEARNING (2)

Perform stroke sensor 0 point learning. Refer to BR-37, "Work Procedure".

>> GO TO 21.

## 21. PERFORM SELF-DIAGNOSIS (8)

With CONSULT
1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**

2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A64” detected?

YES >> GO TO 22.
NO >> INSPECTION END

## 22.CHECK STROKE SENSOR CIRCUIT

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Disconnect the stroke sensor harness connector.
4. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Disconnect the electrically-driven intelligent brake unit harness connector.
6. Check continuity between stroke sensor harness connector and electrically-driven intelligent brake unit.

| Stroke sensor | | Electrically-driven intelligent brake unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E36 | 3 | E34 | 19 | Existed |
| | 3 | | 35 | Not existed |
| | 3 | | 5 | Not existed |
| | 2 | | 19 | Not existed |
| | 2 | | 35 | Existed |
| | 2 | | 5 | Not existed |
| | 1 | | 19 | Not existed |
| | 1 | | 35 | Not existed |
| | 1 | | 5 | Existed |

Is the inspection result normal?

YES >> GO TO 23.
NO >> Repair or replace malfunctioning parts and GO TO 25.

## 23.CHECK STROKE SENSOR POWER

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
4. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
5. Check the stroke sensor power voltage.

| Stroke sensor | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E36 | 3 | Ground | 4.75 – 5.25 V |

Is the inspection result normal?

YES >> GO TO 24.
NO >> Repair or replace malfunctioning parts and GO TO 25.

## 24. CHECK STROKE SENSOR RESISTANCE

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Connect stroke sensor harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Disconnect the electrically-driven intelligent brake unit harness connector.
7. Check resistance between stroke sensor connector pin terminals.

| Electrically-driven intelligent brake unit | | Condition | Resistance |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 35 – 5 | Gradually depress the brake pedal. | Resistance value decreases between 0.1 – 1.33 kΩ, according to the depth of brake depression. |
| | 37 – 5 | | Resistance value increases between 0.1 – 1.33 kΩ, according to the depth of brake depression. |

Is the inspection result normal?

YES >> GO TO 26.
NO >> GO TO 25.

## 25. REPLACE STROKE SENSOR

Replace the stroke sensor. Refer to BR-211, "Removal and Installation".

>> GO TO 26.

## 26. STROKE SENOR 0 POINT LEARNING (3)

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Perform stroke sensor 0 point learning. Refer to BR-37, "Work Procedure".

>> GO TO 27.

## 27. PERFORM SELF-DIAGNOSIS (9)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A64” detected?

YES >> GO TO 22.

NO >> INSPECTION END

# C1A65 INCOMPLETE STROKE SENSOR

## DTC Logic

INFOID:0000000006960667

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A65 | STROKE SENSOR SET | Stroke sensor 0 point learning has not been completed. | Stroke sensor 0 point learning has not been performed. |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A65” detected?

YES >> Proceed to BR-76, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960668

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT

1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**

3. Repeat step 2 for 2 times or more.
**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
**CAUTION:**
**Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A65” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3.CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
**CAUTION:**
**Never depress brake pedal.**
2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.
4. Check that there is no malfunction in pin terminals and connection of stroke sensor harness connector.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4.PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect stroke sensor harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
**CAUTION:**
**Never engage READY state.**
5. Repeat step 4 for 2 times or more.
**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
**CAUTION:**
**Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A65” detected?

YES >> GO TO 5.
NO >> INSPECTION END

## 5.CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.

2. Connect stroke sensor harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
6. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
7. Disconnect the electrically-driven intelligent brake unit harness connector.
8. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
9. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

10. Turn the power switch ON.
    **CAUTION:**
    **Never engage READY state.**
11. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6.CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7.PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**

5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A65” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8. CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminals.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminals.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9. CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).
5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A65” detected?

YES >> GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**

8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 7 to 8 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A65” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE”ÅA“DATA MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation"

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT
1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A65” detected?

YES >> GO TO 15.
NO >> INSPECTION END

## 15. STROKE SENSOR 0 POINT LEARNING (1)

With CONSULT
Perform stroke sensor 0 point learning. Refer to BR-37, "Work Procedure".

Was either “COMPLETED” or “The operation is incomplete. Try again after confirming the operation condition.” displayed?

“COMPLETED”>>GO TO 16.
“The operation is incomplete. Try again after confirming the operation condition.”>>GO TO 17.

## 16. PERFORM SELF-DIAGNOSIS (7)

With CONSULT
1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A65” detected?

YES >> GO TO 17.
NO >> INSPECTION END

## 17. VISUALLY CHECK STROKE SENSOR

Check the stroke sensor for damage.

Is the inspection result normal?

YES >> GO TO 18.
NO >> Repair or replace error-detected parts and GO TO 21.

## 18. CHECK STROKE SENSOR INSTALLATION

Check the stroke sensor for looseness and disconnection.

Is the inspection result normal?

YES >> GO TO 19.
NO >> Repair or replace error-detected parts and GO TO 21.

## 19. CHECK BRAKE PEDAL HEIGHT

Check each brake pedal height. Refer to BR-202, "Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 20.
NO >> Adjust each height. Refer to BR-202, "Inspection and Adjustment". GO TO 21.

## 20. STROKE SENOR 0 POINT LEARNING (2)

Perform stroke sensor 0 point learning. Refer to BR-37, "Work Procedure".

>> GO TO 21.

## 21. PERFORM SELF-DIAGNOSIS (8)

With CONSULT
1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.

5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A65” detected?

YES >> GO TO 22.
NO >> INSPECTION END

## 22.CHECK STROKE SENSOR CIRCUIT

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Disconnect the stroke sensor harness connector.
4. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Disconnect the electrically-driven intelligent brake unit harness connector.
6. Check continuity between stroke sensor harness connector and electrically-driven intelligent brake unit.

| Stroke sensor | | Electrically-driven intelligent brake unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E36 | 3 | E34 | 19 | Existed |
| | 3 | | 35 | Not existed |
| | 3 | | 5 | Not existed |
| | 2 | | 19 | Not existed |
| | 2 | | 35 | Existed |
| | 2 | | 5 | Not existed |
| | 1 | | 19 | Not existed |
| | 1 | | 35 | Not existed |
| | 1 | | 5 | Existed |

Is the inspection result normal?

YES >> GO TO 23.
NO >> Repair or replace malfunctioning parts and GO TO 25.

## 23.CHECK STROKE SENSOR POWER

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
4. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
5. Check the stroke sensor power voltage.

| Stroke sensor | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E36 | 3 | Ground | 4.75 – 5.25 V |

Is the inspection result normal?

YES >> GO TO 24.
NO >> Repair or replace malfunctioning parts and GO TO 25.

## 24.CHECK STROKE SENSOR RESISTANCE

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Connect stroke sensor harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Disconnect the electrically-driven intelligent brake unit harness connector.
7. Check resistance between stroke sensor connector pin terminals.

| Electrically-driven intelligent brake unit | | Condition | Resistance |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 35 – 5 | Gradually depress the brake pedal. | Resistance value decreases between 0.1 – 1.33 kΩ, according to the depth of brake depression. |
| | 37 – 5 | | Resistance value increases between 0.1 – 1.33 kΩ, according to the depth of brake depression. |

Is the inspection result normal?

YES >> GO TO 26.
NO >> GO TO 25.

## 25. REPLACE STROKE SENSOR

Replace the stroke sensor. Refer to BR-211, "Removal and Installation".

>> GO TO 26.

## 26. STROKE SENOR 0 POINT LEARNING (3)

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Perform stroke sensor 0 point learning. Refer to BR-37, "Work Procedure".

>> GO TO 27.

## 27. PERFORM SELF-DIAGNOSIS (9)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A65” detected?

YES >> GO TO 22.
NO >> INSPECTION END

# C1A66 PRESSURE SENSOR

## DTC Logic

INFOID:0000000006960669

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A66 | MASTER PRESSURE SENSOR | • Open circuit is detected in master cylinder fluid pressure sensor 1 circuit.<br>• Short circuit is detected in master cylinder fluid pressure sensor 1 circuit.<br>• Malfunction is detected in master cylinder fluid pressure sensor 1. | • Harness or connector<br>• Master cylinder fluid pressure sensor 1 improper installation<br>• Master cylinder fluid pressure sensor 1<br>• Electrically-driven intelligent brake unit |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A66” detected?

YES >> Proceed to BR-85, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960670

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT
1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A66” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3. CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.
4. Check that there is no malfunction in pin terminals and connection of master cylinder fluid pressure sensor 1 harness connector.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4. PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect master cylinder fluid pressure sensor 1 harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A66” detected?

YES >> GO TO 5.
NO >> INSPECTION END

## 5. CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect master cylinder fluid pressure sensor 1 harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
6. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
7. Disconnect the electrically-driven intelligent brake unit harness connector.
8. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
9. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

10. Turn the power switch ON.
    **CAUTION:**
    **Never engage READY state.**
11. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6. CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7. PERFORM SELF-DIAGNOSIS (3)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A66” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8.CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminal

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9.CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).

4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).
5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#68).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A66” detected?

YES >> GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

8. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A66” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR (1)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.

**CAUTION:**
**Never engage READY state.**

4. Repeat step 3 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

5. Select “BRAKE” and “DATA MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT

1. Turn the power switch OFF to ON.

**CAUTION:**
**Never engage READY state.**

2. Repeat step 1 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

6. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A66” detected?

YES >> GO TO 15.
NO >> INSPECTION END

## 15. CHECK MASTER CYLINDER FLUID PRESSURE SENSOR 1 INSTALLATION

1. Turn the power switch OFF.
2. Check master cylinder fluid pressure sensor 1 for looseness and disconnection.

Is the inspection result normal?

YES >> GO TO 16.
NO >> Repair or replace malfunctioning parts and GO TO 16.

## 16. PERFORM SELF-DIAGNOSIS (7)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A66” detected?

YES >> GO TO 17.
NO >> INSPECTION END

## 17. CHECK MASTER CYLINDER FLUID PRESSURE SENSOR 1 CIRCUIT

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Disconnect master cylinder fluid pressure sensor 1 harness connector.
5. Disconnect the electrically-driven intelligent brake unit harness connector.
6. Check continuity between master cylinder fluid pressure sensor 1 harness connector and electrically-driven intelligent brake unit harness connector.

| Master cylinder fluid pressure sensor 1 | | Electrically-driven intelligent brake unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E31 | 3 | E34 | 21 | Existed |
| | 3 | | 7 | Not existed |
| | 3 | | 38 | Not existed |
| | 2 | | 21 | Not existed |
| | 2 | | 7 | Existed |
| | 2 | | 38 | Not existed |
| | 1 | | 21 | Not existed |
| | 1 | | 7 | Not existed |
| | 1 | | 38 | Existed |

Is the inspection result normal?

YES >> GO TO 18.
NO >> Repair or replace malfunctioning parts and GO TO 20.

## 18. CHECK MASTER CYLINDER FLUID PRESSURE SENSOR 1 POWER CIRCUIT

1. Turn the power switch OFF.
2. Connect the electrically-driven intelligent brake unit harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Connect the electrically-driven intelligent brake unit harness connector.
6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check the master cylinder fluid pressure sensor 1 power voltage.

| Master cylinder fluid pressure sensor 1 | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E31 | 3 | Ground | 4.75 – 5.25V |

Is the inspection result normal?

YES >> GO TO 19.
NO >> Repair or replace malfunctioning parts and GO TO 19.

## 19. CHECK DATA MONITOR (2)

With CONSULT
1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Connect master cylinder fluid pressure sensor 1 harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Select “BRAKE” and “DATA MONITOR” according this order.
7. Check “MASTER CYL PRESSURE”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 20.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 20. PERFORM SELF-DIAGNOSIS (8)

With CONSULT
1. Connect master cylinder fluid pressure sensor 1 harness connector.
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A66” detected?

YES >> GO TO 21.
NO >> INSPECTION END

## 21. CHECK MASTER CYLINDER PRESSURE SENSOR1

1. Turn the power switch OFF.
2. Connect following terminals between master cylinder pressure sensor1 and harness connector (test harness).

| Master cylinder pressure sensor1 | Harness connector | |
|---|---|---|
| | Connector | Terminal |
| 1 | E31 | 1 |
| 2 | | 2 |
| 3 | | 3 |

3. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
4. Check that the voltage between master cylinder pressure sensor1 harness connector changes with the depth of pedal depression.
   **CAUTION:**
   **Never short out the terminals while measuring voltages.**

| Master cylinder pressure sensor1 | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E31 | 1 – 2 | 0.5 – 4.5 V |

Is the inspection result normal?

YES >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".
NO >> Replace the master cylinder pressure sensor1. Refer to BR-221, "Removal and installation".

# C1A67 STOP LAMP SWITCH

## DTC Logic

INFOID:0000000006960671

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A67 | STOP LAMP SWITCH | Stop lamp switch signal is not input when brake pedal operates. | • Harness or connector<br>• Stop lamp switch<br>• Electrically-driven intelligent brake unit |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A67” detected?

YES >> Proceed to BR-94, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960672

#### 1.CHECK STOP LAMP FOR ILLUMINATION (1)

Depress the brake pedal to a depth of 100 mm or more and maintain the brake depression for 5 seconds or more to check that the stop lamp turns ON.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 4.

#### 2.CHECK STOP LAMP SWITCH CIRCUIT (1)

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Disconnect the electrically-driven intelligent brake unit harness connector.

5. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
6. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Test condition | Voltage |
|---|---|---|---|---|
| Connector | Terminal | | | |
| E34 | 13 | Ground | Brake pedal is depressed. | 10 – 16 V |
| | | | Brake pedal is not depressed. | Approximately 0 V |

7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Test condition | Voltage |
|---|---|---|---|---|
| Connector | Terminal | | | |
| E34 | 13 | Ground | Brake pedal is depressed. | 10 – 16 V |
| | | | Brake pedal is not depressed. | Approximately 0 V |

Is the inspection result normal?

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

## 3.CHECK STOP LAMP SWITCH CIRCUIT (2)

1. Turn the power switch OFF.
2. Disconnect stop lamp switch harness connector.
3. Check continuity between electrically-driven intelligent brake unit and stop lamp switch harness connector.

| Electrically-driven intelligent brake unit | | Stop lamp switch | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 13 | E102 | 2 | Existed |

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 5.

## 5.PERFORM SELF-DIAGNOSIS (1)

With CONSULT
1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
   **CAUTION:**

**Never engage READY state.**

7. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A67” detected?

YES >> GO TO 6.
NO >> INSPECTION END

## 6.CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.

**CAUTION:**
**Never depress brake pedal.**

2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.
4. Check that there is no malfunction in pin terminals and connection of stop lamp switch harness connector.

Is the inspection result normal?

YES >> GO TO 8.
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect stop lamp switch harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.

**CAUTION:**
**Never engage READY state.**

5. Repeat step 4 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

9. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A67” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8.CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.

**CAUTION:**
**Never depress brake pedal.**

5. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
6. Disconnect the electrically-driven intelligent brake unit harness connector.

7. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
8. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

9. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
10. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9.CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10.PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**

9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A67” detected?

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

## 11. CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminal

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 15.
NO >> GO TO 12.

## 12. CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).
5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 13.

## 13. PERFORM SELF-DIAGNOSIS (4)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A67” detected?

YES >> GO TO 14.
NO >> INSPECTION END

## 14. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 17.
NO >> Repair or replace malfunctioning parts and GO TO 15.

## 15. PERFORM SELF-DIAGNOSIS (5)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A67” detected?

YES >> GO TO 16.
NO >> INSPECTION END

## 16. CHECK DATA MONITOR

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE” and “DATA MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 17.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 17. PERFORM SELF-DIAGNOSIS (6)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A67” detected?

YES >> GO TO 18.
NO >> INSPECTION END

## 18. VISUALLY CHECK STOP LAMP SWITCH

Check the stop lamp switch for damage.

Is the inspection result normal?

YES >> GO TO 19.
NO >> Repair or replace error-detected parts and GO TO 28.

## 19. CHECK STOP LAMP SWITCH INSTALLATION

Check stop lamp switch for looseness and disconnection.

Is the inspection result normal?

YES >> GO TO 20.
NO >> Correct stop lamp switch installation or replace stop lamp switch. GO TO 28.

## 20. CHECK BRAKE PEDAL HEIGHT

Check each brake pedal height. Refer to BR-202, "Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 21.
NO >> Adjust each brake pedal height. Refer to BR-202, "Inspection and Adjustment". GO TO 28.

## 21. STROKE SENOR 0 POINT LEARNING

Perform stroke sensor 0 point learning. Refer to BR-37, "Work Procedure".

>> GO TO 22.

## 22. CHECK STOP LAMP FOR ILLUMINATION (2)

Depress the brake pedal to a depth of 100 mm or more and maintain the brake depression for 5 seconds or more to check that the stop lamp turns ON.

Is the inspection result normal?

YES >> Repair or replace malfunctioning parts and GO TO 28.
NO >> GO TO 23.

## 23. CHECK STOP LAMP SWITCH CLEARANCE

1. Turn the power switch OFF.
2. Check stop lamp clearance. Refer to BR-202, "Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 24.
NO >> Adjust stop lamp switch clearance. Refer to BR-202, "Inspection and Adjustment". GO TO 28.

## 24. CHECK STOP LAMP SWITCH CIRCUIT (3)

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Disconnect the electrically-driven intelligent brake unit harness connector.
5. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
6. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Test condition | Voltage |
|---|---|---|---|---|
| Connector | Terminal | | | |
| E34 | 13 | Ground | Brake pedal is depressed. | 10 – 16 V |
| | | | Brake pedal is not depressed. | Approximately 0 V |

7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Test condition | Voltage |
|---|---|---|---|---|
| Connector | Terminal | | | |
| E34 | 13 | Ground | Brake pedal is depressed. | 10 – 16 V |
| | | | Brake pedal is not depressed. | Approximately 0 V |

Is the inspection result normal?

YES >> GO TO 26.
NO >> GO TO 25.

## 25. CHECK STOP LAMP SWITCH CIRCUIT (4)

1. Turn the power switch OFF.
2. Disconnect stop lamp switch harness connector.
3. Check continuity between electrically-driven intelligent brake unit and stop lamp switch harness connector.

| Electrically-driven intelligent brake unit | | Stop lamp switch | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 13 | E102 | 2 | Existed |

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 26.

## 26.CHECK STOP LAMP SWITCH

Check the stop lamp switch.Refer to BR-102, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 27.
NO >> Replace the stop lamp switch. Refer to BR-211, "Removal and Installation". GO TO 28.

## 27.CHECK STOP LAMP FOR ILLUMINATION (3)

Depress the brake pedal to a depth of 100 mm or more and maintain the brake depression for 5 seconds or more to check that the stop lamp turns ON.

Is the inspection result normal?

YES >> GO TO 28.
NO >> Repair or replace malfunctioning parts and GO TO 28.

## 28.PERFORM SELF-DIAGNOSIS (3)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A67” detected?

YES >> GO TO 24.
NO >> INSPECTION END

# Component Inspection

INFOID:0000000006960673

## 1.CHECK STOP LAMP SWITCH

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Disconnect stop lamp switch harness connector.
4. Check continuity when stop lamp switch is operated.

| Stop lamp switch Terminal | Test condition | Continuity |
|---|---|---|
| 1 – 2 | When stop lamp switch is released (when brake pedal is depressed) | Existed |
| | When stop lamp switch is pressed (when brake pedal is released) | Not existed |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the stop lamp switch. Refer to BR-211, "Removal and Installation".

# C1A69 MOTOR

## DTC Logic

INFOID:0000000006960674

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A69 | MOTOR | A malfunction has occurred in the motor inside the electrically-driven intelligent brake unit. | Electrically-driven intelligent brake unit |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A69” detected?

YES >> Proceed to BR-104, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960675

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part and GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT

1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**

3. Repeat step 2 for 2 times or more.
**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
**CAUTION:**
**Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Was DTC “C1A69” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3.CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
**CAUTION:**
**Never depress the brake pedal.**
2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning part and GO TO 4.

## 4.PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
**CAUTION:**
**Never engage READY state.**
4. Repeat step 3 for 2 times or more.
**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
**CAUTION:**
**Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Was DTC “C1A69” detected?

YES >> GO TO 5.
NO >> INSPECTION END

## 5.CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF.

4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress the brake pedal.**
5. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
6. Disconnect the electrically-driven intelligent brake unit harness connector.
7. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
8. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

9. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
10. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6. CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning part and GO TO 7.

## 7. PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**

6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Was DTC “C1A69” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8.CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9.CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).
5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace the malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Was DTC “C1A69” detected?

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

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace the malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**

**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Was DTC “C1A69” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR (1)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE”, “DATA MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Was DTC “C1A69” detected?

YES >> GO TO 15.
NO >> INSPECTION END

## 15. CHECK DATA MONITOR (2)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**

4. Select “BRAKE”, “DATA MONITOR” according this order.
5. Check “MOTOR TEMPERATURE”. Refer to BR-23, "Reference Value".

“MOTOR TEMPERATURE” is 125 °C (257 °F) or more?

YES >> GO TO 16.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 16. CHECK MOTOR ROOM

Check for any locations of abnormal heating around the electrically-driven intelligent brake unit.

Are there any heated locations?

YES >> Perform diagnosis of the heated locations, and wait for the temperature to fall. GO TO 17.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 17. PERFORM SELF-DIAGNOSIS (7)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Was DTC “C1A69” detected?

YES >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".
NO >> INSPECTION END

# C1A6A CONTROL MODULE

## DTC Logic

INFOID:0000000006960676

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A6A | CONTROL MODULE TEMPERATURE | • Temperature of control module that is integrated with electrically-driven intelligent brake unit is as shown below.<br>- Control module temperature: 150 °C (302 °F) ≤ Control module<br>• A malfunction is detected in the temperature detection circuit of the control module that is integrated with the electrically-driven intelligent brake unit. | • Harness or connector<br>• Electrically-driven intelligent brake unit |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6A” detected?

YES >> Proceed to BR-111, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960677

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

## 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT
1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6A” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3.CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4.PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6A” detected?

YES >> GO TO 5.
NO >> INSPECTION END

## 5. CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
5. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
6. Disconnect the electrically-driven intelligent brake unit harness connector.
7. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
8. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

9. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
10. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6. CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7. PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.

3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6A” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8.CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9.CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).

5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (1)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6A” detected?

YES >> GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**

5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6A” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR (1)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE” and “DATA MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6A” detected?

YES >> GO TO 15.
NO >> INSPECTION END

## 15. CHECK DATA MONITOR (2)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Select “BRAKE” and “DATA MONITOR” according this order.
5. Check “CONTROL MODULE TEMP”. Refer to BR-23, "Reference Value".

“CONTROL MODULE TEMP” is 150 °C (302 °F) or more?

YES >> GO TO 16.
NO >> INSPECTION END

## 16. CHECK MOTOR ROOM

Check for any locations of abnormal heating around the electrically-driven intelligent brake unit.

Are there any heated locations?

