SECTION BRAKE SYSTEM

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< PRECAUTION >

PRECAUTION PRECAUTIONS

Precaution for Technicians Using Medical Electric

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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

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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"

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

PRECAUTIONS

< PRECAUTION >

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.

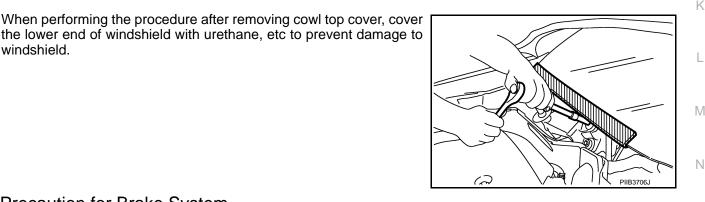
- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the power switch ON, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- 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

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



Precaution for Brake System

WARNING:

windshield.

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 <u>MA-9</u>, "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.

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PRECAUTIONS

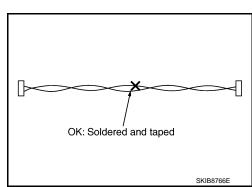
< PRECAUTION >

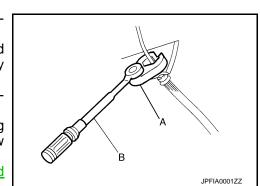
- After pressing the brake pedal more deeply or harder than normal driving, such as air bleeding, check each item of brake pedal. Adjust brake pedal if it is outside the standard value.
- Always clean with new brake fluid when cleaning the brake caliper and other components.
- Never use mineral oils 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 crowfoot (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 theparts.
- 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 <u>BR-207</u>, "<u>BRAKE PAD</u> : <u>Inspection and</u> <u>Adjustment</u>".
- 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:000000006960635

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

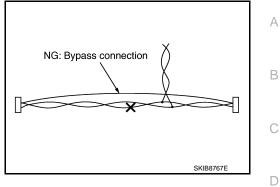




PRECAUTIONS

< PRECAUTION >

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



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PREPARATION

PREPARATION

Commercial Service Tools

INFOID:000000006960636

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

< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION COMPONENT PARTS

Component Parts Location

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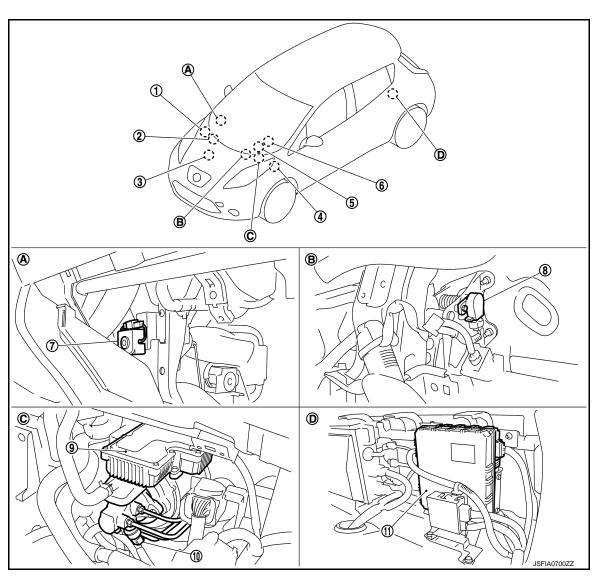
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C. Inside motor room (left)



- A. View with the glove box assembly re- B. Brake pedal moved
- D. Back of rear seat (left)

COMPONENT DESCRIPTION

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COMPONENT PARTS

< SYSTEM 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. Stop lamp switch signal ABS actuator and electric unit (control unit) control signal Vehicle speed signal (ABS) Decel G signal Front LH wheel speed signal Rear LH wheel speed signal Front RH wheel speed signal Side G signal Side G signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication. Brake assist request signal Brake backup operation signal Electrically-driven intelligent brake control signal
2.	VCM	Mainly transmits the following signals to electrically-driven intelligent brake unit via CAN communication.VCM control signal
3.	Traction Motor Inverter	 Mainly transmits the following signals to traction motor inverter via CAN communication. Required braking force calculation signal Mainly receives the following signals to traction motor inverter via CAN communication. Regenerative braking force calculation signal
4.	ВСМ	 Mainly transmits the following signals to traction motor inverter via CAN communication. Power switch ON signal Door switch signal
5.	Brake warning lamp (in combination meter) Brake system warning lamp (in combi- nation 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. • 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:000000006960638

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).

BR-10

COMPONENT PARTS

< SYSTEM DESCRIPTION > BRAKE BOOSTER

А В 0+0+0+0+0+0+0 D Б Е 38 0-0-0-0-0-0 BR D Н JSFIA0782ZZ 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:000000006960639 Κ Detects the brake fluid pressure and transmits signals to the electrically-driven intelligent brake unit. Pedal Stroke Sensor INFOID:000000006960640 Detects the amount that the brake pedal is depressed and sends it to the electrically-driven intelligent brake unit. Warning Buzzer Μ INFOID:000000006960641 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. Ν Brake Power Supply Backup Unit INFOID:00000006960642 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. Ρ

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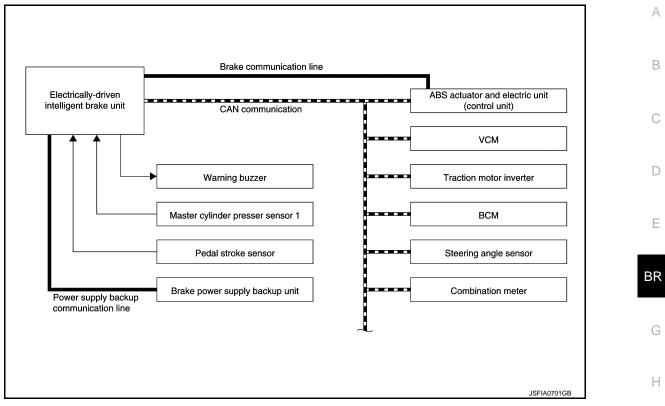
SYSTEM

System Description

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- 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 <u>BR-18, "Fail-Safe"</u>.

SYSTEM DIAGRAM



INPUT SIGNAL AND OUTOUT SIGNAL

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

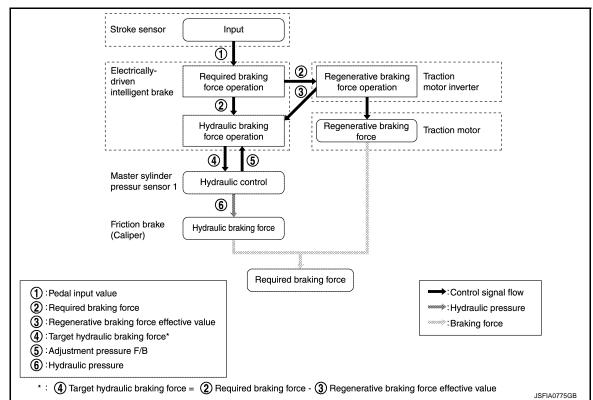
Component	Signal description
ABS actuator and electric unit (control unit)	 Mainly transmits the following signals to electrically-driven intelligent brake unit via CAN communication. Stop lamp switch signal ABS actuator and electric unit (control unit) control signal Vehicle speed signal (ABS) Decel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

SYSTEM

< SYSTEM DESCRIPTION >

Component	Signal description
BCM	Mainly transmits the following signals to traction motor inverter via CAN communication.Power switch ON signalDoor 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.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.)

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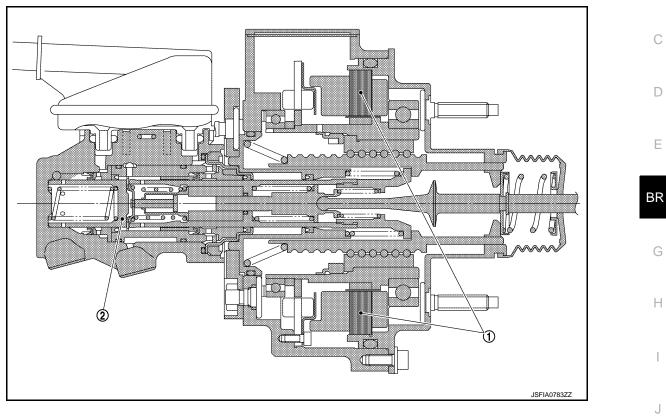
SYSTEM

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• 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 Κ the fluid pressure.

When Cooperative Regenerative Brake Control Is Operating

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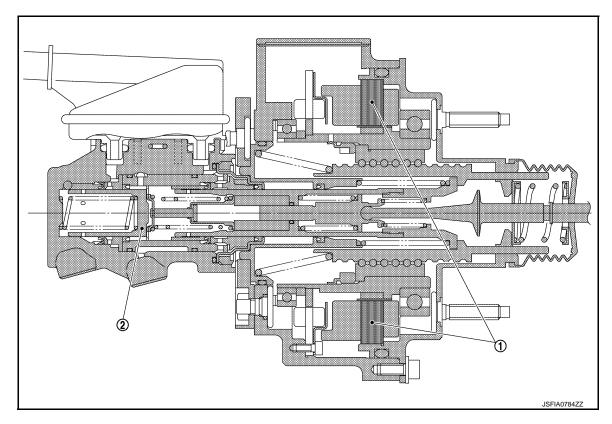
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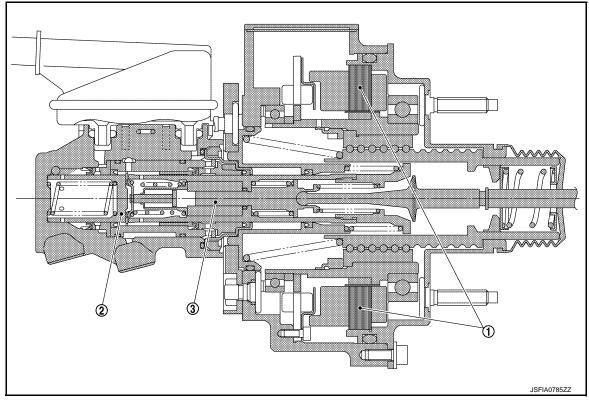


1. Motor

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



SYSTEM

< SYSTEM DESCRIPTION >

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 warn- ing 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	B
Electrically-driven intelligent brake is malfunctioning	ON	ON	OFF	-



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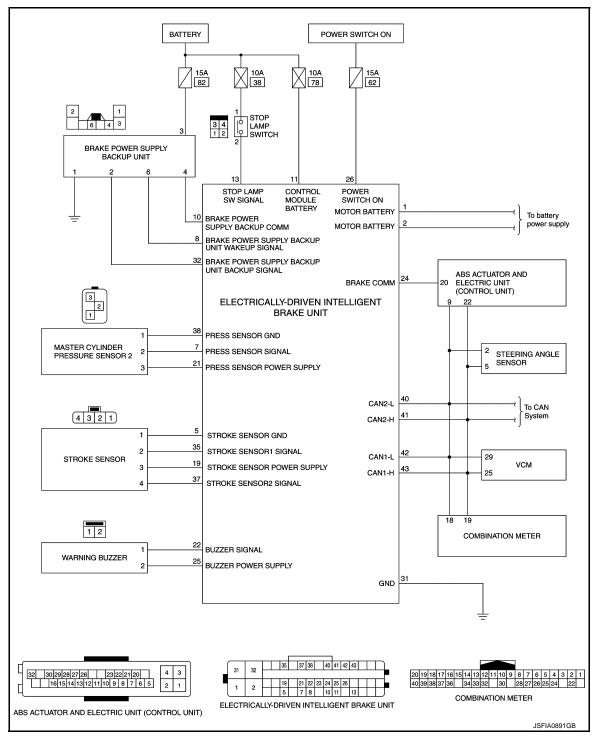
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< SYSTEM DESCRIPTION >

Schematic



Fail-Safe

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- 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).

SYSTEM

< SYSTEM DESCRIPTION >

- 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, C cooperative regenerative brake control is not performed.

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

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DIAGNOSIS SYSTEM (ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT) < SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT)

CONSULT Function

INFOID:000000006960646

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 in- telligent 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 <u>BR-27, "DTC Index"</u>.

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 (0 – 39)	 The number of times that power switch is ON after the DTC is detected is displayed. When "0" is displayed: It indicates that the system is presently malfunctioning. When except "0" is displayed: It indicates that system malfunction in the past is detected, but the system is presently normal. NOTE: Each time when power switch is turned OFF to ON, numerical number increases in 1 → 2 → 338 → 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 (V)	Master cylinder pressure sensor 1 voltage is displayed.
MASTER CYL PRES (VDC) (MPa)	Displays the master cylinder fluid pressure sensor 2 signal sent via CAN communication from the ABS actuator and electric unit (control unit).

DIAGNOSIS SYSTEM (ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT)

< SYSTEM DESCRIPTION >

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-driv- en 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 ac- tuator 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 ac- tuator and electric unit (control unit).
WHEEL SENSOR FRONT LH (rpm)	Displays the front LH wheel sensor signal sent via CAN communication from the ABS ac- tuator and electric unit (control unit).
WHEEL SENSOR REAR RH (rpm)	Displays the rear RH wheel sensor signal sent via CAN communication from the ABS ac- tuator and electric unit (control unit).
WHEEL SENSOR REAR LH (rpm)	Displays the rear LH wheel sensor signal sent via CAN communication from the ABS ac- tuator 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.

DIAGNOSIS SYSTEM (ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT)

< SYSTEM DESCRIPTION >

Item (Unit)	Note:
DOOR SWITCH (FRONT LH) (CLOSE/OPEN)	Displays the operating status of the door switch (front LH), sent via CAN communication from the BCM.
IGNITION SIGNAL (On/Off)	Displays the operating status of the power switch, sent via CAN communication from the BCM.
READY STATUS (On/Off)	Displays the ready status, sent via CAN communication from the VCM.
BACKUP UNIT DIAG RESULT (NORMAL/ERR1/ERR2/ERR3/ERR4/ ERR5/ERR6/ERR7/ERR8/ERR9/ERR10/ 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 (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 >

ECU DIAGNOSIS INFORMATION ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

Reference Value

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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
	Learning not completed	INCOMP
ALL SENSOR LEARNING ^{*2}	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.
	When driving straight	0±3.5°
STEERING ANGLE SENSOR	When steering wheel is steered to RH by 90°	Approx. –90°
	When steering wheel is steered to LH by 90°	Approx. +90°
	Vehicle stopped	Approx. 0 G
DECEL G SENSOR	During acceleration	Positive value
DECEL G SENSOR	During deceleration	Negative value
	Vehicle stopped	Approx. 0 m/s ²
SIDE G SENSOR	Right turn	Negative value
	Left turn	Positive value
	Vehicle stopped	Approx. 0 d/s
YAW RATE SENSOR SIGNAL	Right turn	Negative value
	Left turn	Positive value
	Vehicle stopped	0.00 km/h
WHEEL SENSOR FRONT RH	Driving ^{*3}	Almost same reading as speedometer (within $\pm 10\%$)
	Vehicle stopped	0.00 km/h
WHEEL SENSOR FRONT LH	Driving ^{*3}	Almost same reading as speedometer (with- in $\pm 10\%$)

< ECU DIAGNOSIS INFORMATION >

Monitor item	Condition	Reference values in normal operation
	Vehicle stopped	0.00 km/h
WHEEL SENSOR REAR RH	Driving ^{*3}	Almost same reading as speedometer (with- in ±10%)
	Vehicle stopped	0.00 km/h
WHEEL SENSOR REAR LH	Driving ^{*3}	Almost same reading as speedometer (with- in ±10%)
	Vehicle stopped	0.00 km/h
VEHICLE SPEED	Driving ^{*3}	Almost same reading as speedometer (within $\pm 10\%$)
	D position	D
ACTUAL GEAR POSITION	R position	R
RAKE SWITCH	N or P position	N/P
	Brake pedal is depressed.	On
BRAKE SWITCH	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
	Back door closed	CLOSE
DOOR SWITCH (BACK DOOR)	Back door open	OPEN
	Rear RH door closed	CLOSE
OOR SWITCH (BACK DOOR) OOR SWITCH (REAR RH) OOR SWITCH (REAR LH)	Rear RH door open	OPEN
	Rear LH door closed	CLOSE
CTUAL GEAR POSITION RAKE SWITCH DMMAND WAKE UP SLEEP DOR SWITCH (BACK DOOR) DOR SWITCH (REAR RH)	Rear LH door open	OPEN
	Front RH door closed	CLOSE
DOOR SWITCH (FRONT RH)	Front RH door open	OPEN
	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

< ECU DIAGNOSIS INFORMATION >

Monitor item	Condition	Reference values in normal operation
	Normal	NOMAL
	Overvoltage	ERR1
	Communications malfunction	ERR2
	Charging circuit malfunction	ERR3
BACKUP UNIT DIAG RESULT BACKUP UNIT MODE	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 condi- tion	ERR9
	Monitor circuit malfunction	ERR10
	Insulation malfunction	ERR11
	Output circuit malfunction (other than discharge circuit)	ERR12
	Temperature detection circuit mal- function	ERR13
	Deteriorated	ERR14
	Outside the reference voltage	ERR15
	Backup power supply mode is active	On
BACKUP UNIT MODE	Backup power supply mode is not ac- tivated	Off
	80% or less (backup power supply not possible)	CHRG1
BACKUP UNIT CHAGE STATUS	80 99%(backup power supply pos- sible)	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

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- 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.

< ECU DIAGNOSIS INFORMATION >

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

DTC Inspection Priority Chart

INFOID:000000006960649

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 U1010 CONTROL UNIT (CAN) U1510 BRAKE CONTROL COMMUNICATION U1511 POWER SUPPLY BACKUP UNIT COMM
2	C1A60 CONTROL MODULE C1A6B POWER SUPPLY BACKUP UNIT
3	 C1A6E EV/HEV SYSTEM C1A6F TCM/VCM SYSTEM C1A70 BRAKE CONTROL SYSTEM C1A74 ST ANG SEN CIRCUIT

< ECU DIAGNOSIS INFORMATION >

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

DTC Index

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er to	Refer	l	Display i	DTC
TC Log	<u>BR-39, "DT</u>		CONTROL MODULE	C1A60
TC Lo	<u>BR-45, "DT</u>		MOTOR POWER SUPP	C1A61
TC Lo	<u>BR-51, "DT</u>	 ER SUPPLY	CONTROL MODULE PO	C1A62
TC Lo	<u>BR-58, "DT</u>	 /	BACKUP POWER SUP	C1A63
TC Lo	<u>BR-66, "DT</u>		STROKE SENSOR	C1A64
TC Lo	<u>BR-76, "DT</u>		STROKE SENSOR SET	C1A65
TC Lo	<u>BR-85,</u> "DT	 ISOR	MASTER PRESSURE S	C1A66
TC Lo	<u>BR-94, "DT</u>		STOP LAMP SWITCH	C1A67
)TC Lc	<u>BR-104, "D1</u>		MOTOR	C1A69
TC Lo	<u>BR-111, "DT</u>	 PERRATURE	CONTROL MODULE TE	C1A6A
)TC Lo	<u>BR-118, "DT</u>	 P UNIT	POWER SUPPLY BACK	C1A6B
)TC Lc	BR-127, "D1	 VINIT VOLT	POWER SUPPLY BACK	C1A6C
)TC Lc	<u>BR-134, "DT</u>	 UNIT OUTPUT	POWERSUPPLY BACK	C1A6D
)TC Lc	<u>BR-141, "DT</u>		EV/HEV SYSTEM	C1A6E
)TC Lc	<u>BR-148, "D1</u>		TCM/VCM SYSTEM	C1A6F
)TC Lc	BR-155, "DT	 М	BRAKE CONTROL SYS	C1A70
)TC Lc	<u>BR-162, "D1</u>		ST ANG SEN CIRCUIT	C1A74
)TC Lc	<u>BR-169, "D1</u>		CAN COMM CIRCUIT	U1000
)TC Lc	<u>BR-170, "DT</u>		CONTROL UNIT (CAN)	U1010
)TC Lc	<u>BR-172, "DT</u>	 UNICATION	BRAKE CONTROL COM	U1510
TC Lo	BR-179, "DT	 UNIT COMM	POWER SUPPLY BACK	U1511

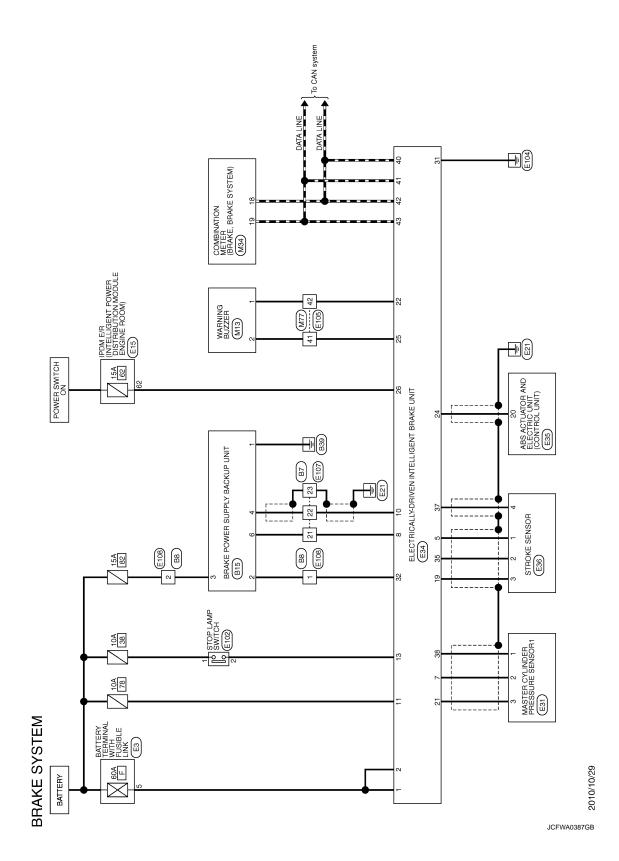
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< WIRING DIAGRAM > WIRING DIAGRAM

BRAKE SYSTEM

Wiring Diagram

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STOP LAMP SW SIGNAL STRORE SENSOR POWER SUPPLY PRESS SENSOR POWER SUPPLY BUZZER SIGNAL EAKE COMM BUZZER POWIE SUPPLY BUZZER POWIE SUPPLY DOWER SWITCH ON GND BRAKE POWER SENSOR SIGNAL STROKE EENSOR SIGNAL	CARP-L CART-L CANT-L CANT-L CANT-H
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BRAKE SYSTEM

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BRAKE SYSTEM

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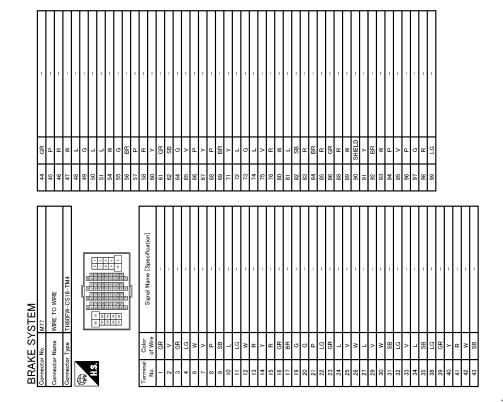
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< BASIC INSPECTION >

BASIC INSPECTION DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

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 <u>BR-34</u>, "<u>Diagnostic Work Sheet</u>" and reproduce the symptom as well as fully understand it. Depending on the situations, drive the vehicle with the customer and check the symptom.

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 <u>BR-25, "Fail-Safe"</u>.

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

	Vith CONSULT	
		J
	CAUTION:	0
	Never engage READY status.	
2.	Repeat step 1 for 2 times or more.	
	CAUTION:	K
	Be sure to wait for 5 seconds or more after turning the power switch OFF.	
	Turn the power switch OFF.	
	Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.	L
5.	Turn the power switch ON.	
	CAUTION:	
	 Never engage READY status. 	R. /
	Never depress brake pedal.	\mathbb{N}
6.	Erase self-diagnosis result of "BRAKE".	
	CAUTION:	
	Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	N
	Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.	
	Release brake pedal.	
	Repeat steps 7 to 8 for 3 times.	0
10.	Perform "BRAKE" self-diagnosis.	0
<u>Is C</u>	DTC detected?	
YE	ES >> Record or print self-diagnosis results. GO TO 4.	_
	O >> GO TO 6.	P
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.

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INFOID:000000006960652

< BASIC INSPECTION >

NOTE:

When multiple DTCs are detected, refer to <u>BR-26, "DTC Inspection Priority Chart"</u> 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 <u>GI-</u> <u>51, "Intermittent Incident"</u>.

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 <u>GI-</u> <u>51, "Intermittent Incident"</u>.

7.FINAL CHECK

With CONSULT

- 1. Check the reference value for "BRAKE". Refer to <u>BR-23, "Reference Value"</u>.
- 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:000000006960653

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	MR/MS	Registration number		Initial regist	year tration						
name		Vehicle type		VIN							
Storage date		Traction mo- tor		Milea	ge	km (Mile)				
· · · · · ·		Does not o	perate (ŀ) function				
		Warning lamp for () turns ON									
Symptom		□ Noise	Noise Vibration								
		□ Other ()				
First occurrence		□ Recently	D Other ()				
Frequency of occurrence		□ Always	□ Under a cert	ain conditions of	□ Sometimes (tim	e(s)/day)				

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

Customer name MR/MS Registration number Initial year registration Storage date Vehicle type VIN VIN Storage date Traction motor Mileage km (Mile) Climate conditions Intraction motor Intrelevant Snow Others () Climate conditions Image: Image: km (Mile) Relative humidity I High Image: Image: (°F) Road conditions Image: Image: Image: (°F) Operating condition, etc. Image: Image: Image: Image: Image: Image: Other conditions etc. Image: Image:<				Interview sheet				
Storage date Vehicle type VIN Storage date Traction mo- tor Mileage km (Mile) Climate con- ditions Irrelevant Irrelevant Noteration		MR/MS	U			-		
Storage date Mileage km (Mile) tor Irrelevant Irrelevant Climate conditions Weather Irrelevant Others () Temperature Hot IWarm Cool Cool Irrelevant) Relative humidity High Moderate Low)) Road conditions Intrelevant Intrelevant)))) Operating condition, etc. Intrelevant Intrelevant) Intrelevant))) Operating condition, etc. Intrelevant Intrelevant)))))) Operating condition, etc. Intrelevant Intrelevant)))))) Operating condition, etc. Intrelevant Intrelevant))))))) Operating condition, etc. Intrelevant Intrelevant)))))))))))))	name		Vehicle type			VIN		
Climate conditions 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 □ Mountainous road (uphill or downhill) □ Rough road □ Irrelevant □When traction motor starts □ During idling □ During driving □ During acceleration □ At constant speed driving □ During cornering (right curve or left curve) □ When steering wheel is steered (to right or to left)	Storage date					Mileage	km (Mile)
ditions Temperature Image: Hot Image: Cool Image: Coo			□ Irrelevant					
Image: Interperature Image: Interperature <td< td=""><td>Climate con-</td><td>Weather</td><td>□ Fine □</td><td>I Cloud □ Ra</td><td>in 🗆</td><td>Snow D Othe</td><td>ers (</td><td>)</td></td<>	Climate con-	Weather	□ Fine □	I Cloud □ Ra	in 🗆	Snow D Othe	ers ()
Road conditions Urban area Suburb area Highway Mountainous road (uphill or downhill) Rough road Operating condition, etc. Irrelevant Urban area During driving During acceleration During deceleration Ouring cornering (right curve or left curve) When steering wheel is steered (to right or to left)	ditions	Temperature	□ Hot □W	larm □ Cool	□ Cold	Tempera	ture [Approx. °C (°F)]
Road conditions Image: Mountainous road (uphill or downhill) Rough road Operating condition, etc. Image: Mountainous road (uphill or downhill) Rough road Operating condition, etc. Image: During driving indication in the constant speed driving in the constant speed dritex driving in the constant speed driving in		Relative humidity	□ High	□ Moderate		Low		
Operating condition, etc.	Road conditio	ns				0		
Other conditions	Operating cor	ndition, etc.	UWhen tractic During drivin During dece	ng During eleration hering (right curve c	acceleration	on □ At co	nstant speed driving	
	Other conditic	ns						

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ADDITIONAL SERVICE WHEN REPLACING ELECTRICALLY-DRIVEN INTELLI-GENT BRAKE UNIT

< BASIC INSPECTION >

ADDITIONAL SERVICE WHEN REPLACING ELECTRICALLY-DRIVEN IN-TELLIGENT BRAKE UNIT

Description

INFOID:000000006960654

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

STROKE SENSOR 0 POINT LEARNING

< BASIC INSPECTION >

STROKE SENSOR 0 POINT LEARNING

Description

INFOID:00000006960655 **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. X D Stroke sensor is removed. × Stroke sensor is replaced. х Е Brake pedal is removed. Х Brake pedal is replaced. х Brake pedal heights are adjusted. × BR Work Procedure INFOID:000000006960656 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 Н

· 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? Κ YES >> GO TO 3. NO >> Charge or replace the 12V battery. Refer to PG-101, "Work Flow". GO TO 3. ${
m 3.}$ CHECKING INSTALLATION CONDITIONS OF BRAKE COMPONENTS Check the installation conditions of brake components. Is the inspection result normal? YFS >> GO TO 4. M NO >> Repair or replace error-detected parts and GO TO 4. **4.**CHECK BRAKE PEDAL Ν 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 <u>BR-202, "Inspection and Adjustment"</u>. GO TO 5. 5.PERFORM THE SELF-DIAGNOSIS (P)With CONSULT Ρ Turn the power switch OFF to ON. 1. **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.

Turn the power switch OFF.

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STROKE SENSOR 0 POINT LEARNING

< BASIC INSPECTION >

- 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 <u>BR-27, "DTC Index"</u>. 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

(I) 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 >

DTC/CIRCUIT DIAGNOSIS C1A60 CONTROL MODULE

DTC Logic

INFOID:000000006960657

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DTC DETECTION LOGIC

DTC	Display item	Malfunction detection condition	Possible causes
C1A60	CONTROL MODULE	A malfunction is detected control module that is inte- grated with the electrically-driven intelligent brake unit.	Electrically-driven intelligent brake unit
DTC RE	PRODUCTION PROCED	URE	
1.PREC	ONDITIONING		
		ROCEDURE" is performed just before, turn	the power switch OFF and
wait for at	t least and wait for 10 secor	nds or more, then perform the next test.	
;	>> GO TO 2.		
2. снес	K DTC DETECTION		
With C			
	the power switch OFF to O TION:	N.	
Neve	r engage READY state.	_	
	at step 1 for 2 times or mor	e.	
	ure to wait for 5 seconds of the power switch OFF.	or more after turning the power switch OF	F.
4. Close	e all doors including the bac	k door, and wait outside of vehicle for 5 minu	tes or more.
	the power switch ON. TION:		
Neve	r engage READY state.		
	e self-diagnosis result of "Bl TION:	RAKE".	
		d wait 5 minutes or more after erase self-d (3.94 in) or more, and hold the position for 5	
8. Relea	ase brake pedal.		seconds of more.
	at steps 7 to 8 for 3 times. rm "BRAKE" self-diagnosis		
	C1A60" detected?		
	> Proceed to <u>BR-39, "Diac</u> >> INSPECTION END	inosis Procedure".	
	sis Procedure		INFOID:000000006960658
1. CHEC	K 12V BATTERY		
	the power switch OFF.	connections. Refer to <u>PG-101, "Work Flow"</u> .	
	k the 12V battery. Refer to		
	pection result normal?		
	>> GO TO 2. >> Repair or replace malfur	actioning parts and GO TO 2.	
~	ORM SELF-DIAGNOSIS (1	• •	
	ONSULT		

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

< DTC/CIRCUIT DIAGNOSIS >

- 2. Turn the power switch OFF to ON. CAUTION:
 - Never engage READY state.
- 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

${\it 3.}$ CHECK CONNECTOR TERMINALS

 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.
 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

< DTC/CIRCUIT DIAGNOSIS >

- 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-drive	n intelligent brake unit		Voltage
Connector Terminal		_	vollage
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 in	telligent brake unit		Voltage
Connector	Connector Terminal		voltage
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	Continuity
E34	26	E15	62	Existed

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

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

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to <u>PG-59, "Wiring Diagram - ON</u> <u>POWER SUPPLY -"</u>.