YES >> Perform diagnosis of the heated locations, and wait for the temperature to fall. GO TO 17.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation"

## 17. PERFORM SELF-DIAGNOSIS (7)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6A” detected?

YES >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".
NO >> INSPECTION END

# C1A6B BRAKE POWER SUPPLY BACKUP UNIT

## DTC Logic

INFOID:0000000006960678

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A6B | POWER SUPPLY BACKUP UNIT | A malfunction of the brake power supply backup unit is detected. | • Harness or connector<br>• Fuse<br>• Brake power supply backup unit<br>• 12V battery is low |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6B” detected?

YES >> Proceed to BR-118, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960679

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT

1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".

2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6B” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3.CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.
4. Disconnect the brake power supply backup unit harness connector, then check for failures of pin terminals and connections.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4.PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect the brake power supply backup unit harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6B” detected?

YES >> GO TO 5.

NO >> INSPECTION END

## 5.CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect the brake power supply backup unit harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
6. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
7. Disconnect the electrically-driven intelligent brake unit harness connector.
8. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
9. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

10. Turn the power switch ON.
    **CAUTION:**
    **Never engage READY state.**
11. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6.CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7.PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.

3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6B” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8. CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9. CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).

5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6B” detected?

YES >> GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**

5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6B” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR (1)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE”, “DATE MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6B” detected?

YES >> GO TO 15.
NO >> INSPECTION END

## 15. CHECK BRAKE POWER SUPPLY BACKUP UNIT CIRCUIT

1. Turn the power switch OFF.

2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Disconnect the brake power supply backup unit harness connector.
5. Check continuity between electrically-driven intelligent brake unit and brake power supply backup unit.

| Electrically-driven intelligent brake unit | | Brake power supply backup unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 32 | B15 | 2 | Existed |
| | 32 | | 6 | Not existed |
| | 32 | | 4 | Not existed |
| | 8 | | 2 | Not existed |
| | 8 | | 6 | Existed |
| | 8 | | 4 | Not existed |
| | 10 | | 2 | Not existed |
| | 10 | | 6 | Not existed |
| | 10 | | 4 | Existed |

6. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 32 | Ground | Not existed |
| | 8 | | Not existed |
| | 10 | | Not existed |
| | 31 | | Existed |

Is the inspection result normal?

YES >> GO TO 16.
NO >> Repair or replace malfunctioning parts and GO TO 16.

## 16. CHECK DATA MONITOR (2)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect the brake power supply backup unit harness connector.
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE” and “DATA MONITOR” according this order.
6. Check “BACKUP UNIT DIAG RESULT”. Refer to BR-23, "Reference Value".

What was the displayed data monitor result?

“NORMAL”>>INSPECTION END
“ERR1”>> GO TO 17.
“ERR2”>> GO TO 18.
“ERR3”>> Replace the brake power supply backup unit. Refer to BR-223, "Removal and Installation".
“ERR4”>> Replace the brake power supply backup unit. Refer to BR-223, "Removal and Installation".
“ERR5”>> Replace the brake power supply backup unit. Refer to BR-223, "Removal and Installation".
“ERR6”>> Replace the brake power supply backup unit. Refer to BR-223, "Removal and Installation".
“ERR7”>> GO TO 19.
“ERR8”>> GO TO 17.
“ERR9”>> Replace the brake power supply backup unit. Refer to BR-223, "Removal and Installation".
“ERR10”>>Replace the brake power supply backup unit. Refer to BR-223, "Removal and Installation".
“ERR11”>>Replace the brake power supply backup unit. Refer to BR-223, "Removal and Installation".

"ERR12">>GO TO 17.
"ERR13">>Replace the brake power supply backup unit. Refer to BR-223, "Removal and Installation".
"ERR14">>Replace the brake power supply backup unit. Refer to BR-223, "Removal and Installation".
"ERR15">>GO TO 20.

## 17. CHECK CIRCUIT BETWEEN ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT AND BRAKE POWER SUPPLY BACKUP UNIT (1)

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Disconnect the brake power supply backup unit harness connector.
5. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 8 | Ground | Not existed |

Is the inspection result normal?

YES >> Replace the brake power supply backup unit. Refer to BR-223, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

## 18. CHECK CIRCUIT BETWEEN ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT AND BRAKE POWER SUPPLY BACKUP UNIT (2)

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Disconnect the brake power supply backup unit harness connector.
5. Check continuity between electrically-driven intelligent brake unit and brake power supply backup unit.

| Electrically-driven intelligent brake unit | | Brake power supply backup unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 10 | B15 | 4 | Existed |

6. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 10 | Ground | Not existed |

Is the inspection result normal?

YES >> Replace the brake power supply backup unit. Refer to BR-223, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

## 19. CHECK CIRCUIT BETWEEN ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT AND BRAKE POWER SUPPLY BACKUP UNIT (3)

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Disconnect the brake power supply backup unit harness connector.
5. Check continuity between electrically-driven intelligent brake unit and brake power supply backup unit.

| Electrically-driven intelligent brake unit | | Brake power supply backup unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 32 | B15 | 2 | Existed |

6. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 32 | Ground | Not existed |

Is the inspection result normal?

YES >> Replace the brake power supply backup unit. Refer to BR-223, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

## 20. CHECK BRAKE POWER SUPPLY BACKUP UNIT POWER

1. Turn the power switch OFF.
2. Close all doors including the trunk, and wait for 5 minutes or more.
3. Disconnect the brake power supply backup unit harness connector.
4. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
5. Check voltage between brake power supply backup unit and ground.

| Brake power supply backup unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| B15 | 3 | Ground | Approx. 9 – 16 V |

Is the inspection result normal?

YES >> Replace the brake power supply backup unit. Refer to BR-223, "Removal and Installation".
NO >> GO TO 21.

## 21. CHECK BRAKE POWER SUPPLY BACKUP UNIT POWER CIRCUIT

1. Check 15A fuse (#82).
2. Check continuity and for short circuit between harness connector terminal 3 of brake power supply backup unit and 15A fuse (#82).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts.

# C1A6C BRAKE POWER SUPPLY BACKUP UNIT

## DTC Logic

INFOID:0000000006960680

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A6C | POWER SUPPLY BACKUP UNIT VOLT | Power voltage of brake power supply backup unit is as shown below.<br>• Power voltage of brake power supply backup unit: 9 V ≥ Power voltage of brake power supply backup unit<br>• Power voltage of brake power supply backup unit: 16 V ≤ Power voltage of brake power supply backup unit | • Harness or connector<br>• Fuse<br>• Brake power supply backup unit<br>• 12V battery is low<br>• DC/DC-J/B is overvoltage |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6C” detected?

YES >> Proceed to BR-127, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960681

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT
1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6C” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3. CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.
4. Disconnect the brake power supply backup unit harness connector, then check for failures of pin terminals and connections.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4. PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect the brake power supply backup unit harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6C” detected?

YES >> GO TO 5.
NO >> INSPECTION END

## 5. CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect the brake power supply backup unit harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
6. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
7. Disconnect the electrically-driven intelligent brake unit harness connector.
8. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
9. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

10. Turn the power switch ON.
    **CAUTION:**
    **Never engage READY state.**
11. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6. CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7. PERFORM SELF-DIAGNOSIS (3)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect the IPDM E/R harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6C” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8.CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9.CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).

4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).
5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6C” detected?

YES >> GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

8. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6C” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.

**CAUTION:**
**Never engage READY state.**

4. Repeat step 3 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

5. Select “BRAKE”, “DATE MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT

1. Turn the power switch OFF to ON.

**CAUTION:**
**Never engage READY state.**

2. Repeat step 1 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

6. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6C” detected?

YES >> GO TO 15.
NO >> INSPECTION END

## 15. CHECK BRAKE POWER SUPPLY BACKUP UNIT POWER

1. Turn the power switch OFF.
2. Close all doors including the trunk, and wait for 5 minutes or more.
3. Disconnect the brake power supply backup unit harness connector.
4. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
5. Check voltage between brake power supply backup unit and ground.

| Brake power supply backup unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| B15 | 3 | Ground | Approx. 9 – 16 V |

Is the inspection result normal?

YES >> Replace the brake power supply backup unit. Refer to BR-223, "Removal and Installation".
NO (9 V or less) >>Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO (16 V or more) >>Perform diagnosis of the DC/DC-J/B. Refer to EVC-51, "CONSULT Function".

# C1A6D BRAKE POWER SUPPLY BACKUP UNIT

## DTC Logic

INFOID:0000000006960682

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A6D | POWER SUPPLY BACKUP UNIT OUTPUT | Output current of brake power supply backup unit backup line is as shown below.<br>• Output current of brake power supply backup unit: 60A ≤ Output current of brake power supply backup unit<br>• Input current of brake power supply backup unit: 30A ≤ Output current of brake power supply backup unit | • Harness or connector<br>• Brake power supply backup unit |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6D” detected?

YES >> Proceed to BR-134, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960683

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT
1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6D” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3. CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.
4. Disconnect the brake power supply backup unit harness connector, then check for failures of pin terminals and connections.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4. PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect the brake power supply backup unit harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6D” detected?

YES >> GO TO 5.
NO >> INSPECTION END

## 5.CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect the brake power supply backup unit harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
6. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
7. Disconnect the electrically-driven intelligent brake unit harness connector.
8. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
9. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

10. Turn the power switch ON.
    **CAUTION:**
    **Never engage READY state.**
11. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6.CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7.PERFORM SELF-DIAGNOSIS (3)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6D” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8.CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9.CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).

5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6D” detected?

YES >> GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**

5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6D” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE”, “DATE MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6D” detected?

YES >> GO TO 15.
NO >> INSPECTION END

## 15. CHECK CIRCUIT BETWEEN ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT AND BRAKE POWER SUPPLY BACKUP UNIT

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Disconnect the brake power supply backup unit harness connector.
5. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 32 | Ground | Not existed |

Is the inspection result normal?

YES >> Replace the brake power supply backup unit. Refer to BR-223, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

# C1A6E EV SYSTEM

## DTC Logic

INFOID:0000000006960684

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A6E | EV/HEV SYSTEM | Malfunction is detected in the VCM system. | • Harness or connector<br>• VCM |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6E” detected?

YES >> Proceed to BR-141, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960685

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT

1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**

3. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6E” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3.CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4.PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6E” detected?

YES >> GO TO 5.
NO >> INSPECTION END

## 5.CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF.

4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
5. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
6. Disconnect the electrically-driven intelligent brake unit harness connector.
7. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
8. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

9. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
10. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6. CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7. PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**

6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6E” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8.CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9.CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).
5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6E” detected?

YES >> GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**

**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6E” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE” and “DATA MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is any DTC “C1A6E” or “U1000” detected?

YES (“C1A6E”)>>GO TO 15.
YES (“U1000”)>>Refer to BR-170, "Diagnosis Procedure".
NO >> INSPECTION END

## 15. PERFORM VCM SELF DIAGNOSIS

Perform self-diagnosis for “EV/HEV”. Refer to EVC-51, "CONSULT Function".

Is any DTC detected?

YES >> Check the DTC. Refer to EVC-78, "DTC Index". GO TO 16.
NO >> GO TO 16.

## 16. PERFORM SELF-DIAGNOSIS (7)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6E” detected?

YES >> GO TO 15.
NO >> INSPECTION END

# C1A6F VCMSYSTEM

## DTC Logic

INFOID:0000000006960686

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A6F | TCM/VCM SYSTEM | Malfunction is detected in the VCM system. | • Harness or connector<br>• TCM |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6F” detected?

YES >> Proceed to BR-148, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960687

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT

1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**

3. Repeat step 2 for 2 times or more.
**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
**CAUTION:**
**Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6F” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3.CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
**CAUTION:**
**Never depress brake pedal.**
2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4.PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
**CAUTION:**
**Never engage READY state.**
4. Repeat step 3 for 2 times or more.
**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
**CAUTION:**
**Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6F” detected?

YES >> GO TO 5.
NO >> INSPECTION END

## 5.CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF.

4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
5. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
6. Disconnect the electrically-driven intelligent brake unit harness connector.
7. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
8. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

9. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
10. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6.CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts GO TO 7.

## 7.PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**

6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6F” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8.CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9.CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).
5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6F” detected?

YES >> GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**

**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6F” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE” and “DATA MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is any DTC “C1A6F” or “U1000” detected?

YES (“C1A6F”)>>GO TO 15.
YES (“U1000”)>>Refer to BR-170, "Diagnosis Procedure".
NO >> INSPECTION END

## 15. PERFORM VCM SELF DIAGNOSIS

Perform self-diagnosis for “EV/HEV”. Refer to EVC-51, "CONSULT Function".

Is any DTC detected?

YES >> Check the DTC. Refer to EVC-78, "DTC Index". GO TO 16.
NO >> GO TO 16.

## 16. PERFORM SELF-DIAGNOSIS (7)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A6F” detected?

YES >> GO TO 15.
NO >> INSPECTION END

# C1A70 BRAKE CONTROL SYSTEM

## DTC Logic

INFOID:0000000006960688

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A70 | BRAKE CONTROL SYSTEM | Malfunction is detected in ABS actuator control unit system. | • Harness or connector<br>• ABS actuator and electric unit (control unit) |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A70” detected?

YES >> Proceed to BR-155, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960689

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT

1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.
   **CAUTION:**

**Never engage READY state.**

3. Repeat step 2 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

7. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A70” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3. CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.

**CAUTION:**
**Never depress brake pedal.**

2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4. PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.

**CAUTION:**
**Never engage READY state.**

4. Repeat step 3 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

8. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A70” detected?

YES >> GO TO 5.
NO >> INSPECTION END

## 5. CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".

3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
5. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
6. Disconnect the electrically-driven intelligent brake unit harness connector.
7. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
8. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

9. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
10. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6. CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7. PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**

**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A70” detected?

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

## 8.CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9.CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).
5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A70” detected?

YES >> GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**

**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A70” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE” and “DATA MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is any DTC “C1A70” or “U1000” detected?

YES (“C1A70”)>>GO TO 15.
YES (“U1000”)>>Refer to BR-170, "Diagnosis Procedure".
NO >> INSPECTION END

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

Perform self-diagnosis for “ABS”. Refer to BRC-38, "CONSULT Function".

Is any DTC detected?

YES >> Check the DTC. Refer to BRC-48, "DTC Index". GO TO 16.
NO >> GO TO 16.

## 16. PERFORM SELF-DIAGNOSIS (3)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A70” detected?

YES >> GO TO 15.
NO >> INSPECTION END

# C1A74 STEERING ANGLE SENSOR

## DTC Logic

INFOID:0000000006960690

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| C1A74 | ST ANG SEN CIRCUIT | Malfunction is detected in the steering angle sensor system. | • Harness or connector<br>• ABS actuator and electric unit (control unit)<br>• Steering angle sensor |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A74” detected?

YES >> Proceed to BR-162, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960691

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT

1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.

**CAUTION:**
**Never engage READY state.**

3. Repeat step 2 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

7. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A74” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3.CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.

**CAUTION:**
**Never depress brake pedal.**

2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.

**CAUTION:**
**Never engage READY state.**

4. Repeat step 3 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

8. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A74” detected?

YES >> GO TO 5.
NO >> INSPECTION END

## 5.CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.

2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
5. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
6. Disconnect the electrically-driven intelligent brake unit harness connector.
7. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
8. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

9. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
10. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6. CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7. PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.

**CAUTION:**
**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

9. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “C1A74” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8. CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

7. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9. CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).
5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A74” detected?

YES >> GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**

**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “C1A74” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE” and “DATA MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is any DTC “C1A74” or “U1000” detected?

YES (“C1A74”)>>GO TO 15.
YES (“U1000”)>>Refer to BR-170, "Diagnosis Procedure".
NO >> INSPECTION END

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

Perform self-diagnosis for “ABS”. Refer to BRC-38, "CONSULT Function".

Is any DTC detected?

YES >> Check the DTC. Refer to BRC-48, "DTC Index". GO TO 16.
NO >> GO TO 16.

## 16. PERFORM SELF-DIAGNOSIS (3)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “C1A74” detected?

YES >> GO TO 15.
NO >> INSPECTION END

# U1000 CAN COMM CIRCUIT

## Description

INFOID:0000000006960692

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

## DTC Logic

INFOID:0000000006960693

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| U1000 | CAN COMM CIRCUIT | Electrically-driven intelligent brake unit did not receive / transmit the CAN communication signal for 2 seconds or more. | CAN communication system malfunction |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “U1000” detected?

YES >> Proceed to BR-169, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960694

Proceed to LAN-15, "Trouble Diagnosis Flow Chart".

# U1010 CONTROL UNIT (CAN)

## Description

INFOID:0000000006960695

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

## DTC Logic

INFOID:0000000006960696

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| U1010 | CONTROL UNIT (CAN) | A malfunction is detected at initial diagnosis of CAN controller of electrically-driven intelligent brake unit. | Electrically-driven intelligent brake unit |

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “U1010” detected?

YES >> Proceed to BR-170, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960697

#### 1.CHECK SELF-DIAGNOSIS RESULTS

Check for failures in the pin terminals and connections of the electrically-driven intelligent brake unit harness connector.

Is the inspection result normal?

YES >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

NO >> Repair or replace malfunctioning parts.

# U1510 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) COMMUNICATION

## DTC Logic

INFOID:0000000006960698

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| U1510 | BRAKE CONTROL COMMUNICATION | Signals from brake communications line* are not sent or received continuously for 4 seconds or more. | • Harness or connector<br>• Electrically-driven intelligent brake unit<br>• ABS actuator and electric unit (control unit) |

Communications line between electrically-driven intelligent brake unit and ABS actuator control unit

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “U1510” detected?

YES >> Proceed to BR-172, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960699

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT

1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “U1510” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3. CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4. PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “U1510” detected?

YES >> GO TO 5.

NO >> INSPECTION END

## 5.CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
5. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
6. Disconnect the electrically-driven intelligent brake unit harness connector.
7. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
8. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

9. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
10. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6.CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7.PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".

4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “U1510” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8. CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9. CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).
5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).

6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (1)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “U1510” detected?

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

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.

7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “U1510” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE” and “DATA MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “U1510” detected?

YES >> GO TO 15.
NO >> INSPECTION END

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

Perform self-diagnosis for “ABS”. Refer to BRC-38, "CONSULT Function".

Is DTC “U110D” detected?

YES >> Perform diagnosis. Refer to BRC-128, "Diagnosis Procedure".

NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

# U1511 BRAKE POWER SUPPLY BACKUP UNIT COMMUNICATION

## DTC Logic

INFOID:0000000006960700

### DTC DETECTION LOGIC

| DTC | Display item | Malfunction detection condition | Possible causes |
|---|---|---|---|
| U1511 | POWER SUPPLY BACKUP UNIT COMM | Signals from power backup communications line* are not sent or received continuously for 4 seconds or more. | • Harness or connector<br>• Electrically-driven intelligent brake unit<br>• Brake power supply backup unit |

Communications line between electrically-driven intelligent brake unit and brake power supply backup unit.

### DTC REPRODUCTION PROCEDURE

#### 1.PRECONDITIONING

If another “DTC CONFIRMATION PROCEDURE” was performed just before, turn the power switch OFF and wait for at least and wait for 10 seconds or more, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

With CONSULT

1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “U1511” detected?

YES >> Proceed to BR-179, "Diagnosis Procedure".
NO >> INSPECTION END

## Diagnosis Procedure

INFOID:0000000006960701

#### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT

1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “U1511” detected?

YES >> GO TO 3.
NO >> INSPECTION END

## 3. CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.
4. Disconnect the brake power supply backup unit harness connector, then check for failures of pin terminals and connections.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

## 4. PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect the brake power supply backup unit harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “U1511” detected?

YES >> GO TO 5.
NO >> INSPECTION END

## 5. CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
5. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
6. Disconnect the electrically-driven intelligent brake unit harness connector.
7. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
8. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

9. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
10. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6. CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7. PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.

3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “U1511” detected?

YES >> GO TO 8.
NO >> INSPECTION END

## 8.CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9.CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).

5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “U1511” detected?

YES >> GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**

5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is DTC “U1511” detected?

YES >> GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR (1)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE”, “DATE MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT
1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is DTC “U1511” detected?

YES >> GO TO 15.
NO >> INSPECTION END

## 15. CHECK BRAKE POWER SUPPLY BACKUP UNIT CIRCUIT

1. Turn the power switch OFF.

2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Disconnect the brake power supply backup unit harness connector.
5. Check continuity between electrically-driven intelligent brake unit and brake power supply backup unit.

| Electrically-driven intelligent brake unit | | Brake power supply backup unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 32 | B15 | 2 | Existed |
| | 32 | | 6 | Not existed |
| | 32 | | 4 | Not existed |
| | 8 | | 2 | Not existed |
| | 8 | | 6 | Existed |
| | 8 | | 4 | Not existed |
| | 10 | | 2 | Not existed |
| | 10 | | 6 | Not existed |
| | 10 | | 4 | Existed |

6. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 32 | Ground | Not existed |
| | 8 | | Not existed |
| | 10 | | Not existed |
| | 31 | | Existed |

Is the inspection result normal?

YES >> GO TO 16.
NO >> Repair or replace malfunctioning parts.

## 16. REPLACE BRAKE POWER SUPPLY BACKUP UNIT

With CONSULT

1. Replace the brake power supply backup unit. Refer to BR-223, "Removal and Installation".
2. Connect the electrically-driven intelligent brake unit harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close back door and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is DTC “U1511” detected?

YES >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

NO >> INSPECTION END

# POWER SUPPLY AND GROUND CIRCUIT

## Diagnosis Procedure

INFOID:0000000006960702

### 1.CHECK POWER OF ELECTRICALLY-DRIVEN BRAKE UNIT WHEN POWER SWITCH IS ON

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

5. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
6. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

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

### 2.CHECK POWER CIRCUIT OF ELECTRICALLY-DRIVEN BRAKE UNIT WHEN POWER SWITCH IS ON

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit harness connector and IPDM E/R harness connector.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform power diagnosis when power switch is ON. PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts.

### 3.CHECK 12V BATTERY POWER SUPPLY OF ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 1 | Ground | Battery voltage |
| | 2 | | |
| | 11 | | |

4. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
5. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 1 | Ground | Battery voltage |
| | 2 | | |
| | 11 | | |

Is the inspection result normal?

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

## 4. CHECK 12V BATTERY POWER SUPPLY CIRCUIT OF ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Check 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).
5. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
6. Check 10A fuse (#78).
7. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts.

## 5. CHECK 12V BATTERY POWER SUPPLY OF BRAKE POWER SUPPLY BACKUP UNIT

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Check voltage between brake power supply backup unit harness connector and ground.

| Brake power supply backup unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| B15 | 3 | Ground | Battery voltage |

4. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
5. Check voltage between brake power supply backup unit harness connector and ground.

| Brake power supply backup unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| B15 | 3 | Ground | Battery voltage |

Is the inspection result normal?

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

## 6. CHECK 12V BATTRY POWER CIRCUIT OF BRAKE POWER SUPPLY BACKUP UNIT

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Check 15A fuse (#82).
4. Check continuity and for short circuit between harness connector terminal 3 of brake power supply backup unit and 15A fuse (#82).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts.

## 7. CHECK ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT GROUND

Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 8.
NO >> Repair or replace malfunctioning parts.