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

7. PERFORM SELF-DIAGNOSIS (3)

(B) 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.

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< DTC/CIRCUIT DIAGNOSIS >

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-drive	Voltage	
Connector	Connector Terminal	
	1 – 31	
E34	2 – 31	10 – 16 V
	11 – 31	
a - 1		

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-driver	Voltage	
Connector		
	1 – 31	
E34	2 – 31	10 – 16 V
	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).
- Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelligent brake unit and 60A fusible link (#F).
- 6. Čheck 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).

< D	TC/CIRCUIT DI							
	ne inspection res							
	YES >> Perform diagnosis for 12V battery power supply. Refer to <u>PG-15, "Wiring Diagram - BATTERY</u> A POWER SUPPLY -".							
N	NO >> Repair or replace malfunctioning parts and GO TO 10.							
10	.PERFORM SE	LF-DIAGNOSIS (4)			В			
	Vith CONSULT							
1. 2. 3.	Connect the ele Connect 12V ba	ctrically-driven intelliger attery cable to negative switch OFF to ON.		s connector. G-104. "Removal and Installation".	С			
4.	Never engage Repeat step 3 for CAUTION:	READY state. or 2 times or more.			D			
F	Be sure to wait Turn the power	t for 5 seconds or mor	e after turning the	power switch OFF.	E			
5. 6.			and wait outside of	vehicle for 5 minutes or more.				
7.	Turn the power CAUTION :	switch ON.			BR			
	Never engage	READY state.			DN			
8.	Erase self-diagr	nosis result of "BRAKE"						
	Turn the power Depress brake Release brake	pedal by 100 mm (3.94 pedal.		e after erase self-diagnosis result. d the position for 5 seconds or more.	G			
		to 10 for 3 times. E" self-diagnosis.			Η			
	<u>TC "C1A60" det</u>	-						
	S >> GO TO							
N(1 1								
	.CHECK GROU				J			
1. 2. 3.	Disconnect the	battery cable to negative electrically-driven intelling between electrically-d	gent brake unit harr					
З.	Check continuit	y between electrically-u	nven mengent blar	te unit and ground.	Κ			
	Electrically-driver	n intelligent brake unit						
	Connector	Terminal	_	Continuity	L			
	E34	31	Ground	Existed				
	ne inspection res				B. 4			
YE	ES >> GO TO	13. or replace malfunctionin	a parts and CO TO	12	Μ			
		LF-DIAGNOSIS (5)	g parts and GO TO	12.				
					Ν			
(円)V 1.	Vith CONSULT Connect the ele	ctrically-driven intelliger	nt brake unit harnes	s connector.				
2.	Connect 12V ba	attery cable to negative		G-104. "Removal and Installation".	0			
3.	CAUTION:	switch OFF to ON.						
	Never engage				_			
4.	Repeat step 3 for CAUTION:	or 2 times or more.			Ρ			
_	Be sure to wait	t for 5 seconds or mor	e after turning the	power switch OFF.				
5. 6.	Turn the power Close all doors		and wait outside of	vehicle for 5 minutes or more.				
7.	Turn the power							
	CAUTION: Never engage	RFADY state						

< DTC/CIRCUIT DIAGNOSIS >

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

- T. 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.
- Check "MOTOR POWER SUPPLY" and "CONTROL MODULE POWER". Refer to <u>BR-23</u>, "<u>Reference</u> <u>Value</u>".

Is the inspection result normal?

YES >> GO TO 14.

14.PERFORM SELF-DIAGNOSIS (6)

With CONSULT

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 <u>BR-221, "Removal and installation"</u>.
- NO >> INSPECTION END

NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u>.

< DTC/CIRCUIT DIAGNOSIS >

C1A61 MOTOR

DTC Logic

INFOID:000000006960659

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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. Motor power voltage 9 V ≥ Motor power voltage Motor power voltage: 16 V ≥ Motor power voltage 	 Connector or harness Electrically-driven intelligent brake unit
DTC RE	PRODUCTION PROCEI	DURE	
1.PREC	ONDITIONING		
		PROCEDURE" was performed just before, turn	n OFF and wait for at least
and wait	for 10 seconds or more, the	en perform the next test.	
	>> GO TO 2.		
-	K DTC DETECTION		
(P)With C	ONSULT		
	the power switch OFF to C	DN.	
Neve	er engage READY state.		
	eat step 1 for 2 times or mo TION:	re.	
Be s	ure to wait for 5 seconds	or more after turning the power switch OFF	Ξ.
	the power switch OFF. e all doors including the ba	ck door, and wait outside of vehicle for 5 minut	es or more.
5. Turn	the power switch ON.		
Neve	er engage READY state.		
	e self-diagnosis result of "E TION:	BRAKE".	
Turn	the power switch OFF an	nd wait 5 minutes or more after erase self-d	
	ess brake pedal by 100 mr ase brake pedal.	n (3.94 in) or more, and hold the position for 5	seconds or more.
	eat steps 7 to 8 for 3 times. form "BRAKE" self-diagnosi		
	C1161" detected?	5.	
YES	>> Proceed to <u>BR-45, "Dia</u>	gnosis Procedure".	
	>> INSPECTION END		
Diagno	sis Procedure		INFOID:00000006960660
1. CHEC	K 12V BATTERY		
	the power switch OFF.		
	k the 12V battery terminal tk the 12V battery. Refer to	connections. Refer to <u>PG-101, "Work Flow"</u> . <u>PG-101, "Work Flow"</u> .	
	pection result normal?		
	>> GO TO 2. >> Repair or replace malfu	nctioning parts and GO TO 2.	
~	ORM SELF-DIAGNOSIS (•	
With C		• /	
1. Conr	nect 12V battery cable to ne	egative terminal. Refer to <u>PG-104, "Removal a</u>	nd Installation".
2. Turn	the power switch OFF to C	DN.	

< DTC/CIRCUIT DIAGNOSIS >

CAUTION:

Never engage READY state.
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 ŎN. 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.

< DTC/CIRCUIT DIA	GNUSIS >			
2. Connect 12V batt	ery cable to negative	terminal. Refer to	PG-104, "Removal an	
 Turn the power sy Close all doors in CAUTION: 	cluding the back door,	, and wait outside c	of vehicle for 5 minute	es or more.
	rake pedal. battery cable to negative ctrically-driven intellig			and Installation".
7. Connect 12V batt	ery cable to negative	terminal. Refer to	PG-104, "Removal an	
8. Check voltage be	tween the electrically-	driven intelligent b	rake unit harness con	nector and ground.
Electrically-driven ir	ntelligent brake unit			
Connector	Terminal	—	Voltage	Ľ
E34	26	Ground	Approximately 0 V	
9. Turn the power sv	witch ON.			E
CAUTION:	EADV state			
Never engage RI 10. Check voltage be		driven intelligent b	rake unit harness con	nector and ground.
	-	Ç		BF
Electrically-driven in	telligent brake unit	_	Voltage	
Connector	Terminal			
E34	26	Ground	10 – 16 V	
Is the inspection resul				F
YES >> GO TO 8. NO >> GO TO 6.				I
6.CHECK POWER S		SUPPLY CIRCUIT		
 Check 15A fuse (Disconnect IPDM 	attery cable to negativ	or.		
Electrically-driven ir	ntelligent brake unit	IPI	DM E/R	ķ
Connector	Terminal	Connector	Terminal	- Continuity
E34	26	E15	62	Existed
6. Check continuity	between electrically-d	riven intelligent bra	ke unit harness conn	ector and ground.
Electrically-driven ir	telligent brake unit	_	Continuity	N
Connector	Terminal			
E34	26	Ground	Not existed	- N
<u>Is the inspection resul</u> YES >> Perform c	liagnosis of power sys	stem with power sw	ritch ON. Refer to <u>PG</u>	-59, "Wiring Diagram - ON
NO >> Repair or	replace malfunctionin	g parts and GO TC)7.	C
POWER	replace malfunctionin	g parts and GO TC)7.	C
NO >> Repair or 7.PERFORM SELF-I	replace malfunctionin DIAGNOSIS (3)			C
NO >> Repair or 7.PERFORM SELF-I	replace malfunctionin DIAGNOSIS (3) rically-driven intelliger	nt brake unit harne		
NO >> Repair or 7.PERFORM SELF-I With CONSULT 1. Connect the elect 2. Disconnect IPDM 3. Connect 12V batt	replace malfunctionin DIAGNOSIS (3) rically-driven intelliger E/R harness connect ery cable to negative	nt brake unit harne	ss connector.	F
NO >> Repair or 7.PERFORM SELF-I With CONSULT 1. Connect the elect 2. Disconnect IPDM 3. Connect 12V batt 4. Turn the power sy	replace malfunctionin DIAGNOSIS (3) rically-driven intelliger E/R harness connect ery cable to negative	nt brake unit harne	ss connector.	F
NO >> Repair or 7.PERFORM SELF-I With CONSULT 1. Connect the elect 2. Disconnect IPDM 3. Connect 12V batt	replace malfunctionin DIAGNOSIS (3) trically-driven intelliger E/R harness connect ery cable to negative to witch OFF to ON. EADY state.	nt brake unit harne	ss connector.	F

< DTC/CIRCUIT DIAGNOSIS >

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.

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-drive	Electrically-driven intelligent brake unit		
Connector	Connector Terminal		
	1 – 31		
E34	2 – 31	10 – 16 V	
	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-driver	Voltage			
Connector Terminal				
	1 – 31			
E34	2 – 31	10 – 16 V		
	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. Čheck 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?

Revision: 2010 November

< D	TC/CIRCUIT DIAG	NOSIS >						
YE	ES >> Perform dia POWER S		ttery power supply.	Refer to <u>PG-15, "Wiring Diagram - BATT</u>	ERY A			
N			ng parts and GO TO	10.	1			
10	PERFORM SELF	-DIAGNOSIS (4)						
	Vith CONSULT		ent brake unit harnes	s connector	В			
2.	Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".							
3.	Turn the power swi	tch OFF to ON.			С			
	CAUTION: Never engage RE	ADV state						
4.	Repeat step 3 for 2				D			
	CAUTION:							
Be sure to wait for 5 seconds or more after turning the power switch OFF.5. Turn the power switch OFF.								
			r. and wait outside of	vehicle for 5 minutes or more.	E			
7.	Turn the power swi		.,					
	CAUTION:							
8	Never engage RE Erase self-diagnos		13		BR			
0.	CAUTION:		•					
•				after erase self-diagnosis result.	G			
	Depress brake ped Release brake ped		in) or more, and hol	d the position for 5 seconds or more.	9			
	Repeat steps 9 to 2							
	Perform "BRAKE" :				Н			
<u>Is E</u>	DTC "C1A61" detect	ed?						
	ES >> GO TO 11.							
	.CHECK GROUND	CIRCUIT						
1.				PG-104, "Removal and Installation".	J			
2. 3.			igent brake unit harr driven intelligent brał					
•								
	Electrically-driven inte	elligent brake unit	_	Continuity	K			
	Connector	Terminal		Continenty				
	E34	31	Ground	Existed	L			
<u>ls t</u>	he inspection result	normal?						
	ES >> GO TO 13.			10				
		•	ng parts and GO TO	12.	M			
	PERFORM SELF	-DIAGNOSIS (5)						
~	Vith CONSULT				Ν			
1. 2.			ent brake unit harnes	s connector. G-104, "Removal and Installation".				
	Turn the power swi							
	CAUTION:				0			
٨	Never engage RE							
4.	Repeat step 3 for 2 CAUTION:	umes or more.						
		r 5 seconds or mo	re after turning the	power switch OFF.	P			
~	Turn the power swi	itch OFF.	_	-				
6. 7.	Close all doors incl Turn the power swi		r, and wait outside of	vehicle for 5 minutes or more.				
<i>.</i>	CAUTION:							
~	Never engage RE							
8.	Erase self-diagnos CAUTION:	is result of "BRAKE'	•					
	CAUTION.							

< DTC/CIRCUIT DIAGNOSIS >

- 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.
- Check "MOTOR POWER SUPPLY" and "CONTROL MODULE POWER". Refer to <u>BR-23, "Reference</u> <u>Value"</u>.

Is the inspection result normal?

YES >> GO TO 14.

NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u>.

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.

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 <u>BR-221, "Removal and installation"</u>.
- NO >> INSPECTION END

< DTC/CIRCUIT DIAGNOSIS >

C1A62 CONTROL MODULE

DTC Logic

DTC DETECTION LOGIC

INFOID:000000006960661

А

В

DTC Possible causes Display item Malfunction detection condition Power voltage of control module that is integrated with electrically-driven intelligent brake unit is as shown below. Harness or connector CONTROL MODULE POWER C1A62 • Control module power voltage: 9 V ≥ Control Electrically-driven intelligent SUPPLY module power voltage brake unit Control module power voltage: 16 V ≤ Control module power voltage Е DTC REPRODUCTION PROCEDURE 1.PRECONDITIONING BR 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 (P)With CONSULT Н Turn the power switch OFF to ON. 1 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. 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:** Κ Never engage READY state. Erase self-diagnosis result of "BRAKE". CAUTION: L 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. M 10. Perform "BRAKE" self-diagnosis. Is DTC "C1A62" detected? YES >> Proceed to BR-51, "Diagnosis Procedure". Ν NO >> INSPECTION END Diagnosis Procedure INFOID:000000006960662 **1.**CHECK 12V BATTERY 1. Turn the power switch OFF. Ρ 2. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow". Check the 12V battery. Refer to PG-101, "Work Flow". 3. Is the inspection result normal? YES >> GO TO 2. NO >> Repair or replace malfunctioning parts and GO TO 2. 2.PERFORM SELF-DIAGNOSIS (1)

< DTC/CIRCUIT DIAGNOSIS >

()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 ŎN.
- CAUTION: Never engage READY state.
- 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 >> INSPEC	FION END			
.CHECK POWER	SWITCH ON POWER	SUPPLY		
Connect 12V bat Turn the power s Close all doors in CAUTION: Never depress t Disconnect 12V t Disconnect the e Connect 12V bat	witch OFF. Including the back door Drake pedal. Drattery cable to negat lectrically-driven intell tery cable to negative	terminal. Refer to <u>f</u> r, and wait outside o ive terminal. Refer t igent brake unit har terminal. Refer to <u>f</u>	o <u>PG-104, "Removal and</u> of vehicle for 5 minutes o <u>PG-104, "Removal a</u>	s or more. and Installation". d Installation".
Electrically-driven i	ntelligent brake unit			
Connector	Terminal	—	Voltage	
E34	26	Ground	Approximately 0 V	
	etween the electrically	-driven intelligent b	rake unit harness conr	nector and ground.
-	ntelligent brake unit	_	Voltage	
Connector E34	Terminal 26	Ground	10 – 16 V	
Turn the power s Disconnect 12V k Check 15A fuse o Disconnect IPDM	SWITCH ON POWER witch OFF. pattery cable to negat (#62). I E/R harness connec	ive terminal. Refer t	o <u>PG-104, "Removal a</u> ke unit and IPDM E/R	
		_		
Electrically-driven i	ntelligent brake unit Terminal		DM E/R Terminal	Continuity
E34	26	Connector E15	62	Existed
201			ke unit harness conne	
Electrically-driven i	ntelligent brake unit	_	Continuity	
Electrically-driven i Connector	Terminal	_	Continuity	
Electrically-driven i	Terminal 26	— Ground	Continuity Not existed	

- 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".

< DTC/CIRCUIT DIAGNOSIS >

- 4. Turn the power switch OFF to ON. CAUTION:
- Never engage READY state.
 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-driver	Voltage				
Connector	Terminal	voltage			
	1 – 31				
E34	2 – 31	10 – 16 V			
	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-driver	Voltage					
Connector	Terminal	vollage				
	1 – 31					
E34	2 – 31	10 – 16 V				
	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).

< D	TC/CIRCUIT DI	AGNOSIS >			
	gent brake unit	y and for short circuit I and 10A fuse (#78).	between harness cor	nector terminal 11 of elec	xtrically-driven intelli- A
	ne inspection res				
YE		diagnosis for 12V ba SUPPLY -".	ttery power supply. I	Refer to <u>PG-15, "Wiring I</u>	Diagram - BATTERY B
N		or replace malfunctioni	ng parts and GO TO	10.	
		LF-DIAGNOSIS (4)			С
1. 2. 3.	Connect 12V ba	ctrically-driven intellige ttery cable to negative switch OFF to ON.		s connector. G-104, "Removal and Inst	allation". D
	Never engage	READY state.			E
4.		or 2 times or more.			
	CAUTION: Be sure to wait	for 5 seconds or mo	re after turning the	power switch OFF.	
5.	Turn the power	switch OFF.	-	-	BR
6. 7.	Close all doors i Turn the power		r, and wait outside of	vehicle for 5 minutes or n	iore.
7.	CAUTION:	Switch ON.			G
•	Never engage				Ũ
8.	Erase self-diagr	osis result of "BRAKE	•		
		switch OFF and wai	t 5 minutes or more	after erase self-diagnos	is result.
			in) (3.94 in) or more	, and hold the position for	5 seconds or more.
	Release brake p	to 10 for 3 times.			1
		E" self-diagnosis.			I
<u>Is E</u>	TC "C1A62" det	ected?			
	S >> GO TO				J
N(1 1					
	.CHECK GROU				K
1.				PG-104, "Removal and In	nstallation".
2. 3.		electrically-driven intell between electrically-o			
-		,, ,, ,, ,, ,, ,, ,	<u>j</u>	J	L
	Electrically-driven	intelligent brake unit		Orationity	
	Connector	Terminal	—	Continuity	M
	E34	31	Ground	Existed	IVI
ls t	ne inspection res	ult normal?			
	S >> GO TO				Ν
		or replace malfunctioni	ng parts and GO TO	12.	
	.PERFORM SE	LF-DIAGNOSIS (5)			0
~	Vith CONSULT	- toda - the state of the state	and have been stated		0
1. 2.		ctrically-driven intellige		s connector. G-104, "Removal and Inst	allation"
2. 3.	Turn the power	switch OFF to ON.			P
	CAUTION:				
4.	Never engage I Repeat step 3 fo				
••	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.

< DTC/CIRCUIT DIAGNOSIS >

- 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.
- Check "MOTOR POWER SUPPLY" and "CONTROL MODULE POWER". Refer to <u>BR-23, "Reference</u> <u>Value"</u>.

Is the inspection result normal?

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

14.PERFORM SELF-DIAGNOSIS (6)

With CONSULT

- 1. Turn the power switch OFF to ON. CAUTION:
- Never engage READY state.
 Repeat step 1 for 2 times or more.
- CAUTION: Be sure to wait for 5 seconds or more after t

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.

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 <u>BCS-26, "BCM : CONSULT Function (BCM - BCM)"</u>. <u>Is any DTC detected?</u>

< D	TC/CIRCUIT DIAGNOSIS >	_
YE	 ES >> Check the DTC. Refer to <u>BCS-54, "DTC Index"</u>. O >> GO TO 16. 	А
16	D.PERFORM SELF-DIAGNOSIS (7)	
ØV	With CONSULT	В
1.	Turn the power switch OFF to ON. CAUTION:	
•	Never engage READY state.	0
2.	Repeat step 1 for 2 times or more. CAUTION:	С
0	Be sure to wait for 5 seconds or more after turning the power switch OFF.	
3. 4.	Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.	D
5.	Turn the power switch ON.	
	CAUTION: Never engage READY state.	Е
6.	Erase self-diagnosis result of "BRAKE".	
	CAUTION: Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	BR
7. o	Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more. Release brake pedal.	
9.	Repeat steps 7 to 8 for 3 times.	
	Perform "BRAKE" self-diagnosis.	G
	DTC "C1A62" detected? ES >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u> .	
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< DTC/CIRCUIT DIAGNOSIS >

C1A63 BRAKE POWER SUPPLY BACKUP UNIT

DTC Logic

INFOID:000000006960663

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 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.

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 <u>BR-58</u>, "Diagnosis Procedure".
- NO >> INSPECTION END

Diagnosis Procedure

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 <u>PG-101, "Work Flow"</u>.

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".
- Turn the power switch OFF to ON. CAUTION:

BR-58

INFOID:000000006960664

< DTC/CIRCUIT DIAGNOSIS >	
Never engage READY state. 3. Repeat step 2 for 2 times or more. CAUTION:	Ą
Be sure to wait for 5 seconds or more after turning the power sw	itch OFF.
 Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 	D
6. Turn the power switch ON. CAUTION:	
Never engage READY state.	C
7. Erase self-diagnosis result of "BRAKE". CAUTION:	
 Turn the power switch OFF and wait 5 minutes or more after eras 8. Depress brake pedal by 100 mm (3.94 in) or more, and hold the posit 9. Release brake pedal. 10. Repeat steps 8 to 9 for 3 times. 	
11. Perform "BRAKE" self-diagnosis.	E
Is DTC "C1A63" detected?	
YES >> GO TO 3. NO >> INSPECTION END	BR
3. CHECK CONNECTOR TERMINALS	
 Close all doors including the back door, and wait outside of vehicle for CAUTION: 	5 minutes or more.
 Never depress brake pedal. Disconnect 12V battery cable from negative terminal. Refer to <u>PG-104</u> Disconnect the electrically-driven intelligent brake unit harness conn terminals and connections. 	
 Disconnect the brake power supply backup unit harness connector, th and connections. 	en check for failures of pin terminals
Is the inspection result normal?	
YES >> GO TO 5. NO >> Repair or replace malfunctioning parts and GO TO 4.	r
4. PERFORM SELF-DIAGNOSIS (2)	J
1. Connect the electrically-driven intelligent brake unit harness connecto	r. K
 Connect the brake power supply backup unit harness connector. Connect 12V battery cable to negative terminal. Refer to <u>PG-104. "Re</u> 	moval and Installation"
 Connect 12 v battery cable to negative terminal. Relet to <u>1 G-104. Re</u> Turn the power switch OFF to ON. CAUTION: 	
Never engage READY state.	
5. Repeat step 4 for 2 times or more. CAUTION:	N
Be sure to wait for 5 seconds or more after turning the power sw	itch OFF.
 Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 	5 minutes or more
8. Turn the power switch ON.	5 minutes of more.
CAUTION:	
 Never engage READY state. 9. Erase self-diagnosis result of "BRAKE". CAUTION: 	C
Turn the power switch OFF and wait 5 minutes or more after eras 10. Depress brake pedal by 100 mm (3.94 in) or more, and hold the posit 11. Release brake pedal.	
 Repeat steps 10 to 11 for 3 times. Perform "BRAKE" self-diagnosis. 	
Is DTC "C1A63" detected?	
YES >> GO TO 5.	

NO >> INSPECTION END

< DTC/CIRCUIT DIAGNOSIS >

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-driver	Electrically-driven intelligent brake unit		Voltage	
Connector	Terminal	_	voltage	
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 in	telligent 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 in	ntelligent brake unit	IPDI	/I E/R	Continuity
Connector	Terminal	Connector	Terminal	Continuity
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		Continuity
E34	26	Ground	Not existed

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to <u>PG-59</u>, "Wiring Diagram - ON <u>POWER SUPPLY</u> -".

NO >> Repair or replace malfunctioning parts and GO TO 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".

< DTC/CIRCUIT DIAGNOSIS > Turn the power switch OFF to ON. 4. **CAUTION:** А Never engage READY state. 5. Repeat step 4 for 2 times or more. **CAUTION:** В Be sure to wait for 5 seconds or more after turning the power switch OFF. 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". D **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. Е 11. Release brake pedal. 12. Repeat steps 10 to 11 for 3 times. 13. Perform "BRAKE" self-diagnosis. Is DTC "C1A63" detected? BR YES >> GO TO 8. NO >> INSPECTION END **8.**CHECK 12V BATTERY POWER SUPPLY Turn the power switch OFF. 1. 2. Disconnect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation". Н Disconnect the electrically-driven intelligent brake unit harness connector. 3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation". 4.

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

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

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	voltage
	1 – 31	
E34	2 – 31	10 – 16 V
	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).
- 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).

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< DTC/CIRCUIT DIAGNOSIS >

- 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 <u>PG-15, "Wiring Diagram BATTERY</u> <u>POWER SUPPLY -"</u>.
- 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	_	Continuity
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)

(B) 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.

< DTC/CIRCUIT DIAGNOSIS >	
7. Turn the power switch ON. CAUTION:	А
Never engage READY state.	A
8. Erase self-diagnosis result of "BRAKE".	
CAUTION:	В
 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.	С
12. Perform "BRAKE" self-diagnosis.	
Is DTC "C1A63" detected?	
YES >> GO TO 13.	D
NO >> INSPECTION END	
13. CHECK DATA MONITOR	
With CONSULT	E
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.	BR
CAUTION:	
Never engage READY state.4. Repeat step 2 for 2 times or more.	0
CAUTION:	G
Be sure to wait for 5 seconds or more after turning the power switch OFF.	
5. Select "BRAKE" and "DATA MONITOR" according this order.	Н
6. Check "MOTOR POWER SUPPLY" and "CONTROL MODULE POWER". Refer to <u>BR-23</u> , "Reference	11
Value".	
Is the inspection result normal?	
YES >> GO TO 14.	1
NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u> .	
14.PERFORM SELF-DIAGNOSIS (6)	J
1. Turn the power switch OFF to ON.	
CAUTION:	Κ
Never engage READY state.	
 Repeat step 1 for 2 times or more. CAUTION: 	
Be sure to wait for 5 seconds or more after turning the power switch OFF.	L
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.	M
CAUTION: Never engage READY state.	
6. Erase self-diagnosis result of "BRAKE".	
CAUTION:	Ν
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.	
 Release brake pedal. Repeat steps 7 to 8 for 3 times. 	0
10. Perform "BRAKE" self-diagnosis.	
Is DTC "C1A63", "C1A6B", "C1A6C" or "C1A6D" detected?	
YES (C1A63)>>GO TO 15.	Ρ
YES (C1A6B)>>Refer to <u>BR-118, "Diagnosis Procedure"</u> .	
YES (C1A6C)>>Refer to <u>BR-127, "Diagnosis Procedure"</u> .	
YES (C1A6D)>>Refer to <u>BR-134, "Diagnosis Procedure"</u> .	
NO >> INSPECTION END	
15. CHECK CIRCUIT BETWEEN ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT AND BRAKE	

< DTC/CIRCUIT DIAGNOSIS >

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		Continuity
E34	31	Ground	Existed

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

	Electrically-driven intelligent brake unit			Continuity
-	Connector	Terminal	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 in	ntelligent brake unit	Brake power su	pply backup unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
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		Continuity
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)

(I) 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".
- 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.

Erase self-diagnosis result of "BRAKE".
 CAUTION:

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

< DTC/CIRCUIT DIAGNOSIS >

 Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more. Release brake pedal. Repeat steps 10 to 11 for 3 times. 	A
13. Perform "BRAKE" self-diagnosis.	
Is DTC "C1A63" detected?	В
YES >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u> NO >> INSPECTION END	
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< DTC/CIRCUIT DIAGNOSIS >

C1A64 STROKE SENSOR

DTC Logic

INFOID:000000006960665

DTC DETECTION LOGIC

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

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.
- 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 <u>BR-66, "Diagnosis Procedure"</u>.
- NO >> INSPECTION END

Diagnosis Procedure

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 <u>PG-101, "Work Flow"</u>.

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

INFOID:000000006960666

< D	TC/CIRCUIT DIAGNOSIS >	
1. 2.	Connect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u> . Turn the power switch OFF to ON. CAUTION:	А
3.	Never engage READY state. Repeat step 2 for 2 times or more. CAUTION:	В
5.	Be sure to wait for 5 seconds or more after turning the power switch OFF. Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Turn the power switch ON.	С
	CAUTION: Never engage READY state. Erase self-diagnosis result of "BRAKE".	D
9. 10.	CAUTION: Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more. Release brake pedal. Repeat steps 8 to 9 for 3 times. Defent #BAKE? act diagnosis	E
	Perform "BRAKE" self-diagnosis. DTC "C1A64" detected?	BR
YE	ES >> GO TO 3. O >> INSPECTION END	G
	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.	Н
3.	Disconnect 12V battery cable from negative terminal. Refer to <u>PG-104, "Removal and Installation"</u> . Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections. Check that there is no malfunction in pin terminals and connection of stroke sensor harness connector.	Ι
<u>ls th</u> YE	he inspection result normal? ES >> GO TO 5.	J
NC 4	O >> Repair or replace malfunctioning parts and GO TO 4. PERFORM SELF-DIAGNOSIS (2)	IZ.
		Κ
1. 2.	Vith CONSULT Connect the electrically-driven intelligent brake unit harness connector. Connect stroke sensor harness connector. Connect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u> .	L
	Turn the power switch OFF to ON. CAUTION: Never engage READY state.	M
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.	N
7.	Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Turn the power switch ON. CAUTION:	0
9.	Never engage READY state. Erase self-diagnosis result of "BRAKE". CAUTION:	Ρ
11. 12. 13.	Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more. Release brake pedal. Repeat steps 10 to 11 for 3 times. Perform "BRAKE" self-diagnosis.	

YES >> GO TO 5.

< DTC/CIRCUIT DIAGNOSIS >

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-driver	n intelligent brake unit		Voltage	
Connector	Connector Terminal		voltage	
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.

Voltage
10 – 16 V

Is the inspection result normal?

YES >> GO TO 8.

NO >> GO TO 6.

${f 6.}$ 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		IPDN	Continuity		
Connector	Terminal	Connector	Terminal	Continuity	
E34	26	E15	62	Existed	

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

Electrically-driven in	telligent brake unit		Continuity	
Connector	Connector Terminal		Continuity	
E34	26	Ground	Not existed	

Is the inspection result normal?

- YES >> Perform diagnosis of power system with power switch ON. Refer to <u>PG-59</u>, "Wiring Diagram ON <u>POWER SUPPLY -"</u>.
- 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.