## 8. CHECK BRAKE POWER SUPPLY BACKUP UNIT GROUND

Check continuity between brake power supply backup unit harness connector and ground.

| Brake power supply backup unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| B15 | 1 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 9.
NO >> Repair or replace malfunctioning parts.

## 9. CHECK TERMINAL

- Check for failures in the pin terminals and connections of the electrically-driven intelligent brake unit harness connector.
- Check that there is no malfunction in pin terminal and connection of IPDM E/R harness connector.
- Check for failures of pin terminals and connections in brake power supply backup unit harness connector.

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair or replace malfunctioning parts.

# WARNING BUZZER

## Diagnosis Procedure

INFOID:0000000006960703

### 1.CHECK POWER AND GROUND CIRCUITS OF ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

Perform diagnosis of electrically-driven intelligent brake unit power and ground circuits. BR-187, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts.

### 2.CHECK WARNING BUZZER CIRCUIT

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Disconnect buzzer harness connector.
5. Check continuity between electrically-driven intelligent brake unit and warning buzzer.

| Electrically-driven intelligent brake unit | | Warning buzzer | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 22 | M13 | 1 | Existed |
| | 25 | | 1 | Not existed |
| | 22 | | 2 | Not existed |
| | 25 | | 2 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning parts.

### 3.WARNING BUZZER INSPECTION

Check warning buzzer. Refer to BR-190, "Component Inspection".

Is the inspection result normal?

YES >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".
NO >> Replace the warning buzzer.

## Component Inspection

INFOID:0000000006960704

### 1.WARNING BUZZER INSPECTION

1. Turn the power switch OFF.
2. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
3. Disconnect buzzer harness connector.
4. Apply voltage of 12 V between warning buzzer connector terminals 1 and 2.

| Condition | Warning buzzer |
|---|---|
| Voltage applied | Sound |
| Voltage not applied | No sound |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the warning buzzer.

# BRAKE WARNING LAMP

## Component Function Check

INFOID:0000000006960705

### 1.CHECK BRAKE WARNING LAMP FUNCTION (1)

Check that brake warning lamp turns ON for approximately several second after power switch is turned ON.

**CAUTION:**

**Never engage READY state.**

Is the inspection result normal?

YES >> GO TO 2.
NO >> Refer to BR-191, "Diagnosis Procedure".

### 2.CHECK BRAKE WARNING LAMP FUNCTION (2)

Check that brake warning lamp in combination meter turns ON or OFF when brake fluid level switch is operated while brake fluid level in reservoir tank is at the specified level.

**NOTE:**

Brake warning lamp turns ON when brake fluid is less than the specified level (when brake fluid level switch is ON).

Is the inspection result normal?

YES >> INSPECTION END
NO >> Check brake fluid level switch system. Refer to BRC-109, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:0000000006960706

### 1.CHECK POWER AND GROUND CIRCUITS OF ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

Perform diagnosis of electrically-driven intelligent brake unit power and ground circuits. Refer to BR-187, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts.

### 2.PERFORM SELF-DIAGNOSIS

With CONSULT

Perform “BRAKE” and “ABS” self-diagnosis.

Is malfunction detected?

YES >> Check malfunctioning system.
- “BRAKE”: Refer to BR-27, "DTC Index".
- “ABS”: Refer to BRC-48, "DTC Index".

NO >> GO TO 3.

### 3.CHECK THAT BRAKE WARNING LAMP TURNS ON

Check combination meter. Refer to MWI-46, "CONSULT Function".

Is the inspection result normal?

YES >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".
NO >> Replace combination meter. Refer to MWI-89, "Removal and Installation".

# BRAKE SYSTEM WARNING LAMP

## Component Function Check

INFOID:0000000006960707

### 1.CHECK BRAKE SYSTEM WARNING LAMP FUNCTION

Check that brake system warning lamp turns ON for approximately several second after power switch is turned ON.

**CAUTION:**

**Never engage READY state.**

Is the inspection result normal?

YES >> INSPECTION END
NO >> Proceed to BR-192, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:0000000006960708

### 1.CHECK POWER AND GROUND CIRCUITS OF ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

Perform diagnosis of electrically-driven intelligent brake unit power and ground circuits. BR-187, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts.

### 2.PERFORM SELF-DIAGNOSIS

With CONSULT

Perform “BRAKE” and “ABS” self-diagnosis.

Is a malfunction detected?

YES >> Check the malfunctioning system.
- “BRAKE”: Refer to BR-27, "DTC Index".
- “ABS”: Refer to BRC-48, "DTC Index".

NO >> GO TO 3.

### 3.CHECK BRAKE SYSTEM WARNING LAMP ILLUMINATION

Check combination meter. Refer to MWI-46, "CONSULT Function".

Is the inspection result normal?

YES >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".
NO >> Replace combination meter. Refer to MWI-89, "Removal and Installation".

# SYMPTOM DIAGNOSIS

## UNEXPECTED BRAKE PEDAL REACTION

### Description

INFOID:0000000006960709

A malfunction of brake pedal feel (height or others) is detected when the brake pedal is depressed.

### Diagnosis Procedure

INFOID:0000000006960710

**1.** CHECK AXLE

Check that there is no significant looseness of axle.
- Front axle: Refer to FAX-7, "Inspection".
- Rear axle: Refer to RAX-5, "Inspection".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts.

**2.** CHECK DISC ROTOR

Check disc rotor runout.
- Front: Refer to BR-207, "DISC ROTOR : Inspection and Adjustment".
- Rear: Refer to BR-209, "DISC ROTOR : Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Grind disc rotor.

**3.** CHECK BRAKE FLUID LEACKAGE

CHECK BRAKE FLUID LEKAGE
- Front: Refer to BR-217, "FRONT : Inspection".
- Rear: Refer to BR-220, "REAR : Inspection".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace malfunctioning parts.

**4.** CHECK BRAKE PEDAL

Check the brake pedal items. Refer to BR-202, "Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Adjust the brake pedal items. Refer to BR-202, "Inspection and Adjustment".

**5.** CHECK BRAKING FORCE

Check the braking force.

Is the inspection result normal?

YES >> GO TO 6.
NO >> Check each component of 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 >> Normal
NO >> Check each component of brake system.

# THE BRAKING DISTANCE IS LONG

## Description

INFOID:0000000006960711

Brake stopping distance is long when ABS function is operated.

## Diagnosis Procedure

INFOID:0000000006960712

**CAUTION:**
**Brake stopping distance on slippery road like rough road, gravel road, or snowy road may become longer when ABS is not operated than when ABS is not operated.**

### 1.CHECK 12V BATTERY

1. Turn the power switch OFF.
2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow".
3. Check the 12V battery. Refer to PG-101, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and GO TO 2.

### 2.PERFORM SELF-DIAGNOSIS (1)

With CONSULT
1. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
3. Repeat step 2 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
4. Turn the power switch OFF.
5. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
6. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
7. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
9. Release brake pedal.
10. Repeat steps 8 to 9 for 3 times.
11. Perform “BRAKE” self-diagnosis.

Is DTC “C1A74” detected?

YES >> GO TO 3.
NO >> INSPECTION END

### 3.CHECK CONNECTOR TERMINALS

1. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
2. Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts and GO TO 4.

### 4.PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".

3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is any DTC detected?

YES >> Check the DTC. Refer to BR-27, "DTC Index". GO TO 5.
NO >> INSPECTION END

## 5. CHECK POWER SWITCH ON POWER SUPPLY

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
   **CAUTION:**
   **Never depress brake pedal.**
5. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
6. Disconnect the electrically-driven intelligent brake unit harness connector.
7. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
8. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Approximately 0 V |

9. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
10. Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Voltage |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

## 6. CHECK POWER SWITCH ON POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Check 15A fuse (#62).
4. Disconnect IPDM E/R harness connector.
5. Check continuity between electrically-driven intelligent brake unit and IPDM E/R.

| Electrically-driven intelligent brake unit | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E34 | 26 | E15 | 62 | Existed |

6. Check continuity between electrically-driven intelligent brake unit harness connector and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 26 | Ground | Not existed |

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to PG-59, "Wiring Diagram - ON POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 7.

## 7. PERFORM SELF-DIAGNOSIS (3)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect IPDM E/R harness connector.
3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
4. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
5. Repeat step 4 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
6. Turn the power switch OFF.
7. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
8. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
9. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
11. Release brake pedal.
12. Repeat steps 10 to 11 for 3 times.
13. Perform “BRAKE” self-diagnosis.

Is any DTC detected?

YES >> Check the DTC. Refer to BR-27, "DTC Index". GO TO 8.
NO >> INSPECTION END

## 8. CHECK 12V BATTERY POWER SUPPLY

1. Turn the power switch OFF.
2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
5. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

6. Turn the power switch ON.
   **CAUTION:**

**Never engage READY state.**

7. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

| Electrically-driven intelligent brake unit | | Voltage |
|---|---|---|
| Connector | Terminal | |
| E34 | 1 – 31 | 10 – 16 V |
| | 2 – 31 | |
| | 11 – 31 | |

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

## 9. CHECK 12V BATTERY POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.
2. Check 60A fusible link (#F).
3. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).
4. Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
5. Check 10A fuse (#78).
6. Check continuity and for short circuit between harness connector terminal 11 of electrically-driven intelligent brake unit and 10A fuse (#78).

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace malfunctioning parts and GO TO 10.

## 10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT

1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is any DTC detected?

YES >> Check the DTC. Refer to BR-27, "DTC Index". GO TO 11.
NO >> INSPECTION END

## 11. CHECK GROUND CIRCUIT

1. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
2. Disconnect the electrically-driven intelligent brake unit harness connector.
3. Check continuity between electrically-driven intelligent brake unit and ground.

| Electrically-driven intelligent brake unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E34 | 31 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair or replace malfunctioning parts and GO TO 12.

## 12. PERFORM SELF-DIAGNOSIS (5)

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Turn the power switch OFF.
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
7. Turn the power switch ON.
   **CAUTION:**
   **Never engage READY state.**
8. Erase self-diagnosis result of “BRAKE”.
   **CAUTION:**
   **Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**
9. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
10. Release brake pedal.
11. Repeat steps 9 to 10 for 3 times.
12. Perform “BRAKE” self-diagnosis.

Is any DTC detected?

YES >> Check the DTC. Refer to BR-27, "DTC Index". GO TO 13.
NO >> INSPECTION END

## 13. CHECK DATA MONITOR

With CONSULT
1. Connect the electrically-driven intelligent brake unit harness connector.
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
3. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
4. Repeat step 3 for 2 times or more.
   **CAUTION:**
   **Be sure to wait for 5 seconds or more after turning the power switch OFF.**
5. Select “BRAKE” and “DATA MONITOR” according this order.
6. Check “MOTOR POWER SUPPLY” and “CONTROL MODULE POWER”. Refer to BR-23, "Reference Value".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace the electrically-driven intelligent brake unit. Refer to BR-221, "Removal and installation".

## 14. PERFORM SELF-DIAGNOSIS (6)

With CONSULT
1. Turn the power switch OFF to ON.
   **CAUTION:**
   **Never engage READY state.**
2. Repeat step 1 for 2 times or more.
   **CAUTION:**

**Be sure to wait for 5 seconds or more after turning the power switch OFF.**

3. Turn the power switch OFF.
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.
5. Turn the power switch ON.

**CAUTION:**
**Never engage READY state.**

6. Erase self-diagnosis result of “BRAKE”.

**CAUTION:**
**Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.**

7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
8. Release brake pedal.
9. Repeat steps 7 to 8 for 3 times.
10. Perform “BRAKE” self-diagnosis.

Is any DTC detected?

YES >> Check the DTC. Refer to BR-27, "DTC Index".
NO >> GO TO 15.

## 15. CHECK BRAKING FORCE

Check the braking force.

Is the inspection result normal?

YES >> GO TO 16.
NO >> Check each component of brake system.

## 16. CHECK BRAKE PERFORMANCE

Turn the power switch OFF. Disconnect ABS actuator control unit harness 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 >> Normal
NO >> Check each component of brake system.

# VEHICLE JERKS DURING

## Description

INFOID:0000000006960713

The vehicle jerks when VDC function, TCS function, ABS function, EBD function, or brake LSD function operates.

## Diagnosis Procedure

INFOID:0000000006960714

### 1.CHECK SYMPTOM

Check whether or not the vehicle jerks when VDC function, TCS function, ABS function, EBD function, or brake LSD function operates.

Is the inspection result normal?

YES >> Normal
NO >> GO TO 2.

### 2.PERFORM SELF-DIAGNOSIS

With CONSULT
Perform self-diagnosis for “BRAKE” and “ABS”.

Is any DTC detected?

YES >> Check the DTC.
- “BRAKE”: Refer to BR-27, "DTC Index".
- “ABS”: Refer to BRC-48, "DTC Index"

NO >> GO TO 3.

### 3.CHECK CONNECTOR

With CONSULT
1. Turn the power switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector.
3. Disconnect the electrically-driven intelligent brake unit harness connector.
4. Check connector terminal for deformation, disconnection, or looseness.
5. Connect harness connector and perform self-diagnosis for “ABS” again.

Is the inspection result normal?

YES >> GO TO 4.
NO >> Poor connection of connector terminal. Repair or replace connector terminal.

### 4.CHECK VCM SELF DIAGNOSIS RESULT ITEMS

With CONSULT
Perform self-diagnosis for “EV/HEV”. Refer to EVC-51, "CONSULT Function".

Is any DTC detected?

YES >> Check the DTC. Refer to EVC-78, "DTC Index".
NO >> Replace ABS actuator and electric unit (control unit). Refer to BRC-152, "Removal and Installation".

# NORMAL OPERATING CONDITION

## Description

INFOID:0000000006960715

| Symptom | Result |
|---|---|
| The brake pedal may move during braking. | This occurs when the electrically-driven intelligent brake unit is operating normally and is not a malfunction. |
| When the brake pedal is depressed while the power switch is OFF, an operating sound may occur or the pedal stroke may feel short. | |
| There may be an operating noise or the brake pedal may move after the brake pedal is operated. | |
| An operating noise may occur when the power switch is turned OFF (system stop sound). | |
| The brake pedal may move when ABS is activated immediately after the READY state of the vehicle. | |

# PERIODIC MAINTENANCE

## BRAKE PEDAL

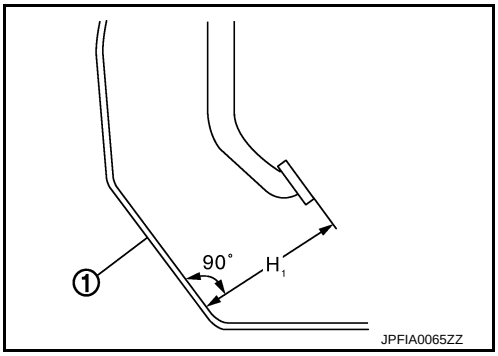
### Inspection and Adjustment

INFOID:0000000006960716

#### INSPECTION

Brake Pedal Height

Check the height from the dash lower panel (1) to the top face of the brake pedal ($H_1$).

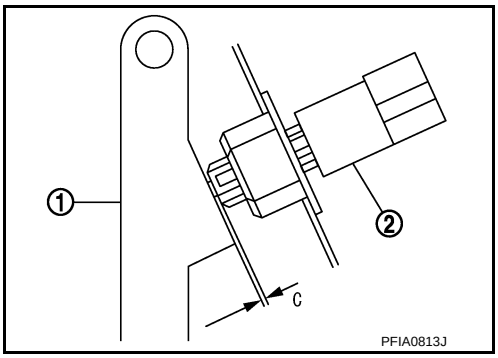



**$H_1$ : Refer to BR-240, "Brake Pedal".**

**CAUTION:**
**Perform with the floor trim pulled up.**

Stop Lamp Switch and ASCD Brake Switch

Check the clearance (C) between brake pedal lever (1) and the threaded end of stop lamp switch and ACSD brake switch (2).

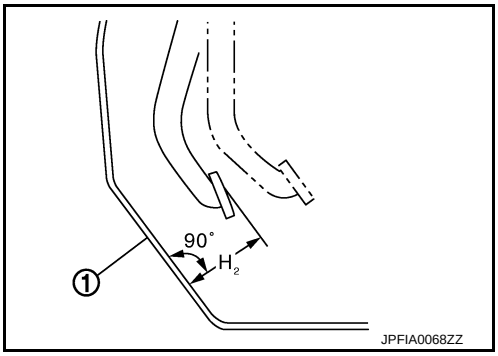



**C : Refer to BR-240, "Brake Pedal".**

**CAUTION:**
**The stop lamp must turn OFF when the brake pedal is released.**
**NOTE:**
When checking the clearance between the brake pedal lever and threaded end of stop lamp switch and ACSD brake switch, check with the brake pedal (pad) pulled gently toward you.

Pedal Height When Depressed

Check the height from the dash lower panel (1) to the top face of the brake pedal ($H_2$) when depressing the brake pedal with a force of 196 N (20 kg, 44 lb) while the vehicle is in READY state.




**$H_2$ : Refer to BR-240, "Brake Pedal".**

**CAUTION:**
**Perform with the floor trim pulled up.**

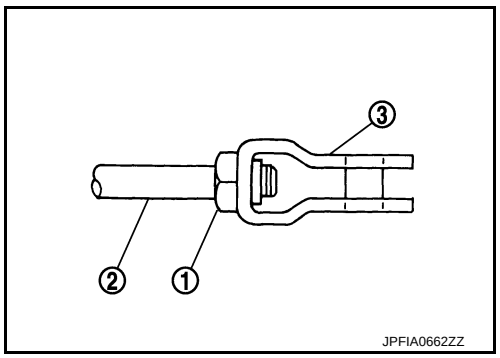
#### ADJUSTMENT

Brake Pedal Height

1. Remove the instrument lower panel. Refer to IP-13, "Removal and Installation".
2. Disconnect the stop lamp switch and ASCD brake switch harness connectors.
3. Rotate the stop lamp switch and ASCD brake switch counterclockwise by 45° to loosen them.

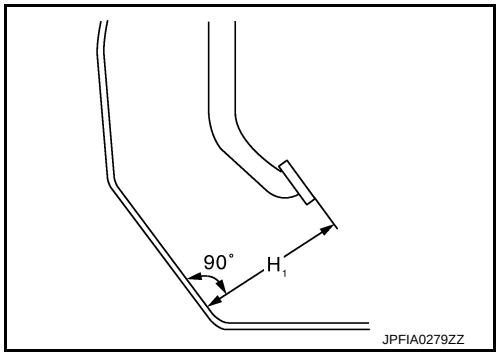
4. Loosen the input rod lock nut (1).
5. Rotate the input rod (2), and adjust the brake pedal to the specified height ($H_1$).

**CAUTION:**
**The threaded part of the input rod end must project to the inside of the crevice (3).**




**$H_1$ : Refer to BR-240, "Brake Pedal".**

6. Tighten the lock nut to the specified torque. BR-221, "Exploded View".
7. After adjusting the brake pedal height, adjust the clearance between the stopper rubber and threaded end of stop lamp switch and ASCD brake switch.
8. Perform stroke sensor 0 point learning when the brake pedal assembly is removed and installed, or replaced. Refer to BR-37, "Work Procedure".



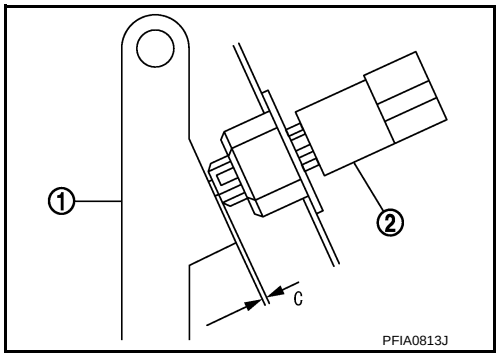

Stop Lamp Switch and ASCD Brake Switch

1. Remove the instrument lower panel. Refer to IP-13, "Removal and Installation".
2. Disconnect the stop lamp switch and ASCD brake switch harness connectors.
3. Rotate the stop lamp switch and ASCD brake switch counterclockwise by 45° to loosen them.
4. With the brake pedal (pad) pulled gently toward you, press in until the threaded end of stop lamp switch and ASCD brake switch (2) contacts the brake pedal lever (1). Under those conditions, rotate 45° to the right to fasten it in place.

**CAUTION:**
- **Clearance (C) between the brake pedal lever and threaded end of stop lamp switch and ASCD brake switch must be the specified value.**

**C : Refer to BR-240, "Brake Pedal".**

- **The stop lamp must turn OFF when the brake pedal is released.**




5. Perform stroke sensor 0 point learning when the brake pedal assembly is removed and installed, or replaced. Refer to BR-37, "Work Procedure".

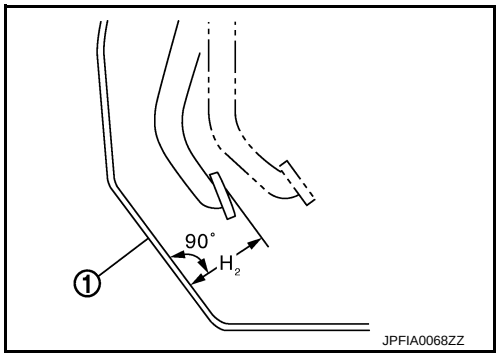
Pedal Height When Depressed

1. Perform air bleeding. BR-205, "Bleeding Brake System".
2. Check the height from the dash lower panel (1) to the top face of the brake pedal ($H_2$) when depressing the brake pedal with a force of 196 N (20 kg, 44 lb) while the vehicle is in READY state.

**$H_2$ : Refer to BR-240, "Brake Pedal".**

**CAUTION:**
**Perform with the floor trim pulled up.**

3. Adjust the brake pedal height, and the clearance with the stop lamp switch and ASCD brake switch.
4. Perform stroke sensor 0 point learning when the brake pedal assembly is removed and installed, or replaced. Refer to BR-37, "Work Procedure".



# BRAKE FLUID

## Inspection

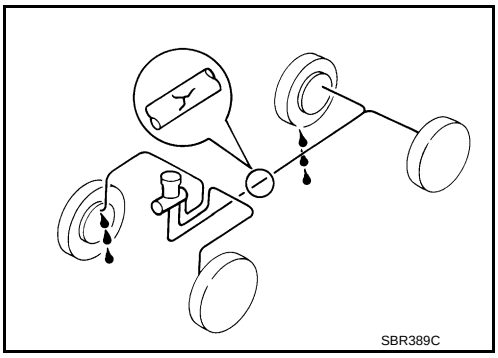
INFOID:0000000006960717

### CHECK BRAKE FLUID LEVEL

- Check that the brake fluid level in the reservoir tank is within the standard (between MAX – MIN lines).
- Visually check around the reservoir tank for brake fluid leakage.
- If the brake fluid level is extremely low (below the MIN line), check the amount of brake fluid and check for brake fluid leaks in the brake system.
- Check for dirt or other foreign material inside the reservoir tank, and check that no oil other than the designated brake fluid has entered the system.