< DTC/CIRCUIT D	IAGNOSIS >			
	attery cable to negative switch OFF to ON.	e terminal. Refer to <u>P</u>	G-104. "Removal and Installation".	A
5. Repeat step 4 1 CAUTION:	for 2 times or more.			В
6. Turn the power		-	power switch OFF.	C
 Close all doors 8. Turn the power CAUTION: 		r, and wait outside o	venicle for 5 minutes of more.	C
9. Erase self-diag	READY state. nosis result of "BRAKE			D
	pedal by 100 mm (3.94 pedal.		e after erase self-diagnosis result. Id the position for 5 seconds or more.	Е
13. Perform "BRAK Is DTC "C1A64" de	E" self-diagnosis.			BR
YES >> GO TO NO >> INSPE		LY		G
 Turn the power Disconnect 12\ Disconnect the 	switch OFF. / battery cable to negat electrically-driven intell	ive terminal. Refer to ligent brake unit harr		Н
			<u>G-104, "Removal and Installation"</u> . ake unit harness connector terminals.	I
Electrically-drive	n intelligent brake unit			
Connector	Terminal	Voltage		J
	1 – 31			
E34	2 – 31	10 – 16 V		К
	11 – 31			1.6
6. Turn the power	switch ON.			

6. Turn the power switch ON. CAUTION:

Never engage READY state.

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

Ele	Electrically-driven intelligent brake unit		Voltage	
Co	onnector	Terminal	vollage	
		1 – 31	10 – 16 V	
	E34	2 – 31		
		11 – 31	1	

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).

 Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).

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< DTC/CIRCUIT DIAGNOSIS >

- 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 <u>PG-15, "Wiring Diagram BATTERY</u> <u>POWER SUPPLY -"</u>.
- 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.

4. Repeat step 3 for 2 times of n 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-drive	n intelligent brake unit		Continuity	
Connector Terminal			Continuity	
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.

< DTC/CIRCUIT DIAGNOSIS >	
5. Turn the power switch OFF.	-
6. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.	А
7. Turn the power switch ON.	
CAUTION: Never engage READY state.	
8. Erase self-diagnosis result of "BRAKE".	В
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.	С
10. Release brake pedal.	
 Repeat steps 9 to 10 for 3 times. Perform "BRAKE" self-diagnosis. 	
5	D
Is DTC "C1A64" detected?	
YES >> GO TO 13. NO >> INSPECTION END	
	E
13. CHECK DATA MONITOR	_
1. Connect the electrically-driven intelligent brake unit harness connector.	BR
2. Connect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u> .	
3. Turn the power switch OFF to ON.	
CAUTION: Never engage READY state.	G
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.	Н
5. Select "BRAKE"ÅA"DATA MONITOR" according this order.	
6. Check "MOTOR POWER SUPPLY" and "CONTROL MODULE POWER. Refer to BR-23, "Reference	<u>e</u>
Value".	
Is the inspection result normal?	
YES >> GO TO 14.	
NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u>	J
14.PERFORM SELF-DIAGNOSIS (6)	
	K
1. Turn the power switch OFF to ON.	I.
CAUTION:	
Never engage READY state.	1
2. Repeat step 1 for 2 times or more.	L
CAUTION: Be sure to wait for 5 seconds or more after turning the power switch OFF.	
3. Turn the power switch OFF.	M
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.	IVI
5. Turn the power switch ON.	
CAUTION:	Ν
Never engage READY state.	IN
 Erase self-diagnosis result of "BRAKE". CAUTION: 	
Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	0
7. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.	0
8. Release brake pedal.	
9. Repeat steps 7 to 8 for 3 times.	P
10. Perform "BRAKE" self-diagnosis.	Р
Is DTC "C1A64" detected?	
YES >> GO TO 15.	
NO >> INSPECTION END	
15.stroke sensor 0 point learning (1)	

(B) With CONSULT

< DTC/CIRCUIT DIAGNOSIS > 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) (P)With CONSULT Turn the power switch OFF to ON. 1. **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. 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.

>> Adjust each height. Refer to <u>BR-202</u>, "Inspection and Adjustment". GO TO 21. NO

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)

- (P)With CONSULT
- 1. Turn the power switch OFF to ON. **CAUTION:**

Never engage READY state.

C1A64 STROKE SENSOR

< DTC/CIRCUIT DIAGNOSIS > 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.

Erase self-diagnosis result of "BRAKE".
 CAUTION:

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

- Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.
 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.

_	Orationity	ntelligent brake unit	Electrically-driven in	sensor	Strokes
	Continuity	Terminal	Connector	Terminal	Connector
_	Existed	19		3	
_	Not existed	35	-	3	
_	Not existed	5	-	3	
_	Not existed	19		2	
_	Existed	35	E34	2	E36
_	Not existed	5	-	2	
_	Not existed	19	-	1	
_	Not existed	35		1	
_	Existed	5		1	

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.
- Turn the power switch ON. CAUTION:

Never engage READY state.

5. Check the stroke sensor power voltage.

Stroke sensor			Voltage
Connector	Terminal		vollage
E36	3	Ground	4.75 – 5.25 V

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< DTC/CIRCUIT DIAGNOSIS >

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 i	Electrically-driven intelligent brake unit		Resistance
Connector	Terminal	- Condition	Itesistance
E34	35 – 5	Gradually depress the brake pedal.	Resistance value decreases between $0.1 - 1.33 \text{ k}\Omega$, according to the depth of brake depression.
L04	37 – 5		Resistance value increases between 0.1 – 1.33 k Ω , 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 <u>BR-211, "Removal and Installation"</u>.

>> 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.

C1A64 STROKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >	
NO >> INSPECTION END	А
	В
	С
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< DTC/CIRCUIT DIAGNOSIS >

C1A65 INCOMPLETE STROKE SENSOR

DTC Logic

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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

- Turn the power switch OFF to ON. CAUTION:
 - Never engage READY state.
- 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. Erase self-diagnosis result of "BRAKE".

CAUTION:

6.

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 <u>BR-76, "Diagnosis Procedure"</u>.
- NO >> INSPECTION END

Diagnosis Procedure

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 <u>PG-101, "Work Flow"</u>.

Is the inspection result normal?

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.

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< D	TC/CIRCUIT DIAGNOSIS >	
3.	Repeat step 2 for 2 times or more. CAUTION:	А
4	Be sure to wait for 5 seconds or more after turning the power switch OFF.	
4. 5. 6.	Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Turn the power switch ON. CAUTION:	В
7.	Never engage READY state. Erase self-diagnosis result of "BRAKE". CAUTION:	С
9. 10.	Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more. Release brake pedal. Repeat steps 8 to 9 for 3 times.	D
	Perform "BRAKE" self-diagnosis.	Е
	DTC "C1A65" detected?	
N		BR
3.	CHECK CONNECTOR TERMINALS	DN
1.	Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. CAUTION: Never depress brake pedal.	G
3.	Disconnect 12V battery cable from negative terminal. Refer to <u>PG-104</u> , " <u>Removal and Installation</u> ". Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections. Check that there is no malfunction in pin terminals and connection of stroke sensor harness connector.	Н
	he inspection result normal?	
-	ES >> GO TO 5.	I
	PERFORM SELF-DIAGNOSIS (2)	
		J
(<u> </u>)v 1.	Vith CONSULT Connect the electrically-driven intelligent brake unit harness connector.	
2.	Connect stroke sensor harness connector.	K
3. 4.	Connect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u> . Turn the power switch OFF to ON.	IX
5.	CAUTION: Never engage READY state. Repeat step 4 for 2 times or more.	L
•	CAUTION:	
e	Be sure to wait for 5 seconds or more after turning the power switch OFF.	M
	Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.	
	Turn the power switch ON.	
	CAUTION:	Ν
9.	Never engage READY state. Erase self-diagnosis result of "BRAKE". CAUTION:	
10.	Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.	0
11.	Release brake pedal.	Р
	Repeat steps 10 to 11 for 3 times. Perform "BRAKE" self-diagnosis.	Γ
	JIC "CIA65" detected?	
	DTC "C1A65" detected? ES >> GO TO 5. O >> INSPECTION END	

5. CHECK POWER SWITCH ON POWER SUPPLY

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

< DTC/CIRCUIT DIAGNOSIS >

- 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-driver	Electrically-driven intelligent brake unit		Voltaga
Connector	Terminal		Voltage
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 in	telligent brake unit		Voltage
Connector	Terminal		vonage
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		IPDI	M E/R	Continuity
Connector	Terminal	Connector	Terminal	Continuity
E34	26	E15	62	Existed

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

Electrically-driven in	telligent brake unit		Continuity
Connector	Terminal		Continuity
E34	26	Ground	Not existed

Is the inspection result normal?

- YES >> Perform diagnosis of power system with power switch ON. Refer to <u>PG-59</u>, "Wiring Diagram ON <u>POWER SUPPLY -"</u>.
- 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.

< C	TC/CIRCUIT D	IAGNOSIS >			
5.		or 2 times or more.			
	CAUTION:		<i>.</i>		А
c		t for 5 seconds or mo	ore after turning th	e power switch OFF.	
6. 7.	Turn the power		r and wait outside	of vehicle for 5 minutes or more.	
8.	Turn the power			or vehicle for o minutes of more.	В
•	CAUTION:				
	Never engage	READY state.			
9.	Erase self-diag	nosis result of "BRAKE			С
	CAUTION:			6	
10				e after erase self-diagnosis result.	
	Release brake		in) of more, and h	old the position for 5 seconds or more.	D
		0 to 11 for 3 times.			
		E" self-diagnosis.			
	DTC "C1A65" det	•			E
	ES >> GO TO				
Ň		CTION END			
-		TTERY POWER SUPP	IV		BR
1.	Turn the power		ive terminal Defer	to DO 404. "Demoval and Installation"	
2. 3.		electrically-driven intel		to <u>PG-104, "Removal and Installation"</u> .	G
з. 4.				PG-104, "Removal and Installation".	
4. 5.				rake unit harness connector terminals.	
0.	encon vonago i				Н
	Electrically-drive	n intelligent brake unit		-	
	Connector	Terminal	Voltage		
	Connector	1 – 31		_	
	504		40 40.14		
	E34	2 – 31	10 – 16 V		J
		11 – 31		_	J
6.	Turn the power	switch ON.			
	CAUTION:				K
7.	Never engage		-driven intelligent h	rake unit harness connector terminals.	IX.
	Sheek voltage i	someon the electrically	anven mengent b		
	Flectrically-driver	n intelligent brake unit		-	L
		Terminal	Voltage		

Electrically-unver	Electrically-unvenimelligent brake unit		
Connector	Terminal	- Voltage	
	1 – 31		
E34	2 – 31	10 – 16 V	
	11 – 31		

Is the inspection result normal?

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

NO 22 00 10 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).
- 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).

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< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

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

10. PERFORM SELF-DIAGNOSIS (4)

With CONSULT

- T. 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	_	Continuity	
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.

< DTC/CIRCUIT DIAGNOSIS >

 Erase self-diagnosis result of "BRAKE". CAUTION: 	A
Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	A
 Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more. Release brake pedal. 	
11. Repeat steps 7 to 8 for 3 times.	В
12. Perform "BRAKE" self-diagnosis.	
Is DTC "C1A65" detected?	С
YES >> GO TO 13. NO >> INSPECTION END	
13. CHECK DATA MONITOR	
	D
 With CONSULT Connect the electrically-driven intelligent brake unit harness connector. 	
2. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".	Е
3. Turn the power switch OFF to ON. CAUTION:	
Never engage READY state.	
4. Repeat step 3 for 2 times or more.	BR
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.	G
6. Check "MOTOR POWER SUPPLY" and "CONTROL MODULE POWER. Refer to <u>BR-23, "Reference</u>	<u>e</u>
Value". Is the inspection result normal?	
YES >> GO TO 14.	Н
NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221. "Removal and installation"</u>	
14.PERFORM SELF-DIAGNOSIS (6)	I
(P)With CONSULT	-
1. Turn the power switch OFF to ON.	
CAUTION: Never engage READY state.	J
2. Repeat step 1 for 2 times or more.	
CAUTION:	K
Be sure to wait for 5 seconds or more after turning the power switch OFF. 3. Turn the power switch OFF.	
 Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. 	
5. Turn the power switch ON.	L
CAUTION: Never engage READY state.	
6. Erase self-diagnosis result of "BRAKE".	M
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.	Ν
 Repeat steps 7 to 8 for 3 times. Perform "BRAKE" self-diagnosis. 	
Is DTC "C1A65" detected?	0
YES >> GO TO 15.	0
NO >> INSPECTION END	
15. STROKE SENSOR 0 POINT LEARNING (1)	Р
With CONSULT	-
Perform stroke sensor 0 point learning. Refer to <u>BR-37, "Work Procedure"</u> .	_
Was either "COMPLETED" or "The operation is incomplete. Try again after confirming the operation cond tion." displayed?	<u>i-</u>

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

< DTC/CIRCUIT DIAGNOSIS >

16.PERFORM SELF-DIAGNOSIS (7)

With CONSULT

- Turn the power switch OFF to ON. CAUTION: Never engage READY state.
- 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.

 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 <u>BR-202</u>, "Inspection and Adjustment". GO TO 21.

20. STROKE SENOR 0 POINT LEARNING (2)

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

>> 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.

< DTC/CIRCUIT DIA	GNOSIS >				
5. Turn the power sw CAUTION:					A
 Never engage RI 6. Erase self-diagno CAUTION: 	sis result of "BRAKE".				
	witch OFF and wait dal by 100 mm (3.94				В
9. Repeat steps 7 to 10. Perform "BRAKE"	8 for 3 times. self-diagnosis.				С
IS DTC "C1A65" detec YES >> GO TO 22 NO >> INSPECT	2. ION END				D
22.CHECK STROK	E SENSOR CIRCUIT				_
	cluding the back door,		vehicle for 5 minutes	s or more.	
4. Disconnect 12V b	roke sensor harness o attery cable to negative ctrically-driven intellig	ve terminal. Refer to		and Installation".	BR
				en intelligent brake uni	it. G
Stroke	sensor	Electrically-driven i	ntelligent brake unit	Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
	3		19	Existed	Н
	3		35	Not existed	
	3		5	Not existed	I
	2		19	Not existed	

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

2

2

1

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1

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 <u>PG-104, "Removal and Installation"</u>.

E34

35

5

19

35

5

Existed

Not existed

Not existed

Not existed

Existed

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

Turn the power switch ON. CAUTION:

Is the inspection result normal?

Never engage READY state.

5. Check the stroke sensor power voltage.

Stroke sensor		_	Voltage	
Connector	Terminal		voltage	
E36	3	Ground	4.75 – 5.25 V	

Is the inspection result normal?

YES >> GO TO 24.

E36

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

24.CHECK STROKE SENSOR RESISTANCE

M

J

Κ

L

Ν

Ρ

< DTC/CIRCUIT DIAGNOSIS >

- 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	Connector Terminal			
E34	35 – 5	Gradually depress	Resistance value decreases between $0.1 - 1.33 \text{ k}\Omega$, according to the depth of brake depression.	
234	37 – 5	the brake pedal.	Resistance value increases between $0.1 - 1.33 \text{ k}\Omega$, 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.
- 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

< DTC/CIRCUIT DIAGNOSIS >

C1A66 PRESSURE SENSOR

DTC Logic

INFOID:000000006960669

DTC DETECTION LOGIC

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닏

А

DTC	Display item	Malfunction detection condition	Possible causes
C1A66	MASTER PRESSURE SEN- SOR	 Open circuit is detected in master cylinder fluid pressure sensor 1 circuit. Short circuit is detected in master cylinder fluid pressure sensor 1 circuit. Malfunction is detected in master cylinder fluid pressure sensor 1. 	 Harness or connector Master cylinder fluid pressure sensor 1 improper installation Master cylinder fluid pressure sensor 1 Electrically-driven intelligent brake unit
	PRODUCTION PROCED	URE	
1. PREC	ONDITIONING		
		ROCEDURE" was performed just before, tur lds or more, then perform the next test.	rn the power switch OFF and
wait for a			
-	>> GO TO 2.		
2.CHEC	K DTC DETECTION		
With Control	ONSULT the power switch OFF to Of	N	
CAU.	TION:	ν.	
	r engage READY state. at step 1 for 2 times or more	е.	
	TION: ure to wait for 5 seconds (or more after turning the power switch OF	FF
3. Turn	the power switch OFF.		
	e all doors including the bac the power switch ON.	k door, and wait outside of vehicle for 5 minu	utes or more.
	FION: r engage READY state.		
6. Erase	e self-diagnosis result of "BF	RAKE".	
	FION: the power switch OFF and	d wait 5 minutes or more after erase self-	diagnosis result.
	ess brake pedal by 100 mm ase brake pedal.	(3.94 in) or more, and hold the position for s	5 seconds or more.
9. Repe	at steps 7 to 8 for 3 times.		
	rm "BRAKE" self-diagnosis. 21A66" detected?		
	> Proceed to <u>BR-85, "Diag</u>	nosis Procedure".	
	>> INSPECTION END		
Diagnos	sis Procedure		INFOID:00000006960670
1. CHEC	K 12V BATTERY		
2. Chec	the power switch OFF. k the 12V battery terminal c k the 12V battery. Refer to [onnections. Refer to <u>PG-101, "Work Flow"</u> . PG-101, "Work Flow".	
	pection result normal?		
YES >	>> GO TO 2.	ctioning parts and GO TO 2.	

< DTC/CIRCUIT DIAGNOSIS >

()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.
- 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

$\mathbf{3.}$ 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.

< DTC/CIRCUIT DIA	GNOSIS >			
Is DTC "C1A66" dete				
YES >> GO TO 5 NO >> INSPEC				
5.CHECK POWER		SUPPLY		
	trically-driven intellige		s connector	
2. Connect master	cylinder fluid pressure	sensor 1 harness c	onnector.	
 Connect 12V bat Turn the power s 	tery cable to negative	terminal. Refer to P	G-104, "Removal and	<u>d Installation"</u> .
5. Close all doors in	icluding the back doo	r, and wait outside o	f vehicle for 5 minutes	s or more.
CAUTION: Never depress b	orako nodal			
	pattery cable to negat	ive terminal. Refer to	D PG-104, "Removal a	and Installation".
	lectrically-driven intell			d locate llettere "
	tery cable to negative etween the electrically			
				lietter alla grounal
Electrically-driven i	ntelligent brake unit			ł
Connector	Terminal	_	Voltage	
E34	26	Ground	Approximately 0 V	
10. Turn the power s	witch ON.			
CAUTION: Never engage R	EADV state			
	etween the electrically	-driven intelligent br	ake unit harness coni	nector and ground.
0		Ū		J. J
Electrically-driven i	ntelligent brake unit			
Connector	Terminal	_	Voltage	
E34	26	Ground	10 – 16 V	
Is the inspection resu	It normal?			
YES >> GO TO 8				
NO >> GO TO 6				
6. CHECK POWER	SWITCH ON POWER	SUPPLY CIRCUIT		
1. Turn the power s		in territed Defend	DO 404 "Demonstel	
 Disconnect 12V I Check 15A fuse 	pattery cable to negat	ive terminal. Refer to	D <u>PG-104, "Removal a</u>	and Installation".
4. Disconnect IPDM	Ì E/R harness connec			
5. Check continuity	between electrically-o	driven intelligent bral	ke unit and IPDM E/R	
Electrically-driven	intelligent brake unit	IPD	M E/R	
Connector	Terminal	Connector	Terminal	Continuity
E34	26	E15	62	Existed
6. Check continuity	between electrically-o	driven intelligent bral	ke unit harness conne	ector and ground.
,		0		0
Electrically-driven i	ntelligent brake unit		Continuity	
Connector	Terminal	—	Continuity	
E34	26	Ground	Not existed	
Is the inspection resu	It normal?			
YES >> Perform	diagnosis of power sy	stem with power swi	itch ON. Refer to <u>PG-</u>	<u>59, "Wiring Diagram - ON</u>
	SUPPLY -".	nd parts and GO TO	7	
7.PERFORM SELF-	•	ing parts and 00 10		

With CONSULT

< DTC/CIRCUIT DIAGNOSIS >

- 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.

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	
	2 – 31	10 – 16 V
	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	
	2 – 31	10 – 16 V
	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).

< DTC/CIRCUIT	DIAGNOSIS >
---------------	-------------

			nnector terminal 1 of electrically-driven intelli-	
	and 60A fusible link (#I		nnector terminal 2 of electrically-driven intelli-	А
	and 60A fusible link (#I			
		between harness con	nector terminal 11 of electrically-driven intelli-	В
Is the inspection res	sult normal?			
POWE	<u>R SUPPLY -"</u>		Refer to PG-15, "Wiring Diagram - BATTERY	С
'	or replace malfunctioning	ng parts and GO TO	10.	D
10. PERFORM SE	ELF-DIAGNOSIS (4)			D
With CONSULT				
	ectrically-driven intellige		s connector. 3-104, "Removal and Installation".	Ε
	switch OFF to ON.			
Never engage	READY state.			BR
	or 2 times or more.			
CAUTION: Be sure to wai	t for 5 seconds or mo	re after turning the	power switch OFF.	G
5. Turn the power	switch OFF.			0
 Close all doors Turn the power 		r, and wait outside of	vehicle for 5 minutes or more.	
CAUTION:				Н
Never engage	READY state. nosis result of "BRAKE	0		
CAUTION:	HUSIS TESUIL OF BRAKE			
			after erase self-diagnosis result.	
 Depress brake Release brake 		In) or more, and hold	d the position for 5 seconds or more.	
11. Repeat steps 9	to 10 for 3 times.			J
12. Perform "BRAK	•			
Is DTC "C1A66" det YES >> GO TO				Κ
	CTION END			
11.CHECK GROU	JND CIRCUIT			L
			PG-104, "Removal and Installation".	
	electrically-driven intell by between electrically-d			
5. Check continuit	y between electrically-t			Μ
Electrically-driver	n intelligent brake unit			
Connector	Terminal	_	Continuity	Ν
E34	31	Ground	Existed	
Is the inspection res	sult normal?			0
YES >> GO TO			10	0
	or replace malfunctioning	ng parts and GO TO	12.	
IZ.PERFORM SE	LF-DIAGNOSIS (5)			Ρ
With CONSULT	otrically driven intellige	nt braka unit barnaa	connector	
	ectrically-driven intellige attery cable to negative		G-104, "Removal and Installation".	
3. Turn the power	switch OFF to ON.			
CAUTION: Never engage	READY state.			
	or 2 times or more.			

< DTC/CIRCUIT DIAGNOSIS >

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.

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)

(I) 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.
- Check "MOTOR POWER SUPPLY" and "CONTROL MODULE POWER". Refer to <u>BR-23, "Reference</u> <u>Value"</u>.

Is the inspection result normal?

YES >> GO TO 14.

NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u>.

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.

 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

< DTC/CIRCUIT DIAGNOSIS >	
15. CHECK MASTER CYLINDER FLUID PRESSURE SENSOR 1 INSTALLATION	A
 Turn the power switch OFF. Check master cylinder fluid pressure sensor 1 for looseness and disconnection. 	
Is the inspection result normal?	_
· · · · ·	В
YES >> GO TO 16. NO >> Repair or replace malfunctioning parts and GO TO 16.	
16. PERFORM SELF-DIAGNOSIS (7)	С
(P)With CONSULT	
1. Turn the power switch OFF to ON.	_
CAUTION:	D
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.	E
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.	BR
CAUTION:	
Never engage READY state.	
6. Erase self-diagnosis result of "BRAKE".	G
CAUTION: Turn the newer switch OFF and wait 5 minutes or more ofter areas solf diagnosis result	
 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 by 100 mm (3.94 m) of more, and noid the position for 5 seconds of more.	Н
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	
	J
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.	K
 Disconnect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u>. Disconnect matter adjuster fluid processors a paper 1 hornege connector. 	
4. Disconnect master cylinder fluid pressure sensor 1 harness connector.	

Disconnect the electrically-driven intelligent brake unit harness connector.
 Check continuity between master cylinder fluid pressure sensor 1 harness connector and electrically-

driven intelligent brake unit harness connector.

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

Is the inspection result normal?

YES >> GO TO 18.

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

< DTC/CIRCUIT DIAGNOSIS >

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 fl	uid pressure sensor 1		Voltage	
Connector	Terminal	_	voltage	
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)

(D) 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 <u>BR-23, "Reference Value"</u>.

Is the inspection result normal?

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

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

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?

< DTC/CIRCUIT DIAGNOSIS >

YES >> GO TO 21.

NO >> INSPECTION END

21. CHECK MASTER CYLINDER PRESSURE SENSOR1

1. Turn the power switch OFF.

В 2. Connect following terminals between master cylinder pressure sensor1 and harness connector (test harness).

Master cylinder pressure	Harness connector	
sensor1	Connector	Terminal
1		1
2	E31	2
3		3
Turn the newer switch ON	1	

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 BR depth of pedal depression.

CAUTION:

Never short out the terminals while measuring voltages.

Master cylinder	Master cylinder pressure sensor1	
Connector	Terminal	- Voltage
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 <u>BR-221, "Removal and installation"</u>.

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< DTC/CIRCUIT DIAGNOSIS >

C1A67 STOP LAMP SWITCH

DTC Logic

INFOID:000000006960671

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 Stop lamp switch 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.

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 <u>BR-94, "Diagnosis Procedure"</u>.
- NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006960672

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)

- 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.

^{1.} Turn the power switch OFF.

< DTC/CIRCUIT DIAGNOSIS >

- 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		Voltage		В
E34	10	Ground	Brake pedal is depressed.	10 – 16 V	
E34	13	Ground	Brake pedal is not depressed.	Approximately 0 V	C

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-driver	n intelligent brake unit		Test condition	Voltage	E
Connector	Terminal	—	Test condition voltage		
E34	13	Ground	Brake pedal is depressed.	10 – 16 V	
E34 13 Gro	Ground	Brake pedal is not depressed.	Approximately 0 V	BR	

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	Continuity	
E34	13	E102	2	Existed	

Is the inspection result normal?

- Κ 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.

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Turn the power switch ON. 6. CAUTION:

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< DTC/CIRCUIT DIAGNOSIS >

Never engage READY state.

 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.
- 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 <u>PG-104</u>, "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".
 - Disconnect the electrically-driven intelligent brake unit harness connector.

6.

< DTC/CIRCUIT DIAGNOSIS >

- 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			Voltago
Connector	Terminal		Voltage
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-drive	n intelligent brake unit		Voltage
Connector	Terminal		voltage
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.

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

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

Electrically-driven intelligent brake unit			Continuity
Connector	Terminal		Continuity
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)

(B)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".
- 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.

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< DTC/CIRCUIT DIAGNOSIS >

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

Electrically-drive	n intelligent brake unit	Voltage
Connector	Terminal	voltage
	1 – 31	
E34	2 – 31	10 – 16 V
	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-driver	ven intelligent brake unit Voltage	
Connector	Terminal	voltage
	1 – 31	
E34	2 – 31	10 – 16 V
	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).
- 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 <u>PG-15, "Wiring Diagram - BATTERY</u> <u>POWER SUPPLY -"</u>.

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

13.PERFORM SELF-DIAGNOSIS (4)

With CONSULT

< DTC/CIRCUIT DIAGNOSIS >		ownon	
1. Connect the electrically-drive	n intelligent brake unit harne	ss connector.	
2. Connect 12V battery cable to	negative terminal. Refer to		nstallation". A
 Turn the power switch OFF to CAUTION: 	ON.		
Never engage READY state			D
4. Repeat step 3 for 2 times or r	nore.		В
CAUTION: Be sure to wait for 5 secon	ds or more after turning th	a nower switch OFF	
5. Turn the power switch OFF.	as of more after turning th		С
6. Close all doors including the	back door, and wait outside	of vehicle for 5 minutes of	or more.
 Turn the power switch ON. CAUTION: 			
Never engage READY state			D
8. Erase self-diagnosis result of			
CAUTION:			nosis result.
Turn the power switch OFF9. Depress brake pedal by 100			
10. Release brake pedal.			
11. Repeat steps 9 to 10 for 3 tim			BR
12. Perform "BRAKE" self-diagno	SIS.		
Is DTC "C1A67" detected? YES >> GO TO 14.			
NO >> INSPECTION END			G
14. CHECK GROUND CIRCUIT			
		to PC 104 "Pomoval on	d Installation"
 Disconnect 12V battery cable Disconnect the electrically-dr 			
	ctrically-driven intelligent bra		
5. Check continuity between ele		· · · · · · · · · · · · · · · · · · ·	
5. Check continuity between ele		J	1
Electrically-driven intelligent brake	e unit	-	I
		Continuity	I
Electrically-driven intelligent brake		-	l J
Electrically-driven intelligent brake Connector Termin	al —	Continuity	l J
Electrically-driven intelligent brakeConnectorTerminE3431Is the inspection result normal?YES>> GO TO 17.	al Ground	Continuity Existed	l J K
Electrically-driven intelligent brakeConnectorTerminE3431Is the inspection result normal?YES>> GO TO 17.NO>> Repair or replace main	al Ground	Continuity Existed	
Electrically-driven intelligent brakeConnectorTerminE3431Is the inspection result normal?YES>> GO TO 17.	al Ground	Continuity Existed	
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Electrically-driven intelligent brake Connector Termin E34 31 Is the inspection result normal? YES YES >> GO TO 17. NO >> Repair or replace ma 15. PERFORM SELF-DIAGNOS With CONSULT 1. Connect the electrically-drive 2. Connect 12V battery cable to 3. Turn the power switch OFF to CAUTION: Never engage READY state 4. Repeat step 3 for 2 times or r CAUTION: Be sure to wait for 5 second 5. Turn the power switch OFF. 6. Close all doors including the	Ifunctioning parts and GO TO SIS (5) n intelligent brake unit harned negative terminal. Refer to o ON. more. ds or more after turning th back door, and wait outside of	Continuity Existed	K nstallation". M N or more.
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Electrically-driven intelligent brake Connector Termin E34 31 Is the inspection result normal? YES YES >> GO TO 17. NO >> Repair or replace ma 15.PERFORM SELF-DIAGNOS With CONSULT 1. Connect the electrically-drive 2. Connect 12V battery cable to 3. Turn the power switch OFF to CAUTION: Never engage READY state 4. Repeat step 3 for 2 times or recourse of CAUTION: Be sure to wait for 5 second 5. Turn the power switch OFF. 6. Close all doors including the 7. Turn the power switch ON. CAUTION: Never engage READY state 8. Erase self-diagnosis result of CAUTION:	al Ground Ground Ifunctioning parts and GO TO SIS (5) n intelligent brake unit harned negative terminal. Refer to o ON. more. ds or more after turning the back door, and wait outside of "BRAKE".	Continuity Existed D 15. Ss connector. PG-104, "Removal and I e power switch OFF. of vehicle for 5 minutes of	K nstallation". M or more. O
Electrically-driven intelligent brake Connector Termin E34 31 Is the inspection result normal? YES >> GO TO 17. NO >> Repair or replace ma 15. PERFORM SELF-DIAGNOS With CONSULT 1. Connect the electrically-drive 2. Connect 12V battery cable to 3. Turn the power switch OFF to CAUTION: Never engage READY state 4. 4. Repeat step 3 for 2 times or recommendations 5. Turn the power switch OFF. 6. Close all doors including the 7. Turn the power switch ON. CAUTION: Never engage READY state 8. Erase self-diagnosis result of	al Ground Ifunctioning parts and GO TO SIS (5) n intelligent brake unit harned negative terminal. Refer to po ON. o ON. ds or more after turning the back door, and wait outside of the back door, and wait outside of the back door, and wait outside of the back door of the back doo	Continuity Existed D 15. Ss connector. PG-104, "Removal and I e power switch OFF. of vehicle for 5 minutes of re after erase self-diago	K nstallation". M or more. O P
Electrically-driven intelligent brake Connector Termin E34 31 Is the inspection result normal? YES YES >> GO TO 17. NO >> Repair or replace ma 15. PERFORM SELF-DIAGNOS With CONSULT 1. Connect the electrically-drive 2. Connect 12V battery cable to 3. Turn the power switch OFF to CAUTION: Never engage READY state 4. Repeat step 3 for 2 times or recommendation 5. Turn the power switch OFF. 6. Close all doors including the 7. Turn the power switch ON. CAUTION: Never engage READY state 8. Erase self-diagnosis result of CAUTION: Never engage READY state 8. Erase self-diagnosis result of CAUTION: Never engage READY state 8. Erase self-diagnosis result of CAUTION: Never engage READY state 8. Erase self-diagnosis result of CAUTION: Never engage READY state 9. Depress brake pedal by 100 10. Release brake pedal.	Ifunctioning parts and GO TO SIS (5) In intelligent brake unit harned negative terminal. Refer to o ON. more. ds or more after turning the back door, and wait outside of "BRAKE". and wait 5 minutes or more mm (3.94 in) or more, and here	Continuity Existed D 15. Ss connector. PG-104, "Removal and I e power switch OFF. of vehicle for 5 minutes of re after erase self-diago	K nstallation". M or more. O P
Electrically-driven intelligent brake Connector Termin E34 31 Is the inspection result normal? YES YES >> GO TO 17. NO >> Repair or replace ma 15. PERFORM SELF-DIAGNOS With CONSULT 1. Connect the electrically-drive 2. Connect 12V battery cable to 3. Turn the power switch OFF to CAUTION: Never engage READY state 4. Repeat step 3 for 2 times or r CAUTION: Be sure to wait for 5 second 5. Turn the power switch OFF. 6. Close all doors including the 7. Turn the power switch ON. CAUTION: Never engage READY state 8. Erase self-diagnosis result of CAUTION: Never engage READY state 8. Erase self-diagnosis result of CAUTION: Never engage READY state 8. Erase self-diagnosis result of CAUTION: Never engage READY state 8. Erase self-diagnosis result of CAUTION: Never engage READY state 9. Depress brake pedal by 1	Ifunctioning parts and GO TO SIS (5) n intelligent brake unit harned negative terminal. Refer to o ON. more. ds or more after turning the back door, and wait outside of "BRAKE". and wait 5 minutes or more mm (3.94 in) or more, and he	Continuity Existed D 15. Ss connector. PG-104, "Removal and I e power switch OFF. of vehicle for 5 minutes of re after erase self-diago	K nstallation". M or more. O P

< DTC/CIRCUIT 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.
- Check "MOTOR POWER SUPPLY" and "CONTROL MODULE POWER". Refer to <u>BR-23, "Reference</u> <u>Value"</u>.

Is the inspection result normal?

- YES >> GO TO 17.
- NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u>.
- **17.**PERFORM SELF-DIAGNOSIS (6)

With CONSULT

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 <u>BR-202, "Inspection and Adjustment"</u>.

	T DIAGNOSIS >			
	n result normal?			
	TO 21.			
	•	-	to BR-202, "Inspection and Ad	<u>justment"</u> . GO 10 28.
2 I .STROKE S	SENOR 0 POINT L	EARNING		
Perform stroke s	sensor 0 point lear	ning. Refer to <u>B</u>	R-37. "Work Procedure".	
	TO 22.			
22.CHECK ST	TOP LAMP FOR IL	LUMINATION (2	2)	
	ake pedal to a dep hat the stop lamp t		more and maintain the brake	depression for 5 seconds or
s the inspection	n result normal?			
	pair or replace mail	functioning parts	and GO TO 28.	
	TO 23.			
	TOP LAMP SWITC	H CLEARANCE		
	wer switch OFF. Iamp clearance. R	tefer to <u>BR-202,</u>	"Inspection and Adjustment".	
s the inspection	n result normal?			
	TO 24.			
			fer to <u>BR-202, "Inspection and</u>	<u>Adjustment"</u> . GO TO 28.
24.CHECK ST	TOP LAMP SWITC	CIRCUIT (3)		
	wer switch OFF.			
			ait outside of vehicle for 5 minu iinal. Refer to <u>PG-104, "Remov</u>	
			ake unit harness connector.	
5. Connect 12	V battery cable to	negative termina	al. Refer to <u>PG-104, "Removal a</u>	
Check volta	ge between the el	ectrically-driven	intelligent brake unit harness co	onnector and ground.
Lightrian Line and Li				
-	intelligent brake unit	_	Test condition	Voltage
Electrically-driven Connector	Terminal			
-	_	 Ground	Brake pedal is depressed.	10 – 16 V
Connector E34	Terminal 13	 Ground		
Connector E34 7. Turn the po	Terminal	 Ground	Brake pedal is depressed.	10 – 16 V
Connector E34 7. Turn the por CAUTION: Never enga	Terminal 13 wer switch ON. age READY state.		Brake pedal is depressed. Brake pedal is not depressed.	10 – 16 V Approximately 0 V
Connector E34 7. Turn the por CAUTION: Never enga	Terminal 13 wer switch ON. age READY state.		Brake pedal is depressed.	10 – 16 V Approximately 0 V
Connector E34 7. Turn the por CAUTION: Never enga 3. Check volta	Terminal 13 wer switch ON. age READY state.		Brake pedal is depressed. Brake pedal is not depressed. intelligent brake unit harness co	10 – 16 V Approximately 0 V
Connector E34 7. Turn the por CAUTION: Never enga 3. Check volta	Terminal 13 wer switch ON. age READY state. age between the el		Brake pedal is depressed. Brake pedal is not depressed.	10 – 16 V Approximately 0 V
Connector E34 7. Turn the po CAUTION: Never enga 3. Check volta Electrically-driven	Terminal 13 wer switch ON. age READY state. age between the el-		Brake pedal is depressed. Brake pedal is not depressed. intelligent brake unit harness co	10 – 16 V Approximately 0 V

Is the inspection result normal?

YES >> GO TO 26.

NO >> GO TO 25.

 $25. {\sf CHECK STOP LAMP SWITCH CIRCUIT} \ {\scriptsize (4)}$

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.

BR-101

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< DTC/CIRCUIT DIAGNOSIS >

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

Is the inspection result normal?

YES >> Perform diagnosis for 12V battery power supply. Refer to <u>PG-15, "Wiring Diagram - BATTERY</u> <u>POWER SUPPLY -"</u>.

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 <u>BR-211, "Removal and Installation"</u>. 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

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:000000006960673

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.

< DTC/CIRCUIT DIAGNOSIS >

Sto	op lamp switch	Tast condition	Continuity
	Terminal	Test condition	Continuity
	1-2	When stop lamp switch is released (when brake pedal is depressed)	Existed
	1 – 2	When stop lamp switch is pressed (when brake pedal is released)	Not existed
Is the ins	spection result nc	rmal?	
YES	>> INSPECTION		
NO	>> Replace the s	stop lamp switch. Refer to <u>BR-211, "R</u>	Removal and Installat

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< DTC/CIRCUIT DIAGNOSIS >

C1A69 MOTOR

DTC Logic

INFOID:000000006960674

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

- Turn the power switch OFF to ON. CAUTION:
 - Never engage READY state.
- 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.
- 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 <u>BR-104</u>, "Diagnosis Procedure".
- NO >> INSPECTION END

Diagnosis Procedure

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 <u>PG-101, "Work Flow"</u>.

Is the inspection result normal?

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.

INFOID:000000006960675

< D	TC/CIRCUIT DIAGNOSIS >	
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.	А
	Turn the power switch OFF.	
5. 6.	Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Turn the power switch ON.	В
0.	CAUTION:	
7	Never engage READY state.	0
7.	Erase self-diagnosis result of "BRAKE". CAUTION:	С
0	Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	
	Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more. Release brake pedal.	D
10.	Repeat steps 8 to 9 for 3 times.	
	Perform "BRAKE" self-diagnosis.	Е
-	<u>s DTC "C1A69" detected?</u> ES >> GO TO 3.	
N		
3.	CHECK CONNECTOR TERMINALS	BR
1.	Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.	
	CAUTION:	G
2.	Never depress the brake pedal. Disconnect 12V battery cable from negative terminal. Refer to <u>PG-104, "Removal and Installation"</u> .	
	Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin	Н
1- 4	terminals and connections.	
	he inspection result normal? ES >> GO TO 5.	
N		
4.	PERFORM SELF-DIAGNOSIS (2)	
	With CONSULT	J
1.	Connect the electrically-driven intelligent brake unit harness connector.	
2. 3.	Connect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u> . Turn the power switch OFF to ON.	
0.	CAUTION:	Κ
4.	Never engage READY state. Repeat step 3 for 2 times or more.	
4.	CAUTION:	L
F	Be sure to wait for 5 seconds or more after turning the power switch OFF.	
5. 6.	Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.	M
7.	Turn the power switch ON.	IVI
	CAUTION: Never engage READY state.	
8.	Erase self-diagnosis result of "BRAKE".	Ν
	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.	0
10.	Release brake pedal.	0
11. 12.	Repeat steps 9 to 10 for 3 times. Perform "BRAKE" self-diagnosis.	
	s DTC "C1A69" detected?	Ρ
	ES >> GO TO 5.	
D .0	CHECK POWER SWITCH ON POWER SUPPLY	

1.

Connect the electrically-driven intelligent brake unit harness connector. Connect 12V battery cable to negative terminal. Refer to <u>PG-104</u>, "<u>Removal and Installation</u>". 2.

3. Turn the power switch OFF.

Revision: 2010 November

< DTC/CIRCUIT DIAGNOSIS >

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	_	voltage
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		voltage	
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	Continuity	
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		Continuity
E34	26	Ground	Not existed

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to <u>PG-59</u>, "Wiring Diagram - ON <u>POWER SUPPLY -"</u>.

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".
- 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.

< DTC/CIRCUIT DI	AGNOSIS >				
 Close all doors Turn the power 	Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Turn the power switch ON.				
9. Erase self-diagi	Never engage READY state Erase self-diagnosis result of "BRAKE".				
	pedal by 100 mm (3.94 pedal. 0 to 11 for 3 times.		ore after erase self-diagnosis result. hold the position for 5 seconds or more.	С	
Was DTC "C1A69" of	•			D	
YES >> GO TO	8.				
-	CTION END			Е	
Ö. CHECK 12V BAT	ITERY POWER SUPP	LY			
				BR	
4. Connect 12V ba	attery cable to negative	terminal. Refer to	PG-104. "Removal and Installation".		
5. Check voltage t	between the electrically	v-driven intelligent	brake unit harness connector terminal.	G	
Electrically-driver	n intelligent brake unit		—		
Connector	Terminal	Voltage		Н	
	1 – 31		—		
E34	2 – 31	10 – 16 V		1	
	11 – 31				
6. Turn the power	switch ON.		—		
CAUTION: Never engage	READY state.			J	
		-driven intelligent	brake unit harness connector terminal.		
		ſ	_	Κ	
	n intelligent brake unit	Voltage			
Connector	Terminal				
	1 – 31			L	
E34	2 – 31	10 – 16 V			
	11 – 31		_	M	
<u>Is the inspection res</u> YES >> GO TO					
NO >> GO TO					
-	TTERY POWER SUPP	LY CIRCUIT		Ν	
1. Turn the power					
2. Disconnect 12V	<pre>/ battery cable to negat</pre>	ive terminal. Refer	r to PG-104, "Removal and Installation".	0	
	3. Check 60A fusible link (#F).				
gent brake unit and 60A fusible link (#F).				Р	
gent brake unit	 Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelli- gent brake unit and 60A fusible link (#F). 				
7. Check continuit		between harness o	connector terminal 11 of electrically-driven intelli-		
s the inspection result normal?					

< DTC/CIRCUIT DIAGNOSIS >

- YES >> Perform diagnosis for 12V battery power supply. Refer to <u>PG-15, "Wiring Diagram BATTERY</u> <u>POWER SUPPLY -"</u>.
- 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	_	Continuity
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)

(I) 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:

C1A69 MOTOR

< DTC/CIRCUIT DIAGNOSIS >	
 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. 	A
 Repeat steps 9 to 10 for 3 times. Perform "BRAKE" self-diagnosis. 	_
Was DTC "C1A69" detected?	В
YES >> GO TO 13.	
NO >> INSPECTION END	С
13.CHECK DATA MONITOR (1)	
With CONSULT	
 Connect the electrically-driven intelligent brake unit harness connector. Connect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u>. 	D
3. Turn the power switch OFF to ON.	
CAUTION:	E
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.	BR
 Select "BRAKE", "DATA MONITOR" according this order. Check "MOTOR POWER SUPPLY" and "CONTROL MODULE POWER". Refer to <u>BR-23, "Refer</u>" 	
Value".	G
Is the inspection result normal?	0
YES >> GO TO 14.	
NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221</u> , "Removal and installate	<u>tion"</u> . H
14.PERFORM SELF-DIAGNOSIS (6)	
1. Turn the power switch OFF to ON.	
CAUTION: Never engage READY state.	
2. Repeat step 1 for 2 times or more.	J
CAUTION:	
Be sure to wait for 5 seconds or more after turning the power switch OFF.	
 Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. 	K
5. Turn the power switch ON.	
CAUTION:	1
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.	M
 Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more. Release brake pedal. 	
9. Repeat steps 7 to 8 for 3 times.	
10. Perform "BRAKE" self-diagnosis.	Ν
Was DTC "C1A69" detected?	
YES >> GO TO 15. NO >> INSPECTION END	0
15. CHECK DATA MONITOR (2)	
(B)With CONSULT	P
1. Connect the electrically-driven intelligent brake unit harness connector.	F
2. Turn the power switch OFF to ON.	
CAUTION: Never engage READY state.	
חבירו לוואמאל ועראה זימובי	

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.

C1A69 MOTOR

< DTC/CIRCUIT DIAGNOSIS >

- 4. Select "BRAKE", "DATA MONITOR" according this order.
- 5. Check "MOTOR TEMPERATURE". Refer to <u>BR-23, "Reference Value"</u>.

<u>"MOTOR TEMPERATURE" is 125 °C (257 °F) or more?</u>

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

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 <u>BR-221, "Removal and installation"</u>.

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 <u>BR-221, "Removal and installation"</u>.
- NO >> INSPECTION END

< DTC/CIRCUIT DIAGNOSIS >

DTC DETECTION LOGIC

C1A6A CONTROL MODULE

DTC Logic

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В

INFOID:000000006960676

DTC Possible causes Display item Malfunction detection condition · Temperature of control module that is integrated with electrically-driven intelligent brake unit is as shown below. Control module temperature: 150 °C (302 °F) \leq · Harness or connector CONTROL MODULE TEMPERA-D C1A6A Control module Electrically-driven intelligent TURE A malfunction is detected in the temperature debrake unit tection circuit of the control module that is integrated with the electrically-driven intelligent Е brake unit. DTC REPRODUCTION PROCEDURE BR 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 Н 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. Κ 5. Turn the power switch ON. **CAUTION:** Never engage READY state. 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. M 8. Release brake pedal. 9. Repeat steps 7 to 8 for 3 times. 10. Perform "BRAKE" self-diagnosis. Ν Is DTC "C1A6A" detected? YES >> Proceed to <u>BR-111</u>, "Diagnosis Procedure". >> INSPECTION END NO C Diagnosis Procedure INFOID:000000006960677 **1.**CHECK 12V BATTERY P 1. Turn the power switch OFF. Check the 12V battery terminal connections. Refer to PG-101, "Work Flow". 2. Check the 12V battery. Refer to PG-101, "Work Flow". 3. Is the inspection result normal?

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

< DTC/CIRCUIT DIAGNOSIS >

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.
- 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

${f 3.}$ 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 <u>PG-104, "Removal and Installation"</u>.
- 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.

 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?

CHECK POWER S	SWITCH ON POWER	SUPPLY		
Connect 12V batt Turn the power s	witch OFF.	terminal. Refer to	ss connector. PG-104, "Removal and of vehicle for 5 minute:	
CAUTION: Never depress b	orake pedal.		to <u>PG-104, "Removal</u>	
Disconnect the el Connect 12V bat	lectrically-driven intelli tery cable to negative	igent brake unit hai terminal. Refer to		d Installation".
Electrically-driven i	ntelligent brake unit		Voltage	
Connector	Terminal	_	voltage	
E34	26	Ground	Approximately 0 V	
	tween the electrically	-driven intelligent b	rake unit harness con	nector and ground.
Electrically-driven in Connector	ntelligent brake unit	_	Voltage	
E34	26	Ground	10 – 16 V	
the inspection resu YES >> GO TO 8	It normal?	Cround	10 - 10 V	
s the inspection result YES >> GO TO 8 NO >> GO TO 6 CHECK POWER S . Turn the power s . Connect 12V bat . Check 15A fuse (. Disconnect IPDM	It normal? SWITCH ON POWER witch OFF. tery cable to negative #62). I E/R harness connec	SUPPLY CIRCUIT terminal. Refer to <u>i</u> tor.	- PG-104. "Removal and	
s the inspection result YES >> GO TO 8 NO >> GO TO 6 CHECK POWER S . Turn the power s . Connect 12V batt . Check 15A fuse (. Disconnect IPDN . Check continuity	It normal? SWITCH ON POWER witch OFF. tery cable to negative #62). I E/R harness connec between electrically-c	SUPPLY CIRCUIT terminal. Refer to <u>i</u> tor. triven intelligent bra	- PG-104. "Removal and ake unit and IPDM E/R	
s the inspection result YES >> GO TO 8 NO >> GO TO 6 O.CHECK POWER \$. Turn the power s . Connect 12V batt . Check 15A fuse (. Disconnect IPDN . Check continuity	It normal? SWITCH ON POWER witch OFF. tery cable to negative #62). I E/R harness connec between electrically-contection	SUPPLY CIRCUIT terminal. Refer to j tor. Iriven intelligent bra	PG-104, "Removal and ake unit and IPDM E/R	
s the inspection result YES >> GO TO 8 NO >> GO TO 6 OCHECK POWER S Connect 12V batt Check 15A fuse (Disconnect IPDN Check continuity Electrically-driven i Connector	It normal? SWITCH ON POWER witch OFF. tery cable to negative #62). I E/R harness connec between electrically-contelligent brake unit Terminal	SUPPLY CIRCUIT terminal. Refer to <u>i</u> tor. triven intelligent bra IP Connector	PG-104. "Removal and ake unit and IPDM E/R DM E/R Terminal	R. Continuity
the inspection resurves YES >> GO TO 8 NO >> GO TO 6 CHECK POWER S . Turn the power s . Connect 12V batt . Check 15A fuse (. Disconnect IPDIV . Check continuity Electrically-driven i Connector E34	It normal? SWITCH ON POWER witch OFF. tery cable to negative #62). I E/R harness connec between electrically-content ntelligent brake unit Terminal 26	SUPPLY CIRCUIT terminal. Refer to j tor. Iriven intelligent bra IP Connector E15	- PG-104, "Removal and ake unit and IPDM E/R DM E/R Terminal 62	Continuity Existed
a the inspection result YES >> GO TO 8 NO >> GO TO 6 OCHECK POWER \$ Turn the power \$ Connect 12V batt Check 15A fuse (Disconnect IPDIV Check continuity Electrically-driven i Connector E34	It normal? SWITCH ON POWER witch OFF. tery cable to negative #62). I E/R harness connec between electrically-content ntelligent brake unit Terminal 26	SUPPLY CIRCUIT terminal. Refer to j tor. Iriven intelligent bra IP Connector E15	PG-104. "Removal and ake unit and IPDM E/R DM E/R Terminal	Continuity Existed
sthe inspection result YES >> GO TO 8 NO >> GO TO 6 OCHECK POWER \$. Turn the power \$. Connect 12V bath . Check 15A fuse (. Disconnect IPDN . Check continuity Electrically-driven i Connector E34 . Check continuity Electrically-driven i	It normal? SWITCH ON POWER witch OFF. tery cable to negative #62). I E/R harness connec between electrically-contelligent brake unit Terminal 26 between electrically-contelligent brake unit	SUPPLY CIRCUIT terminal. Refer to j tor. Iriven intelligent bra IP Connector E15	- PG-104, "Removal and ake unit and IPDM E/R DM E/R Terminal 62	Continuity Existed
the inspection resurves YES >> GO TO 8 NO >> GO TO 6 • CHECK POWER S • Turn the power s Connect 12V batt Check 15A fuse (Disconnect IPDN Check continuity Electrically-driven i Connector E34 Check continuity Electrically-driven i Connector E34	It normal? SWITCH ON POWER witch OFF. tery cable to negative #62). I E/R harness connec between electrically-contelligent brake unit 26 between electrically-contelligent brake unit Terminal	SUPPLY CIRCUIT terminal. Refer to j tor. triven intelligent bra Connector E15 triven intelligent bra 	PG-104. "Removal and ake unit and IPDM E/R DM E/R Terminal 62 ake unit harness conne	Continuity Existed
the inspection result YES >> GO TO 8 NO >> GO TO 6 • CHECK POWER \$ • Check POWER \$ • Connect 12V bath Check 15A fuse (Disconnect IPDN Check continuity Electrically-driven i Connector E34 Check continuity Electrically-driven i	It normal? It normal? SWITCH ON POWER witch OFF. tery cable to negative #62). I E/R harness connec between electrically-contelligent brake unit Terminal 26 between electrically-contelligent brake unit Terminal 26	SUPPLY CIRCUIT terminal. Refer to j tor. Iriven intelligent bra IP Connector E15	PG-104. "Removal and ake unit and IPDM E/R DM E/R Terminal 62 ake unit harness conne	Continuity Existed

Connect the electrically-driven intelligent brake unit harness connector.
 Connect IPDM E/R harness connector.

< DTC/CIRCUIT DIAGNOSIS >

- 3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
- 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.
- Turn the power switch ON.
 CAUTION: Never engage READY state.
- 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	voltage
	1 – 31	
E34	2 – 31	10 – 16 V
	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	voliage
	1 – 31	
E34	2 – 31	10 – 16 V
	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).

< DTC/CIRCUIT D	IAGNOSIS >			
gent brake unit	and 60A fusible link (#		nnector terminal 2 of electrically-driven intelli-	A
		between harness cor	nnector terminal 11 of electrically-driven intelli-	_
Is the inspection res				В
YES >> Perform		ttery power supply. I	Refer to PG-15. "Wiring Diagram - BATTERY	
	or replace malfunctioni	ng parts and GO TO	10.	С
10.perform se	ELF-DIAGNOSIS (1)			
()With CONSULT				D
	ectrically-driven intellige	ent brake unit harnes	s connector.	
		terminal. Refer to Po	G-104, "Removal and Installation".	
3. Turn the power CAUTION:	switch OFF to ON.			E
Never engage	READY state.			
4. Repeat step 3 f	or 2 times or more.			BR
CAUTION:	t far E accordo ar ma	re ofter turning the	newer ewitch OFF	BR
5. Turn the power	t for 5 seconds or mo switch OFF.	re alter turning the	power switch OFF.	
•		r, and wait outside of	vehicle for 5 minutes or more.	G
7. Turn the power	switch ON.			
CAUTION: Never engage	READV state			
	nosis result of "BRAKE			Н
CAUTION:				
			after erase self-diagnosis result.	
 Depress brake Release brake 		in) or more, and hole	d the position for 5 seconds or more.	
11. Repeat steps 9				
12. Perform "BRAK	E" self-diagnosis.			J
<u>Is DTC "C1A6A" de</u>				
YES >> GO TO				
				Κ
11.CHECK GROU	JND CIRCUIT			
			PG-104, "Removal and Installation".	
	electrically-driven intell by between electrically-d			
J. Oneck continuit	y between electrically-t	anven intelligent brak	e unit and ground.	
Electrically-driver	n intelligent brake unit			M
Connector	Terminal	—	Continuity	
E34	31	Ground	Existed	
Is the inspection res	-			Ν
YES >> GO TO				
	or replace malfunctioni	ng parts and GO TO	12.	\circ
	LF-DIAGNOSIS (5)			0
 With CONSULT Connect the element 	ectrically-driven intellige	ent brake unit harnes	s connector.	Ρ
			G-104, "Removal and Installation".	
	switch OFF to ON.			
CAUTION: Never engage	RFADY 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.

< DTC/CIRCUIT DIAGNOSIS >

- 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.

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 <u>BR-23</u>, "<u>Reference</u> <u>Value</u>".

Is the inspection result normal?

YES >> GO TO 14.

NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u>.

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

< DTC/CIRCUIT DIAGNOSIS >	
 Connect the electrically-driven intelligent brake unit harness connector. Turn the power switch OFF to ON. 	A
CAUTION:	1.1
Never engage READY state.	
3. Repeat step 1 for 2 times or more.	В
CAUTION: Be sure to wait for 5 accords or more ofter turning the newer switch OFF	
 Be sure to wait for 5 seconds or more after turning the power switch OFF. Select "BRAKE" and "DATA MONITOR" according this order. 	
 Check "CONTROL MODULE TEMP". Refer to <u>BR-23, "Reference Value"</u>. 	С
<u>"CONTROL MODULE TEMP" is 150 °C (302 °F) or more?</u>	0
YES >> GO TO 16.	
NO >> INSPECTION END	D
16.снеск мотог гоом	
Check for any locations of abnormal heating around the electrically-driven intelligent brake unit.	Е
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 <u>BR-221. "Removal and installation"</u>	BR
17.PERFORM SELF-DIAGNOSIS (7)	
 With CONSULT Turn the power switch OFF to ON. 	G
1. Turn the power switch OFF to ON. CAUTION:	0
Never engage READY state.	
2. Repeat step 1 for 2 times or more.	Н
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.	I
5. Turn the power switch ON.	
CAUTION:	
Never engage READY state.	J
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.	K
8. Release brake pedal.	
9. Repeat steps 7 to 8 for 3 times.	
10. Perform "BRAKE" self-diagnosis.	L
Is DTC "C1A6A" detected?	
YES >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u> .	
NO >> INSPECTION END	M
	Ν
	0
	-

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< DTC/CIRCUIT DIAGNOSIS >

C1A6B BRAKE POWER SUPPLY BACKUP UNIT

DTC Logic

INFOID:000000006960678

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 Fuse Brake power supply backup unit 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

(I) 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 <u>BR-118</u>, "Diagnosis Procedure".
- NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006960679

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".

< D	TC/CIRCUIT DIAGNOSIS >	
2.	Turn the power switch OFF to ON. CAUTION:	А
	Never engage READY state.	
3.	Repeat step 2 for 2 times or more.	
4	CAUTION: Be sure to wait for 5 seconds or more after turning the power switch OFF.	В
4. 5.	Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.	
	Turn the power switch ON. CAUTION:	С
	Never engage READY state.	
7.	Erase self-diagnosis result of "BRAKE".	D
	Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	
	Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.	
	Release brake pedal.	E
	Repeat steps 8 to 9 for 3 times. Perform "BRAKE" self-diagnosis.	
	TC "C1A6B" detected?	
<u>is L</u> Ye		BR
NC		
3.0	CHECK CONNECTOR TERMINALS	G
1.	Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.	
	Never depress brake pedal.	Н
	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	
4.	terminals and connections. Disconnect the brake power supply backup unit harness connector, then check for failures of pin terminals	
ч.	and connections.	
<u>ls t</u>	ne inspection result normal?	J
YE	S >> GO TO 5.	0
N	>> Repair or replace malfunctioning parts and GO TO 4.	
4.	PERFORM SELF-DIAGNOSIS (2)	Κ
	Vith CONSULT	
1.	Connect the electrically-driven intelligent brake unit harness connector.	L
2. 3	Connect the brake power supply backup unit harness connector. Connect 12V battery cable to negative terminal. Refer to <u>PG-104</u> , " <u>Removal and Installation</u> ".	
	Turn the power switch OFF to ON.	
	CAUTION:	M
_	Never engage READY state.	
5.	Repeat step 4 for 2 times or more.	
	Be sure to wait for 5 seconds or more after turning the power switch OFF.	Ν
6.	Turn the power switch OFF.	
	Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.	
8.	Turn the power switch ON.	0
	CAUTION: Never engage READY state.	
9.	Erase self-diagnosis result of "BRAKE".	
	CAUTION:	Ρ
40	Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	
	Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more. Release brake pedal.	
	Repeat steps 10 to 11 for 3 times.	
	Perform "BRAKE" self-diagnosis.	
	NTC "C1A6P" detected?	

Is DTC "C1A6B" detected?

YES >> GO TO 5.

< DTC/CIRCUIT DIAGNOSIS >

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-driver	Electrically-driven intelligent brake unit		Voltage	
Connector	Terminal		voltage	
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		vollage
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 in	telligent brake unit	IPDI	/I E/R	Continuity
Connector	Terminal	Connector	Terminal	Continuity
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		Continuity
E34	26	Ground	Not existed

Is the inspection result normal?

- YES >> Perform diagnosis of power system with power switch ON. Refer to <u>PG-59</u>, "Wiring Diagram ON <u>POWER SUPPLY -"</u>.
- 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.

< DTC/CIRCUIT DIAGNOSIS > Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation". 3. Turn the power switch OFF to ON. 4. А **CAUTION:** Never engage READY state. 5. Repeat step 4 for 2 times or more. В **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. D 9. Erase self-diagnosis result of "BRAKE". **CAUTION:** Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result. Е 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. BR Is DTC "C1A6B" detected? YES >> GO TO 8. NO >> INSPECTION END **8.**CHECK 12V BATTERY POWER SUPPLY 1. Turn the power switch OFF. Н Disconnect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u>. 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". Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

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

Is the inspection result normal?

YES >> GO TO 11.

NO >> GO TO 9.

${f 9.}$ 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).

 Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).