### BRAKE PIPING

1. Check for cracking and damage to brake piping (tubes and hoses). If any abnormality is found, replace the pipe.
2. With the vehicle in READY state, depress the brake pedal with a force of 785 N (80 kg) and hold down the pedal for approximately 5 seconds. Check for any brake fluid leakage.
   **CAUTION:**
   **If brake fluid leakage has occurred, retighten all parts to the specified torque. If any abnormalities are found, replace the part.**



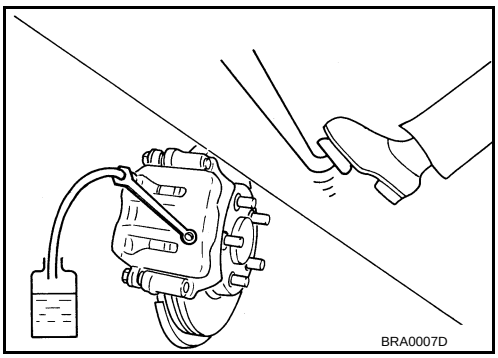

## Draining

INFOID:0000000006960718

**CAUTION:**

- **Never allow brake fluid to contact the body or other painted surfaces. Brake fluid may damage paint. If it contacts a painted surface, wipe it off immediately and wash with water. However avoid washing brake components with water.**
- **Before performing work, turn the power switch OFF and disconnect the ABS actuator control unit harness connector or disconnect the 12V battery cable from the negative terminal. Refer to PG-104, "Removal and Installation".**
- **If brake fluid contacts the disc rotor or brake caliper assembly, wipe it off immediately.**

1. Connect a vinyl tube to air bleeder.
2. Depress the brake pedal and loosen the air bleeder to gradually discharge brake fluid.




## Refilling

INFOID:0000000006960719

**CAUTION:**

- **Before performing work, turn the power switch OFF and disconnect the ABS actuator control unit harness connector or disconnect the battery cable from the negative terminal.**
- **If brake fluid contacts the disc rotor or brake caliper assembly, wipe it off immediately.**

1. Make sure that there is no foreign material in the reservoir tank, and refill with new brake fluid.
   **CAUTION:**
   - **Never reuse drained brake fluid.**
   - **Never allow any oils other than the designated brake fluid to enter the system.**

2. Loosen the air bleeder, slowly depress the brake pedal to the full stroke, and then release the pedal. Repeat this operation at intervals of 2 or 3 seconds until all of the brake fluid is discharged. Then close the air bleeder with the brake pedal depressed. Repeat the same work on each wheel.
3. Perform air bleeding. BR-205, "Bleeding Brake System".

## Bleeding Brake System

INFOID:0000000006960720

**CAUTION:**
- **Turn ON the power switch when performing the procedure.**
- **Monitor the brake fluid level in the reservoir tank while performing the air bleeding.**
- **Never allow brake fluid to contact the body or other painted surfaces. Brake fluid may damage paint. If it contacts a painted surface, wipe it off immediately and wash with water. However avoid washing brake components with water.**
- **If brake fluid contacts the disc rotor or brake caliper assembly, wipe it off immediately.**

1. Make sure that there is no foreign material in the reservoir tank, and refill with new brake fluid.
   **CAUTION:**
   - **Never reuse drained brake fluid.**
   - **Never allow any oils other than the designated brake fluid to enter the system.**
2. Connect a vinyl tube to the rear left wheel air bleeder.
3. Fully depress the brake pedal 4 to 5 times.
4. Loosen the air bleeder and bleed air with the brake pedal depressed, then quickly tighten the bleeder valve.
5. Repeat steps 2 to 3 until all of the air is out of the brake line.
6. Tighten the air bleeder to the specified torque.
   - Front disc brake: Refer to BR-226, "BRAKE CALIPER ASSEMBLY : Exploded View".
   - Rear disc brake: Refer to BR-234, "BRAKE CALIPER ASSEMBLY : Exploded View".
7. Perform steps 2 to 6. Occasionally fill with the brake fluid in order to keep it in the reservoir tank to at least half of the MAX line. Bleed air in the following order: rear right brake → front left brake → rear left brake → front right brake.
8. Check that the brake fluid level in the reservoir tank is within the specified range after air bleeding.
9. Check the brake pedal items, and adjust if any are not within the standard values. Refer to BR-202, "Inspection and Adjustment".

# ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

## Inspection

INFOID:0000000006960721

### Brake fluid leakage

Check for brake fluid leakage from the brake tube connections and the electrically-driven intelligent brake unit.

# FRONT DISC BRAKE

## BRAKE PAD

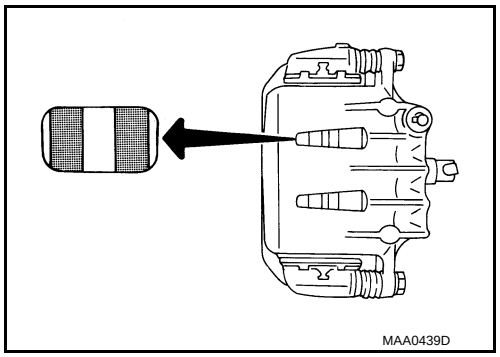
### BRAKE PAD : Inspection and Adjustment

INFOID:0000000006960722

#### Brake pad wear inspection

Check the brake pad thickness from the inspection hole in the cylinder body. Use a scale to check if necessary.

**Wear limit thickness** : **Refer to BR-240, "Front Disc Brake".**




#### ADJUSTMENT

If the brake pad is ground or replaced, or if there is an abnormal feel to the braking force, follow the procedure below and perform break-in work.

**CAUTION:**

- **Because the brake effectiveness is reduced, pay sufficient attention to the vehicle speed.**
- **Perform checks on a safe road and be careful of the traffic conditions.**

1. Drive on straight and flat roads.
2. Stop the vehicle by depressing the brake pedal to generate braking force that stops the vehicle in 3 to 5 seconds.
3. Cool the brakes.
4. Repeat steps 1 to 3 until the abnormal feel in braking force disappears.

## DISC ROTOR

### DISC ROTOR : Inspection and Adjustment

INFOID:0000000006960723

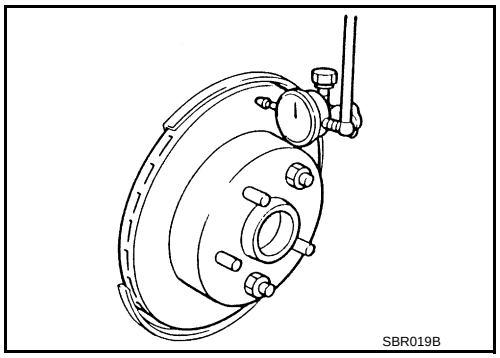
#### Visual inspection

Check surface of the disc rotor for uneven wear, cracks, and serious damage. Replace if necessary. Refer to FAX-9, "Removal and Installation".

#### RUNOUT INSPECTION

1. Use the wheel nuts and fasten the disc rotor to the wheel hub assembly (minimum 2 positions).
2. Check axial end play of wheel hub assembly. FAX-7, "Inspection".
3. Check runout using a dial indicator (at 10 mm from outer edge of disc rotor).

**Maximum runout (vehicle stopped)** : **Refer to BR-240, "Front Disc Brake".**




4. If runout is outside the specified value, find the minimum runout point by shifting mounting positions of the disc rotor and wheel hub by one hole.
5. Perform grinding of disc rotor if runout is outside the specified value after performing the above operation.

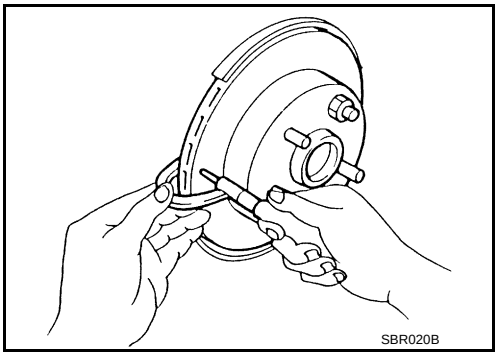
**CAUTION:**

- **Perform grinding of disc rotor if disc rotor thickness is 0.3 mm or more above the wear limit thickness.**
- **Replace disc rotor if disc rotor thickness is less than 0.3 mm above the wear limit thickness. Refer to FAX-9, "Removal and Installation".**

**Wear limit thickness** : **Refer to BR-240, "Front Disc Brake".**

THICKNESS INSPECTION

Check thickness of the disc rotor using a micrometer. Replace disc rotor if thickness is under the wear limit. FAX-9, "Removal and Installation".




**Wear limit thickness** : **Refer to BR-240, "Front Disc Brake".**

ADJUSTMENT

If the brake pad is ground or replaced, or if there is an abnormal feel to the braking force, follow the procedure below and perform break-in work.

**CAUTION:**

- **Because the brake effectiveness is reduced, pay sufficient attention to the vehicle speed.**
- **Perform checks on a safe road and be careful of the traffic conditions.**

1. Drive on straight and flat roads.
2. Stop the vehicle by depressing the brake pedal to generate braking force that stops the vehicle in 3 to 5 seconds.
3. Cool the brakes.
4. Repeat steps 1 to 3 until the abnormal feel in braking force disappears.

# REAR DISC BRAKE

## BRAKE PAD

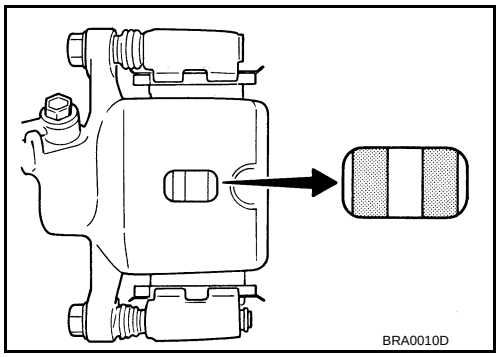
### BRAKE PAD : Inspection and Adjustment

INFOID:0000000006960724

#### Brake pad wear inspection

Check the brake pad thickness from the inspection hole in the cylinder body. Use a scale to check it if necessary.

**Wear limit thickness** : **Refer to BR-240, "Rear Disc Brake".**




#### ADJUSTMENT

If the brake pad is ground or replaced, or if there is an abnormal feel to the braking force, follow the procedure below and perform break-in work.

**CAUTION:**

- **Because the brake effectiveness is reduced, pay sufficient attention to the vehicle speed.**
- **Perform checks on a safe road and be careful of the traffic conditions.**

1. Drive on straight and flat roads.
2. Stop the vehicle by depressing the brake pedal to generate braking force that stops the vehicle in 3 to 5 seconds.
3. Cool the brakes.
4. Repeat steps 1 to 3 until the abnormal feel in braking force disappears.

## DISC ROTOR

### DISC ROTOR : Inspection and Adjustment

INFOID:0000000006960725

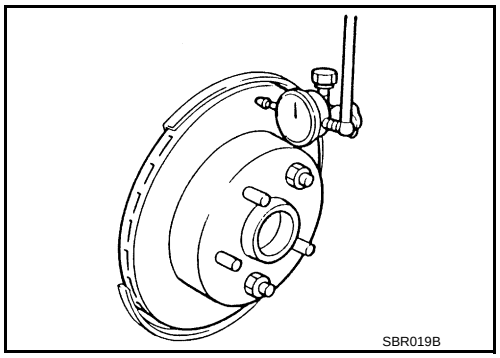
#### Visual inspection

Check surface of the disc rotor for uneven wear, cracks, and serious damage. Replace if necessary. Refer to RAX-6, "Removal and Installation".

#### RUNOUT INSPECTION

1. Use the wheel nuts and fasten the disc rotor to the wheel hub assembly (minimum 2 positions).
2. Check axial end play of wheel hub assembly. RAX-5, "Inspection".
3. Check runout using a dial indicator (at 10 mm from outer edge of disc rotor).

**Maximum runout (vehicle stopped)** : **Refer to BR-240, "Rear Disc Brake".**




4. If runout is outside the specified value, find the minimum runout point by shifting mounting positions of the disc rotor and wheel hub by one hole.
5. Perform grinding of disc rotor if runout is outside the specified value after performing the above operation.

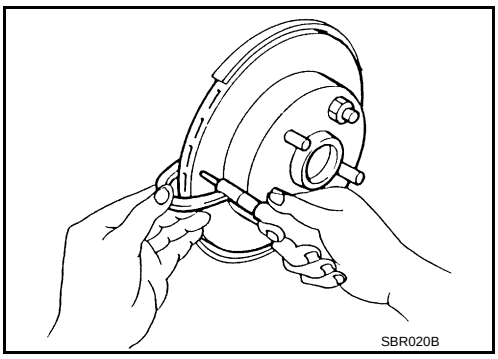
**CAUTION:**

- **Perform grinding of disc rotor if disc rotor thickness is 0.3 mm or more above the wear limit thickness.**
- **Replace disc rotor if disc rotor thickness is less than 0.3 mm above the wear limit thickness. Refer to RAX-6, "Removal and Installation".**

**Wear limit thickness** : **Refer to BR-240, "Rear Disc Brake".**

THICKNESS INSPECTION

Check thickness of the disc rotor using a micrometer. Replace disc rotor if thickness is under the wear limit. Refer to RAX-6, "Removal and Installation".




**Wear limit thickness** : **Refer to BR-240, "Rear Disc Brake".**

ADJUSTMENT

If the brake pad is ground or replaced, or if there is an abnormal feel to the braking force, follow the procedure below and perform break-in work.

**CAUTION:**

- **Because the brake effectiveness is reduced, pay sufficient attention to the vehicle speed.**
- **Perform checks on a safe road and be careful of the traffic conditions.**

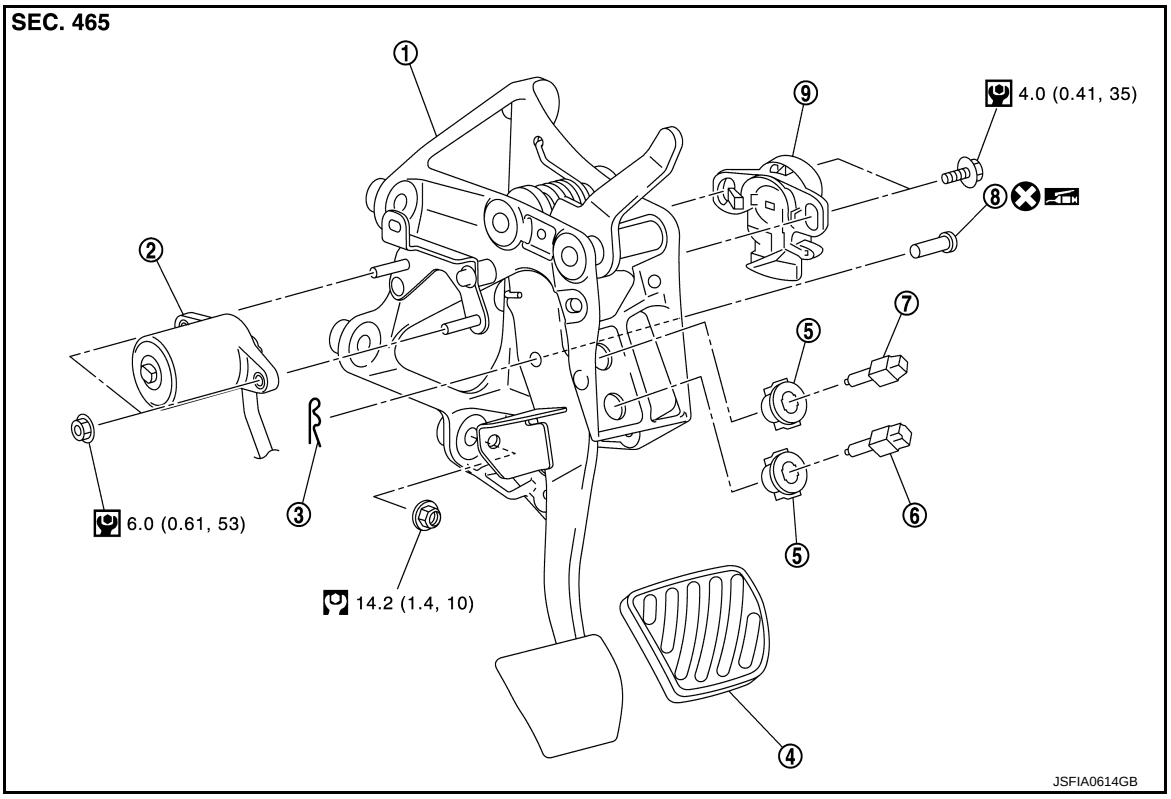
1. Drive on straight and flat roads.
2. Stop the vehicle by depressing the brake pedal to generate braking force that stops the vehicle in 3 to 5 seconds.
3. Cool the brakes.
4. Repeat steps 1 to 3 until the abnormal feel in braking force disappears.

# REMOVAL AND INSTALLATION

## BRAKE PEDAL

### Exploded View

INFOID:0000000006960726




1. Brake pedal assembly
2. Hysteresis unit assembly
3. Snap pin
4. Brake pedal pad
5. Clip
6. ASCD brake switch
7. Stop lamp switch
8. Clevis pin
9. Pedal stroke sensor

: Apply multi-purpose grease.

: Always replace after every disassembly.

: N·m (kg-m, ft-lb)

### Removal and Installation

INFOID:0000000006960727

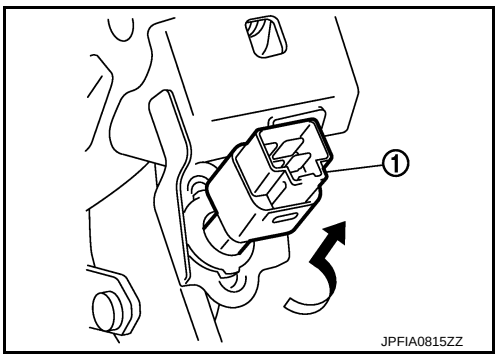
#### REMOVAL

**CAUTION:**

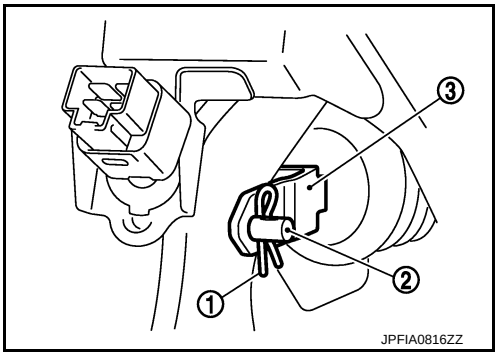
**Prevent impact on brake pedal assembly. To prevent damage to the parts, never drop brake pedal assembly.**

1. Remove instrument lower panel. Refer to IP-13, "Removal and Installation".
2. Disconnect stop lamp switch and ASCD brake switch harness connector.
3. Disconnect stop pedal stroke sensor harness connector.

4. Rotate the stop lamp switch and the ASCD brake switch (1) counter clockwise to remove.




5. Remove snap pin (1) and clevis pin (2) from clevis (3) of electrically-driven intelligent brake.
6. Disconnect the accelerator pedal harness connector.
7. Slide the steering column assembly downward. Refer to ST-10, "Removal and Installation".
8. Remove the brake pedal assembly.
   **CAUTION:**
   - **To prevent damage to the parts, hold the electrically-driven intelligent brake unit so as not to drop out or contact them other parts.**
   - **To prevent damage to the parts, never full stroke the brake pedal assembly. Replace brake pedal assembly when brake pedal was full stroke.**




9. Remove hysteresis unit assembly from brake pedal assembly.
   **CAUTION:**
   **To prevent damage to the parts, never drop hysteresis unit assembly.**
10. Remove the stroke sensor from brake pedal assembly.
    **CAUTION:**
    **To prevent damage to the parts, never drop stroke sensor.**
11. Remove accelerator pedal from brake pedal assembly. Refer to ACC-4, "Removal and Installation".
12. Perform inspection after removal. Refer to BR-212, "Inspection and Adjustment".

### INSTALLATION

Note the following, and install in the reverse order of removal.
- Never full stroke the brake pedal assembly. Replace brake pedal assembly when brake pedal was full stroke.
- Never reuse the clevis pin.
- Brake pedal assembly must be replaced after an impact.
- Apply the multi-purpose grease to the clevis pin and the mating faces. (Not necessary if grease has been already applied)
  **NOTE:**
  The clevis pin may be inserted in either direction.
- Perform adjustment after installation. Refer to BR-212, "Inspection and Adjustment".
- Perform stroke sensor 0 point learning when brake pedal assembly removed and installed, or replaced. Refer to BR-37, "Work Procedure".

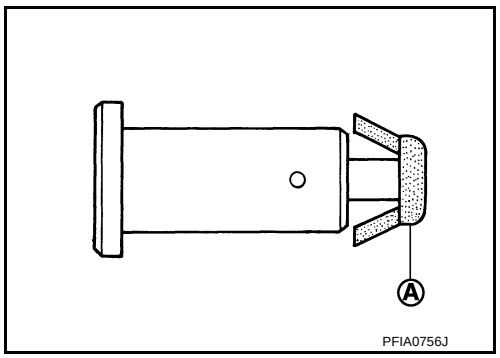
## Inspection and Adjustment

INFOID:0000000006960728

### INSPECTION AFTER REMOVAL

- Check the brake pedal assembly for bend, damage, and cracks on the welded parts. If any is found, replace brake pedal assembly.

- Check clevis pin and plastic stopper (A) for damage and deformation. If any is found, replace clevis pin.




## ADJUSTMENT AFTER INSTALLATION

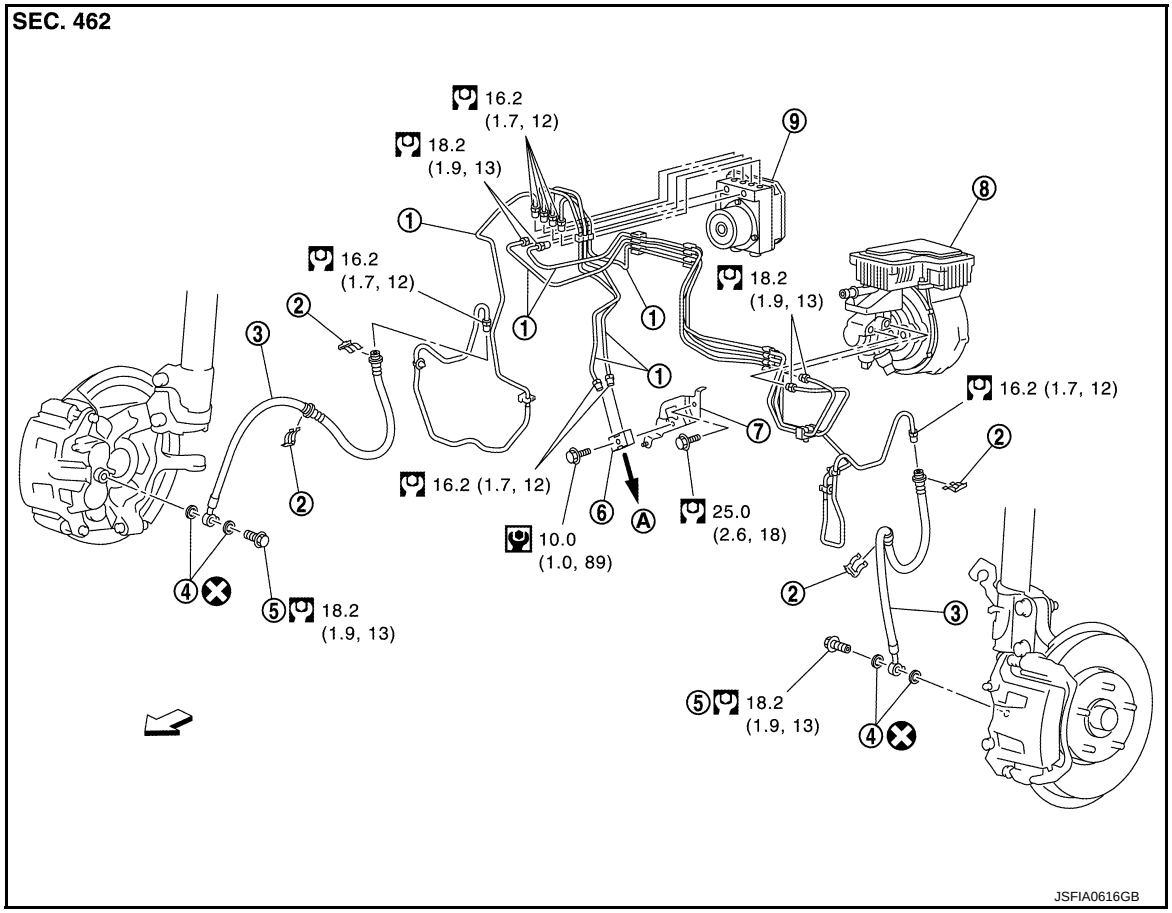
- Adjust each item of brake pedal after installing the brake pedal assembly to the vehicle. Refer to BR-202, "Inspection and Adjustment".
- Perform the release position learning of the accelerator pedal. Refer to EVC-102, "Work Procedure".