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< DTC/CIRCUIT DIAGNOSIS >

- 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 <u>PG-15, "Wiring Diagram BATTERY</u> <u>POWER SUPPLY -"</u>.
- 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".
- Turn the power switch OFF to ON.
 CAUTION: Never engage READY state.
- 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.
- 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		Continuity
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)

(B) 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.
- Repeat step 3 for 2 times or more. CAUTION:

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

< DTC/CIRCUIT	DIAGNOSIS >	
6. Close all doo	er switch OFF. rs including the back door, and wait outside of vehicle for 5 minutes or more.	А
7. Turn the pow CAUTION:	er switch ON.	
	agnosis result of "BRAKE".	В
Turn the pow	ver switch OFF and wait 5 minutes or more after erase self-diagnosis result. The pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more. The pedal.	С
11. Repeat steps	9 to 10 for 3 times.	
Is DTC "C1A6B" (AKE" self-diagnosis. detected?	D
YES >> GO T		
	ECTION END	Е
13.CHECK DAT	A MONITOR (1)	
With CONSUL		BR
	electrically-driven intelligent brake unit harness connector. battery cable to negative terminal. Refer to PG-104, "Removal and Installation".	
3. Turn the pow	er switch OFF to ON.	
CAUTION: Never engage	e READY state.	G
4. Repeat step	3 for 2 times or more.	
CAUTION: Be sure to w	ait for 5 seconds or more after turning the power switch OFF.	Н
	KE", "DATE MONITOR" according this order.	
6. Check "MOT <u>Value"</u> .	OR POWER SUPPLY" and "CONTROL MODULE POWER". Refer to <u>BR-23, "Reference</u>	
Is the inspection		
YES >> GO T NO >> Repla	O 14. ace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u> .	J
	SELF-DIAGNOSIS (2)	0
(P)With CONSUL		
1. Turn the pow CAUTION:	er switch OFF to ON.	K
	Je READY state. 1 for 2 times or more.	L
CAUTION:		
	rait for 5 seconds or more after turning the power switch OFF.	
 Turn the pow Close all doo 	rs including the back door, and wait outside of vehicle for 5 minutes or more.	Μ
5. Turn the pow		
CAUTION: Never engage	e READY state.	Ν
6. Erase self-dia	agnosis result of "BRAKE".	
CAUTION: Turn the pow	ver switch OFF and wait 5 minutes or more after erase self-diagnosis result.	0
7. Depress brak	e pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.	0
8. Release brak	e pedal. 7 to 8 for 3 times.	
	AKE" self-diagnosis.	Ρ
Is DTC "C1A6B" of		
YES >> GO T NO >> INSP	O 15. ECTION END	
· _	AKE POWER SUPPLY BACKUP UNIT CIRCUIT	

1. Turn the power switch OFF.

< DTC/CIRCUIT DIAGNOSIS >

- 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 in	telligent brake unit	Brake power su	oply backup unit	Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
	32		2	Existed	
	32	-	6	Not existed	
	32	B15	4	Not existed	
	8		2	Not existed	
E34	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		Continuity	
	32		Not existed	
E34	8	Ground	Not existed	
E34 —	10	Ground	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 <u>BR-223, "Removal and Installation"</u>.
- "ERR4">> Replace the brake power supply backup unit. Refer to <u>BR-223, "Removal and Installation"</u>.
- "ERR5">> Replace the brake power supply backup unit. Refer to <u>BR-223, "Removal and Installation"</u>.
- "ERR6">> Replace the brake power supply backup unit. Refer to <u>BR-223, "Removal and Installation"</u>.
- "ERR7">> GO TO 19.

"ERR8">> GO TO 17.

"ERR9">> Replace the brake power supply backup unit. Refer to <u>BR-223, "Removal and Installation"</u>. "ERR10">>Replace the brake power supply backup unit. Refer to <u>BR-223, "Removal and Installation"</u>. "ERR11">>Replace the brake power supply backup unit. Refer to <u>BR-223, "Removal and Installation"</u>.

< DTC/CIRCUIT DIAGNOSIS >

"Е		17. the brake power sup the brake power sup			
	RR15">>GO TO			1 to <u>DI(-223, Itemov</u>	ar and mistaliation.
17	CHECK CIRCL	JIT BETWEEN ELEC	CTRICALLY-DRIVEN	INTELLIGENT BRA	AKE UNIT AND BRAKE
	WER SUPPLY BA				
1.	Turn the power s	witch OFF.			
2.		ncluding the back doo			s or more.
3. 4.		electrically-driven intelle brake power supply ba			
5.		between electrically-			
	Electrically-driven	intelligent brake unit		Continuity	
	Connector	Terminal		Containdarky	
	E34	8	Ground	Not existed	_
	he inspection resu				
		the brake power supp		to <u>BR-223, "Remova</u>	al and Installation".
N(1 g		r replace malfunctioni	01		
			CIRICALLY-DRIVEN	INTELLIGENT BRA	AKE UNIT AND BRAKE
	WER SUPPLY BA				
1. 2.	Turn the power s	switch OFF. ncluding the back doo	r and wait outside of	vohicle for 5 minutes	or moro
∠. 3.		ectrically-driven intell			s or more.
4.	Disconnect the b	rake power supply ba	ickup unit harness co	nnector.	
5.	Check continuity	between electrically-	driven intelligent brak	e unit and brake pow	er supply backup unit.
	-				
		intelligent brake unit		pply backup unit	Continuity
	Connector	Terminal	Connector		Continuity
	504	10		Terminal	· · · · · · · · · · · · · · · · · · ·
	E34	10	B15	4	Existed
6.		10 between electrically-o	B15	4	· · · · · · · · · · · · · · · · · · ·
6.	Check continuity	_	B15	4 e unit and ground.	· · · · · · · · · · · · · · · · · · ·
6.	Check continuity	between electrically-	B15	4	· · · · · · · · · · · · · · · · · · ·
6.	Check continuity Electrically-driven	between electrically-o	B15	4 e unit and ground.	· · · · · · · · · · · · · · · · · · ·
	Check continuity Electrically-driven Connector	between electrically-o intelligent brake unit Terminal 10	B15 driven intelligent brak —	4 e unit and ground. Continuity	· · · · · · · · · · · · · · · · · · ·
<u>Is t</u>	Check continuity Electrically-driven Connector E34 he inspection resu ES >> Replace	between electrically-o intelligent brake unit Terminal 10 <u>Ilt normal?</u> the brake power supp	B15 driven intelligent brak Ground bly backup unit. Refer	4 e unit and ground. Continuity Not existed	Existed
<u>Is ti</u> YE N(Check continuity Electrically-driven Connector E34 he inspection resu ES >> Replace O >> Repair o	between electrically-o intelligent brake unit Terminal 10 <u>ult normal?</u> the brake power supp r replace malfunctioni	B15 driven intelligent brak — Ground Dly backup unit. Refer ng parts.	4 e unit and ground. Continuity Not existed	Existed
<u>Is ti</u> YE N(Check continuity Electrically-driven Connector E34 he inspection resu ES >> Replace O >> Repair o	between electrically-o intelligent brake unit Terminal 10 <u>ult normal?</u> the brake power supp r replace malfunctioni	B15 driven intelligent brak — Ground Dly backup unit. Refer ng parts.	4 e unit and ground. Continuity Not existed	Existed
Is the YE NO 19	Check continuity Electrically-driven Connector E34 he inspection resu ES >> Replace O >> Repair o	between electrically-o intelligent brake unit Terminal 10 <u>Ilt normal?</u> the brake power supp r replace malfunctioni JIT BETWEEN ELEC	B15 driven intelligent brak — Ground Dly backup unit. Refer ng parts.	4 e unit and ground. Continuity Not existed	Existed
<u>Is th</u> YE N(1C PO ¹	Check continuity Electrically-driven Connector E34 he inspection resu ES >> Replace O >> Repair o CHECK CIRCU WER SUPPLY BA Turn the power s	between electrically-o intelligent brake unit Terminal 10 <u>Ilt normal?</u> the brake power supp r replace malfunctioni JIT BETWEEN ELEC ACKUP UNIT (3) switch OFF.	B15 driven intelligent brak Ground oly backup unit. Refer ng parts. CTRICALLY-DRIVEN	4 e unit and ground. Continuity Not existed	Existed
<u>Is th</u> YE NO 1 C PO 1. 2.	Check continuity Electrically-driven Connector E34 he inspection resu ES >> Replace O >> Repair o CHECK CIRCU WER SUPPLY BA Turn the power s Close all doors in	between electrically-o intelligent brake unit Terminal 10 <u>Ilt normal?</u> the brake power supp r replace malfunctioni JIT BETWEEN ELEC ACKUP UNIT (3) switch OFF. ncluding the back doo	B15 driven intelligent brak Ground oly backup unit. Refer ng parts. CTRICALLY-DRIVEN r, and wait outside of	4 e unit and ground. Continuity Not existed to <u>BR-223, "Remova</u> INTELLIGENT BRA	Existed
YE NO 1 POV 1. 2. 3.	Check continuity Electrically-driven Connector E34 he inspection resu ES >> Replace O >> Repair o CHECK CIRCU WER SUPPLY BA Turn the power s Close all doors in Disconnect the e	between electrically-o intelligent brake unit Terminal 10 <u>Ilt normal?</u> the brake power supp r replace malfunctioni JIT BETWEEN ELEC ACKUP UNIT (3) switch OFF. ncluding the back doo electrically-driven intell	B15 driven intelligent brak 	4 e unit and ground. Continuity Not existed	Existed
<u>Is th</u> YE NO 1 C 2. 3. 4.	Check continuity Electrically-driven Connector E34 he inspection resu ES >> Replace O >> Repair o CHECK CIRCU WER SUPPLY BA Turn the power so Close all doors in Disconnect the end Disconnect the base	intelligent brake unit Terminal 10 <u>Ilt normal?</u> the brake power supp r replace malfunctioni JIT BETWEEN ELEC ACKUP UNIT (3) switch OFF. Including the back doo electrically-driven intellorake power supply ba	B15 driven intelligent brak Ground Oly backup unit. Refer ng parts. CTRICALLY-DRIVEN r, and wait outside of ligent brake unit harn ickup unit harness co	4 e unit and ground. Continuity Not existed to <u>BR-223, "Remova</u> INTELLIGENT BRA vehicle for 5 minutes ess connector. nnector.	Existed
<u>Is th</u> YE NO 1 C 2.	Check continuity Electrically-driven Connector E34 he inspection resu ES >> Replace O >> Repair o CHECK CIRCU WER SUPPLY BA Turn the power so Close all doors in Disconnect the end Disconnect the base	intelligent brake unit Terminal 10 <u>Ilt normal?</u> the brake power supp r replace malfunctioni JIT BETWEEN ELEC ACKUP UNIT (3) switch OFF. Including the back doo electrically-driven intellorake power supply ba	B15 driven intelligent brak Ground Oly backup unit. Refer ng parts. CTRICALLY-DRIVEN r, and wait outside of ligent brake unit harn ickup unit harness co	4 e unit and ground. Continuity Not existed to <u>BR-223, "Remova</u> INTELLIGENT BRA vehicle for 5 minutes ess connector. nnector.	Existed
Is th YE NO 1 C 2. 3. 4.	Check continuity Electrically-driven Connector E34 he inspection resu ES >> Replace O >> Repair o CHECK CIRCU WER SUPPLY BA Turn the power s Close all doors in Disconnect the e Disconnect the b Check continuity	intelligent brake unit Terminal 10 <u>Ilt normal?</u> the brake power supp r replace malfunctioni JIT BETWEEN ELEC ACKUP UNIT (3) switch OFF. Including the back doo electrically-driven intellorake power supply ba	B15 driven intelligent brak 	4 e unit and ground. Continuity Not existed to <u>BR-223, "Remova</u> INTELLIGENT BRA vehicle for 5 minutes ess connector. nnector.	Existed
Is the second se	Check continuity Electrically-driven Connector E34 he inspection resu ES >> Replace O >> Repair o CHECK CIRCU WER SUPPLY BA Turn the power s Close all doors in Disconnect the e Disconnect the b Check continuity	between electrically-o intelligent brake unit Terminal 10 <u>Ilt normal?</u> the brake power supp r replace malfunctioni JIT BETWEEN ELEC ACKUP UNIT (3) switch OFF. Including the back doo electrically-driven intello prake power supply ba between electrically-o	B15 driven intelligent brak 	4 e unit and ground. Continuity Not existed to <u>BR-223, "Remova</u> INTELLIGENT BRA vehicle for 5 minutes ess connector. nnector. e unit and brake pow	Existed

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

< DTC/CIRCUIT DIAGNOSIS >

Electrically-driver	n intelligent brake unit		Continuity	
Connector	Terminal		Continuity	
E34	32	Ground	Not existed	

Is the inspection result normal?

- YES >> Replace the brake power supply backup unit. Refer to <u>BR-223, "Removal and Installation"</u>.
- 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 s	supply backup unit		Voltage	
Connector	Connector Terminal		voltage	
B15	3	Ground	Approx. 9 – 16 V	

Is the inspection result normal?

YES >> Replace the brake power supply backup unit. Refer to <u>BR-223, "Removal and Installation"</u>.

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 <u>PG-15, "Wiring Diagram BATTERY</u> <u>POWER SUPPLY -"</u>.
- NO >> Repair or replace malfunctioning parts.

< DTC/CIRCUIT DIAGNOSIS >

C1A6C BRAKE POWER SUPPLY BACKUP UNIT

DTC Logic

INFOID:000000006960680

DTC DETECTION LOGIC

А

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. Power voltage of brake power supply backup unit: 9 V ≥ Power voltage of brake power supply backup unit Power voltage of brake power supply backup unit: 16 V ≤ Power voltage of brake power supply backup unit 	 Harness or connector Fuse Brake power supply backup unit 12V battery is low DC/DC-J/B is overvoltage 	(

DTC REPRODUCTION PROCEDURE

1. PRECONDITIONING	
	BR
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.	
	G
>> GO TO 2.	
2. CHECK DTC DETECTION	- H
With CONSULT	
1. Turn the power switch OFF to ON.	
CAUTION: Never engage READY state.	1
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.	J
 Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. 	
5. Turn the power switch ON.	К
CAUTION:	I.
Never engage READY state. 6. Erase self-diagnosis result of "BRAKE".	
CAUTION:	L
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.	
 Release brake pedal. Repeat steps 7 to 8 for 3 times. 	M
10. Perform "BRAKE" self-diagnosis.	
Is DTC "C1A6C" detected?	Ν
YES >> Proceed to <u>BR-127, "Diagnosis Procedure"</u> .	IN
NO >> INSPECTION END	
Diagnosis Procedure	1 ()
1.CHECK 12V BATTERY	
1 Turn the power switch OEE	Р

- 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)

< DTC/CIRCUIT DIAGNOSIS >

(D) 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.

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

$\mathbf{3.}$ 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.

< DTC/CIRCUIT DIAGNOSIS >

 $7. {\sf PERFORM} \; {\sf SELF-DIAGNOSIS} \; {\rm (3)}$

With CONSULT

< DTC/CIRCUIT DIAGNOSIS >

- 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-driver	Voltage	
Connector	Connector Terminal	
E34	1 – 31	
	2 – 31	10 – 16 V
	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-drive	Voltage	
Connector	Connector Terminal	
E34	1 – 31	
	2 - 31	10 – 16 V
	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).

< DTC/CIRCUIT DIAGNOSIS >

5.	gent brake unit Check continuit gent brake unit	and 60A fusible link (#F y and for short circuit and 60A fusible link (#F	⁻). between harness co	nnector terminal 1 of electrically-driven intelli- nnector terminal 2 of electrically-driven intelli-	A
6. 7.			between harness cor	nnector terminal 11 of electrically-driven intelli-	В
<u>ls t</u>	ne inspection res	ult normal?			0
YE		i diagnosis for 12V ba R SUPPLY -".	ttery power supply.	Refer to PG-15, "Wiring Diagram - BATTERY	С
N	O → Repair o	or replace malfunctioni	ng parts and GO TO	10.	
10	.perform se	LF-DIAGNOSIS (4)			D
() 1. 2. 3.	Connect 12V ba	ctrically-driven intellige attery cable to negative switch OFF to ON.		s connector. G-104, "Removal and Installation".	E
	Never engage				BR
4.	Repeat step 3 fo	or 2 times or more.			
		t for 5 seconds or mo	re after turning the	power switch OFF.	G
5.	Turn the power	switch OFF.	-	-	0
6.			r, and wait outside of	vehicle for 5 minutes or more.	
7.	Turn the power CAUTION :	Switch ON.			Н
	Never engage				
8.		nosis result of "BRAKE'			
	CAUTION: Turn the power	r switch OFF and wait	5 minutes or more	after erase self-diagnosis result.	
9.	Depress brake	pedal by 100 mm (3.94		d the position for 5 seconds or more.	
	Release brake p				J
		to 10 for 3 times. E" self-diagnosis.			
	DTC "C1A6C" det	•			
	ES >> GO TO				Κ
N		CTION END			
11	.CHECK GROU	IND CIRCUIT			1
1.	Disconnect 12V	battery cable to negat	ive terminal. Refer to	PG-104, "Removal and Installation".	
2.	Disconnect the	electrically-driven intell	igent brake unit harn	ess connector.	
3.	Check continuity	y between electrically-o	driven intelligent brak	e unit and ground.	M
	_	n intelligent brake unit	_	Continuity	N.I.
	Connector	Terminal			Ν
	E34	31	Ground	Existed	
	he inspection res				0
YE N(ES >> GO TO	13. or replace malfunctioni	nd parts and GO TO	10	
		LF-DIAGNOSIS (5)	ig parts and 60 TO	12.	
		LF-DIAGNOSIS (5)			Ρ
\sim	Vith CONSULT	atriagly, driven intelling	nt broke unit bernee		
1. 2.		ctrically-driven intellige attery cable to negative		G-104, "Removal and Installation".	
3.	Turn the power	switch OFF to ON.			
	CAUTION:				
4.	Never engage Repeat step 3 for	READY state. or 2 times or more.			

< DTC/CIRCUIT DIAGNOSIS >

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.

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

(D) 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".
- 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.
- Check "MOTOR POWER SUPPLY" and "CONTROL MODULE POWER". Refer to <u>BR-23, "Reference</u> <u>Value"</u>.

Is the inspection result normal?

YES >> GO TO 14.

NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u>.

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.

 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

< DTC/CIRCUIT DIAGNOSIS >

	E POWER SUPPLY B	ACKUP UNIT POWE	R		А
3. Disconnect the	including the trunk, an brake power supply ba				В
4. Turn the power CAUTION :					
5. Check voltage b	READY state. between brake power s	supply backup unit or	ad around		С
5. Check voltage i	between blake powers	supply backup unit al	la grouna.		C
Brake power s	supply backup unit		Maltana		
Connector	Terminal		Voltage		D
B15	3	Ground	Approx. 9 – 16 V	-	
Is the inspection res	ult normal?				Е
YES >> Replace	e the brake power sup	ply backup unit. Refe	r to <u>BR-223, "Remov</u>	val and Installation".	
	Perform diagnosis for <u>POWER SUPPLY -"</u> .	r 12V battery power s	supply. Refer to <u>PG-1</u>	15, "Wiring Diagram - BAT-	
	>>Perform diagnosis	of the DC/DC-J/B. Re	efer to <u>EVC-51, "CO</u>	NSULT Function".	BR
				-	
					G
					Н
					П
					J
					0
					Κ
					L
					M
					Ν
					0
					Ρ

< DTC/CIRCUIT DIAGNOSIS >

C1A6D BRAKE POWER SUPPLY BACKUP UNIT

DTC Logic

INFOID:000000006960682

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. Output current of brake power supply backup unit: 60A ≤ Output current of brake power supply backup unit Input current of brake power supply backup unit: 30A ≤ Output current of brake power supply backup unit: 30A ≤ Output current of brake power supply backup unit 	 Harness or connector 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

(I) 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.

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 <u>BR-134, "Diagnosis Procedure"</u>. NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006960683

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)

< D	DTC/CIRCUIT DIAGNOSIS >	
	With CONSULT	
1.	Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".	A
2.		
	CAUTION:	
2	Never engage READY state. Repeat step 2 for 2 times or more.	В
5.	CAUTION:	
	Be sure to wait for 5 seconds or more after turning the power switch OFF.	
4.	Turn the power switch OFF.	С
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:	D
-	Never engage READY state.	
1.	Erase self-diagnosis result of "BRAKE".	
	CAUTION: Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	Е
8	Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.	
	Release brake pedal.	
	Repeat steps 8 to 9 for 3 times.	BR
	Perform "BRAKE" self-diagnosis.	
	DTC "C1A6D" detected?	
_	ES >> GO TO 3.	0
N		G
~		
5.	CHECK CONNECTOR TERMINALS	
1.	0	Н
	CAUTION:	
	Never depress brake pedal.	
2.	· · · · · · · · · · · · · · · · · · ·	
3.	Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.	
Δ	Disconnect the brake power supply backup unit harness connector, then check for failures of pin terminals	
ч.	and connections.	J
le f	he inspection result normal?	
	· · ·	
N(K
4.	PERFORM SELF-DIAGNOSIS (2)	
	With CONSULT	L
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".	M
4.		
	CAUTION:	
_	Never engage READY state.	N
5.		IN
	CAUTION: Be sure to wait for 5 seconds or more after turning the newer switch OFF	
6.	Be sure to wait for 5 seconds or more after turning the power switch OFF. Turn the power switch OFF.	0
7.		0
8.	Turn the power switch ON.	
0.	CAUTION:	
	Never engage READY state.	Ρ
9.	Erase self-diagnosis result of "BRAKE".	
	CAUTION:	
	Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	
	Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.	
	Release brake pedal.	
	Repeat steps 10 to 11 for 3 times.	
13.	Perform "BRAKE" self-diagnosis.	

< DTC/CIRCUIT 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-drive	Electrically-driven intelligent brake unit		Voltage	
Connector	Connector Terminal		voltage	
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		vollage
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 in	ntelligent brake unit	IPDI	M E/R	Continuity
Connector	Terminal	Connector	Terminal	Continuity
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		Continuity	
E34	26	Ground	Not existed	

Is the inspection result normal?

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

7.PERFORM SELF-DIAGNOSIS (3)

With CONSULT

DACKUDUNIT

	C1A6D BRAKE	POWER SUP	PLY BACKUP UNIT	
< DTC/CIRCUI	T DIAGNOSIS >			
2. Connect 12	e electrically-driven intellige V battery cable to negative wer switch OFF to ON.		ess connector. PG-104, "Removal and Installation".	A
	age READY state. 3 for 2 times or more.			В
Be sure to	wait for 5 seconds or mo	ore after turning th	e power switch OFF.	
	wer switch OFF.	r and wait outside	of vehicle for 5 minutes or more.	С
7. Turn the po CAUTION:	wer switch ÕN.		or vehicle for 5 minutes of more.	D
	age READY state. diagnosis result of "BRAKE			D
Turn the po 9. Depress bra	ake pedal by 100 mm (3.94		re after erase self-diagnosis result. old the position for 5 seconds or more.	E
	os 9 to 10 for 3 times. RAKE" self-diagnosis.			BR
<u>Is DTC "C1A6D</u> "	" detected?			
YES >> GO NO >> INS	TO 8. PECTION END			G
-	BATTERY POWER SUPP	νLY		
	wer switch OFF.			Н
	12V battery cable to nega the electrically-driven intel		to <u>PG-104, "Removal and Installation"</u> .	
4. Connect 12	V battery cable to negative	e terminal. Refer to	PG-104, "Removal and Installation".	I
5. Check volta	ge between the electrically	/-driven intelligent b	rake unit harness connector terminal.	
Flectrically-c	driven intelligent brake unit		_	
Connector	Terminal	Voltage		J
	1 – 31		-	
E34	2 – 31	 10 – 16 V		K
	11 – 31			
CAUTION:	wer switch ON.		_	L
	age READY state. Ige between the electrically	/-driven intelligent b	rake unit harness connector terminal.	M
Electrically-o	driven intelligent brake unit	Veltara	-	
Connector	Terminal	Voltage		Ν
	1 – 31		_	
E34	2 – 31	10 – 16 V		
	11 – 31		_	0
Is the inspection				
YES >> GO NO >> GO	TO 11.			Р
-	BATTERY POWER SUPP	LY CIRCUIT		
	wer switch OFF.			
	12V battery cable to negative fusible link (#F).	tive terminal. Refer	to PG-104, "Removal and Installation".	
		between harness of	connector terminal 1 of electrically-driven intel	li-

- 4. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelligent brake unit and 60A fusible link (#F).

< DTC/CIRCUIT DIAGNOSIS >

- 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 <u>PG-15, "Wiring Diagram BATTERY</u> <u>POWER SUPPLY -"</u>.
- 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".
- Turn the power switch OFF to ON.
 CAUTION: Never engage READY state.
- 4. Repeat step 3 for 2 times or more.

CAUTION: Bo sure to wait for 5 second

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		Continuity
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)

(B) 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.

< DTC/CIRCUIT DIAGNOSIS >	
 Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. 	А
7. Turn the power switch ON. CAUTION:	
Never engage READY state.	В
8. Erase self-diagnosis result of "BRAKE". CAUTION:	D
Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	
 Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more. Release brake pedal. 	С
11. Repeat steps 9 to 10 for 3 times.	
12. Perform "BRAKE" self-diagnosis.	D
<u>Is DTC "C1A6D" detected?</u> YES >> GO TO 13.	
NO >> INSPECTION END	E
13. CHECK DATA MONITOR	
With CONSULT	DD
 Connect the electrically-driven intelligent brake unit harness connector. Connect 12V battery cable to negative terminal. Refer to <u>PG-104</u>, "<u>Removal and Installation</u>". 	BR
3. Turn the power switch OFF to ON.	
CAUTION: Never engage READY state.	G
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.	Н
5. Select "BRAKE", "DATE MONITOR" according this order.	
6. Check "MOTOR POWER SUPPLY" and "CONTROL MODULE POWER". Refer to <u>BR-23</u> , " <u>Reference</u> <u>Value</u> ".	1
Is the inspection result normal?	
YES >> GO TO 14.	
NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u> . 14. PERFORM SELF-DIAGNOSIS (2)	J
 With CONSULT Turn the power switch OFF to ON. 	Κ
CAUTION:	
Never engage READY state. 2. Repeat step 1 for 2 times or more.	L
CAUTION:	
Be sure to wait for 5 seconds or more after turning the power switch OFF.3. Turn the power switch OFF.	M
4. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.	IVI
5. Turn the power switch ON. CAUTION:	
Never engage READY state.	Ν
6. Erase self-diagnosis result of "BRAKE". CAUTION:	
Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	0
 Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more. Release brake pedal. 	
9. Repeat steps 7 to 8 for 3 times.	Р
10. Perform "BRAKE" self-diagnosis. <u>Is DTC "C1A6D" detected?</u>	
YES >> GO TO 15.	
NO >> INSPECTION END	
15. CHECK CIRCUIT BETWEEN ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT AND BRAKE	

POWER SUPPLY BACKUP UNIT

< DTC/CIRCUIT DIAGNOSIS >

- 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 in	telligent brake unit		Continuity	
Connector	Terminal		Continuity	
E34 32		Ground	Not existed	

Is the inspection result normal?

YES >> Replace the brake power supply backup unit. Refer to <u>BR-223</u>, "<u>Removal and Installation</u>".

NO >> Repair or replace malfunctioning parts.

< DTC/CIRCUIT DIAGNOSIS >

C1A6E EV SYSTEM

DTC Logic

INFOID:000000006960684

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В

DTC DETECTION LOGIC

	Display item	Malfunction detection condition	Possible causes
C1A6E	EV/HEV SYSTEM	Malfunction is detected in the VCM system.	Harness or connector VCM
DTC RE	PRODUCTION PROC	EDURE	
1.PREC	ONDITIONING		
		PROCEDURE" was performed just before, t	turn the power switch OFF and
wait for a	t least and wait for 10 se	conds or more, then perform the next test.	
:	>> GO TO 2.		
2.снес	K DTC DETECTION		
With C			
	the power switch OFF to TION:	ON.	
	er engage READY state eat step 1 for 2 times or n		
CAU	TION:		
	ure to wait for 5 second the power switch OFF.	ds or more after turning the power switch (OFF.
4. Close	e all doors including the b	back door, and wait outside of vehicle for 5 m	inutes or more.
	the power switch ON. TION:		
	er engage READY state e self-diagnosis result of		
CAU	TION:		
		and wait 5 minutes or more after erase set mm (3.94 in) or more, and hold the position for	
8. Rele	ase brake pedal. eat steps 7 to 8 for 3 time		
	orm "BRAKE" self-diagno		
	C1A6E" detected?		
	>> Proceed to <u>BR-141, "</u> >> INSPECTION END	Diagnosis Procedure".	
Diagno	sis Procedure		INF01D:00000006960685
4	K 12V BATTERY		
	the power switch OFF.		
2. Chec	k the 12V battery termin	al connections. Refer to <u>PG-101, "Work Flow</u>	<u>"</u>
	•	to <u>PG-101, "Work Flow"</u> .	
	pection result normal?		
NO	>> Repair or replace mal	functioning parts and GO TO 2.	
	ORM SELF-DIAGNOSIS	• (1)	

- Connect 12V battery cable to negative terminal. Refer to <u>PG-10</u>
 Turn the power switch OFF to ON.
- CAUTION: Never engage READY state.

< DTC/CIRCUIT DIAGNOSIS >

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

- ${f 3.}$ CHECK CONNECTOR TERMINALS
- 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 ŎN.
 - CAUTION: Never engage READY state.
 - Erase self-diagnosis result of "BRAKE".
- 8. Erase self-diagnosis result of "BRA 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

$\mathbf{5.}$ 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.

< DTC/CIRCUIT DIAGNOSIS >

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 <u>PG-104</u>, "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		voltage
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	-	BR
Connector	Terminal		voltage		
E34	26	Ground	10 – 16 V	-	
		•	+	-	G

Is the inspection result normal?

YES >> GO TO 8.

NO >> GO TO 6.

${f 6}.$ 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	Continuity
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		Continuity
E34	26	Ground	Not existed

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to <u>PG-59, "Wiring Diagram - ON</u> N <u>POWER SUPPLY -"</u>.

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".
- 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.

BR-143

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< DTC/CIRCUIT DIAGNOSIS >

- 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.

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	Connector Terminal		
	1 – 31		
E34	2 – 31	10 – 16 V	
	11 – 31		

 Turn the power switch ON. CAUTION:

Never engage READY state.

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

Electrically-drive	Electrically-driven intelligent brake unit	
Connector Terminal		Voltage
	1 – 31	
E34	2 – 31	10 – 16 V
	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).
- 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?

C1A6E EV SYSTEM

< D	TC/CIRCUIT DI	AGNOSIS >			
YE		n diagnosis for 12V ba R SUPPLY -".	ttery power supply.	Refer to <u>PG-15, "W</u>	iring Diagram - BATTERY
N		or replace malfunctioning	ng parts and GO TO	10.	
10	.PERFORM SE	LF-DIAGNOSIS (4)			
	Vith CONSULT Connect the ele Connect 12V ba	ectrically-driven intellige attery cable to negative switch OFF to ON.			d Installation". C
4.		or 2 times or more.			D
		t for 5 seconds or mo	re after turning the	power switch OFF.	
5. 6. 7.	Turn the power CAUTION :	including the back doo switch ON.	r, and wait outside of	vehicle for 5 minute	
8.	Never engage Erase self-diagr CAUTION:	nosis result of "BRAKE	"		BR
10.	Turn the power Depress brake Release brake				
12.		to 10 for 3 times. E" self-diagnosis. tected?			Н
	S >> GO TO				
		CTION END			
1.1	.CHECK GROU	IND CIRCUIT			
1. 2. 3.	Disconnect the	' battery cable to negat electrically-driven intell y between electrically-o	ligent brake unit harn	ess connector.	U
	Electrically-driver	n intelligent brake unit			K
	Connector	Terminal		Continuity	
	E34	31	Ground	Existed	L
ls ti	ne inspection res	sult normal?			
	S >> GO TO	-			
		or replace malfunctioning	ng parts and GO TO	12.	M
	.PERFORM SE	ELF-DIAGNOSIS (5)			
 ■V 1. 2. 3. 4. 	Connect 12V ba Turn the power CAUTION: Never engage	ectrically-driven intellige attery cable to negative switch OFF to ON. READY state. or 2 times or more.			N <u>d Installation"</u> . O
т.	CAUTION:				Р
5. 6. 7.	Turn the power Close all doors Turn the power CAUTION:	including the back doo switch ON.	-	-	
8.	Never engage Erase self-diagr CAUTION:	nosis result of "BRAKE"			

C1A6E EV SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

- 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.
- Check "MOTOR POWER SUPPLY" and "CONTROL MODULE POWER". Refer to <u>BR-23, "Reference</u> <u>Value"</u>.

Is the inspection result normal?

YES >> GO TO 14.

NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u>.

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.
- 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 <u>BR-170, "Diagnosis Procedure"</u>.

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 <u>EVC-78, "DTC Index"</u>. GO TO 16.

NO >> GO TO 16.

16. PERFORM SELF-DIAGNOSIS (7)

With CONSULT

C1A6E EV SYSTEM

< D	TC/CIRCUIT DIAGNOSIS >	
1.	Turn the power switch OFF to ON. CAUTION: Never engage READY state.	A
2.		
~	Be sure to wait for 5 seconds or more after turning the power switch OFF.	В
3. 4. 5.	Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Turn the power switch ON. CAUTION:	С
6.	Never engage READY state. Erase self-diagnosis result of "BRAKE". CAUTION:	D
7. 8. 9. 10.		E
	DTC "C1A6E" detected?	BR
	ES >> GO TO 15. O >> INSPECTION END	G

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< DTC/CIRCUIT DIAGNOSIS >

C1A6F VCMSYSTEM

DTC Logic

INFOID:000000006960686

DTC DETECTION LOGIC

DTC	Display item	Malfunction detection condition	Possible causes
C1A6F	TCM/VCM SYSTEM	Malfunction is detected in the VCM system.	Harness or connectorTCM

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

- Turn the power switch OFF to ON. CAUTION:
 - Never engage READY state.
- 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.

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 <u>BR-148</u>, "Diagnosis Procedure".
- NO >> INSPECTION END

Diagnosis Procedure

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 <u>PG-101, "Work Flow"</u>.

Is the inspection result normal?

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.

INFOID:000000006960687

< DTC	C/CIRCUIT DIAGNOSIS >	
	Repeat step 2 for 2 times or more.	A
	se sure to wait for 5 seconds or more after turning the power switch OFF.	
5. C 6. T	urn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Furn the power switch ON. CAUTION:	В
7. E	lever engage READY state. irase self-diagnosis result of "BRAKE". AUTION:	С
8. D 9. R 10. R	Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more. Release brake pedal. Repeat steps 8 to 9 for 3 times.	D
	Perform "BRAKE" self-diagnosis.	Е
YES	<u>C "C1A6F" detected?</u> >> GO TO 3.	
NO	>> INSPECTION END	
3. c⊦	IECK CONNECTOR TERMINALS	BR
-	Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.	
	AUTION:	G
	lever depress brake pedal.	0
3. D te	Disconnect 12V battery cable from negative terminal. Refer to <u>PG-104. "Removal and Installation"</u> . Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin erminals and connections.	Н
	inspection result normal?	
YES NO	>> GO TO 5. >> Repair or replace malfunctioning parts and GO TO 4.	I
	ERFORM SELF-DIAGNOSIS (2)	
 .PE	RFORM SELF-DIAGNOSIS (2)	
1. C	th CONSULT Connect the electrically-driven intelligent brake unit harness connector.	J
	Connect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u> . Furn the power switch OFF to ON.	
	AUTION:	Κ
	lever engage READY state.	
	tepeat step 3 for 2 times or more.	L
	e sure to wait for 5 seconds or more after turning the power switch OFF.	
	urn the power switch OFF.	
	Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Furn the power switch ON.	\mathbb{M}
	AUTION:	
	lever engage READY state.	N.I.
	irase self-diagnosis result of "BRAKE".	Ν
-	urn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	
9. D	Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.	0
	telease brake pedal. Repeat steps 9 to 10 for 3 times.	
	erform "BRAKE" self-diagnosis.	
	C "C1A6F" detected?	Ρ
YES		
	>> INSPECTION END	
	IECK POWER SWITCH ON POWER SUPPLY	

1.

Connect the electrically-driven intelligent brake unit harness connector. Connect 12V battery cable to negative terminal. Refer to <u>PG-104</u>, "<u>Removal and Installation</u>". 2.

3. Turn the power switch OFF.

< DTC/CIRCUIT DIAGNOSIS >

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			Voltago	
Connector	Terminal	_	Voltage	
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 in	telligent brake unit	— Voltage		
Connector	Terminal		- volage	
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	Continuity
E34	26	E15	62	Existed

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

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

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. <u>PG-59, "Wiring Diagram - ON POWER</u> <u>SUPPLY -"</u>.

- 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.

< DTC/CIRCUIT DI	AGNOSIS >			
 Turn the power Close all doors Turn the power CAUTION: 	including the back doo	r, and wait outside	of vehicle for 5 minutes or more.	A
9. Erase self-diagr	READY state. nosis result of "BRAKE"			В
Turn the power	bedal by 100 mm (3.94 bedal.) to 11 for 3 times.		re after erase self-diagnosis result. old the position for 5 seconds or more.	С
Is DTC "C1A6F" det	-			D
YES >> GO TO				
-	CTION END			Е
	battery cable to negat			BR
	electrically-driven intell			
			PG-104, "Removal and Installation". Drake unit harness connector terminal.	G
		-		0
Electrically-driver	n intelligent brake unit	Voltage		
Connector	Terminal		_	Н
	1 – 31			
E34	2 – 31	10 – 16 V		
<u> </u>	11 – 31		_	
6. Turn the power CAUTION :	Switch ON.			
Never engage				J
7. Check voltage b	between the electrically	-driven intelligent l	orake unit harness connector terminal.	
Electrically-driver	n intelligent brake unit		_	Κ
Connector	Terminal	Voltage		
	1 – 31		_	L
E34	2 – 31	10 – 16 V		
-	11 – 31			
Is the inspection res	ult normal?		-	Μ
YES >> GO TO				
NO >> GO TO				Ν
9.CHECK 12V BAT	TERY POWER SUPP	LY CIRCUIT		
1. Turn the power				
 Disconnect 12V Check 60A fusil 		ive terminal. Refer	to PG-104, "Removal and Installation".	0
4. Check continuit	y and for short circuit		connector terminal 1 of electrically-driven intelli-	
	and 60A fusible link (#I v and for short circuit		connector terminal 2 of electrically-driven intelli-	Ρ
gent brake unit	and 60A fusible link (#I			
 Check 10A fuse Check continuit 		oetween harness o	connector terminal 11 of electrically-driven intelli-	
	and 10A fuse (#78).			
Is the inspection res	ult normal?			

< DTC/CIRCUIT DIAGNOSIS >

- YES >> Perform diagnosis for 12V battery power supply. Refer to <u>PG-15, "Wiring Diagram BATTERY</u> <u>POWER SUPPLY -"</u>.
- 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-driver	n intelligent brake unit	- Continuity	
Connector	Terminal	_	Continuity
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)

(I) 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:

< DTC/CIRCUIT DIAGNOSIS >	
10. Release brake pedal.	A
 Repeat steps 9 to 10 for 3 times. Perform "BRAKE" self-diagnosis. 	D
Is DTC "C1A6F" detected?	B
YES >> GO TO 13. NO >> INSPECTION END	С
13. CHECK DATA MONITOR	
With CONSULT	
 Connect the electrically-driven intelligent brake unit harness connector. Connect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u>. Turn the power switch OFF to ON. 	D
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.	R
	G
Is the inspection result normal?	
 YES >> GO TO 14. NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u>. 	Н
14.PERFORM SELF-DIAGNOSIS (6)	
(i) With CONSULT	
1. Turn the power switch OFF to ON. CAUTION:	I
	J
CAUTION: Be sure to wait for 5 seconds or more after turning the power switch OFF.	
 Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. 	K
5. Turn the power switch ON. CAUTION:	
	L
6. Erase self-diagnosis result of "BRAKE". CAUTION:	
	M
9. Repeat steps 7 to 8 for 3 times.	NI
TO. T ENDING DIVARE SEI-GIAGNOSIS.	Ν
<u>Is any DTC "C1A6F" or "U1000" detected?</u> YES ("C1A6F")>>GO TO 15.	
YES ("U1000")>>Refer to <u>BR-170, "Diagnosis Procedure"</u> . NO >> INSPECTION END	0
15. PERFORM VCM SELF DIAGNOSIS	P
Perform self-diagnosis for "EV/HEV". Refer to EVC-51, "CONSULT Function".	۳
Is any DTC detected?	
YES >> Check the DTC. Refer to <u>EVC-78. "DTC Index"</u> . GO TO 16. NO >> GO TO 16.	
16.perform self-diagnosis (7)	

With CONSULT

< DTC/CIRCUIT DIAGNOSIS >

- 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".

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

< DTC/CIRCUIT DIAGNOSIS >

C1A70 BRAKE CONTROL SYSTEM

DTC Logic

INFOID:000000006960688

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В

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 ABS actuator and electric unit (control unit)
DTC RE	PRODUCTION PROCEDU	RE	
1.PREC	ONDITIONING		
		DCEDURE" was performed just before, turn s or more, then perform the next test.	the power switch OFF and
~	>> GO TO 2.		
2.CHEC	K DTC DETECTION		
	ONSULT the power switch OFF to ON.		
CAU	TION:		
	er engage READY state. eat step 1 for 2 times or more.		
CAU	TION:		F
3. Turn	the power switch OFF.	more after turning the power switch OF	
	e all doors including the back the power switch ON.	door, and wait outside of vehicle for 5 minut	tes or more.
CAU	TION:		
	er engage READY state. e self-diagnosis result of "BRA	AKE".	
CAU	TION:	wait 5 minutes or more after erase self-d	izanosis rosult
7. Depr	ess brake pedal by 100 mm (3.94 in) or more, and hold the position for 5	seconds or more.
	ase brake pedal. eat steps 7 to 8 for 3 times.		
10. Perfo	orm "BRAKE" self-diagnosis.		
	<u>C1A70" detected?</u> >> Proceed to <u>BR-155, "Diag</u> i	accia Proceduro"	
	>> INSPECTION END	IUSIS FIOCEdule.	
Diagno	sis Procedure		INF0ID:0000000696068
1.снес	K 12V BATTERY		
	the power switch OFF.		
	k the 12V battery terminal co the 12V battery. Refer to <u>P</u>	nnections. Refer to <u>PG-101, "Work Flow"</u> . G-101, "Work Flow".	
	pection result normal?		
	>> GO TO 2.	ioning parts and CO TO 2	
<u>~</u>	> Repair or replace malfunct ORM SELF-DIAGNOSIS (1)		
With C	() ()		

- Connect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u>.
 Turn the power switch OFF to ON.
- **CAUTION:**
- Revision: 2010 November

< DTC/CIRCUIT DIAGNOSIS >

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.
- 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?

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

4.PERFORM SELF-DIAGNOSIS (2)

(D) 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.
- 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".

< DTC/CIRCUIT DIAGNOSIS >

- 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			vollage
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				-
Connector	Terminal	—	Voltage	
E34	26	Ground	10 – 16 V	_
the inspection result	normal?			-
YES >> GO TO 8. NO >> GO TO 6.				
CHECK POWER S		SUPPLY CIRCUIT		
. Turn the power sw . Connect 12V batte	vitch OFF. ery cable to negative	terminal Refer to P	G-104 "Removal ar	nd Installation"
. Check 15A fuse (#	<i>t</i> 62).			id mistaliation.
	E/R harness connect			P
. Check continuity b	etween electrically-d	friven intelligent brak	e unit and IPDM E/	R.
Electrically-driven in	telligent brake unit	IPDI	M E/R	
Connector	Terminal	Connector	Terminal	Continuity
E34	26	E15	62	Existed
L34	20	LIJ	02	Existed
-	petween electrically-d	Sec. Sec. Sec. Sec. Sec. Sec. Sec. Sec.	_	
. Check continuity b	petween electrically-d	Sec. Sec. Sec. Sec. Sec. Sec. Sec. Sec.	_	
. Check continuity b Electrically-driven int	between electrically-d	Sec. Sec. Sec. Sec. Sec. Sec. Sec. Sec.	_	
. Check continuity b Electrically-driven int Connector	between electrically-d telligent brake unit Terminal	friven intelligent brak	e unit harness conr	
Check continuity b Electrically-driven int Connector E34	between electrically-d telligent brake unit Terminal 26	Sec. Sec. Sec. Sec. Sec. Sec. Sec. Sec.	e unit harness conr	
. Check continuity b Electrically-driven int Connector E34 s the inspection result	telligent brake unit Terminal 26 t normal?	driven intelligent brak	continuity	nector and ground.
. Check continuity b Electrically-driven int Connector E34 the inspection result YES >> Perform di POWER S	telligent brake unit Terminal 26 tormal? iagnosis of power sys	Ground Stem with power swim	Continuity Not existed	nector and ground.
. Check continuity b Electrically-driven int Connector E34 the inspection result YES >> Perform di POWER S	telligent brake unit Terminal 26 t normal? iagnosis of power sys	Ground Stem with power swim	Continuity Not existed	nector and ground.
. Check continuity b Electrically-driven int Connector E34 the inspection result YES >> Perform di POWER S	telligent brake unit Terminal 26 <u>t normal?</u> iagnosis of power sys <u>SUPPLY -"</u> . replace malfunctionir	Ground Stem with power swim	Continuity Not existed	nector and ground.
. Check continuity b Electrically-driven int Connector E34 sthe inspection result YES >> Perform di <u>POWER S</u> NO >> Repair or r .PERFORM SELF-D	telligent brake unit Terminal 26 <u>t normal?</u> iagnosis of power sys <u>SUPPLY -"</u> . replace malfunctionir	Ground Stem with power swim	Continuity Not existed	
. Check continuity b Electrically-driven int Connector E34 the inspection result YES >> Perform di <u>POWER S</u> NO >> Repair or n .PERFORM SELF-D With CONSULT . Connect the electr	between electrically-d telligent brake unit Terminal 26 t normal? iagnosis of power sys SUPPLY -". replace malfunctionir DIAGNOSIS (3)	Ground Ground Stem with power swim ng parts and GO TO	continuity Not existed tch ON. Refer to PC	nector and ground.
. Check continuity b Electrically-driven int Connector E34 the inspection result YES >> Perform di <u>POWER S</u> NO >> Repair or r .PERFORM SELF-D With CONSULT . Connect the electr . Connect IPDM E/F	etween electrically-d telligent brake unit Terminal 26 t normal? iagnosis of power sys <u>SUPPLY -"</u> . replace malfunctionir DIAGNOSIS (3) rically-driven intellige R harness connector.	Ground Ground Stem with power swith ng parts and GO TO	Continuity Not existed tch ON. Refer to PC 7.	
. Check continuity b Electrically-driven int Connector E34 the inspection result YES >> Perform di <u>POWER S</u> NO >> Repair or r .PERFORM SELF-D With CONSULT . Connect the electr . Connect IPDM E/F	telligent brake unit Terminal 26 <u>tagnosis of power sys</u> <u>SUPPLY -"</u> . replace malfunctionir DIAGNOSIS (3) rically-driven intellige R harness connector. ery cable to negative	Ground Ground Stem with power swith ng parts and GO TO	Continuity Not existed tch ON. Refer to PC 7.	

Never engage READY state.

5. Repeat step 4 for 2 times or more. CAUTION:

BR-157

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< DTC/CIRCUIT DIAGNOSIS >

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.

Erase self-diagnosis result of "BRAKE".

9. 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.
- Disconnect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u>.
- 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-driver	Electrically-driven intelligent brake unit		
Connector	Terminal	Voltage	
	1 – 31		
E34	2 – 31	10 – 16 V	
	11 – 31		

6. Turn the power switch ON.

CAUTION:

Never engage READY state.

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

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

Is the inspection result normal?

YFS >> GO TO 11.

NO >> GO TO 9.

 ${f 9.}$ 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).
- Check continuity and for short circuit between harness connector terminal 2 of electrically-driven intelli-5. gent 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?

< D	TC/CIRCUIT DI	AGNOSIS >			
YE	ES >> Perform	diagnosis for 12V ba	ttery power supply.	Refer to PG-15, "Wiring	
N		or replace malfunctionir	ng parts and GO TO	10.	A
10	.PERFORM SE	LF-DIAGNOSIS (4)			_
	Vith CONSULT				В
1. 2. 3.	Connect 12V ba	ctrically-driven intellige attery cable to negative switch OFF to ON.		s connector. <u>G-104, "Removal and Ins</u>	<u>tallation"</u> . C
4.	Never engage Repeat step 3 for CAUTION:	READY state. or 2 times or more.			D
	Be sure to wait	for 5 seconds or mo	re after turning the	power switch OFF.	
5. 6. 7.	Turn the power Close all doors Turn the power CAUTION:	including the back door	r, and wait outside o	f vehicle for 5 minutes or	more. E
8.	Never engage Erase self-diagr CAUTION:	READY state. nosis result of "BRAKE'	,		BR
	Turn the power Depress brake p Release brake p	bedal by 100 mm (3.94 bedal.		e after erase self-diagno Id the position for 5 secor	
		to 10 for 3 times. E" self-diagnosis.			Н
	DTC "C1A70" det				
YE	ES >> GO TO D >> INSPEC				
11	.CHECK GROU	ND CIRCUIT			
1. 2. 3.	Disconnect the	battery cable to negati electrically-driven intell y between electrically-c	igent brake unit harr		Installation". J
	Electrically-driven	intelligent brake unit			K
	Connector	Terminal	—	Continuity	
	E34	31	Ground	Existed	L
	<u>he inspection res</u> ES >> GO TO				
N) >> Repair o	or replace malfunctionin	ng parts and GO TO	12.	M
12	PERFORM SE	LF-DIAGNOSIS (5)			
1. 2.	Connect 12V ba			s connector. G-104, "Removal and Ins	N tallation".
3.	CAUTION: Never engage	switch OFF to ON. READY state.			0
4.	CAUTION:	or 2 times or more. t for 5 seconds or mo	re after turning the	power switch OFF	P
	Turn the power	switch OFF.	_		
6. 7.	Turn the power CAUTION :	switch ÕN.	r, and wait outside o	f vehicle for 5 minutes or	nore.
8.	Never engage Erase self-diagr CAUTION:	READY state. nosis result of "BRAKE'			

< DTC/CIRCUIT DIAGNOSIS >

- 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.
- Check "MOTOR POWER SUPPLY" and "CONTROL MODULE POWER". Refer to <u>BR-23, "Reference</u> <u>Value"</u>.

Is the inspection result normal?

YES >> GO TO 14.

NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u>.

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 <u>BR-170, "Diagnosis Procedure"</u>.

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 <u>BRC-48, "DTC Index"</u>. GO TO 16.
- NO >> GO TO 16.

16. PERFORM SELF-DIAGNOSIS (3)

With CONSULT

< D	TC/CIRCUIT DIAGNOSIS >	
1.	Turn the power switch OFF to ON. CAUTION: Never engage READY state.	А
2.		В
3. 4. 5.	Turn the power switch OFF.	С
6.	CAUTION: Never engage READY state. Erase self-diagnosis result of "BRAKE".	-
	CAUTION: Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	D
7. 8. 9.	Release brake pedal. Repeat steps 7 to 8 for 3 times.	E
<u>Is D</u>	Perform "BRAKE" self-diagnosis. <u>DTC "C1A70" detected?</u>	BR
	ES >> GO TO 15. D >> INSPECTION END	G
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< DTC/CIRCUIT DIAGNOSIS >

C1A74 STEERING ANGLE SENSOR

DTC Logic

INFOID:000000006960690

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 ABS actuator and electric unit (control unit) 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

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.

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 <u>BR-162</u>, "Diagnosis Procedure".
- NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006960691

1.CHECK 12V BATTERY

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

<u>< D</u>	TC/CIRCUIT DIAGNOSIS >	
	CAUTION:	
3.	Never engage READY state. Repeat step 2 for 2 times or more.	А
5.	CAUTION:	
	Be sure to wait for 5 seconds or more after turning the power switch OFF.	В
	Turn the power switch OFF.	D
5. 6.	Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Turn the power switch ON.	
0.	CAUTION:	С
	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.	D
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.	_
	Repeat steps 8 to 9 for 3 times.	E
	Perform "BRAKE" self-diagnosis.	
	DTC "C1A74" detected? ES >> GO TO 3.	BR
N		BR
-	CHECK CONNECTOR TERMINALS	
		G
1.	Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. CAUTION:	
	Never depress brake pedal.	
	Disconnect 12V battery cable from negative terminal. Refer to PG-104. "Removal and Installation".	Н
3.	Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin terminals and connections.	
	terminals and connections.	
	a increation result normal?	- I
	ne inspection result normal?	
YE	ES >> GO TO 5.	I
YE N(S >> GO TO 5. >> Repair or replace malfunctioning parts and GO TO 4. 	l J
YE NG 4. I	ES >> GO TO 5. D >> Repair or replace malfunctioning parts and GO TO 4. PERFORM SELF-DIAGNOSIS (2)	l J
YE NG 4.1	ES >> GO TO 5. D >> Repair or replace malfunctioning parts and GO TO 4. PERFORM SELF-DIAGNOSIS (2) Vith CONSULT	J
YE NG 4.1 () 1.	 S >> GO TO 5. >> Repair or replace malfunctioning parts and GO TO 4. PERFORM SELF-DIAGNOSIS (2) Vith CONSULT Connect the electrically-driven intelligent brake unit harness connector. 	I J K
YE NO 4.1 () V 1. 2.	 S >> GO TO 5. >> Repair or replace malfunctioning parts and GO TO 4. PERFORM SELF-DIAGNOSIS (2) Vith CONSULT Connect the electrically-driven intelligent brake unit harness connector. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation". Turn the power switch OFF to ON. 	
YE NO 4.1 () V 1. 2.	 S >> GO TO 5. >> Repair or replace malfunctioning parts and GO TO 4. PERFORM SELF-DIAGNOSIS (2) With CONSULT Connect the electrically-driven intelligent brake unit harness connector. Connect 12V battery cable to negative terminal. Refer to PG-104. "Removal and Installation". Turn the power switch OFF to ON. CAUTION: 	K
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YE NO 4.1 (1) 1. 2. 3.	 S >> GO TO 5. >> Repair or replace malfunctioning parts and GO TO 4. PERFORM SELF-DIAGNOSIS (2) With CONSULT Connect the electrically-driven intelligent brake unit harness connector. Connect 12V battery cable to negative terminal. Refer to PG-104. "Removal and Installation". Turn the power switch OFF to ON. CAUTION: Never engage READY state. Repeat step 3 for 2 times or more.	K
YE NG 4. I	 S >> GO TO 5. >> Repair or replace malfunctioning parts and GO TO 4. PERFORM SELF-DIAGNOSIS (2) With CONSULT Connect the electrically-driven intelligent brake unit harness connector. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation". Turn the power switch OFF to ON. CAUTION: Never engage READY state. Repeat step 3 for 2 times or more. CAUTION: Be sure to wait for 5 seconds or more after turning the power switch OFF. 	K
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YE NO 4.1 () V 1. 2. 3. 4. 5. 6. 7.	 S >> GO TO 5. >> Repair or replace malfunctioning parts and GO TO 4. PERFORM SELF-DIAGNOSIS (2) Vith CONSULT Connect the electrically-driven intelligent brake unit harness connector. Connect 12V battery cable to negative terminal. Refer to PG-104. "Removal and Installation". Turn the power switch OFF to ON. CAUTION: Never engage READY state. Repeat step 3 for 2 times or more. CAUTION: Be sure to wait for 5 seconds or more after turning the power switch OFF. Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Turn the power switch ON. CAUTION: Never engage READY state. Erase self-diagnosis result of "BRAKE". CAUTION: 	K L M
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YE NO 4.1 () () () () () () () () () () () () ()	 S >> GO TO 5. >> Repair or replace malfunctioning parts and GO TO 4. PERFORM SELF-DIAGNOSIS (2) With CONSULT Connect the electrically-driven intelligent brake unit harness connector. Connect 12V battery cable to negative terminal. Refer to PG-104. "Removal and Installation". Turn the power switch OFF to ON. CAUTION: Repeat step 3 for 2 times or more. CAUTION: Be sure to wait for 5 seconds or more after turning the power switch OFF. Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Turn the power switch OFF. Erase self-diagnosis result of "BRAKE". CAUTION: Never engage READY state. Erase self-diagnosis result of "BRAKE". CAUTION: Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more. Release brake pedal. Repeat steps 9 to 10 for 3 times. 	K L M
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YE NO 4.1 () () () () () () () () () () () () ()	 S >> GO TO 5. >> Repair or replace malfunctioning parts and GO TO 4. PERFORM SELF-DIAGNOSIS (2) Vith CONSULT Connect the electrically-driven intelligent brake unit harness connector. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation". Turn the power switch OFF to ON. CAUTION: Never engage READY state. Repeat step 3 for 2 times or more. CAUTION: Be sure to wait for 5 seconds or more after turning the power switch OFF. Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Turn the power switch ON. CAUTION: Never engage READY state. Repeat step 3 for 2 times or more after turning the power switch OFF. Turn the power switch OFF. Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Turn the power switch ON. CAUTION: Never engage READY state. Repeat step 3 for 0 "BRAKE". CAUTION: Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result. Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more. Release brake pedal. Repeat step 3 to 10 for 3 times. Perform "BRAKE" self-diagnosis. DTC "C1A74" detected? S >> GO TO 5. 	K L M N

5.CHECK POWER SWITCH ON POWER SUPPLY

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

< DTC/CIRCUIT DIAGNOSIS >

- 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-driver	Electrically-driven intelligent brake unit		Voltage	
Connector	Connector Terminal		voltage	
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 ir	Electrically-driven intelligent brake unit		Voltage
Connector	Connector Terminal		voltage
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	Continuity
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	Connector Terminal		Continuity	
E34	26	Ground	Not existed	

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. <u>PG-59</u>, "Wiring Diagram - <u>ON POWER</u> <u>SUPPLY -"</u>.

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

< DTC/CIRCUIT D	IAGNOSIS >		
CAUTION:	4 6 an F and a state of the state		
6. Turn the power	t for 5 seconds or mo switch OFF	ore after turning ti	ie power switch OFF.
. Close all doors	including the back doo	r, and wait outside	of vehicle for 5 minutes or more.
. Turn the power CAUTION:	switch ON.		
Never engage	READY state.		
. Erase self-diag	nosis result of "BRAKE	".	
CAUTION:	r owitch OEE and wai	t E minutos or ma	re offer erece celf diagnosic recult
			re after erase self-diagnosis result. nold the position for 5 seconds or more.
. Release brake			
	0 to 11 for 3 times. Æ" self-diagnosis.		
DTC "C1A74" det	0		
YES >> GO TO			
NO >> INSPE	CTION END		
CHECK 12V BA	TTERY POWER SUPP	LY	
. Turn the power			
			to PG-104, "Removal and Installation".
	electrically-driven intel		arness connector. PG-104, "Removal and Installation".
			prake unit harness connector terminal.
0.1	- · · ·	5	
Electrically-drive	n intelligent brake unit	Voltage	—
Connector	Terminal	vollage	
	1 – 31		—
E34	2 – 31	10 – 16 V	
	11 – 31		
. Turn the power	switch ON.		
CAUTION: Never engage	READY state		
		-driven intelligent	brake unit harness connector terminal.
			_
	n intelligent brake unit	Voltage	
Connector	Terminal	5	
	1 – 31		
E34	2 – 31	10 – 16 V	
	11 – 31		
the inspection res			
YES >> GO TO			
	TTERY POWER SUPP		
Turn the power		ive terminal Befor	to PC 104 "Pomoval and Installation"
 Disconnect 12\ Check 60A fusi 		ive terminal. Kelei	to PG-104, "Removal and Installation".
. Check continuit	ty and for short circuit		connector terminal 1 of electrically-driven intelli-
	and 60A fusible link (#		connector terminal Q of classically driver intelli
	and for short circuit and 60A fusible link (#		connector terminal 2 of electrically-driven intelli-
. Check 10A fuse	e (#78).		
		between harness of	connector terminal 11 of electrically-driven intelli-
gent brake unit the inspection res	and 10A fuse (#78).		
	SOUTHOUGH /		

< DTC/CIRCUIT DIAGNOSIS >

- YES >> Perform diagnosis for 12V battery power supply. Refer to <u>PG-15, "Wiring Diagram BATTERY</u> <u>POWER SUPPLY -"</u>.
- 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.

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-driver	Electrically-driven intelligent brake unit		Continuity
Connector	Terminal	_	Continuity
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:

< DTC/CIRCUIT DIAGNOSIS >

 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. 	А
12. Perform "BRAKE" self-diagnosis.	D
Is DTC "C1A74" detected?	В
YES >> GO TO 13. NO >> INSPECTION END	С
13. CHECK DATA MONITOR	0
 With CONSULT Connect the electrically-driven intelligent brake unit harness connector. Disconnect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u>. Turn the power switch OFF to ON. CAUTION: 	D
 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.	BR
 Select "BRAKE" and "DATA MONITOR" according this order. Check "MOTOR POWER SUPPLY" and "CONTROL MODULE POWER". Refer to <u>BR-23. "Reference</u> <u>Value"</u>. 	G
Is the inspection result normal?	
YES >> GO TO 14. NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u> . 14. PERFORM SELF-DIAGNOSIS (6)	Н
 With CONSULT 1. Turn the power switch OFF to ON. CAUTION: 	I
Never engage READY state.	J
2. Repeat step 1 for 2 times or more. CAUTION:	J
Be sure to wait for 5 seconds or more after turning the power switch OFF.Turn the power switch OFF.	
 Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Turn the power switch ON. 	K
CAUTION: Never engage READY state.	L
 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. 	M
 Repeat steps 7 to 8 for 3 times. Perform "BRAKE" self-diagnosis. 	Ν
Is any DTC "C1A74" or "U1000" detected?	
YES ("C1A74")>>GO TO 15. YES ("U1000")>>Refer to <u>BR-170, "Diagnosis Procedure"</u> . NO >> INSPECTION END	0
15. PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND CONTROL UNIT	
Perform self-diagnosis for "ABS". Refer to <u>BRC-38, "CONSULT Function"</u> .	Ρ
Is any DTC detected?	
YES >> Check the DTC. Refer to <u>BRC-48, "DTC Index"</u> . GO TO 16. NO >> GO TO 16.	
16. PERFORM SELF-DIAGNOSIS (3)	

(B)With CONSULT

< DTC/CIRCUIT DIAGNOSIS >

- 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".

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

< DTC/CIRCUIT DIAGNOSIS >

U1000 CAN COMM CIRCUIT

Description

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:000000006960693

INFOID:000000006960692

А

DTC DETECTION LOGIC

			Describer of the second	Е
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 sec- onds or more.	CAN communication system mal- function	BR
DTC RE	EPRODUCTION PROCE	DURE		
	CONDITIONING			G
If anothe	er "DTC CONFIRMATION F	PROCEDURE" was performed just before, tur	n the power switch OFF and	
		onds or more, then perform the next test.		
				Н
•	>> GO TO 2.			
2.CHE	CK DTC DETECTION			
() With (CONSULT			
	n the power switch OFF to (ON.		
	JTION: er engage READY state.			J
2. Rep	eat step 1 for 2 times or mo	ore.		
	JTION:			Κ
	sure to wait for 5 seconds in the power switch OFF.	s or more after turning the power switch OF	- F .	
		ack door, and wait outside of vehicle for 5 minu	utes or more.	
	n the power switch ON. JTION:			L
-	er engage READY state.			
	se self-diagnosis result of "l	BRAKE".		M
-	JTION:	nd weit 5 minutes or more ofter cross colf.	diagnosia recult	
		nd wait 5 minutes or more after erase self- m (3.94 in) or more, and hold the position for \$		
8. Rele	ease brake pedal.			Ν
	eat steps 7 to 8 for 3 times form "BRAKE" self-diagnos			
	U1000" detected?	lo.		0
YES	>> Proceed to <u>BR-169, "D</u>	iagnosis Procedure"		0
NO	>> INSPECTION END	<u></u>		
Diagno	osis Procedure		INFOID:00000006960694	Ρ
0				
Proceed	to LAN-15, "Trouble Diagn	osis Flow Chart".		