# BRAKE PIPING

## FRONT

### FRONT : Exploded View

INFOID:0000000006960729




1. Brake tube
2. Lock plate
3. Brake hose
4. Copper washer
5. Union bolt
6. Connector
7. Connector bracket
8. Electrically-driven intelligent brake unit
9. ABS actuator and electric unit (control unit)

A. To rear brake tube

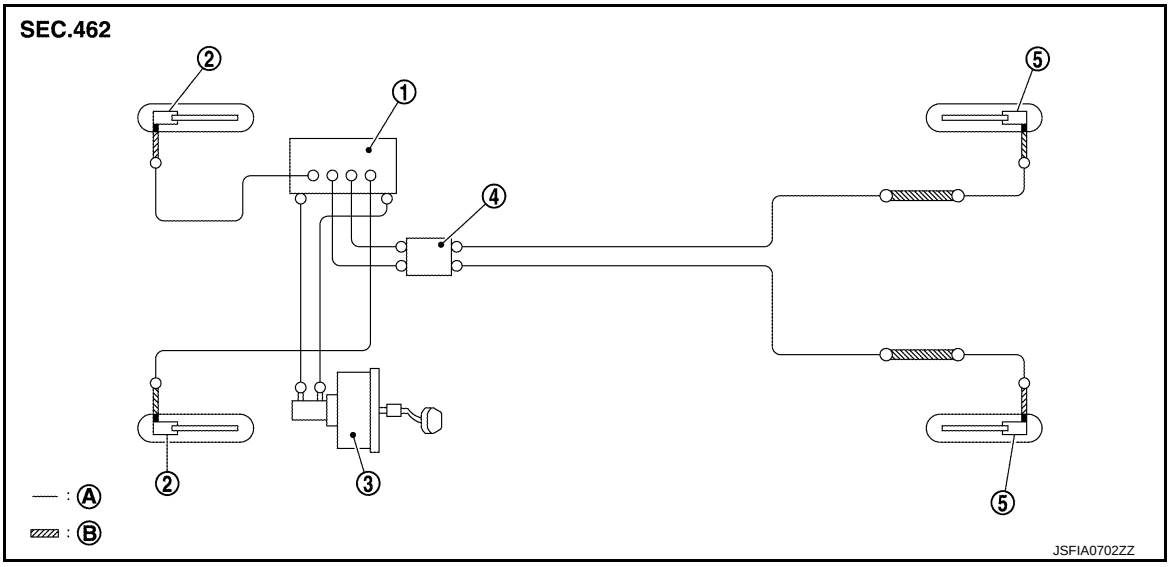
: N·m (kg-m, ft-lb)

: N·m (kg-m, in-lb)

: Always replace after every disassembly.

## FRONT : Hydraulic Piping

INFOID:0000000006960730




1. ABS actuator and electric unit (control unit)
2. Front disc brake
3. Electrically-driven intelligent brake unit
4. Connector
5. Rear disc brake
A. Brake tube
B. Brake hose

◯: Flare nut

■: Union bolt

## FRONT : Removal and Installation

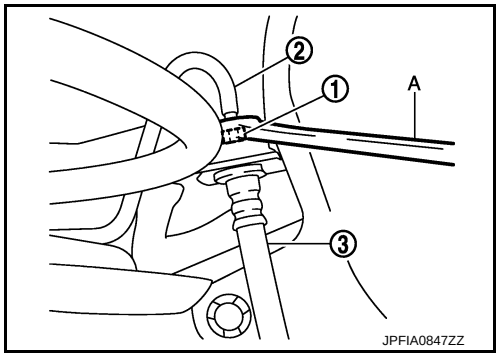
INFOID:0000000006960731

### REMOVAL

**CAUTION:**

- **Never 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. For brake component parts, never wash them with water.**
- **Never depress brake pedal. while removing the brake hose or brake tube. If this is not complied with, brake fluid may splash.**

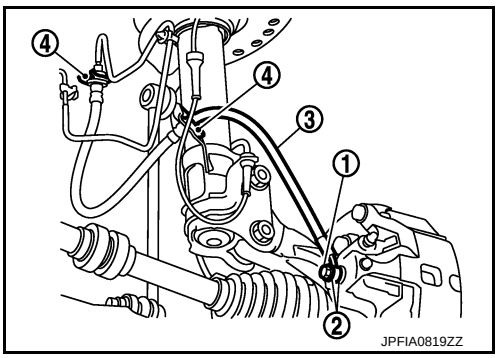
1. Remove tires with power tool.
2. Drain brake fluid. Refer to BR-204, "Draining".
3. Loosen the flare nut (1) with a flare nut wrench (A) and separate the brake tube (2) from the brake hose (3).




**CAUTION:**

- **To prevent damage to the parts, never scratch the flare nut and the brake tube.**
- **To prevent damage to the parts, never bend sharply, twist or strongly pull out the brake hoses and tubes.**
- **To prevent the inclusion of foreign matter, cover open end of brake tubes and hoses when disconnecting to prevent entrance of dirt.**

4. Remove the union bolt (1) and copper washers (2), and remove the brake hose (3) from the brake caliper assembly.
5. Remove the lock plate (4) and remove the brake hose.

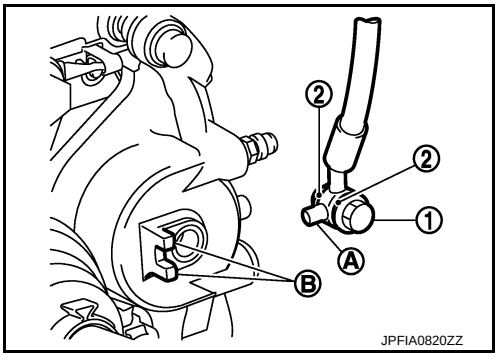



## INSTALLATION

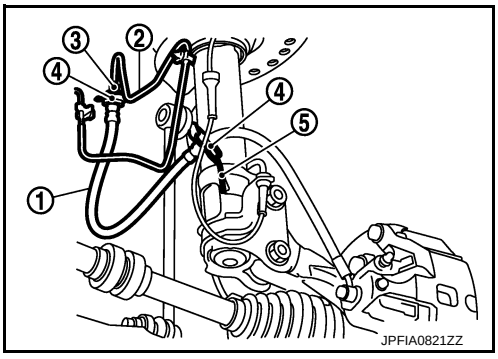
**CAUTION:**

- **Never 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. For brake component parts, never wash them with water.**
- **Never depress brake pedal.while removing the brake hose or brake tube. If this is not complied with, brake fluid may splash.**

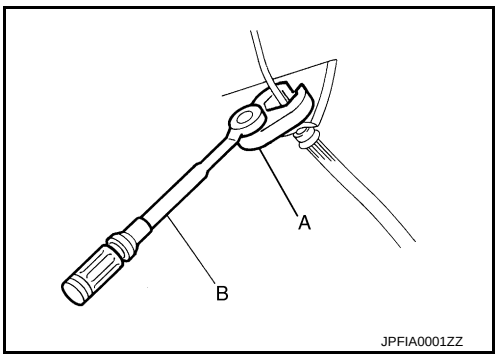
1. Assemble the union bolt (1) and the copper washer (2) to the brake hose.
   **CAUTION:**
   **To prevent leakage of brake fluid, never reuse the copper washer.**
2. Align the brake hose pin (A) with the brake caliper assembly projection (B), and tighten the union bolt (1) to the specified torque.




3. Install the brake tube (2) to the brake hose (1), temporarily tighten the flare nut (3) by hand until it does not rotate further, and fix the brake hose to the bracket (5) with the lock plate (4).
   **CAUTION:**
   **To prevent leakage of brake fluid, check that all brake hoses and brake tubes are not twisted and bent.**




4. Tighten the flare nut to the specified torque with a crowfoot (A) and torque wrench (B).
   **CAUTION:**
   **To prevent damage to the parts, never scratch the flare nut and the brake tube.**
5. Refill with new brake fluid and perform the air bleeding. Refer to BR-205, "Bleeding Brake System".
   **CAUTION:**
   **Never reuse drained brake fluid.**
6. Install tires with power tool. Refer to WT-45, "Removal and Installation".
7. Perform inspection after installation. Refer to BR-217, "FRONT : Inspection".



## FRONT : Inspection

INFOID:0000000006960732

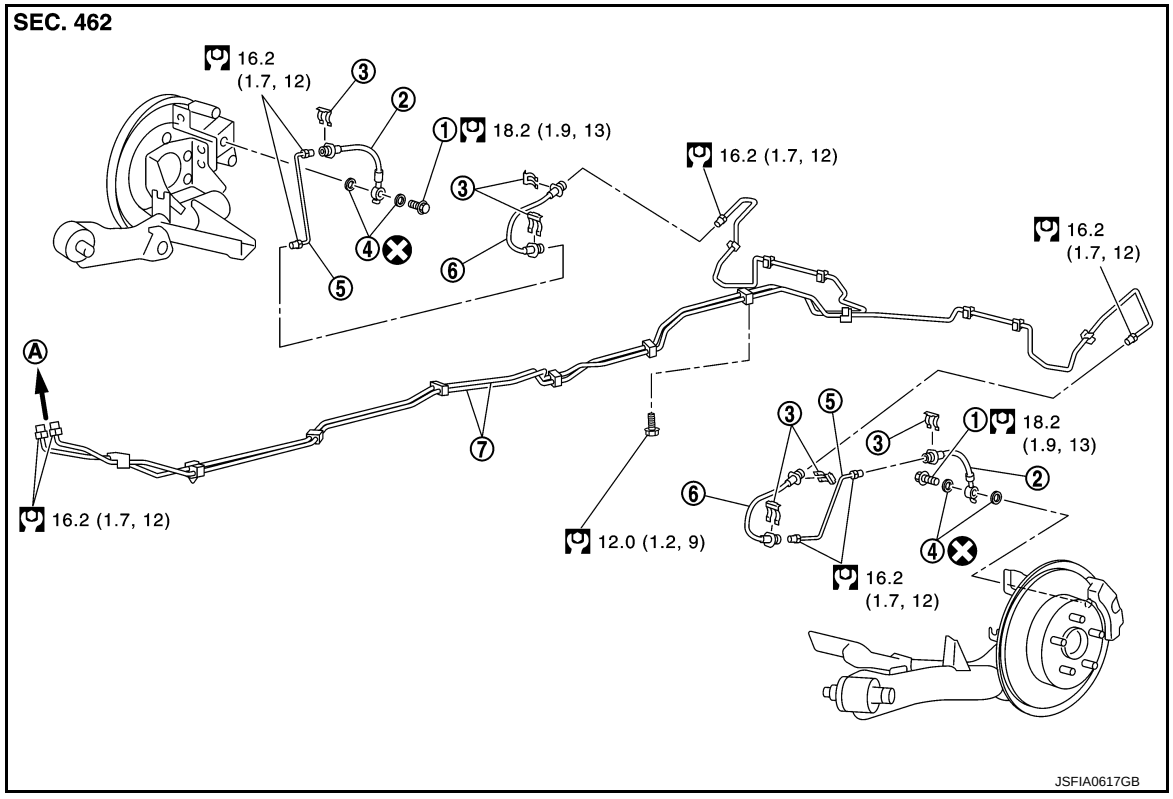
### INSPECTION AFTER INSTALLATION

1. Check the brake hoses and tubes for the following: no scratches; no twist and deformation; no interference with other components when steering the steering wheel; no looseness at connections.
2. Depress the brake pedal with a force of 785 N (80 kg, 176 lb) and hold down the pedal for approximately 5 seconds with set the vehicle to READY. Check for any fluid leakage.
   **CAUTION:**
   **Retighten the applicable connection to the specified torque and repair any abnormal (damaged, worn or deformed) part if any brake fluid leakage is present.**

## REAR

## REAR : Exploded View

INFOID:0000000006960733



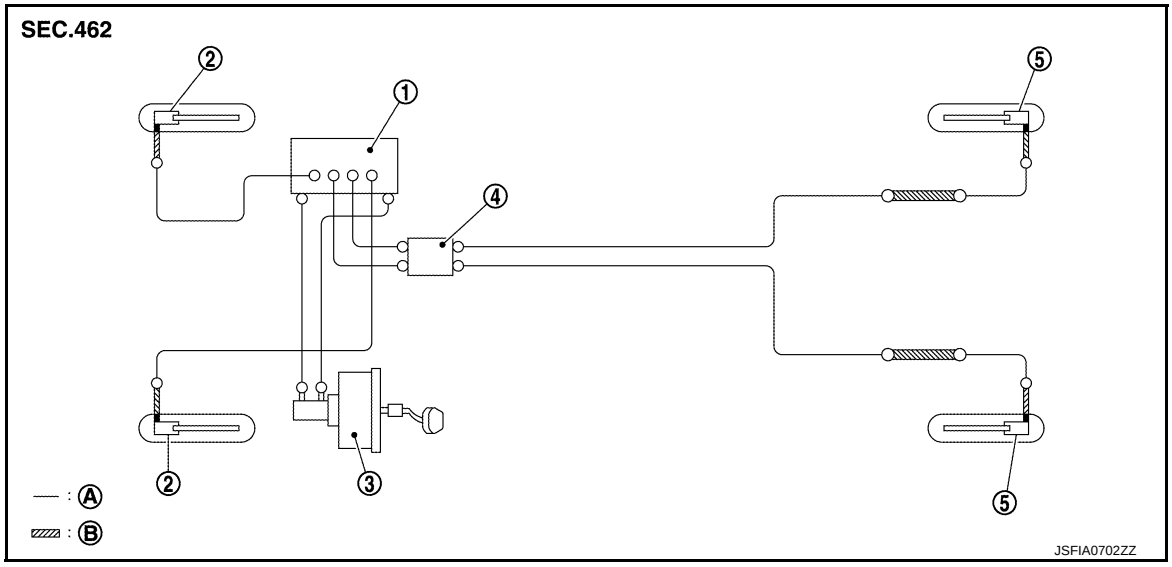

1. Union bolt
2. Brake hose A
3. Lock plate
4. Copper washer
5. Brake tube A
6. Brake hose B
7. Brake tube B
A. To connector

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

## REAR : Hydraulic Piping

INFOID:0000000006960734




1. ABS actuator and electric unit (control unit)
2. Front disc brake
3. Electrically-driven intelligent brake unit
4. Connector
5. Rear disc brake
A. Brake tube
B. Brake hose

◯: Flare nut

■: Union bolt

## REAR : Removal and Installation

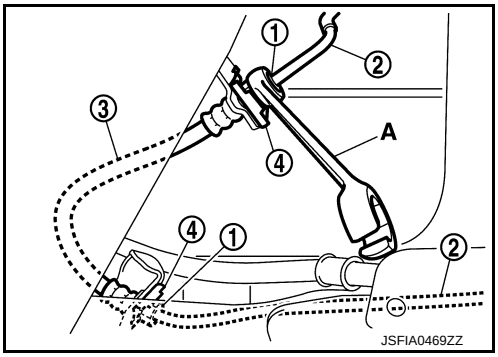
INFOID:0000000006960735

### REMOVAL

**CAUTION:**

- **Never 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. For brake component parts, never wash them with water.**
- **Never depress brake pedal.while removing the brake hose or brake tube. If this is not complied with, brake fluid may splash.**

1. Remove tires with power tool.
2. Drain brake fluid. Refer to BR-204, "Draining".
3. Loosen the flare nut (1) with a flare nut wrench (A) and separate the brake tube (2) from the hose A (3).
   **CAUTION:**
   - **Never scratch the flare nut and the brake tube.**
   - **Never bend sharply, twist or strongly pull out the brake hoses and tubes.**
   - **Cover open end of brake tubes and hoses when disconnecting to prevent entrance of dirt.**
4. Remove the lock plate (4) and remove the brake hose A.

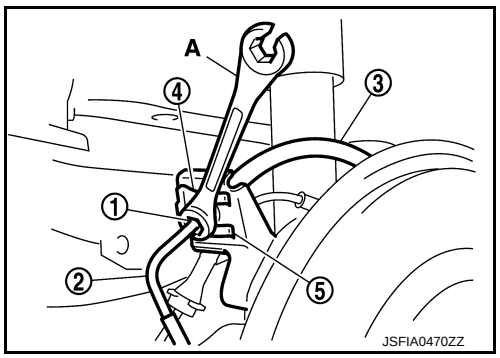


5. Loosen the flare nut (1) with a flare nut wrench (A) and separate the brake tube (2) from the hose B (3).

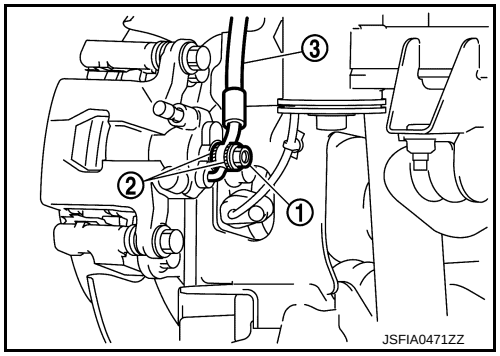
**CAUTION:**

- **To prevent damage to the parts, never scratch the flare nut and the brake tube.**
- **To prevent damage to the parts, never bend sharply, twist or strongly pull out the brake hoses and tubes.**
- **To prevent leakage of brake fluid, cover open end of brake tubes and hoses when disconnecting to prevent entrance of dirt.**

6. Remove the lock plate (4) from brake hose bracket (5).




7. Remove the union bolt (1) and copper washers (2), and remove the brake hose B (3) from the brake caliper assembly.




## INSTALLATION

**CAUTION:**

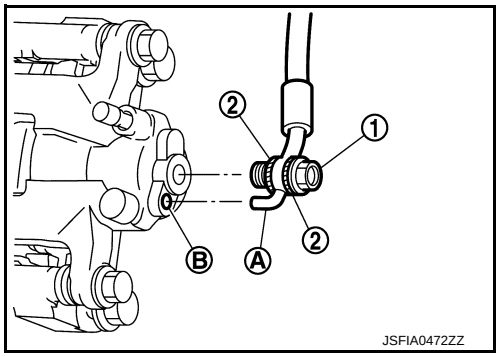
- **Never spill or splash brake fluid on painted surfaces. Brake fluid may seriously damage paint. Wipe it off immediately and wash with water if it gets on a painted surface. For brake component parts, never wash them with water.**
- **Never depress brake pedal.while removing the brake hose or brake tube. If this is not complied with, brake fluid may splash.**

1. Assemble the union bolt (1) and the copper washer (2) to the brake hose B.

**CAUTION:**

**To prevent leakage of brake fluid, ever reuse the copper washer.**

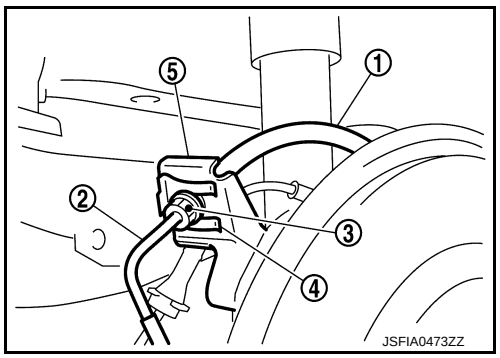
2. Align the brake hose B L-pin (A) with the brake caliper assembly hole (B), and tighten the union bolt (1) to the specified torque.



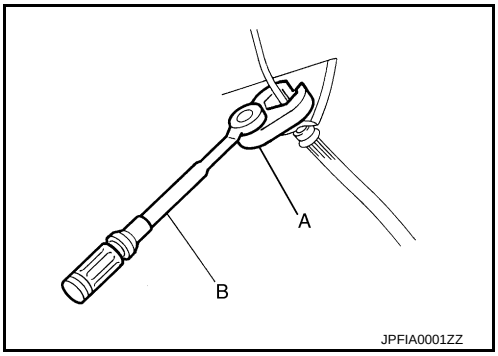

3. Install the brake tube (2) to the brake hose B (1), temporarily tighten the flare nut (3) by hand until it does not rotate further, and fix the brake hose B to the brake hose bracket (5) with the lock plate (4).

**CAUTION:**

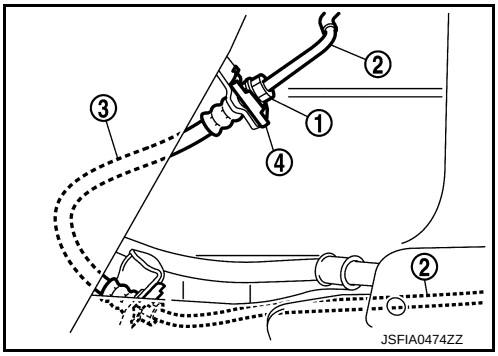
**To prevent leakage of brake fluid, check that all brake hoses and brake tubes are not twisted and bent.**



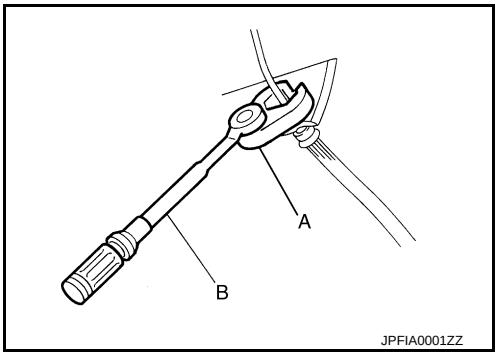
4. Tighten the flare nut to the specified torque with a crowfoot (A) and torque wrench (B).
   **CAUTION:**
   **To prevent damage to the parts, never scratch the flare nut and the brake tube.**




5. Install the brake tube (2) to the brake hose A (3), temporarily tighten the flare nut (1) by hand until it does not rotate further, and fix the brake hose A to the bracket with the lock plate (4).
   **CAUTION:**
   **To prevent leakage of brake fluid, check that all brake hoses and brake tubes are not twisted and bent.**




6. Tighten the flare nut to the specified torque with a crowfoot (A) and torque wrench (B).
   **CAUTION:**
   **To prevent damage to the parts, never scratch the flare nut and the brake tube.**
7. Refill with new brake fluid and perform the air bleeding. Refer to BR-205, "Bleeding Brake System".
   **CAUTION:**
   **Never reuse drained brake fluid.**
8. Install tires with power tool. Refer to WT-45, "Removal and Installation".
9. Perform inspection after installation. Refer to BR-220, "REAR : Inspection".