Revision: 2010 November

< DTC/CIRCUIT DIAGNOSIS >

U1010 CONTROL UNIT (CAN)

Description

INFOID:000000006960695

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:000000006960696

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

(B) With CONSULT

- 1. Turn the power switch OFF to ON. CAUTION:
- Never engage READY state.
 Repeat step 1 for 2 times or more.
- 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.

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 <u>BR-170, "Diagnosis Procedure"</u>.
- NO >> INSPECTION END

Diagnosis Procedure

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 <u>BR-221, "Removal and installation"</u>.

BR-170

INFOID:000000006960697

U1010 CONTROL UNIT (CAN)

< DTC	C/CIRCUIT DIAGNOSIS >	
NO	>> Repair or replace malfunctioning parts.	-
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< DTC/CIRCUIT DIAGNOSIS >

U1510 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) COMMU-NICATION

DTC Logic

INFOID:000000006960698

DTC DETECTION LOGIC

DTC	Display item	Malfunction detection condition	Possible causes
U1510	BRAKE CONTROL COMMUNI- CATION	Signals from brake communications line [*] are not sent or received continuously for 4 seconds or more.	 Harness or connector Electrically-driven intelligent brake unit 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

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.

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 <u>BR-172, "Diagnosis Procedure"</u>. NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006960699

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)

	TC/CIRCUIT DIAGNOSIS >	
	/ith CONSULT	^
	Connect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u> . Turn the power switch OFF to ON.	А
	CAUTION:	
	Never engage READY state.	
	Repeat step 2 for 2 times or more.	В
	CAUTION:	
	Be sure to wait for 5 seconds or more after turning the power switch OFF.	
	Turn the power switch OFF.	С
	Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.	
	Turn the power switch ON. CAUTION:	
	Never engage READY state.	D
	Erase self-diagnosis result of "BRAKE".	
	CAUTION:	
	Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	E
	Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.	
	Release brake pedal.	
	Repeat steps 8 to 9 for 3 times.	BR
	Perform "BRAKE" self-diagnosis.	
	TC "U1510" detected?	
	S >> GO TO 3.	G
NC		
3.0	CHECK CONNECTOR TERMINALS	
1	Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.	Н
	CAUTION:	
	Never depress brake pedal.	
	Disconnect 12V battery cable from negative terminal. Refer to PG-104, "Removal and Installation".	
	Disconnect the electrically-driven intelligent brake unit harness connector, then check for failures of pin	
	terminals and connections.	
<u>Is th</u>	ne inspection result normal?	J
ΥE	S >> GO TO 5.	
NC	>> Repair or replace malfunctioning parts and GO TO 4.	
4 .F	PERFORM SELF-DIAGNOSIS (2)	Κ
	/ith CONSULT	
	Connect the electrically-driven intelligent brake unit harness connector. Connect 12V battery cable to negative terminal. Refer to <u>PG-104</u> , " <u>Removal and Installation</u> ".	L
	Turn the power switch OFF to ON.	
	CAUTION:	
	Never engage READY state.	M
	Repeat step 3 for 2 times or more.	1 V 1
	CAUTION:	
	Be sure to wait for 5 seconds or more after turning the power switch OFF.	Ν
	Turn the power switch OFF.	14
	Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.	
	Turn the power switch ON. CAUTION:	\circ
	Never engage READY state.	0
	Erase self-diagnosis result of "BRAKE".	
	CAUTION:	_
	Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	Ρ
	Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.	
	Release brake pedal.	
	Repeat steps 9 to 10 for 3 times.	
	Perform "BRAKE" self-diagnosis.	
	TC "U1510" detected?	
YE	S >> GO TO 5.	

< DTC/CIRCUIT DIAGNOSIS >

NO >> INSPECTION END

 ${f 5.}$ 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-driver	Electrically-driven intelligent brake unit		Voltage
Connector	Terminal		voltage
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		voltage
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 in	ectrically-driven intelligent brake unit IPDM E/R		IPDM E/R	
Connector	Terminal	Connector	Terminal	Continuity
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		Continuity	
E34	26	Ground	Not existed	

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to <u>PG-59</u>, "Wiring Diagram - ON <u>POWER SUPPLY -</u>".

NO >> Repair or replace malfunctioning parts and GO TO 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".

< DTC/CIRCUIT DIAGNOSIS >	
4. Turn the power switch OFF to ON. CAUTION:	A
Never engage READY state. 5. Repeat step 4 for 2 times or more.	
CAUTION:	D
Be sure to wait for 5 seconds or more after turning the power switch OFF.	В
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.	С
CAUTION:	
Never engage READY state.	
9. Erase self-diagnosis result of "BRAKE".	D
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.	E
12. Repeat steps 10 to 11 for 3 times.	_
13. Perform "BRAKE" self-diagnosis.	
Is DTC "U1510" detected?	BR
	DK
YES >> GO TO 8.	
NO >> INSPECTION END	
8.CHECK 12V BATTERY POWER SUPPLY	G
1. Turn the power switch OFF.	
2. Disconnect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u> .	Н
3. Disconnect the electrically-driven intelligent brake unit harness connector.	
Connect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u>.	

5. Check voltage between the electrically-driven intelligent brake unit harness connector terminal.

Electrically-driven intelligent brake unit		Voltago
Connector	Terminal	Voltage
	1 – 31	
E34	2 – 31	10 – 16 V
	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-drive	n intelligent brake unit	Voltage
Connector	Terminal	
	1 – 31	10 – 16 V
E34	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).
- 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).

BR-175

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< DTC/CIRCUIT DIAGNOSIS >

- 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 <u>PG-15, "Wiring Diagram BATTERY</u> <u>POWER SUPPLY -"</u>.
- 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	_	Continuity	
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.

< D	TC/CIRCUIT DIAGNOSIS >	
7.	Turn the power switch ON. CAUTION:	А
	Never engage READY state.	
8.	Erase self-diagnosis result of "BRAKE".	
	Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	В
	Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more.	
	Release brake pedal. Repeat steps 9 to 10 for 3 times.	С
	Perform "BRAKE" self-diagnosis.	
	OTC "U1510" detected?	
	ES >> GO TO 13.	D
N(12		
-	CHECK DATA MONITOR	Е
	Vith CONSULT	
1. 2.	Connect the electrically-driven intelligent brake unit harness connector. Connect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u> .	
	Turn the power switch OFF to ON.	BR
	CAUTION: Never engage READY state.	
4.	Repeat step 3 for 2 times or more.	G
	CAUTION:	0
5	Be sure to wait for 5 seconds or more after turning the power switch OFF. Select "BRAKE" and "DATA MONITOR" according this order.	
6.	Check "MOTOR POWER SUPPLY" and "CONTROL MODULE POWER". Refer to <u>BR-23, "Reference</u>	Н
	Value".	
	ne inspection result normal?	I
YE NC	 S >> GO TO 14. S >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u>. 	
	• PERFORM SELF-DIAGNOSIS (6)	
-		J
(<u> </u>)V 1.	Vith CONSULT Turn the power switch OFF to ON.	
	CAUTION:	Κ
~	Never engage READY state.	1.
2.	Repeat step 1 for 2 times or more.	
	Be sure to wait for 5 seconds or more after turning the power switch OFF.	L
	Turn the power switch OFF.	
	Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Turn the power switch ON.	M
	CAUTION:	IVI
6	Never engage READY state.	
0.	Erase self-diagnosis result of "BRAKE".	Ν
	Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	
	Depress brake pedal by 100 mm (3.94 in) or more, and hold the position for 5 seconds or more. Release brake pedal.	0
	Repeat steps 7 to 8 for 3 times.	0
	Perform "BRAKE" self-diagnosis.	
-	DTC "U1510" detected?	Ρ
	ES >> GO TO 15.	
NC 15		
	PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND CONTROL UNIT	
	form self-diagnosis for "ABS". Refer to <u>BRC-38, "CONSULT Function"</u> .	
<u>is D</u>	DTC "U110D" detected?	

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YES >> Perform diagnosis. Refer to <u>BRC-128, "Diagnosis Procedure"</u>.

< DTC/CIRCUIT DIAGNOSIS >

NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u>.

U1511 BRAKE POWER SUPPLY BACKUP UNIT COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

U1511 BRAKE POWER SUPPLY BACKUP UNIT COMMUNICATION

DTC Logic

А

DTC DETECTIO

DT	C Logi	iC		INFOID:00000006960700	
DTC	C DETE	CTION LOGIC			В
	DTC	Display item	Malfunction detection condition	Possible causes	
U1	11	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 Electrically-driven intelligent brake unit Brake power supply backup unit 	C
Con	nmunica	tions line between electrically	r-driven intelligent brake unit and brake p	oower supply backup unit.	
DTC	CREPF	RODUCTION PROCEDUR	E		E
1. F	PRECON	NDITIONING			
lf ar wait	other "[for at le	DTC CONFIRMATION PROC east and wait for 10 seconds of	EDURE" was performed just before, turn or more, then perform the next test.	n the power switch OFF and	BR
	>>	GO TO 2.			G
2.0	HECK	DTC DETECTION			0
1.	CAUTIO	e power switch OFF to ON. <mark>ON:</mark>			Н
		engage READY state. step 1 for 2 times or more.			I
	CAUTION:				
		e to wait for 5 seconds or m e power switch OFF.	nore after turning the power switch OF	F.	
4.	Close all doors including the back door, and wait outside of vehicle for 5 minutes or more.				J
	CAUTIC	e power switch ON. ON:			
		engage READY state. self-diagnosis result of "BRAK DN:	Ε".		К
7. 8.					L
		steps 7 to 8 for 3 times. "BRAKE" self-diagnosis.			M

Is DTC "U1511" detected?

YES >> Proceed to <u>BR-179</u>, "Diagnosis Procedure".

>> INSPECTION END NO

Diagnosis Procedure

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

Ν

Ρ

INFOID:000000006960701

U1511 BRAKE POWER SUPPLY BACKUP UNIT COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

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

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?

< DTC/CIRCUIT DIAGNOSIS >

	SWITCH ON POWER			
 Connect 12V batt Turn the power system 	witch OFF.	terminal. Refer to	ess connector. <u>PG-104. "Removal and</u> of vehicle for 5 minute	
CAUTION:	-	, and man outclud		
Never depress b 5. Disconnect 12V b		ve terminal Refer	to PG-104, "Removal	and Installation"
6. Disconnect the el	ectrically-driven intelli	gent brake unit ha	rness connector.	
			PG-104, "Removal and	
 Check voltage be 		-unven mengent c	orake unit harness con	nector and ground.
Electrically-driven ir	ntelligent brake unit			
Connector	Terminal	—	Voltage	
E34	26	Ground	Approximately 0 V	
9. Turn the power sv	witch ON		1	
_	tween the electrically	-driven intelligent b	prake unit harness con	nector and ground.
Connector	Terminal	—	Voltage	
E34	26	Ground	10 – 16 V	
s the inspection result YES >> GO TO 8	It normal?	Ground	10 – 16 V	
s the inspection resul YES >> GO TO 8 NO >> GO TO 6 O.CHECK POWER S	I <u>t normal?</u> SWITCH ON POWER			
s the inspection result YES >> GO TO 8 NO >> GO TO 6 CHECK POWER S CHECK POWER S Disconnect 12V b Check 15A fuse (Disconnect IPDM	It normal? SWITCH ON POWER witch OFF. pattery cable to negati #62). I E/R harness connec	SUPPLY CIRCUIT ve terminal. Refer tor.		
s the inspection result YES >> GO TO 8 NO >> GO TO 6 CHECK POWER S CHECK POWER S Disconnect 12V b Check 15A fuse (Disconnect IPDM Check continuity	It normal? SWITCH ON POWER witch OFF. pattery cable to negati #62). I E/R harness connec	SUPPLY CIRCUIT ve terminal. Refer tor. Iriven intelligent bra	r to <u>PG-104, "Removal</u>	R.
s the inspection result YES >> GO TO 8 NO >> GO TO 6 CHECK POWER S Disconnect 12V b Check 15A fuse (Disconnect IPDM Check continuity	It normal? SWITCH ON POWER witch OFF. pattery cable to negati #62). I E/R harness connec between electrically-c	SUPPLY CIRCUIT ve terminal. Refer tor. Iriven intelligent bra	to <u>PG-104, "Removal</u> ake unit and IPDM E/F	
s the inspection result YES >> GO TO 8 NO >> GO TO 6 CHECK POWER S CHECK POWER S Disconnect 12V b Check 15A fuse (Disconnect IPDM Check continuity Electrically-driven in	It normal? SWITCH ON POWER witch OFF. pattery cable to negati #62). I E/R harness connec between electrically-c	SUPPLY CIRCUIT ve terminal. Refer tor. Iriven intelligent bra	to <u>PG-104, "Removal</u> ake unit and IPDM E/F	R.
s the inspection result YES >> GO TO 8 NO >> GO TO 6 CHECK POWER S Disconnect 12V b Check 15A fuse (Disconnect IPDM Check continuity Electrically-driven in Connector E34	It normal? SWITCH ON POWER witch OFF. pattery cable to negati #62). E/R harness connect between electrically-content ntelligent brake unit Terminal 26	SUPPLY CIRCUIT ve terminal. Refer tor. Iriven intelligent bra IP Connector E15	to <u>PG-104, "Removal</u> ake unit and IPDM E/F DM E/R	Continuity Existed
s the inspection result YES >> GO TO 8 NO >> GO TO 6 CHECK POWER S Disconnect 12V b Check 15A fuse (Disconnect IPDM Check continuity Electrically-driven in Connector E34	It normal? SWITCH ON POWER witch OFF. pattery cable to negati #62). E/R harness connect between electrically-content ntelligent brake unit Terminal 26	SUPPLY CIRCUIT ve terminal. Refer tor. Iriven intelligent bra IP Connector E15	to <u>PG-104, "Removal</u> ake unit and IPDM E/F DM E/R Terminal 62	Continuity Existed
s the inspection result YES >> GO TO 8 NO >> GO TO 6 D.CHECK POWER S Disconnect 12V b Check 15A fuse (Disconnect IPDM Check continuity Electrically-driven in Connector E34 Check continuity	It normal? SWITCH ON POWER witch OFF. pattery cable to negati #62). E/R harness connect between electrically-content ntelligent brake unit Terminal 26	SUPPLY CIRCUIT ve terminal. Refer tor. Iriven intelligent bra IP Connector E15	to <u>PG-104, "Removal</u> ake unit and IPDM E/F DM E/R 62 ake unit harness conne	Continuity Existed
s the inspection resultYES>> GO TO 8NO>> GO TO 6 \mathbf{D} .CHECK POWER S1. Turn the power sv2. Disconnect 12V b3. Check 15A fuse (4. Disconnect IPDM5. Check continuityElectrically-driven inConnectorE346. Check continuity	It normal? SWITCH ON POWER witch OFF. pattery cable to negati #62). E/R harness connec between electrically-contelligent brake unit Terminal 26 between electrically-contelligent	SUPPLY CIRCUIT ve terminal. Refer tor. Iriven intelligent bra IP Connector E15	to <u>PG-104, "Removal</u> ake unit and IPDM E/F DM E/R Terminal 62	Continuity Existed
s the inspection result YES >> GO TO 8 NO >> GO TO 6 CHECK POWER S CHECK POWER S Disconnect 12V b Check 15A fuse (Disconnect IPDM Check continuity Electrically-driven in Connector E34 Check continuity Electrically-driven in	It normal? SWITCH ON POWER witch OFF. pattery cable to negati #62). I E/R harness connec between electrically-c ntelligent brake unit 26 between electrically-c ntelligent brake unit	SUPPLY CIRCUIT ve terminal. Refer tor. Iriven intelligent bra IP Connector E15	to <u>PG-104, "Removal</u> ake unit and IPDM E/F DM E/R 62 ake unit harness conne	Continuity Existed
s the inspection resultYES>> GO TO 8NO>> GO TO 6 \mathbf{D} .CHECK POWER S1. Turn the power sy2. Disconnect 12V b3. Check 15A fuse (4. Disconnect IPDM5. Check continuityElectrically-driven inConnectorE346. Check continuityElectrically-driven inConnectorE345. Check continuityElectrically-driven inConnectorE34s the inspection resultYES>> Perform colspan="2">Perform colspan="2">Connector	It normal? SWITCH ON POWER witch OFF. pattery cable to negati #62). I E/R harness connect between electrically-contelligent brake unit 26 between electrically-contelligent brake unit Terminal 26 It normal?	SUPPLY CIRCUIT ve terminal. Refer tor. Iriven intelligent bra Connector E15 Iriven intelligent bra Ground	to <u>PG-104, "Removal</u> ake unit and IPDM E/F DM E/R DM E/R 62 ake unit harness conne Continuity Not existed	Continuity Existed
s the inspection resultYES>> GO TO 8NO>> GO TO 6 \mathbf{D} .CHECK POWER S1. Turn the power sy2. Disconnect 12V b3. Check 15A fuse (4. Disconnect IPDM5. Check continuityElectrically-driven inConnectorE346. Check continuityElectrically-driven inConnectorE345. Check continuityElectrically-driven inConnectorE34s the inspection resultYES>> Perform ofPOWER	It normal? SWITCH ON POWER witch OFF. pattery cable to negati #62). E/R harness connect between electrically-contelligent brake unit Terminal 26 between electrically-contelligent brake unit Terminal 26 It normal? diagnosis of power system	SUPPLY CIRCUIT ve terminal. Refer tor. Iriven intelligent bra Connector E15 Iriven intelligent bra Ground	to <u>PG-104. "Removal</u> ake unit and IPDM E/R DM E/R DM E/R Continuity Not existed witch ON. Refer to <u>PG-</u>	Continuity Existed ector and ground.

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2. Connect IPDM E/R harness connector.

< DTC/CIRCUIT DIAGNOSIS >

- 3. Connect 12V battery cable to negative terminal. Refer to PG-104, "Removal and Installation".
- 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.
- Turn the power switch ON.
 CAUTION: Never engage READY state.
- 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-driver	Voltage			
Connector	voltage			
	1 – 31			
E34	2 – 31	10 – 16 V		
	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-driver	Voltage				
Connector	voliage				
	1 – 31				
E34	2 – 31	10 – 16 V			
	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).

< DTC/CIRCUIT DIAGNOSIS >

	gent brake unit	and 60A fusible link (#		nnector terminal 2 of electrically-drive	en intelli- A
6. 7.	Check continuity		between harness cor	nector terminal 11 of electrically-drive	
ls t	he inspection res	. ,			В
	ES >> Perform		attery power supply. I	Refer to <u>PG-15, "Wiring Diagram - B/</u>	
N		or replace malfunction	ng parts and GO TO	10.	С
10). PERFORM SE	LF-DIAGNOSIS (4)			
	Vith CONSULT				D
1.	Connect the ele	ctrically-driven intellige			
2.			e terminal. Refer to <u>Po</u>	G-104, "Removal and Installation".	
3.	CAUTION:	switch OFF to ON.			E
	Never engage				
4.	Repeat step 3 fo	or 2 times or more.			BR
		for 5 seconds or mo	ore after turning the	power switch OFF.	
5.	Turn the power	switch OFF.	-		
6.			r, and wait outside of	vehicle for 5 minutes or more.	G
7.	Turn the power CAUTION:	Switch ON.			
	Never engage				Н
8.	Erase self-diagr CAUTION:	osis result of "BRAKE			
		switch OFF and wai	t 5 minutes or more	after erase self-diagnosis result.	
	Depress brake p	oedal by 100 mm (3.94		the position for 5 seconds or more.	L
	Release brake p				
	Repeat steps 9 Perform "BRAK	E" self-diagnosis.			
	DTC "U1511" dete	•			J
	ES >> GO TO				
N					K
11	.CHECK GROU	ND CIRCUIT			
1.	Disconnect 12V	battery cable to nega	tive terminal. Refer to	PG-104, "Removal and Installation".	
2.	Disconnect the	electrically-driven intel	ligent brake unit harn	ess connector.	L
3.	Check continuity	y between electrically-	driven intelligent brak	e unit and ground.	
	Electrically driver	intelligent brake unit			M
	Connector	Terminal		Continuity	1 1 1
	E34	31	Ground	Existed	
			Gibana	Existed	Ν
	<u>he inspection res</u> ES >> GO TO				
N		or replace malfunction	ng parts and GO TO	12.	0
12		LF-DIAGNOSIS (5)			0
1.	Vith CONSULT Connect the ele	ctrically-driven intellige	ent brake unit harnes:	connector	Р
2.	Connect 12V ba	ittery cable to negative		G-104, "Removal and Installation".	
3.		switch OFF to ON.			
	CAUTION: Never engage	READY state.			
4.		or 2 times or more.			

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

< DTC/CIRCUIT DIAGNOSIS >

- 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 <u>BR-23, "Reference</u> <u>Value"</u>.

Is the inspection result normal?

YES >> GO TO 14.

NO >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u>.

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.

< DTC/CIRCUIT DIAGNOSIS >

- 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 sup	Brake power supply backup unit	
Connector	Terminal	Connector	Terminal	- Continuity
	32		2	Existed
	32		6	Not existed
	32		4	Not existed
	8		2	Not existed
E34	8	B15	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			
	32	Ground	Not existed
F24	8		Not existed
E34	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

- 1. Replace the brake power supply backup unit. Refer to <u>BR-223, "Removal and Installation"</u>.
- 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.

 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.

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 <u>BR-221, "Removal and installation"</u>.

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< DTC/CIRCUIT DIAGNOSIS >

NO >> INSPECTION END

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

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.

Disconnect the electrically-driven intelligent brake unit harness connector. 3.

Check voltage between the electrically-driven intelligent brake unit harness connector and ground. 4.

Electrically-driven i	ntelligent brake unit		Voltage	
Connector Terminal			voltage	
E34	26	Ground	Approximately 0 V	

5. Turn the power switch ON.

CAUTION:

Never engage READY state.

Check voltage between the electrically-driven intelligent brake unit harness connector and ground.

Electrically-driven i	Electrically-driven intelligent brake unit		Voltage
Connector	Terminal		voltage
E34	26	Ground	10 – 16 V
Is the inspection res	ult normal?		

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

Turn the power switch OFF. 1.

Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. 2.

Check 15A fuse (#62). 3.

- 4. Disconnect IPDM E/R harness connector.
- 5. Check continuity between electrically-driven intelligent brake unit harness connector and IPDM E/R harness connector.

•	n intelligent brake nit	IPDM E/R		Continuity
Connector	Terminal	Connector Terminal		-
E34	26	E15	62	Existed

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

•	n intelligent brake nit	_	Continuity
Connector	Terminal		
E34	26	Ground	Not existed
la tha inanastia	n regult normal)	1

Is the inspection result normal?

>> Perform power diagnosis when power switch is ON. PG-59, "Wiring Diagram - ON POWER SUP-YES P<u>LY -"</u>.

NO >> Repair or replace malfunctioning parts.

${\it 3.}$ check 12V battery power supply of electrically-driven intelligent brake unit

Turn the power switch OFF. 1.

Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. 2.

Check voltage between the electrically-driven intelligent brake unit harness connector and ground. 3.

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INFOID:00000006960702

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

	n intelligent brake nit	_	Voltage	
Connector	Terminal			
	1			
E34	2	Ground	Battery voltage	
	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		
	1		
E34	2	Ground	Battery voltage
_	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 <u>PG-15, "Wiring Diagram - BATTERY</u> <u>POWER SUPPLY -"</u>.

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.

			Voltage
Connector	Terminal		voltage
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.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Brake power sup	plv backup unit			_
Connector	Terminal		Voltage	
B15	3	Ground	Battery voltage	_
the inspection res	ult normal?		, , ,	-
YES >> GO TO NO >> GO TO	6.			
CHECK 12V BAT	TRY POWER	R CIRCUIT OF	BRAKE POWER S	UPPLY BACKUP UNIT
Check 15A fuse Check continuit	including the l (#82). ty and for sh	ort circuit betw		icle for 5 minutes or more.
backup unit and	· ·	52).		
<u>s the inspection res</u> YES >> Perform		r 12\/ hattery i	ower supply Refe	er to PG-15, "Wiring Diagram - BATTERY
POWEF	<u>R SUPPLY -".</u>			i to ro, while blagran britterer
• ·	•	Ifunctioning par		
CHECK ELECTR	RICALLY-DRIV	EN INTELLIG	ENT BRAKE UNIT	GROUND
heck continuity bet	tween electric	ally-driven inte	lligent brake unit ha	arness connector and ground.
Electrically-driven intel unit	ligent brake	_	Continuity	
			Continuity	
Connector	Terminal			
Connector E34	Terminal 31	Ground	Existed	
	31	Ground	Existed	
E34 s the inspection res YES >> GO TO	31 ult normal? 8.			
E34 <u>s the inspection res</u> YES >> GO TO NO >> Repair of	31 ult normal? 8. or replace ma	Ifunctioning par	ts.	
E34 <u>s the inspection res</u> YES >> GO TO NO >> Repair of CHECK BRAKE	31 ult normal? 8. pr replace ma POWER SUP	Ifunctioning participation	ts. UNIT GROUND	
E34 <u>s the inspection res</u> YES >> GO TO NO >> Repair of CHECK BRAKE	31 ult normal? 8. pr replace ma POWER SUP	Ifunctioning participation	ts. UNIT GROUND	connector and ground.
E34 <u>s the inspection res</u> YES >> GO TO NO >> Repair of CHECK BRAKE Check continuity bet	31 ult normal? 8. pr replace ma POWER SUP tween brake p	Ifunctioning participation	ts. UNIT GROUND	connector and ground.
E34 s the inspection res YES >> GO TO NO >> Repair of CHECK BRAKE Check continuity bet Brake power su	31 ult normal? 8. or replace ma POWER SUP tween brake p	Ifunctioning par PLY BACKUP power supply ba	ts. UNIT GROUND	
E34 s the inspection res YES >> GO TO NO >> Repair of CHECK BRAKE Check continuity bet Brake power su Connector	31 ult normal? 8. or replace ma POWER SUP tween brake p tween brake p pply backup unit Terminal	Ifunctioning part PLY BACKUP power supply ba	ts. UNIT GROUND ackup unit harness - Continuity	
E34 s the inspection res YES >> GO TO NO >> Repair of CHECK BRAKE Check continuity bet Brake power su Connector B15	31 ult normal? 8. or replace ma POWER SUP tween brake p pply backup unit Terminal	Ifunctioning par PLY BACKUP power supply ba	ts. UNIT GROUND ackup unit harness - Continuity	
E34 s the inspection res YES >> GO TO NO >> Repair of CHECK BRAKE Check continuity bet Brake power su Connector B15 s the inspection res	31 ult normal? 8. or replace mai POWER SUP tween brake p tween brake p pply backup unit Terminal 1 ult normal?	Ifunctioning part PLY BACKUP power supply ba	ts. UNIT GROUND ackup unit harness - Continuity	
E34 s the inspection res YES >> GO TO NO >> Repair of CHECK BRAKE Check continuity bet Brake power su Connector B15 s the inspection res YES >> GO TO	31 ult normal? 8. or replace main POWER SUP tween brake p tween brake p pply backup unit Terminal 1 ult normal? 9.	Ifunctioning part PLY BACKUP power supply ba	ts. UNIT GROUND ackup unit harness - Continuity Ind Existed	
E34 s the inspection res YES >> GO TO NO >> Repair of CHECK BRAKE Check continuity bet Brake power su Connector B15 s the inspection res YES >> GO TO	31 ult normal? 8. or replace ma POWER SUP tween brake p pply backup unit Terminal 1 ult normal? 9. or replace ma	Ifunctioning part PLY BACKUP power supply ba	ts. UNIT GROUND ackup unit harness - Continuity Ind Existed	
E34 s the inspection res YES >> GO TO NO >> Repair of CHECK BRAKE Check continuity bef Brake power su Connector B15 s the inspection res YES >> GO TO NO >> Repair of CHECK TERMIN Check for failures connector.	31 ult normal? 8. or replace mai POWER SUP tween brake p pply backup unit Terminal 1 ult normal? 9. or replace mai AL in the pin term	Ifunctioning par PLY BACKUP power supply ba	ts. UNIT GROUND ackup unit harness Continuity Ind Existed ts.	rically-driven intelligent brake unit harness
E34 s the inspection res YES >> GO TO NO >> Repair of CHECK BRAKE Check continuity bet Brake power su Connector B15 s the inspection res YES >> GO TO NO >> Repair of CHECK TERMIN Check for failures connector. Check that there is Check for failures	31 ult normal? 8. or replace main POWER SUP tween brake point tween brake point tween brake point tween brake point tween brake point treminal 1 ult normal? 9. or replace main AL in the pin terminal of pin terminal	Ifunctioning par PLY BACKUP power supply ba Grou Ifunctioning par ninals and conr on in pin termin	ts. UNIT GROUND ackup unit harness Continuity Ind Existed ts. eections of the election	
E34 s the inspection res YES >> GO TO NO >> Repair of CHECK BRAKE Check continuity bef Brake power su Connector B15 s the inspection res YES >> GO TO NO >> Repair of CHECK TERMIN Check for failures connector. Check that there is	31 ult normal? 8. pr replace main POWER SUP tween brake provide the provided the	Ifunctioning par PLY BACKUP power supply ba Grou Ifunctioning par ninals and conr on in pin termin	ts. UNIT GROUND ackup unit harness Continuity Ind Existed ts. eections of the election	rically-driven intelligent brake unit harness of IPDM E/R harness connector.

< DTC/CIRCUIT DIAGNOSIS >

WARNING BUZZER

Diagnosis Procedure

INFOID:000000006960703

1. CHECK POWER AND GROUND CIRCUITS OF ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

Perform diagnosis of electrically-driven intelligent brake unit power and ground circuits. <u>BR-187, "Diagnosis</u> <u>Procedure"</u>.

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	
	22		1	Existed
E34	25	M13	1	Not existed
E34	22	IVITS	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 <u>BR-190, "Component Inspection"</u>.

Is the inspection result normal?

YES >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u>. NO >> Replace the warning buzzer.

Component Inspection

INFOID:000000006960704

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
	14 10

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the warning buzzer.