## REAR : Inspection

INFOID:0000000006960736

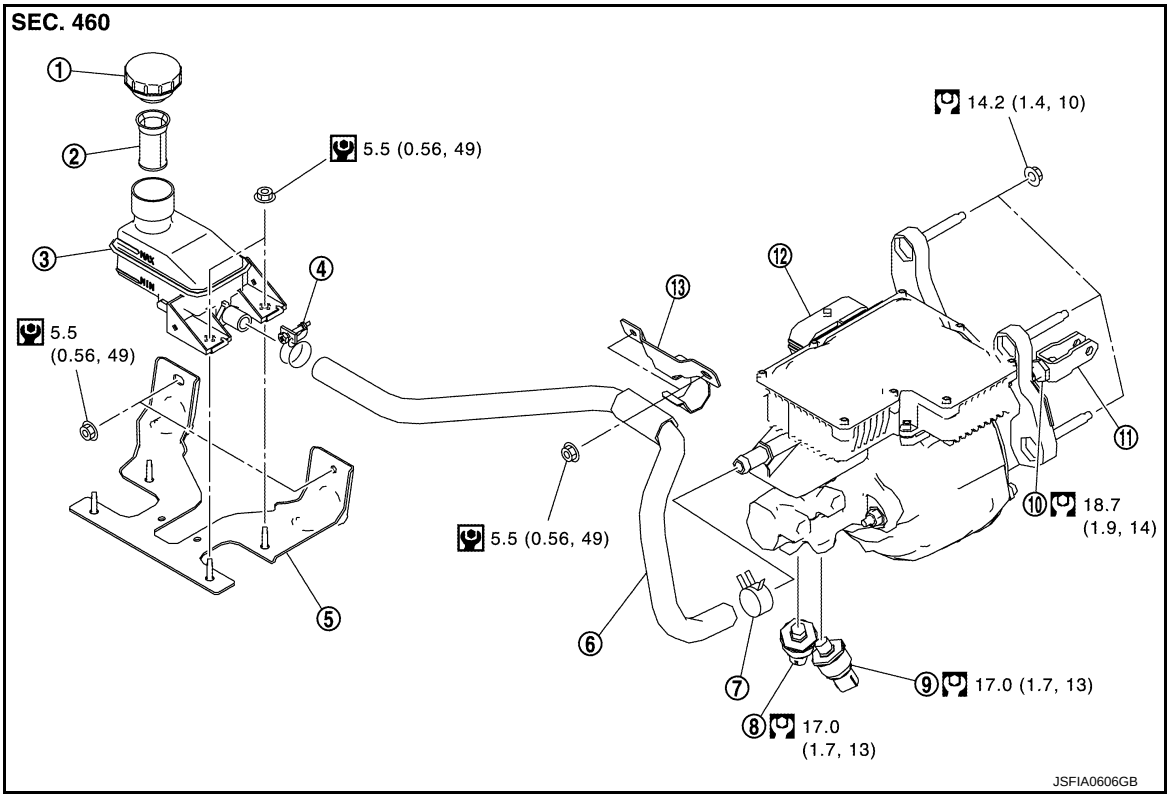
### INSPECTION AFTER INSTALLATION

1. Check the brake hoses and tubes for the following: no scratches; no twist and deformation; no looseness at connections.
2. Depress the brake pedal with a force of 785 N (80kg, 176 lb) and hold down the pedal for approximately 5 seconds with set the vehicle to READY. Check for any fluid leakage.
   **CAUTION:**
   **Retighten the applicable connection to the specified torque and repair any abnormal (damaged, worn or deformed) part if any brake fluid leakage is present.**

# ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

## Exploded View

INFOID:0000000006960737




1. Reservoir cap
2. Oil stainer
3. Reservoir tank
4. Clamp
5. Reservoir tank bracket
6. Hose
7. Clamp
8. Master cylinder pressure sensor2
9. Master cylinder pressure sensor 1
10. Lock nut
11. Clevis
12. Electrically-driven intelligent brake unit
13. Hose bracket

: N·m (kg-m, ft-lb)

: N·m (kg-m, in-lb)

## Removal and installation

INFOID:0000000006960738

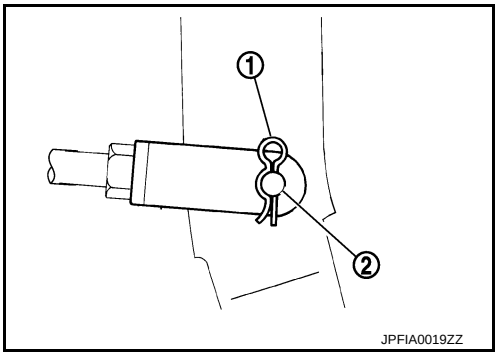
**CAUTION:**
**Never disassemble the electrically-driven intelligent brake unit.**

### REMOVAL

**CAUTION:**
- **Never 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. For brake component parts, never wash them with water.**
- **Never depress brake pedal.while removing the brake tube. If this is not complied with, brake fluid may splash.**

1. Perform inspection before removal. Refer to BR-222, "Inspection and Adjustment".
2. Remove 12 V battery. Refer to PG-104, "Removal and Installation".
3. Move the fuse box.
4. Drain brake fluid. Refer to BR-204, "Draining".
5. Disconnect the brake fluid level switch harness connector.

6. Separate the brake tube from master cylinder assembly with a flare nut wrench.
   **CAUTION:**
   **To prevent damage to the parts, never scratch the flare nut and the brake tube.**
7. Remove snap pin (1) and clevis pin (2). Refer to BR-211, "Removal and Installation".
8. Remove nuts on electrically-driven intelligent brake unit and brake pedal assembly.
   **CAUTION:**
   - **To prevent damage to the parts, hold the electrically-driven intelligent brake unit so as to avoid dropping out.**
   - **To prevent damage to the parts, never deform or bend the brake tubes.**
9. Perform inspection after removal. Refer to BR-222, "Inspection and Adjustment".




## INSTALLATION

**CAUTION:**

- **Never 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. For brake component parts, never wash them with water.**
- **Never depress brake pedal.while removing the brake tube. If this is not complied with, brake fluid may splash.**

Note the following, and install in the reverse order of removal.

- Be careful not to damage electrically-driven intelligent brake unit stud bolt threads. If electrically-driven intelligent brake unit is tilted during installation, the dash panel may damage the threads.
- Never deform or bend the brake tubes when installing the electrically-driven intelligent brake unit.
- Temporarily tighten the brake tube flare nut to the electrically-driven intelligent brake unit by hand. Then tighten it to the specified torque with a crowfoot and torque wrench.
- Replace the clevis pin if it is damaged. Refer to BR-212, "Inspection and Adjustment".
- Perform the air bleeding. Refer to BR-205, "Bleeding Brake System".
- Check each item of brake pedal. Adjust it if the measurement value is not the standard. Refer to BR-202, "Inspection and Adjustment".
- Perform stroke sensor 0 point learning when electrically-driven intelligent brake unit is removed and installed, or replaced. Refer to BR-37, "Work Procedure".

# Inspection and Adjustment

*INFOID:0000000006960739*

## INSPECTION BEFORE REMOVAL

Check the brake fluid level switch. Refer to BRC-111, "Component Inspection".

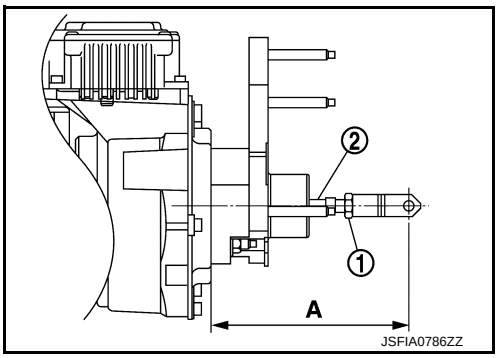
## INSPECTION AFTER REMOVAL

Input Rod Length Inspection

1. Loosen the lock nut (1) and adjust the input rod (2) to the specified length (A).

   **A : Refer to BR-240, "Electrically-driven Intelligent Brake".**

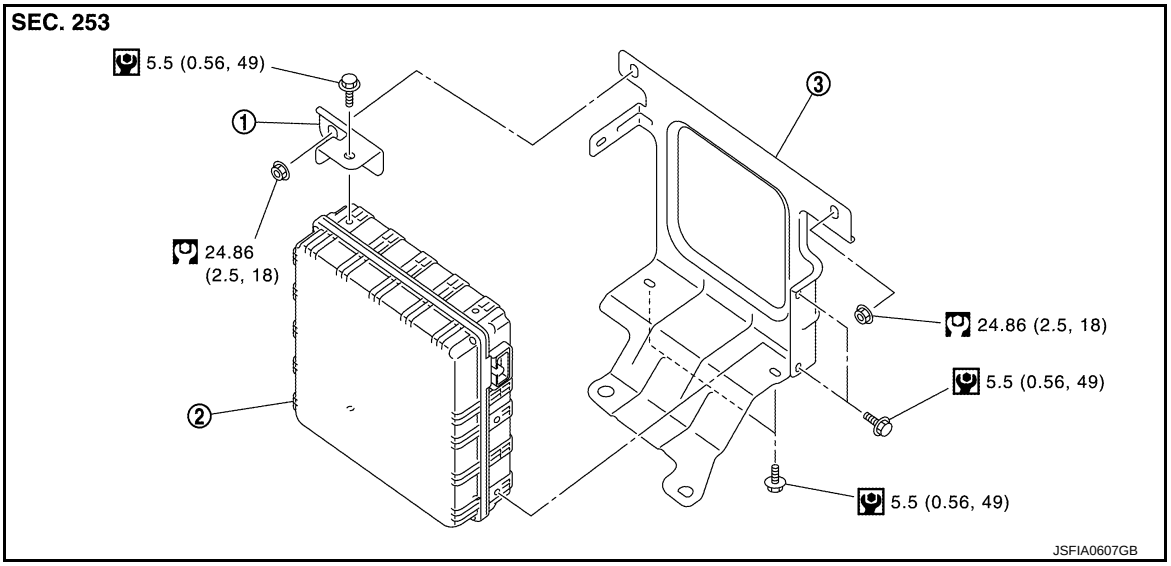
2. Tighten the lock nut to the specified torque.



# BRAKE POWER SUPPLY BACKUP UNIT

## Exploded View

INFOID:0000000006960740




1. Bracket
2. Brake power supply backup unit
3. Brake power supply backup unit bracket

: N·m (kg-m, ft-lb)

: N·m (kg-m, in-lb)

## Removal and Installation

INFOID:0000000006960741

### REMOVAL

1. Remove electric parking control module. Refer to PB-83, "Removal and Installation".
2. Disconnect brake power supply backup unit harness connector.
3. Remove brake power supply backup unit, bracket and brake power supply backup unit bracket.
   **CAUTION:**
   **To prevent damage to the parts, never drop removed parts.**
4. Remove bracket and brake power supply backup unit bracket from brake power supply backup unit.

### INSTALLATION

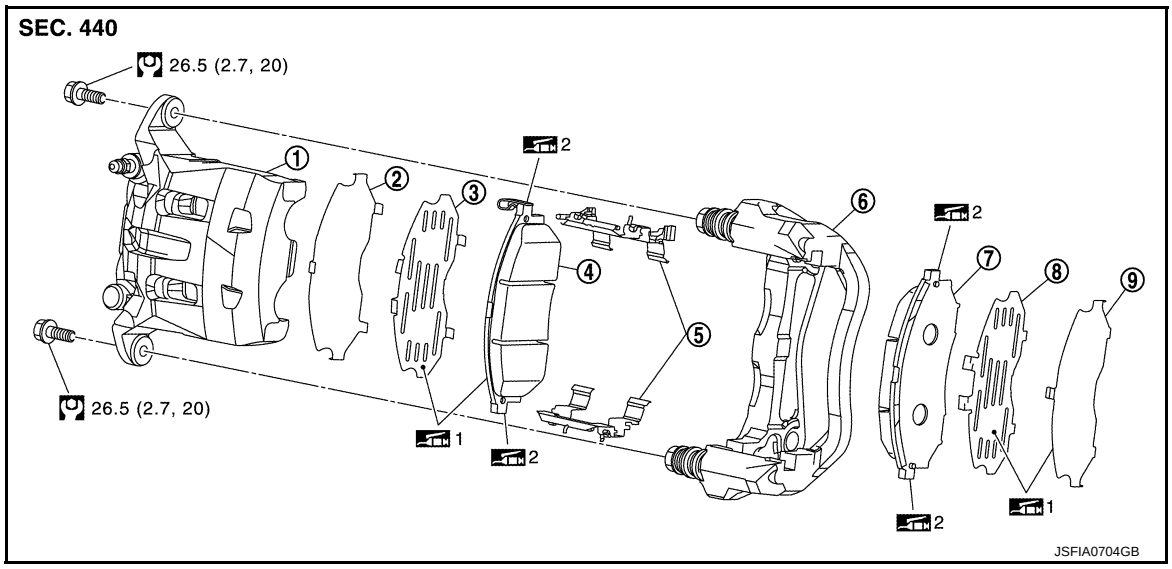
Install in the reverse order of removal.

# FRONT DISC BRAKE

## BRAKE PAD

### BRAKE PAD : Exploded View

INFOID:0000000006960742




1. Cylinder body
2. Inner shim cover
3. inner shim
4. Inner pad (with pad wear sensor)
5. Pad retainer
6. Torque member
7. Outer pad
8. Outer shim
9. Outer shim cover

1: Apply MOLYKOTE® AS880N or silicone-based grease.

2: Apply MOLYKOTE® 7439 or equivalent.

: N·m (kg-m, ft-lb)

### BRAKE PAD : Removal and Installation

INFOID:0000000006960743

#### REMOVAL

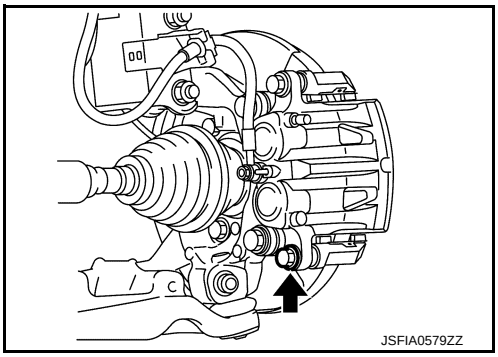
**WARNING:**

**Since dust covering the front and rear brakes has an affect on human body, the dust must be removed with a dust collector. Never splatter the dust with an air blow gun.**

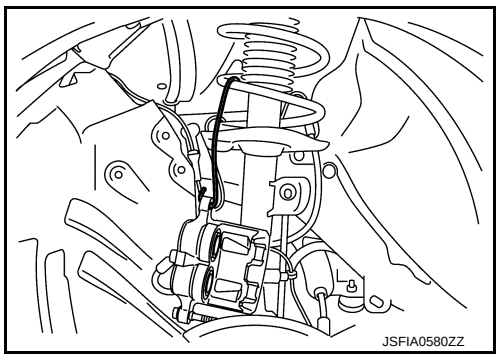
**CAUTION:**

- **Never depress brake pedal.while removing the brake pads because the piston may pop out.**
- **Never spill or splash brake fluid on the disc rotor.**
- **If the brake fluid or grease adheres to the disc rotor, quickly wipe it off.**

1. Remove tires with power tool.
2. Remove lower sliding pin bolt.

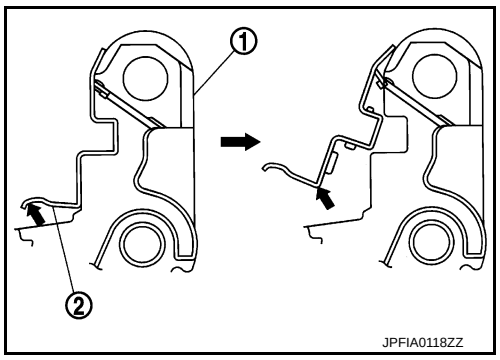


3. Remove cylinder body from torque member, and suspend the cylinder body with suitable wire so that the brake hose will not stretch.




4. Remove the brake pads, shims, shim covers and pad retainers from the torque member.
**CAUTION:**
- **Never deform the pad retainer (2) when removing the pad retainer from the torque member (1).**
- **Never damage the piston boot.**
- **Never drop the brake pads, shims, and the shim covers.**
- **Remember each position of the removed brake pads.**

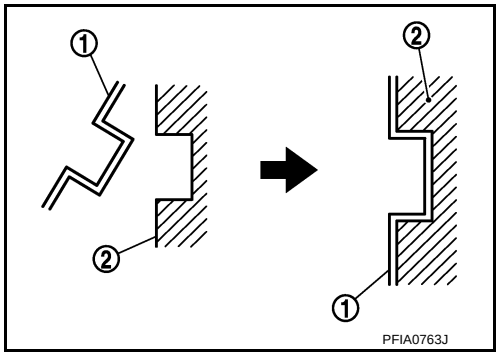
5. Perform inspection after removal. Refer to BR-226, "BRAKE PAD : Inspection".




## INSTALLATION

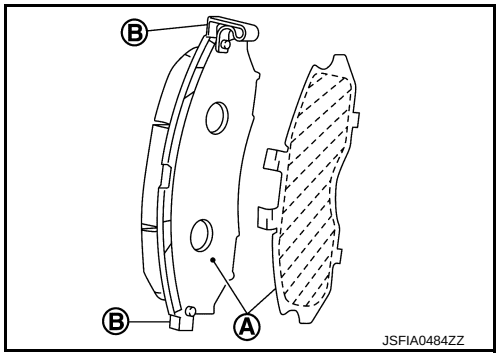
**WARNING:**
**Since dust covering the front and rear brakes has an affect on human body, the dust must be removed with a dust collector. Never splatter the dust with an air blow gun.**
**CAUTION:**
- **Never depress brake pedal.while removing the brake pads or the cylinder body because the piston may pop out.**
- **Never spill or splash brake fluid on the disc rotor.**
- **If the brake fluid or grease adheres to the disc rotor, quickly wipe it off.**

1. Install the pad retainers (1) to the torque member (2) if the pad retainers has been removed.
**CAUTION:**
- **Securely assemble the pad retainers so that it will not be lifted up from the torque member.**
- **Never deform the pad retainers.**

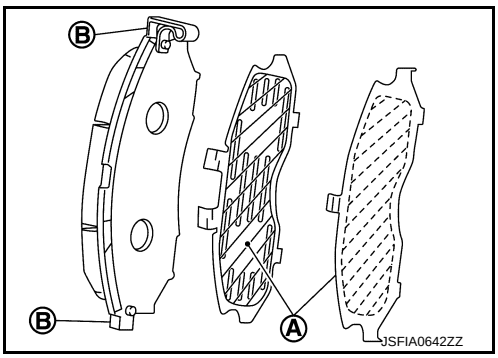



2. Apply MOLYKOTE® AS880N or silicone-based grease to the mating faces (A) between the inner pad and the inner shim, and install the inner shim and inner shim cover to the inner pad.
**CAUTION:**
**Always replace the shim together with the shim cover when replacing the brake pad.**

3. Apply MOLYKOTE® 7439 or equivalent to the mating faces (B) between the inner pad and the pad retainers.

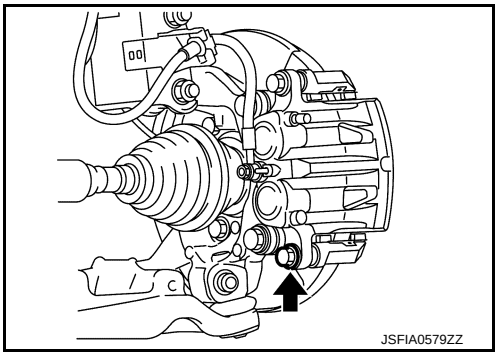


4. Apply MOLYKOTE® AS880N or silicone-based grease to the mating faces (A) between the outer shim cover and the outer shim, and install the outer shim and outer shim cover to the outer pad.
   **CAUTION:**
   **Always replace the shim together with the shim cover when replacing the brake pad.**
5. Apply MOLYKOTE® 7439 or equivalent to the mating faces (B) between the outer pad and the pad retainers.




6. Install the brake pads to the torque member.
   **CAUTION:**
   **Never deform the pad retainers.**
7. Install cylinder body to torque member.
   **CAUTION:**
   - **Never damage the piston boot.**
   - **When replacing brake pad with new one, check a brake fluid level in the reservoir tank because brake fluid returns to reservoir tank when pressing piston in.**

   **NOTE:**
   Use a disc brake piston tool to easily press piston.
8. Install the lower sliding pin bolt and tighten it to the specified torque.
9. Depress the brake pedal several times to check that no drag feel is present for the front disc brake. Refer to BR-226, "BRAKE PAD : Inspection".
10. Install tires with power tool. Refer to WT-45, "Removal and Installation".




## BRAKE PAD : Inspection

INFOID:0000000006960744

### INSPECTION AFTER REMOVAL

- Replace the shims and the shim covers if rust is excessively attached.
- Eliminate rust on the pad retainers and the torque member. Replace them if rust is excessively attached.

### INSPECTION AFTER INSTALLATION

- Check a drag of rear disc brake. If any drag is found, follow the procedure described below.

1. Remove brake pads. Refer to BR-232, "BRAKE PAD : Removal and Installation".
2. Press the pistons. Refer to BR-232, "BRAKE PAD : Removal and Installation".
3. Install brake pads. Refer to BR-232, "BRAKE PAD : Removal and Installation".
4. Securely depress the brake pedal several times.
5. Check a drag of rear disc brake again. If any drag is found, disassemble the cylinder body and replace if necessary. Refer to BR-237, "BRAKE CALIPER ASSEMBLY : Disassembly and Assembly"

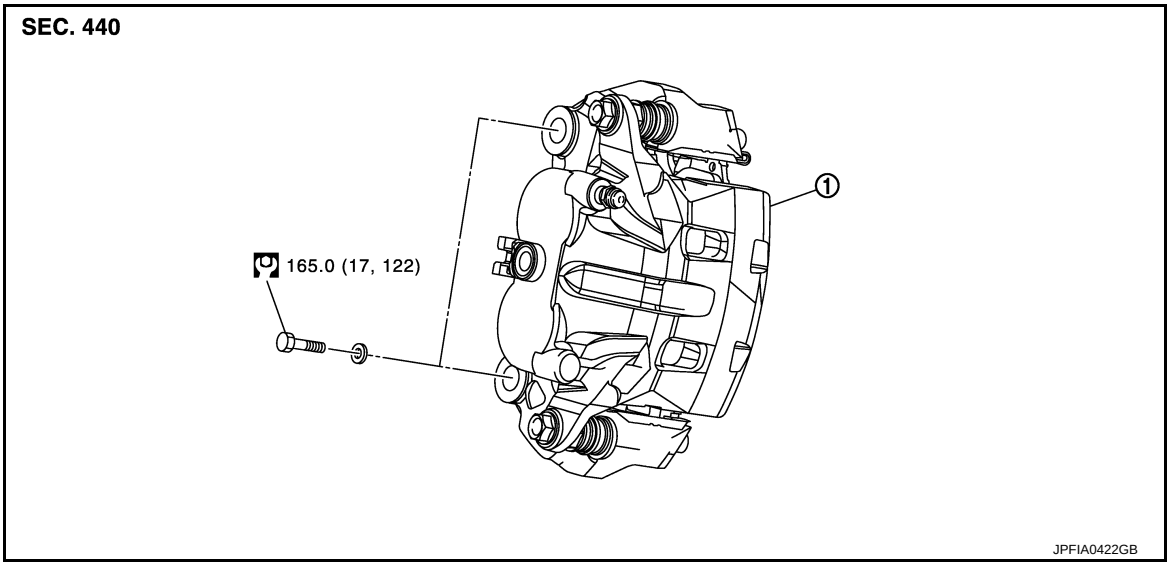
- Burnish contact surfaces brake pads and disc rotor after refinishing or replacing brake pads, or if a soft pedal occurs at very low mileage. Refer to BR-207, "BRAKE PAD : Inspection and Adjustment".

# BRAKE CALIPER ASSEMBLY

## BRAKE CALIPER ASSEMBLY : Exploded View

INFOID:0000000006960745

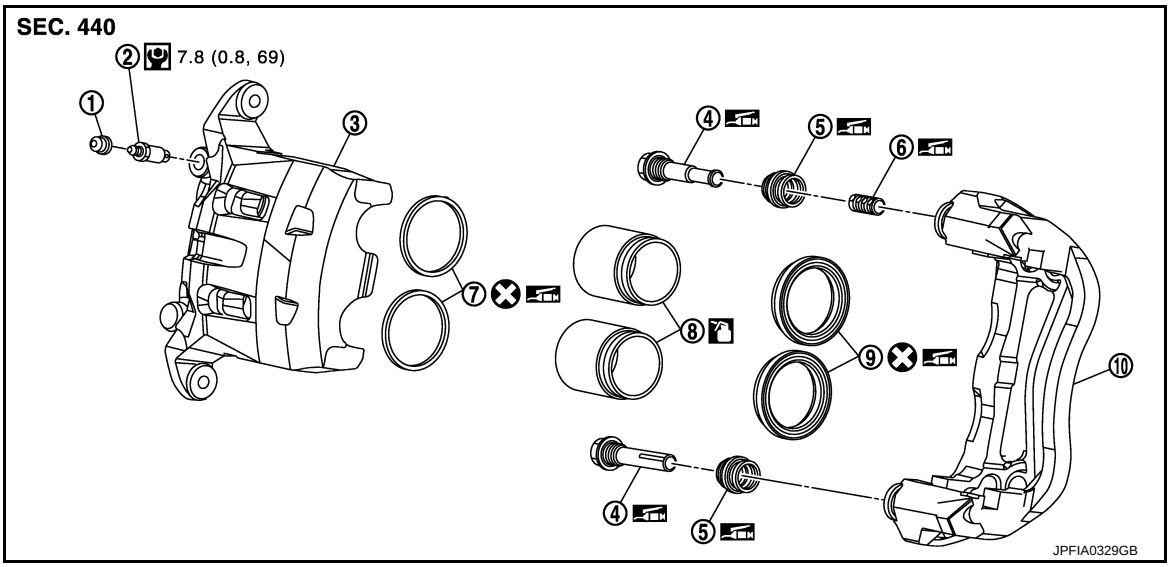
### REMOVAL




1. Brake caliper assembly

: N·m (kg-m, ft-lb)

## DISASSEMBLY




1. Cap
2. Bleeder valve
3. Cylinder body
4. Sliding pin
5. Sliding pin boot
6. Bushing
7. Piston seal
8. Piston
9. Piston boot
10. Torque member

: Apply rubber grease.

: Apply brake fluid.

: N·m (kg-m, in-lb)

: Always replace after every disassembly.

## BRAKE CALIPER ASSEMBLY : Removal and Installation

INFOID:0000000006960746

### REMOVAL

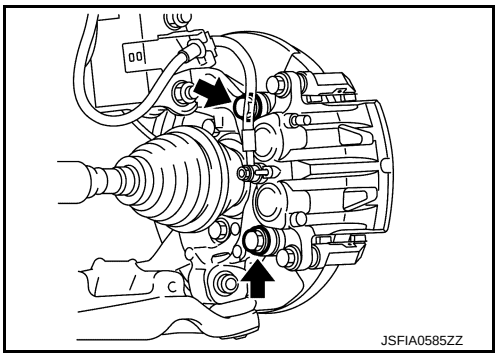
**WARNING:**

**Since dust covering the front and rear brakes has an affect on human body, the dust must be removed with a dust collector. Never splatter the dust with an air blow gun.**

**CAUTION:**

- **Never spill or splash brake fluid on painted surfaces. Brake fluid may seriously damage paint. Wipe it out immediately and wash with water if it gets on a protect surface. For brake component parts, never wash them with water.**
- **Never depress brake pedal.while removing the brake hose. If this is not complied with, brake fluid may splash.**
- **Never drop removed parts.**
- **Never spill or splash brake fluid on the disc rotor.**
- **If the brake fluid or grease adheres to the disc rotor, quickly wipe it off.**

1. Remove tires with power tool.
2. Fix the disc rotor using wheel nuts.
3. Drain brake fluid. Refer to BR-204, "Draining".
4. Separate brake hose from caliper assembly. Refer to BR-215, "FRONT : Removal and Installation".
5. Remove torque member mounting bolts, and remove brake caliper assembly.
   **CAUTION:**
   **Never drop brake pad and caliper assembly.**
6. When removing disc rotor. Refer to FAX-9, "Removal and Installation".




## INSTALLATION

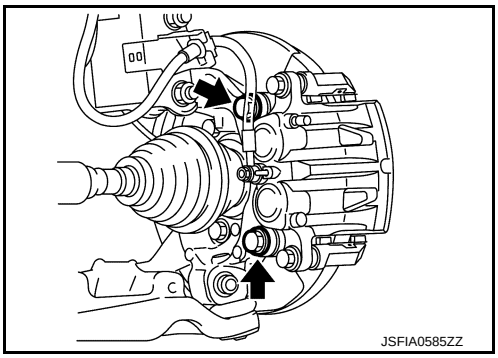
**WARNING:**

**Since dust covering the front and rear brakes has an affect on human body, the dust must be removed with a dust collector. Never splatter the dust with an air blow gun.**

**CAUTION:**

- **Never spill or splash brake fluid on painted surfaces. Brake fluid may seriously damage paint. Wipe it out immediately and wash with water if it gets on a protect surface. For brake component parts, never wash them with water.**
- **Never depress brake pedal.while removing the brake hose. If this is not complied with, brake fluid may splash.**
- **Never spill or splash brake fluid on the disc rotor.**
- **If the brake fluid or grease adheres to the disc rotor, quickly wipe it off.**

1. Install disc rotor. Refer to FAX-9, "Removal and Installation".
2. Install the brake caliper assembly to the steering knuckle and tighten the torque member mounting bolts to the specified torque.
   **CAUTION:**
   **Never spill or splash any grease and moisture on the brake caliper assembly mounting face, threads, mounting bolts and washers. Wipe out any grease and moisture.**
3. Install brake hose. Refer to BR-215, "FRONT : Removal and Installation".
4. Perform the air bleeding. Refer to BR-205, "Bleeding Brake System".
5. Check a drag of front disc brake. If any drag is found, refer to BR-231, "BRAKE CALIPER ASSEMBLY : Inspection".
6. Install tires with power tool. Refer to WT-45, "Removal and Installation".
7. Perform inspection after installation. Refer to BR-231, "BRAKE CALIPER ASSEMBLY : Inspection".



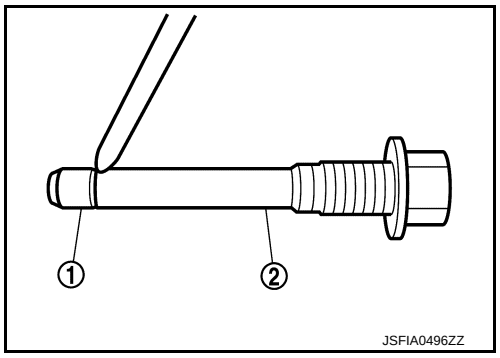
# BRAKE CALIPER ASSEMBLY : Disassembly and Assembly

INFOID:0000000006960747

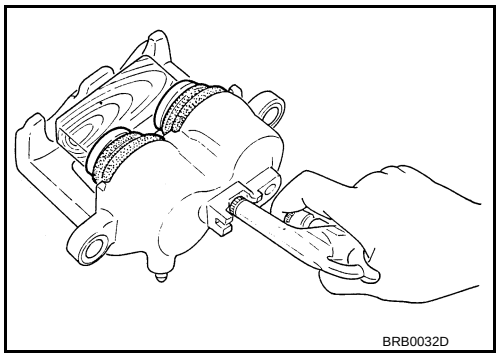
## DISASSEMBLY

**NOTE:**
Never remove the torque member, brake pad and pad retainers when disassembling and assembling the cylinder body.

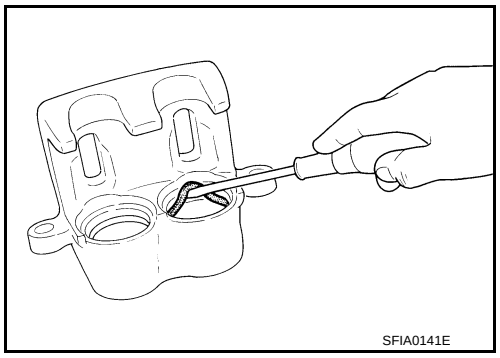
1. Remove the sliding pin bolt, and remove the cylinder body from the torque member. Refer to BR-224, "BRAKE PAD : Removal and Installation".
   **CAUTION:**
   **Fix the brake pad at suitable tape so that the brake pad will not drop.**
2. Remove sliding pins and sliding pin boots from torque member.
3. Remove bushing (1) from sliding pin (2).




4. Place a wooden block as shown in the figure, and blow air from union bolt mounting hole to remove pistons and piston boots.
   **CAUTION:**
   **To prevent injury, never get fingers caught in the pistons.**



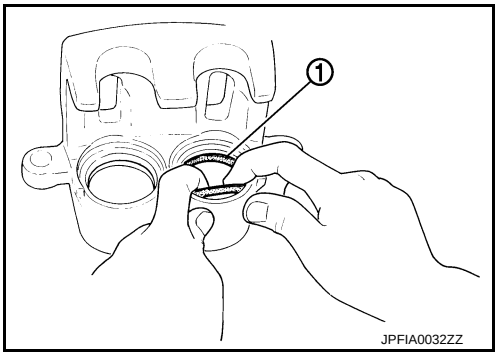

5. Remove piston seal from cylinder body using seal pick tool.
   **CAUTION:**
   **To prevent damage to the parts, be careful not to damage a cylinder inner wall.**
6. Remove bleeder valve and cap.
7. Perform inspection after disassembly. Refer to BR-231, "BRAKE CALIPER ASSEMBLY : Inspection".



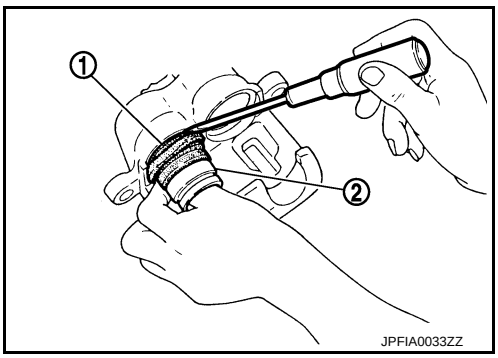

## ASSEMBLY

1. Install bleeder valve and cap.

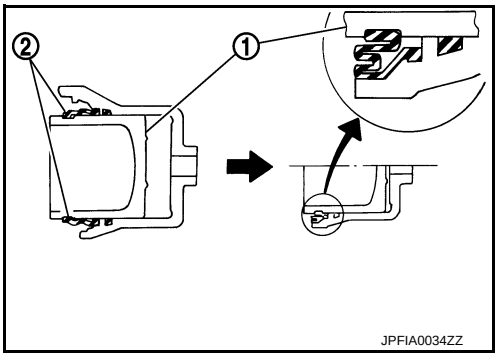
2. Apply rubber grease to piston seals (1), and install them to cylinder body.
**CAUTION:**
**Never reuse piston seals.**



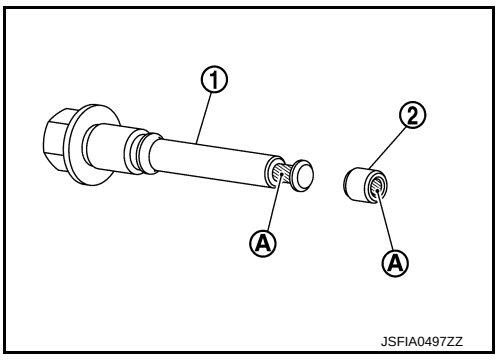

3. Apply rubber grease to piston boots (1). Cover the piston (2) end with piston boot, and then install cylinder side lip on piston boot securely into a groove on cylinder body.
**CAUTION:**
**Never reuse piston boots.**



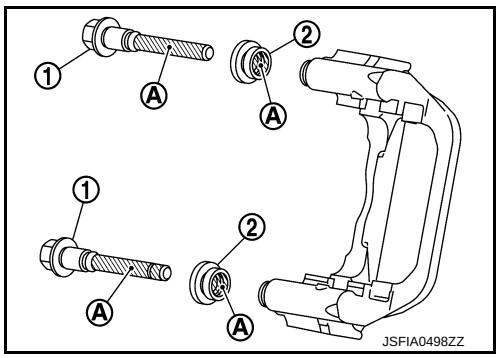

4. Apply new brake fluid to pistons (1). Push piston into cylinder body by hand and push piston boot (2) piston-side lip into the piston groove.
**CAUTION:**
**Press the pistons evenly and vary the pressing point to prevent cylinder inner wall from being rubbed.**




5. Apply rubber grease to mating faces (A) between sliding pin (1) and bushing (2), and install bushing to sliding pin.



6. Apply rubber grease to mating faces (A) between sliding pin (1) and sliding pin boot (2), and install sliding pin and sliding pin boot to sliding torque member.
7. Install the cylinder body to tighten cylinder body mounting bolts to the specified torque. Refer to BR-224, "BRAKE PAD : Exploded View".




## BRAKE CALIPER ASSEMBLY : Inspection

INFOID:0000000006960748

### INSPECTION AFTER DISASSEMBLY

Check the following items and replace if necessary.

Cylinder Body

Check the inner wall of the cylinder for rust, wear, cracks or damage.

**CAUTION:**

**Always clean with new brake fluid. Never clean with mineral oil such as gasoline and light oil.**

Torque Member

Check the torque member for rust, wear, cracks or damage.

Pistons

Check the surface of the piston for rust, wear, cracks or damage.

**CAUTION:**

**A piston sliding surface is plated. Never polish with sandpaper.**

Sliding Pin, Sliding Pin Boot and Bushing

Check the sliding pins, sliding boots and bushing for rust, wear, cracks or damage.

### INSPECTION AFTER INSTALLATION

- Check a drag of front disc brake. If any drag is found, follow the procedure described below.

1. Remove brake pads. Refer to BR-224, "BRAKE PAD : Removal and Installation".
2. Press the pistons. Refer to BR-224, "BRAKE PAD : Removal and Installation".
3. Install brake pads. Refer to BR-224, "BRAKE PAD : Removal and Installation".
4. Securely depress the brake pedal several times.
5. Check a drag of front disc brake again. If any drag is found, disassemble the cylinder body and replace if necessary. Refer to BR-229, "BRAKE CALIPER ASSEMBLY : Disassembly and Assembly".

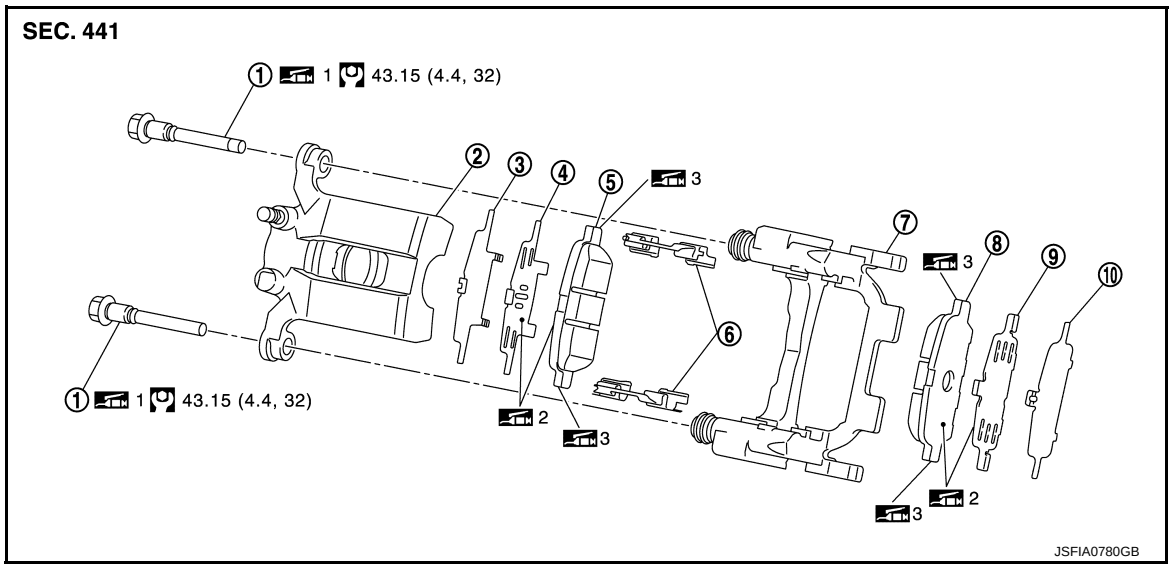
- Burnish contact surface between disc rotor and brake pads after refinishing or replacing disc rotor, or if a soft pedal occurs at very low mileage. Refer to BR-207, "DISC ROTOR : Inspection and Adjustment".

# REAR DISC BRAKE

## BRAKE PAD

### BRAKE PAD : Exploded View

INFOID:0000000006960749




1. Sliding pin bolt
2. Cylinder body
3. Inner shim cover
4. Inner shim
5. Inner pad (with pad wear sensor)
6. Pad retainer
7. Torque member
8. Outer pad
9. Outer shim
10. Outer shim cover

1 Apply rubber grease.

2: Apply MOLYKOTE® AS880N or silicone-based grease.

3: Apply MOLYKOTE® 7439 or equivalent

: N·m (kg-m, ft-lb)

### BRAKE PAD : Removal and Installation

INFOID:0000000006960750

#### REMOVAL

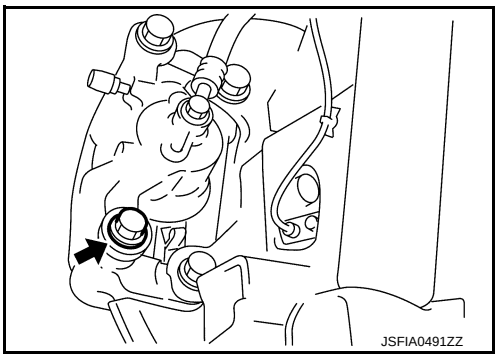
**WARNING:**

**Since dust covering the front and rear brakes has an affect on human body, the dust must be removed with a dust collector. Never splatter the dust with an air blow gun.**

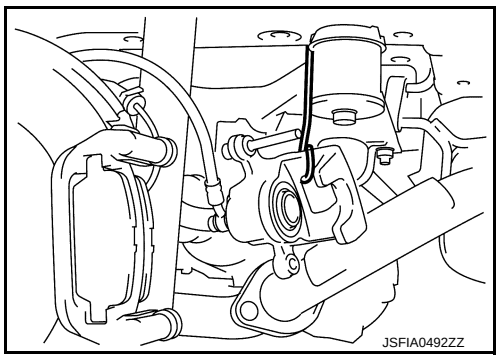
**CAUTION:**

- **Never depress brake pedal.while removing the brake pads because the piston may pop out.**
- **Never spill or splash brake fluid on the disc rotor.**
- **If the brake fluid or grease adheres to the disc rotor, quickly wipe it off.**

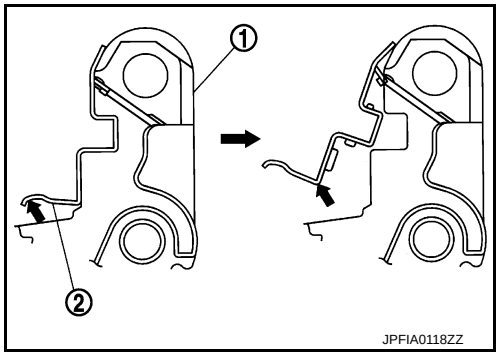
1. Remove tires with power tool.
2. Remove lower sliding pin bolt.



3. Remove cylinder body from torque member, and suspend the cylinder body with suitable wire so that the brake hose will not stretch.



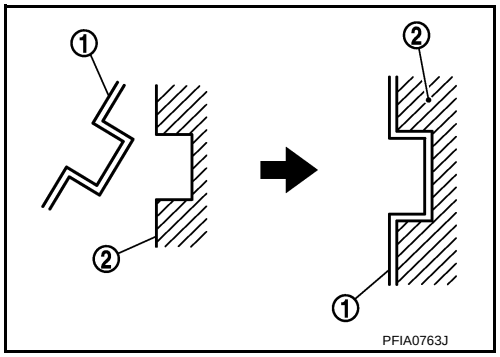

4. Remove the brake pads, shims, shim covers and pad retainers from the torque member.
   **CAUTION:**
   - **Never deform the pad retainer (2) when removing the pad retainer from the torque member (1).**
   - **Never damage the piston boot.**
   - **Never drop the brake pads, shims, and the shim covers.**
   - **Remember each position of the removed brake pads.**
5. Perform inspection after removal. Refer to BR-226, "BRAKE PAD : Inspection".



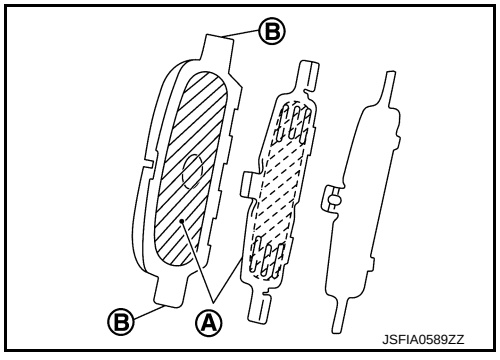

## INSTALLATION

**WARNING:**
**Since dust covering the front and rear brakes has an affect on human body, the dust must be removed with a dust collector. Never splatter the dust with an air blow gun.**
**CAUTION:**
- **Never depress brake pedal.while removing the brake pads or the cylinder body because the piston may pop out.**
- **Never spill or splash brake fluid on the disc rotor.**
- **If the brake fluid or grease adheres to the disc rotor, quickly wipe it off.**

1. Install the pad retainers (1) to the torque member (2) if the pad retainers has been removed.
   **CAUTION:**
   - **Securely assemble the pad retainers so that it will not be lifted up from the torque member.**
   - **Never deform the pad retainers.**



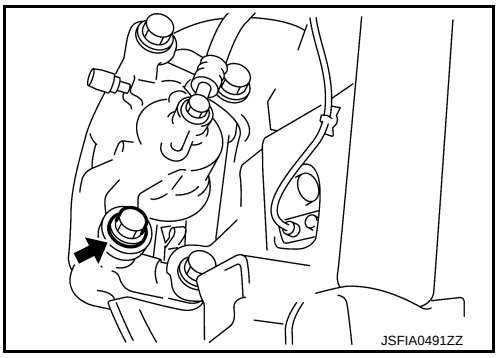

2. Apply MOLYKOTE® AS880N or silicone-based grease to the mating faces (A) between the brake pads and the shims, and install the shims to the brake pad.
   **CAUTION:**
   **Always replace the shim together with the shim cover when replacing the brake pad.**
3. Apply MOLYKOTE® 7439 or equivalent to the mating faces (B) between the brake pads and the pad retainers.
4. Install the brake pads to the torque member.
5. Install cylinder body to torque member.



**CAUTION:**
- **Never damage the piston boot.**
- **When replacing brake pad with new one, check a brake fluid level in the reservoir tank because brake fluid returns to master cylinder reservoir tank when pressing piston in.**

**NOTE:**
Use a disc brake piston tool to easily press piston.

6. Install the lower sliding pin bolt and tighten it to the specified torque.
7. Depress the brake pedal several times to check that no drag feel is present for the front disc brake. Refer to BR-226, "BRAKE PAD : Inspection".
8. Install tires with power tool. Refer to WT-45, "Removal and Installation".




## BRAKE PAD : Inspection

INFOID:0000000006960751

### INSPECTION AFTER REMOVAL

- Replace the shims and the shim covers if rust is excessively attached.
- Eliminate rust on the pad retainers and the torque member. Replace them if rust is excessively attached.

### INSPECTION AFTER INSTALLATION

- Check a drag of front disc brake. If any drag is found, follow the procedure described below.

1. Remove brake pads. Refer to BR-232, "BRAKE PAD : Removal and Installation".
2. Press the pistons. Refer to BR-232, "BRAKE PAD : Removal and Installation".
3. Install brake pads. Refer to BR-232, "BRAKE PAD : Removal and Installation".
4. Securely depress the brake pedal several times.
5. Check a drag of front disc brake again. If any drag is found, disassemble the cylinder body and replace if necessary. Refer to BR-237, "BRAKE CALIPER ASSEMBLY : Disassembly and Assembly"

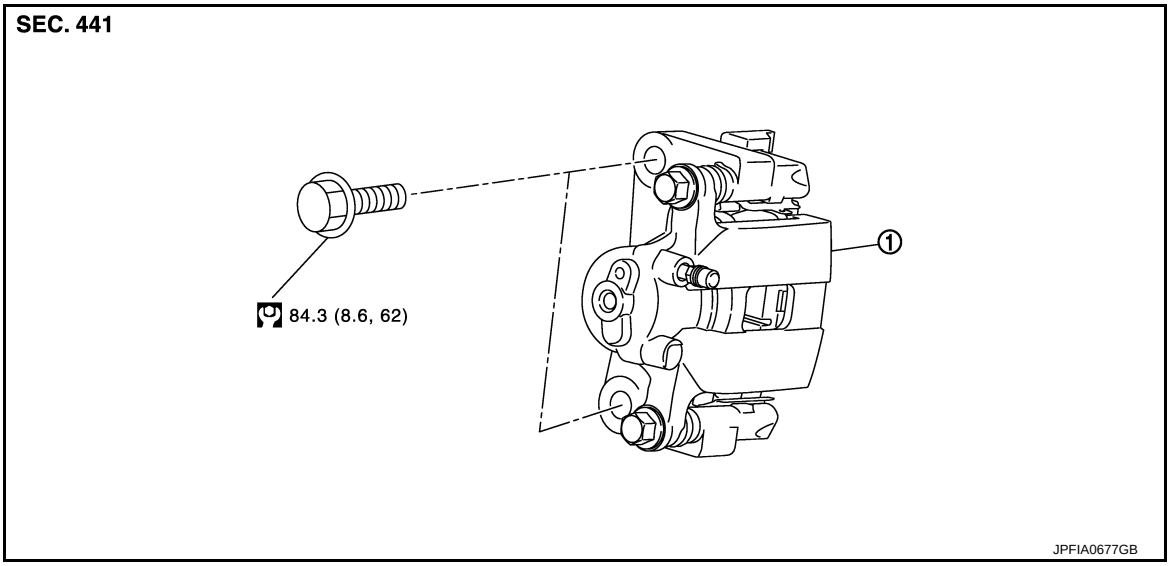
- Burnish contact surfaces brake pads and disc rotor after refinishing or replacing brake pads, or if a soft pedal occurs at very low mileage. Refer to BR-209, "BRAKE PAD : Inspection and Adjustment".

# BRAKE CALIPER ASSEMBLY

## BRAKE CALIPER ASSEMBLY : Exploded View

INFOID:0000000006960752

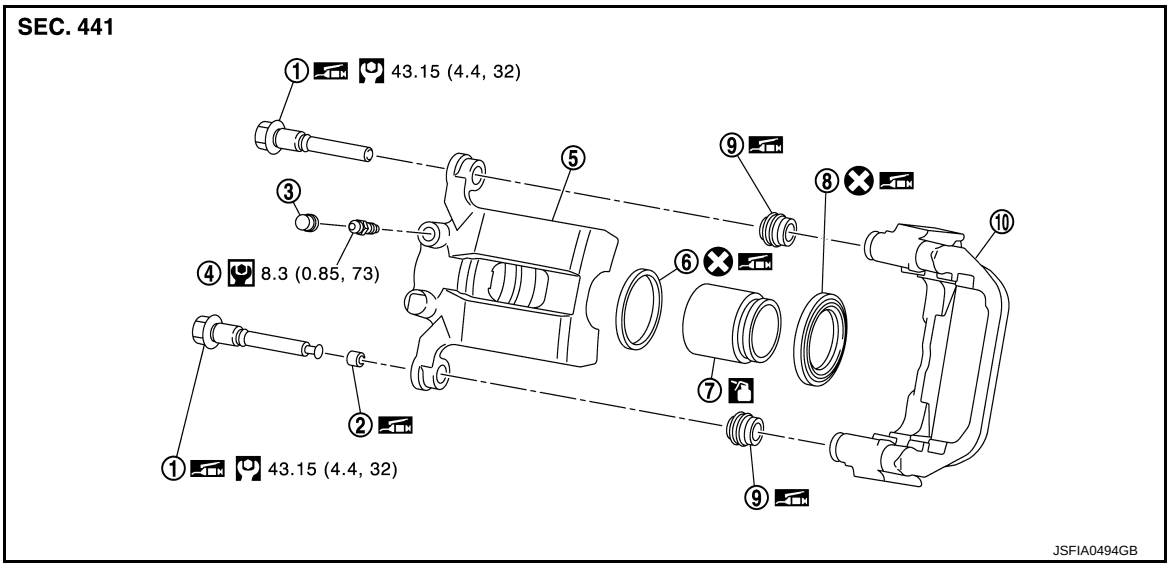
### REMOVAL




1. Brake caliper assembly

: N·m (kg-m, ft-lb)

## DISASSEMBLY




1. Sliding pin bolt
2. Bushing
3. Cap
4. Bleeder valve
5. Cylinder body
6. Piston seal
7. Piston
8. Piston boot
9. Sliding pin boot
10. Torque member

: Apply rubber grease.

: Apply brake fluid.

: N·m (kg-m, ft-lb)

: N·m (kg-m, in-lb)

: Always replace after every disassembly.

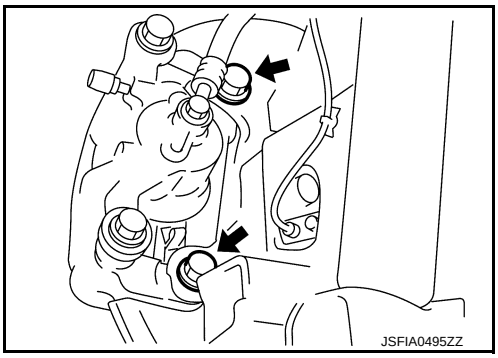
## BRAKE CALIPER ASSEMBLY : Removal and Installation

INFOID:0000000006960753

### REMOVAL

**WARNING:**
**Since dust covering the front and rear brakes has an affect on human body, the dust must be removed with a dust collector. Never splatter the dust with an air blow gun.**
**CAUTION:**
- **Never spill or splash brake fluid on painted surfaces. Brake fluid may seriously damage paint. Wipe it out immediately and wash with water if it gets on a protect surface. For brake component parts, never wash them with water.**
- **Never depress brake pedal.while removing the brake hose. If this is not complied with, brake fluid may splash.**
- **Never drop removed parts.**
- **Never spill or splash brake fluid on the disc rotor.**
- **If the brake fluid or grease adheres to the disc rotor, quickly wipe it off.**

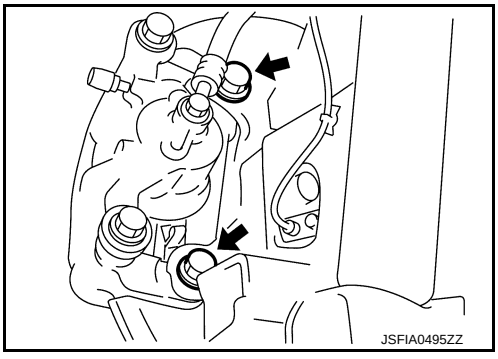
1. Remove tires with power tool.
2. Fix the disc rotor using wheel nuts.
3. Drain brake fluid. Refer to BR-204, "Draining".
4. Separate brake hose from caliper assembly. Refer to BR-218, "REAR : Removal and Installation".
5. Remove torque member mounting bolts, and remove brake caliper assembly.
   **CAUTION:**
   **Never drop brake pad and caliper assembly.**
6. When removing disc rotor. Refer to RAX-6, "Removal and Installation".




### INSTALLATION

**WARNING:**
**Since dust covering the front and rear brakes has an affect on human body, the dust must be removed with a dust collector. Never splatter the dust with an air blow gun.**
**CAUTION:**
- **Never spill or splash brake fluid on painted surfaces. Brake fluid may seriously damage paint. Wipe it out immediately and wash with water if it gets on a protect surface. For brake component parts, never wash them with water.**
- **Never depress brake pedal.while removing the brake hose. If this is not complied with, brake fluid may splash.**
- **Never spill or splash brake fluid on the disc rotor.**
- **If the brake fluid or grease adheres to the disc rotor, quickly wipe it off.**

1. Install disc rotor. Refer to RAX-6, "Removal and Installation".
2. Install the brake caliper assembly to the axle housing and tighten the torque member mounting bolts to the specified torque.
   **CAUTION:**
   **Never spill or splash any grease and moisture on the brake caliper assembly mounting face, threads, mounting bolts and washers. Wipe out any grease and moisture.**
3. Install brake hose. Refer to BR-218, "REAR : Removal and Installation".
4. Perform the air bleeding. Refer to BR-205, "Bleeding Brake System".
5. Check a drag of rear disc brake. If any drag is found, refer to BR-234, "BRAKE PAD : Inspection".



6. Install tires with power tool. Refer to WT-45, "Removal and Installation".
7. Perform inspection after installation. Refer to BR-239, "BRAKE CALIPER ASSEMBLY : Inspection".

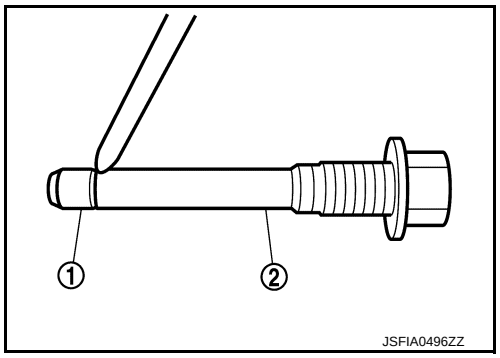
## BRAKE CALIPER ASSEMBLY : Disassembly and Assembly

INFOID:0000000006960754

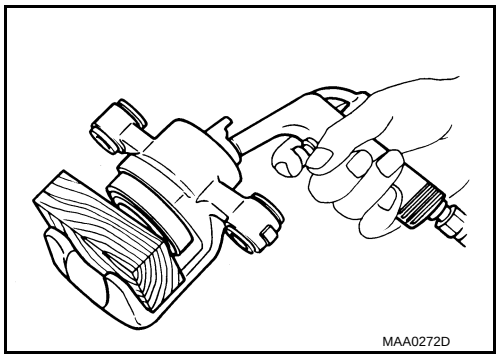
### DISASSEMBLY

**NOTE:**
Never remove the torque member, brake pad and pad retainers when disassembling and assembling the cylinder body.

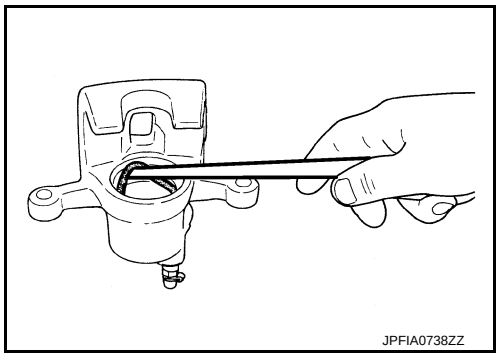
1. Remove the sliding pin bolt, and remove the cylinder body from the torque member. Refer to BR-232, "BRAKE PAD : Removal and Installation".
   **CAUTION:**
   **Fix the brake pad at suitable tape so that the brake pad will not drop.**
2. Remove sliding pin boots from torque member.
3. Remove bushing (1) from sliding pin bolt (2).




4. Place a wooden block as shown in the figure, and blow air from union bolt mounting hole to remove pistons and piston boots.
   **CAUTION:**
   **To prevent injury, never get fingers caught in the pistons.**



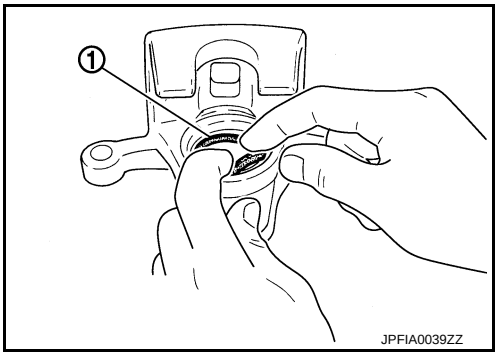

5. Remove piston seal from cylinder body using seal pick tool.
   **CAUTION:**
   **To prevent damage to the parts, be careful not to damage a cylinder inner wall.**
6. Remove bleeder valve and cap.
7. Perform inspection after disassembly. Refer to BR-231, "BRAKE CALIPER ASSEMBLY : Inspection".



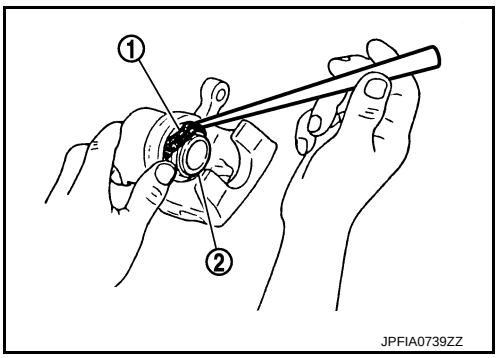

### ASSEMBLY

1. Install bleeder valve and cap.

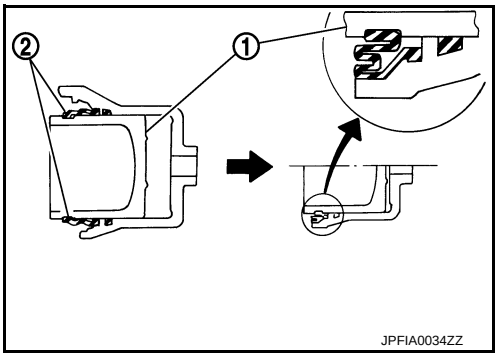
2. Apply rubber grease to piston seals (1), and install them to cylinder body.
**CAUTION:**
**Never reuse piston seals.**



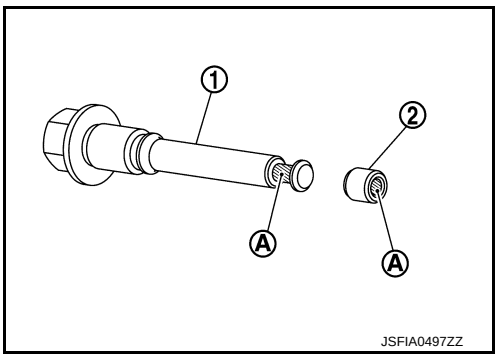

3. Apply rubber grease to piston boots (1). Cover the piston (2) end with piston boot, and then install cylinder side lip on piston boot securely into a groove on cylinder body.
**CAUTION:**
**Never reuse piston boots.**



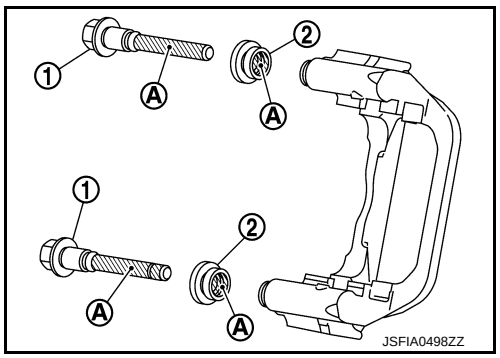

4. Apply new brake fluid to pistons (1). Push piston into cylinder body by hand and push piston boot (2) piston-side lip into the piston groove.
**CAUTION:**
**Press the pistons evenly and vary the pressing point to prevent cylinder inner wall from being rubbed.**




5. Apply rubber grease to mating faces (A) between sliding pin bolt (1) and bushing (2), and install bushing to sliding pin.



6. Apply rubber grease to mating faces (A) between sliding pin bolt (1) and sliding pin boot (2), and install sliding pin and sliding pin boot to sliding torque member.
7. Install the cylinder body to tighten sliding pin bolts to the specified torque. Refer to BR-232, "BRAKE PAD : Exploded View".




## BRAKE CALIPER ASSEMBLY : Inspection

INFOID:0000000006960755

### INSPECTION AFTER DISASSEMBLY

Check the following items and replace if necessary.

Cylinder Body

Check the inner wall of the cylinder for rust, wear, cracks or damage.

**CAUTION:**

**Always clean with new brake fluid. Never clean with mineral oil such as gasoline and light oil.**

Torque Member

Check the torque member for rust, wear, cracks or damage.

Pistons

Check the surface of the piston for rust, wear, cracks or damage.

**CAUTION:**

**A piston sliding surface is plated. Never polish with sandpaper.**

Sliding Pin, Sliding Pin Boot and Bushing

Check the sliding pins, sliding boots and bushing for rust, wear, cracks or damage.

### INSPECTION AFTER INSTALLATION

- Check a drag of front disc brake. If any drag is found, follow the procedure described below.

1. Remove brake pads. Refer to BR-224, "BRAKE PAD : Removal and Installation".
2. Press the pistons. Refer to BR-224, "BRAKE PAD : Removal and Installation".
3. Install brake pads. Refer to BR-224, "BRAKE PAD : Removal and Installation".
4. Securely depress the brake pedal several times.
5. Check a drag of front disc brake again. If any drag is found, disassemble the cylinder body and replace if necessary. Refer to BR-229, "BRAKE CALIPER ASSEMBLY : Disassembly and Assembly".

- Burnish contact surface between disc rotor and brake pads after refinishing or replacing disc rotor, or if a soft pedal occurs at very low mileage. Refer to BR-209, "DISC ROTOR : Inspection and Adjustment".

# SERVICE DATA AND SPECIFICATIONS (SDS)

## SERVICE DATA AND SPECIFICATIONS (SDS)

### General Specifications

INFOID:0000000006960756

Unit: mm (in)

| | | |
|---|---|---|
| Front brake | Cylinder bore diameter | 45.0 (1.772) × 2 |
| | Pad length × width × thickness | 140.0 × 48.0 × 9.5 (5.51 × 1.890 × 0.374) |
| | Rotor outer diameter × thickness | 283 × 28.0 (11.14 × 1.102) |
| Rear brake | Cylinder bore diameter | 38.1 (1.500) |
| | Pad length × width × thickness | 83.0 × 31.9 × 8.5 (3.268 × 1.265 × 0.355) |
| | Rotor outer diameter × thickness | 292 × 16.0 (11.50 × 0.630) |
| Master cylinder | Cylinder bore diameter | 25.4 |
| Control valve | Valve type | Electric brake force distribution |
| Recommended brake fluid | | Refer to MA-9, "Fluids and Lubricants". |

### Brake Pedal

INFOID:0000000006960757

Unit: mm (in)

| Item | Standard |
|---|---|
| Brake pedal height | 159.9 – 169.9 (6.30 – 6.69) |
| Depressed brake pedal height<br>Depressing 196 N (20 kg, 44 lb) while set the vehicle to READY] | 93.0 (3.661) or more |
| Clearance between stop lamp switch and ASCD brake switch threaded end and the brake pedal lever | 0.74 – 1.96 |
| Brake pedal play | 3 – 11 |

### Electrically-driven Intelligent Brake

INFOID:0000000006960758

Unit: mm (in)

| Item | Standard |
|---|---|
| Input rod length | 154.5 – 155.5 (6.08 – 6.12) |

### Front Disc Brake

INFOID:0000000006960759

Unit: mm (in)

| Item | | Limit |
|---|---|---|
| Brake pad | Wear thickness | 2.0 (0.079) |
| Disc rotor | Wear thickness | 26.0 (1.024) |
| | Thickness variation (measured at 8 positions) | 0.015 (0.0006) |
| | Runout (with it attached to the vehicle) | 0.035 (0.0014) |

### Rear Disc Brake

INFOID:0000000006960760

Unit: mm (in)

| Item | | Limit |
|---|---|---|
| Brake pad | Wear thickness | 2.0 (0.079) |
| Disc rotor | Wear thickness | 14.0 (0.051) |
| | Thickness variation (measured at 8 positions) | 0.015 (0.0006) |
| | Runout (with it attached to the vehicle) | 0.1 (0.04) |