< DTC/CIRCUIT DIAGNOSIS >	
BRAKE WARNING LAMP	
Component Function Check	A
1. CHECK BRAKE WARNING LAMP FUNCTION (1)	В
Check that brake warning lamp turns ON for approximately several second after power switch is turned ON. CAUTION:	
Never engage READY state.	С
<u>Is the inspection result normal?</u> YES >> GO TO 2.	
NO >> Refer to <u>BR-191, "Diagnosis Procedure"</u> .	D
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 oper- ated while brake fluid level in reservoir tank is at the specified level. NOTE:	Е
Brake warning lamp turns ON when brake fluid is less than the specified level (when brake fluid level switch is ON).	BR
Is the inspection result normal?	
YES >> INSPECTION END NO >> Check brake fluid level switch system. Refer to <u>BRC-109, "Diagnosis Procedure"</u> .	G
Diagnosis Procedure	
1. CHECK POWER AND GROUND CIRCUITS OF ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT	Η
Perform diagnosis of electrically-driven intelligent brake unit power and ground circuits. Refer to <u>BR-187,</u> "Diagnosis Procedure".	
Is the inspection result normal?	
YES >> GO TO 2. NO >> Repair or replace malfunctioning parts.	
2.PERFORM SELF-DIAGNOSIS	J
With CONSULT Perform "BRAKE" and "ABS" self-diagnosis.	Κ
Is malfunction detected?	
 YES >> Check malfunctioning system. "BRAKE": Refer to <u>BR-27, "DTC Index"</u>. "ABS": Refer to <u>BRC-48, "DTC Index"</u>. 	L
NO >> GO TO 3.	М
3.CHECK THAT BRAKE WARNING LAMP TURNS ON	141
Check combination meter. Refer to <u>MWI-46, "CONSULT Function"</u> .	
<u>Is the inspection result normal?</u> YES >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u> . NO >> Replace combination meter. Refer to <u>MWI-89, "Removal and Installation"</u> .	Ν
	0

Ρ

< DTC/CIRCUIT DIAGNOSIS >

BRAKE SYSTEM WARNING LAMP

Component Function Check

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 <u>BR-192, "Diagnosis Procedure"</u>.

Diagnosis Procedure

INFOID:000000006960708

INFOID:00000006960707

1. CHECK POWER AND GROUND CIRCUITS OF ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

Perform diagnosis of electrically-driven intelligent brake unit power and ground circuits. <u>BR-187. "Diagnosis</u> <u>Procedure"</u>.

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 <u>BR-27, "DTC Index"</u>.
 - "ABS": Refer to <u>BRC-48, "DTC Index"</u>.

NO >> GO TO 3.

3.CHECK BRAKE SYSTEM WARNING LAMP ILLUMINATION

Check combination meter. Refer to <u>MWI-46, "CONSULT Function"</u>.

Is the inspection result normal?

- YES >> Replace the electrically-driven intelligent brake unit. Refer to <u>BR-221, "Removal and installation"</u>.
- NO >> Replace combination meter. Refer to MWI-89, "Removal and Installation".

UNEXPECTED BRAKE PEDAL REACTION

UNEXFECTED DRAKE FEDAL REACTION	
< SYMPTOM DIAGNOSIS >	
SYMPTOM DIAGNOSIS	
UNEXPECTED BRAKE PEDAL REACTION	
Description	NFOID:000000006960705
A malfunction of brake pedal feel (height or others) is detected when the brake pedal is depresse	ed.
Diagnosis Procedure	NFOID:000000006960710
1.CHECK AXLE	
Check that there is no significant looseness of axle. • Front axle: Refer to <u>FAX-7</u> , "Inspection". • Rear axle: Refer to <u>RAX-5</u> , "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 <u>BR-207, "DISC ROTOR : Inspection and Adjustment"</u>. Rear: Refer to <u>BR-209, "DISC ROTOR : Inspection and Adjustment"</u>. 	
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 <u>BR-217, "FRONT : Inspection"</u>. Rear: Refer to <u>BR-220, "REAR : Inspection"</u>. 	
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 <u>BR-202, "Inspection and Adjustment"</u> .	
5. CHECK BRAKING FORCE	
Check the braking force.	
<u>Is the inspection result normal?</u> 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 brake force is normal in this condition. Connect harness connectors after checking.	. Check that
Is the inspection result normal?	
YES >> Normal	

NO >> Check each component of brake system.

< SYMPTOM DIAGNOSIS >

THE BRAKING DISTANCE IS LONG

Description

Brake stopping distance is long when ABS function is operated.

Diagnosis Procedure

CAUTION:

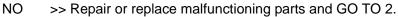
Brake stopping distance on slippery road like rough road, gravel road, or snowy road may become longer when ABS is operated than when ABS is not operated.

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.



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.

 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.

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

 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".

BR-194

INFOID:000000006960711

INFOID:00000006960712

< SYMPTOM DIAGN	IOSIS >			
3. Turn the power s	witch OFF to ON.			
CAUTION: Never engage R	EADY state.			A
 Repeat step 3 for CAUTION: 				
Be sure to wait	for 5 seconds or mo	re after turning the	power switch OFF.	В
 Turn the power s Close all doors in 	witch OFF. Icluding the back doo	r and wait outside of	vehicle for 5 minute	s or more
7. Turn the power s				C
CAUTION:				
8. Erase self-diagno	bsis result of "BRAKE			D
CAUTION:				D
9. Depress brake pe	switch OFF and wait edal by 100 mm (3.94	in) or more, and hol	d the position for 5 s	econds or more.
10. Release brake pe	edal.	,,		E
11. Repeat steps 9 to 12. Perform "BRAKE	o 10 for 3 times. " self-diagnosis			
Is any DTC detected?	-			BR
-	- e DTC. Refer to <u>BR-2</u>	7, "DTC Index". GO	TO 5.	
NO >> INSPECT				
5.CHECK POWER S	SWITCH ON POWER	SUPPLY		G
	trically-driven intellige			al locate llette e ll
 Connect 12V bat Turn the power s 	tery cable to negative witch OFF.	terminal. Refer to <u>P</u>	G-104, Removal and	<u>d Installation</u> . H
4. Close all doors in	cluding the back doo	r, and wait outside of	vehicle for 5 minute	s or more.
CAUTION: Never depress b	vrako nodal			
5. Disconnect 12V b	pattery cable to negat			and Installation".
	lectrically-driven intell			d Installation"
	tery cable to negative etween the electrically			
	-	-		-
Electrically-driven i	ntelligent brake unit	_	Voltage	K
Connector	Terminal			
E34	26	Ground	Approximately 0 V	
9. Turn the power st CAUTION:	witch ON.			L
Never engage R	EADY state.			
10. Check voltage be		-driven intelligent bra	ake unit harness con	nector and ground. \mathbb{M}
Electrically driven i	ntalligant broke unit			
Connector	ntelligent brake unit	—	Voltage	Ν
E34	26	Ground	10 – 16 V	IN
Is the inspection resu		Ground	10 10 0	
YES >> GO TO 8				0
NO >> GO TO 6				
6.CHECK POWER	SWITCH ON POWER	SUPPLY CIRCUIT		P
1. Turn the power s				
	pattery cable to negat	ive terminal. Refer to	PG-104, "Removal	and Installation".
	(#02). I E/R harness connec	tor.		
5. Check continuity	between electrically-o	driven intelligent brak	ke unit and IPDM E/R	R.

< SYMPTOM DIAGNOSIS >

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

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

Electrically-driven in	telligent brake unit		Continuity
Connector	Terminal		Continuity
E34	26	Ground	Not existed

Is the inspection result normal?

YES >> Perform diagnosis of power system with power switch ON. Refer to <u>PG-59</u>, "Wiring Diagram - ON <u>POWER SUPPLY -"</u>.

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.
- 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 <u>BR-27, "DTC Index"</u>. 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-drive	en intelligent brake unit	Valtage
Connector	Terminal	Voltage
	1 – 31	
E34	2 – 31	10 – 16 V
	11 – 31	

6. Turn the power switch ON. CAUTION:

< SYMPTOM DIAGNOSIS >

Never engage READY state.

- 7. Check voltage between the electrically-driven intelligent brake unit harness connector terminal. А Electrically-driven intelligent brake unit Voltage В Connector Terminal 1 – 31 E34 10 - 16 V 2 - 3111 - 31 Is the inspection result normal? YES >> GO TO 11. D NO >> GO TO 9. **9.**CHECK 12V BATTERY POWER SUPPLY CIRCUIT Е 1. Turn the power switch OFF. Check 60A fusible link (#F). 3. Check continuity and for short circuit between harness connector terminal 1 of electrically-driven intelli-BR gent 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). 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? Н YFS >> 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) (P)With CONSULT 1. Connect the electrically-driven intelligent brake unit harness connector. Connect 12V battery cable to negative terminal. Refer to <u>PG-104, "Removal and Installation"</u>. 3. Turn the power switch OFF to ON. **CAUTION:** Κ Never engage READY state. Repeat step 3 for 2 times or more. **CAUTION:** L Be sure to wait for 5 seconds or more after turning the power switch OFF. 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. M **CAUTION:** Never engage READY state. 8. Erase self-diagnosis result of "BRAKE". Ν CAUTION: Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result. 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? Ρ 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.

< SYMPTOM DIAGNOSIS >

_	Continuity
Ground	Existed
	Ground

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.

 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.
- 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 <u>BR-27, "DTC Index"</u>. 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 <u>BR-23</u>, "<u>Reference</u> <u>Value</u>".

Is the inspection result normal?

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

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:

< SYMPTOM DIAGNOSIS >	
Be sure to wait for 5 seconds or more after turning the power switch OFF.	-
3. Turn the power switch OFF.	A
 Close all doors including the back door, and wait outside of vehicle for 5 minutes or more. Turn the power switch ON. 	
CAUTION:	
Never engage READY state.	E
6. Erase self-diagnosis result of "BRAKE". CAUTION:	
Turn the power switch OFF and wait 5 minutes or more after erase self-diagnosis result.	C
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.	
 Repeat steps 7 to 8 for 3 times. Perform "BRAKE" self-diagnosis. 	
Is any DTC detected?	
YES >> Check the DTC. Refer to <u>BR-27, "DTC Index"</u> .	E
NO >> GO TO 15.	
15. CHECK BRAKING FORCE	
Check the braking force.	BF
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	t ⊢
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.	
NO >> Check each component of brake system.	
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< SYMPTOM DIAGNOSIS >

VEHICLE JERKS DURING

Description

INFOID:000000006960713

The vehicle jerks when VDC function, TCS function, ABS function, EBD function, or brake LSD function operates.

Diagnosis Procedure

INFOID:000000006960714

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 <u>BR-27, "DTC Index"</u>.
 - "ABS": Refer to BRC-48, "DTC Index"
- NO >> GO TO 3.

3.CHECK CONNECTOR

(B) 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 <u>BRC-152, "Removal and Installa-</u> tion".

< SYMPTOM DIAGNOSIS >

NORMAL OPERATING CONDITION

Description

INFOID:000000006960715

		В
Symptom	Result	
The brake pedal may move during braking.		
When the brake pedal is depressed while the power switch is OFF, an operating sound may occur or the pedal stroke may feel short.		С
There may be an operating noise or the brake pedal may move after the brake pedal is operated.	This occurs when the electrically-driven intelligent brake unit is operating normally and is not a malfunction.	
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.		Е

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< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE BRAKE PEDAL

Inspection and Adjustment

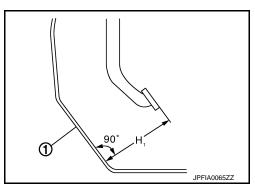
INSPECTION

Brake Pedal Height Check the height from the dash lower panel (1) to the top face of the brake pedal (H1).

H1 : Refer to <u>BR-240, "Brake Pedal"</u>.

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 <u>BR-240, "Brake Pedal"</u>.

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.

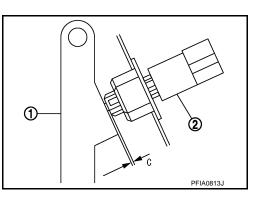
Pedal Height When Depressed

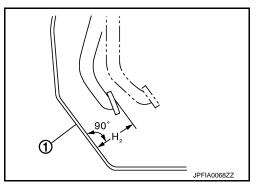
Check the height from the dash lower panel (1) to the top face of the brake pedal (H₂) when depressing the brake pedal with a force of 196 N (20 kg, 44 lb) while the vehicle is in READY state.

H2 : Refer to <u>BR-240, "Brake Pedal"</u>.

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.

INFOID:000000006960716

< PERIODIC MAINTENANCE >

- Loosen the input rod lock nut (1). 4.
- 5. Rotate the input rod (2), and adjust the brake pedal to the specified height (H1).

CAUTION:

H₁

View".

6.

The threaded part of the input rod end must project to the inside of the crevice (3).

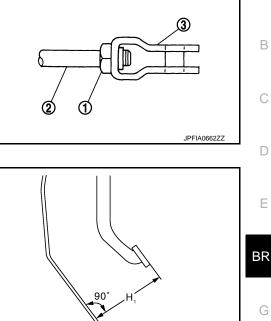
Tighten the lock nut to the specified torque. BR-221, "Exploded

between the stopper rubber and threaded end of stop lamp

assembly is removed and installed, or replaced. Refer to BR-37,

7. After adjusting the brake pedal height, adjust the clearance

8. Perform stroke sensor 0 point learning when the brake pedal



Stop Lamp Switch and ASCD Brake Switch

"Work Procedure".

switch and ASCD brake switch.

Remove the instrument lower panel. Refer to <u>IP-13, "Removal and Installation"</u>.

: Refer to BR-240, "Brake Pedal".

- Disconnect the stop lamp switch and ASCD brake switch harness connectors.
- 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.

С : 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

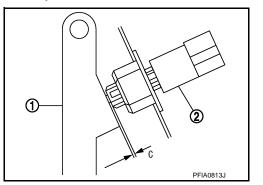
- Perform air bleeding. BR-205, "Bleeding Brake System". 1.
- Check the height from the dash lower panel (1) to the top face of 2. the brake pedal (H2) when depressing the brake pedal with a force of 196 N (20 kg, 44 lb) while the vehicle is in READY state.

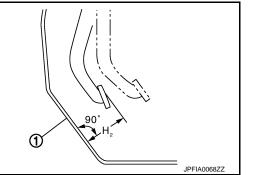
: Refer to BR-240, "Brake Pedal". H₂

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.
- Perform stroke sensor 0 point learning when the brake pedal 4. assembly is removed and installed, or replaced. Refer to BR-37, "Work Procedure".





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BRAKE FLUID

< PERIODIC MAINTENANCE > BRAKE FLUID

Inspection

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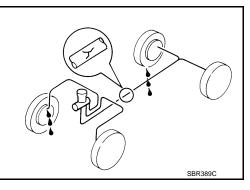
CHECK BRAKE FLUID LEVEL

- 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.
- 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:

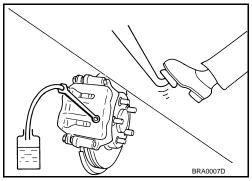
If brake fluid leakage has occurred, retighten all parts to the specified torque. If any abnormalities are found, replace the part.



Draining

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 <u>PG-104</u>, <u>"Removal and Installation"</u>.
- 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:000000006960719

INFOID:000000006960718

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.

BRAKE FLUID

< PERIODIC MAINTENANCE >

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. <u>BR-205, "Bleeding Brake System"</u> .	
Bl	eeding Brake System	В
• T • N • N	UTION: Furn 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.	C
	f brake fluid contacts the disc rotor or brake caliper assembly, wipe it off immediately.	
1.	CAUTION:	E
	 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.	BR
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.	G
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 <u>BR-226</u>, "<u>BRAKE CALIPER ASSEMBLY</u> : <u>Exploded View</u>". Rear disc brake: Refer to <u>BR-234</u>, "<u>BRAKE CALIPER ASSEMBLY</u> : <u>Exploded View</u>". 	Н
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 \rightarrow front left brake \rightarrow rear left brake \rightarrow 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 <u>BR-202,</u> <u>"Inspection and Adjustment"</u> .	J
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ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

< PERIODIC MAINTENANCE >

ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

Inspection

INFOID:000000006960721

Brake fluid leakage

Check for brake fluid leakage from the brake tube connections and the electrically-driven intelligent brake unit.

< PERIODIC MAINTENANCE >

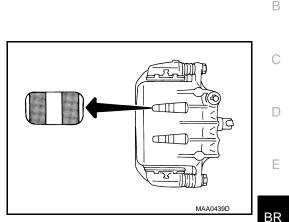
FRONT DISC BRAKE BRAKE PAD

BRAKE PAD : Inspection and Adjustment

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: Refer to BR-240, "Front DiscthicknessBrake".



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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

Visual inspection

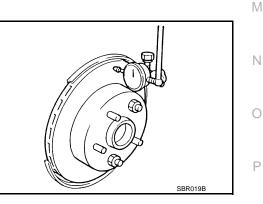
Check surface of the disc rotor for uneven wear, cracks, and serious damage. Replace if necessary. Refer to FAX-9, "Removal and Installation".

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: Refer to BR-240, "Front Disc(vehicle stopped)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.
- 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".

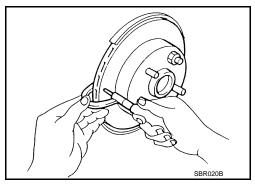


Wear limit : Refer to <u>BR-240, "Front Disc Brake"</u>. thickness

THICKNESS INSPECTION

Check thickness of the disc rotor using a micrometer. Replace disc rotor if thickness is under the wear limit. <u>FAX-9. "Removal and Installation"</u>.

Wear limit: Refer to BR-240, "Front DiscthicknessBrake".



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.

< PERIODIC MAINTENANCE >

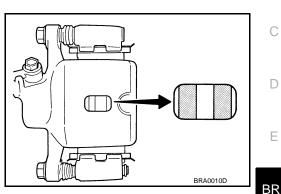
REAR DISC BRAKE BRAKE PAD

BRAKE PAD : Inspection and Adjustment

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 : Refer to <u>BR-240, "Rear Disc Brake"</u>. thickness



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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

Visual inspection

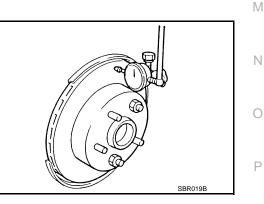
Check surface of the disc rotor for uneven wear, cracks, and serious damage. Replace if necessary. Refer to RAX-6, "Removal and Installation".

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 (ve-
hicle stopped): Refer to <u>BR-240, "Rear Disc</u>
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.
- 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 <u>RAX-6, "Removal and Installation"</u>.

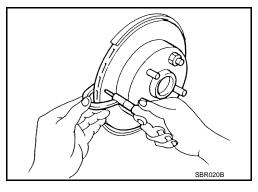


Wear limit : Refer to <u>BR-240, "Rear Disc Brake"</u>. thickness

THICKNESS INSPECTION

Check thickness of the disc rotor using a micrometer. Replace disc rotor if thickness is under the wear limit. Refer to <u>RAX-6. "Removal and Installation"</u>.

Wear limit : Refer to <u>BR-240, "Rear Disc Brake"</u>. thickness



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:

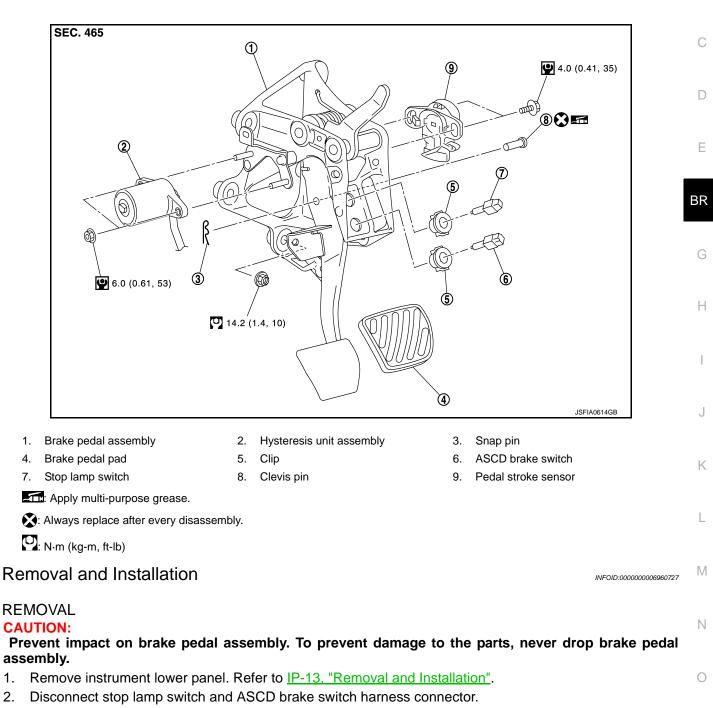
- Because the brake effectiveness is reduced, pay sufficient attention to the vehicle speed.
- Perform checks on a safe road and be careful of the traffic conditions.
- 1. Drive on straight and flat roads.
- 2. Stop the vehicle by depressing the brake pedal to generate braking force that stops the vehicle 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 > **REMOVAL AND INSTALLATION BRAKE PEDAL**

Exploded View

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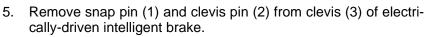
3. Disconnect stop pedal stroke sensor harness connector.

1. 2.

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< REMOVAL AND INSTALLATION >

4. Rotate the stop lamp switch and the ASCD brake switch (1) counter clockwise to remove.



- 6. Disconnect the accelerator pedal harness connector.
- 7. Slide the steering column assembly downward. Refer to <u>ST-10.</u> <u>"Removal and Installation"</u>.
- 8. Remove the brake pedal assembly. **CAUTION:**
 - To prevent damage to the parts, hold the electricallydriven 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:

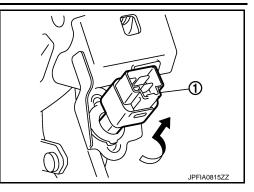
The clevis pin may be inserted in either direction.

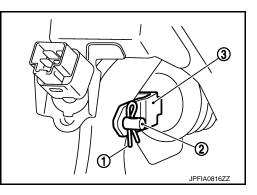
- Perform adjustment after installation. Refer to <u>BR-212, "Inspection and Adjustment"</u>.
- Perform stroke sensor 0 point learning when brake pedal assembly removed and installed, or replaced. Refer to <u>BR-37, "Work Procedure"</u>.

Inspection and Adjustment

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.

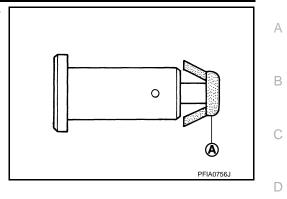




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< REMOVAL AND INSTALLATION >

• 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 <u>BR-202</u>, <u>"Inspection and Adjustment"</u>.
- Perform the release position learning of the accelerator pedal. Refer to EVC-102, "Work Procedure".

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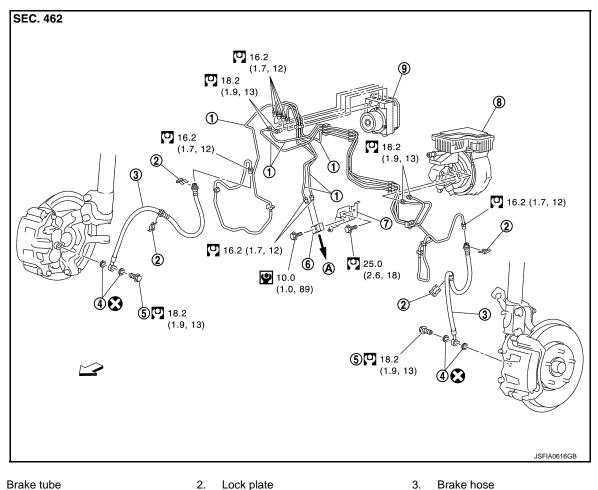
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< REMOVAL AND INSTALLATION >

BRAKE PIPING FRONT

FRONT : Exploded View

INFOID:000000006960729



- 1. Brake tube
- 4. Copper washer
- Connector bracket 7.
- To rear brake tube Α.
- : N·m (kg-m, ft-lb)
- E: N·m (kg-m, in-lb)
- : Always replace after every disassembly.

- Lock plate
- 5. Union bolt
- 8. Electrically-driven intelligent brake unit
- 3. Brake hose
- 6. Connector

9.

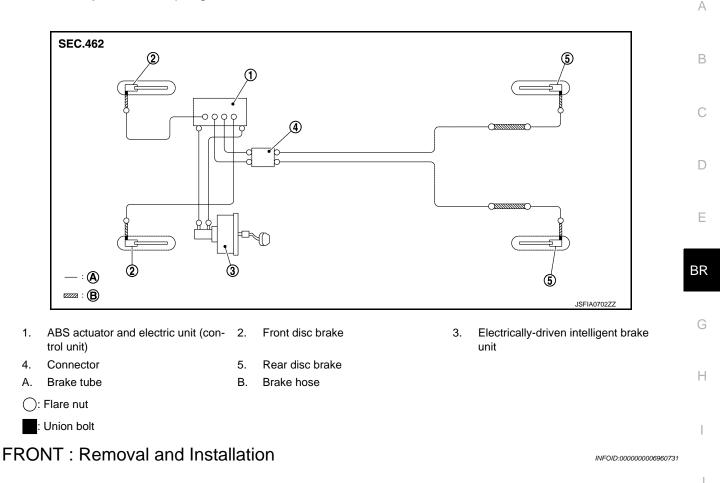
ABS actuator and electric unit (control unit)

BRAKE PIPING

< REMOVAL AND INSTALLATION >

FRONT : Hydraulic Piping

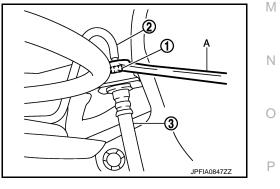
INFOID:000000006960730



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,
 K
 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".
- 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.

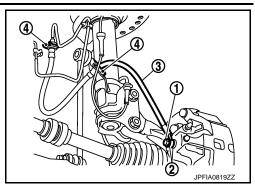


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BRAKE PIPING

< REMOVAL AND INSTALLATION >

- 4. Remove the union bolt (1) and copper washers (2), and remove the brake hose (3) from the brake caliper assembly.
- Remove the lock plate (4) and remove the brake hose. 5.



INSTALLATION

CAUTION:

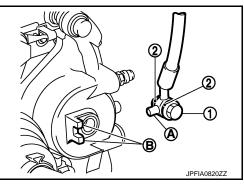
- Never spill or splash brake fluid on painted surfaces. Brake fluid may seriously damage paint. Wipe it off immediately and wash with water if it gets on a painted surface. For brake component parts, never wash them with water.
- Never depress brake pedal.while removing the brake hose or brake tube. 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.

and fix the brake hose to the bracket (5) with the lock plate (4).

and brake tubes are not twisted and bent.



- 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, To prevent leakage of brake fluid, check that all brake hoses ⓓ T IPFIA0821ZZ
- Tighten the flare nut to the specified torque with a crowfoot (A) 4. and torque wrench (B).

CAUTION:

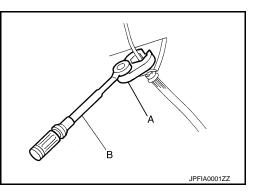
CAUTION:

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 <u>BR-217, "FRONT</u>: Inspection".



BRAKE PIPING

< REMOVAL AND INSTALLATION >

FRONT : Inspection

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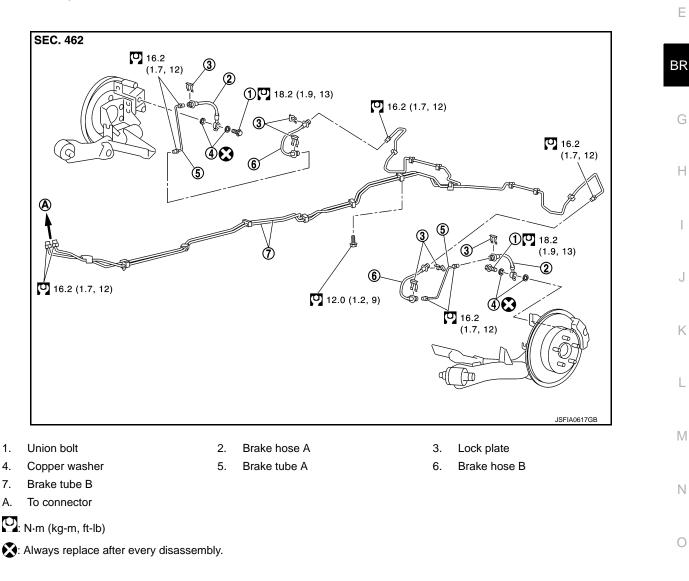
INSPECTION AFTER INSTALLATION

- 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.
- 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

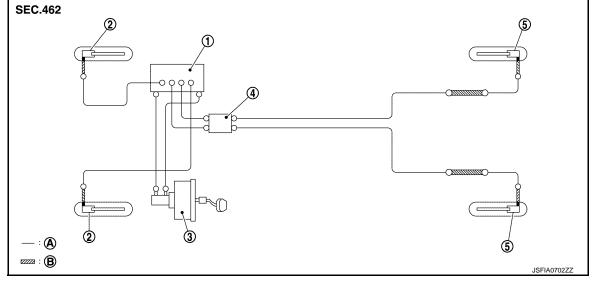
REAR : Exploded View



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< REMOVAL AND INSTALLATION >

REAR : Hydraulic Piping



3.

unit

- 1. ABS actuator and electric unit (con- 2. trol unit)
 - 5. Rear disc brake

Front disc brake

B. Brake hose

: Flare nut

4.

Α.

: Union bolt

Connector Brake tube

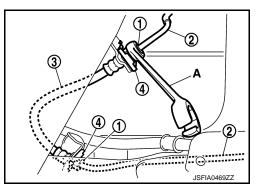
REAR : Removal and Installation

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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".
- 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.



Electrically-driven intelligent brake

BRAKE PIPING

< REMOVAL AND INSTALLATION >

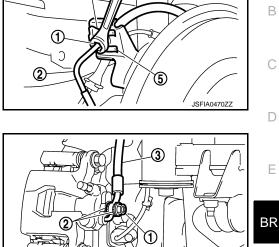
- Loosen the flare nut (1) with a flare nut wrench (A) and separate the brake tube (2) from the hose B (3).
 CAUTION:
 - To prevent damage to the parts, never scratch the flare nut and the brake tube.
 - To prevent damage to the parts, never bend sharply, twist or strongly pull out the brake hoses and 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.



- 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.
- 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.



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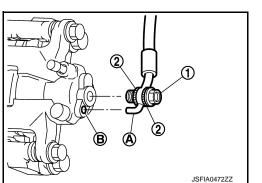
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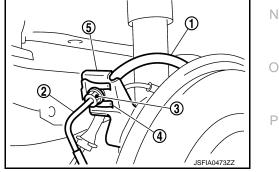
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3. Install the brake tube (2) to the brake hose B (1), temporarily tighten the flare nut (3) by hand until it does not rotate further, and fix the brake hose B to the brake hose bracket (5) with the lock plate (4).
CAUTION:

To prevent leakage of brake fluid, check that all brake hoses and brake tubes are not twisted and bent.

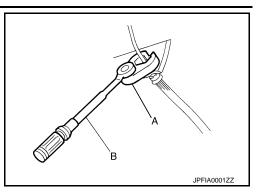


BRAKE PIPING

< REMOVAL AND INSTALLATION >

 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.

 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.

 Refill with new brake fluid and perform the air bleeding. Refer to <u>BR-205, "Bleeding Brake System"</u>. CAUTION:

Never reuse drained brake fluid.

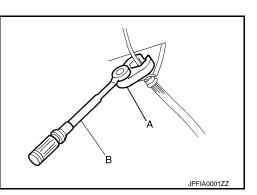
- 8. Install tires with power tool. Refer to <u>WT-45</u>, "<u>Removal and</u> <u>Installation</u>".
- 9. Perform inspection after installation. Refer to <u>BR-220, "REAR :</u> <u>Inspection"</u>.

REAR : Inspection

INSPECTION AFTER INSTALLATION

- 1. Check the brake hoses and tubes for the following: no scratches; no twist and deformation; no looseness at connections.
- 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.



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ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

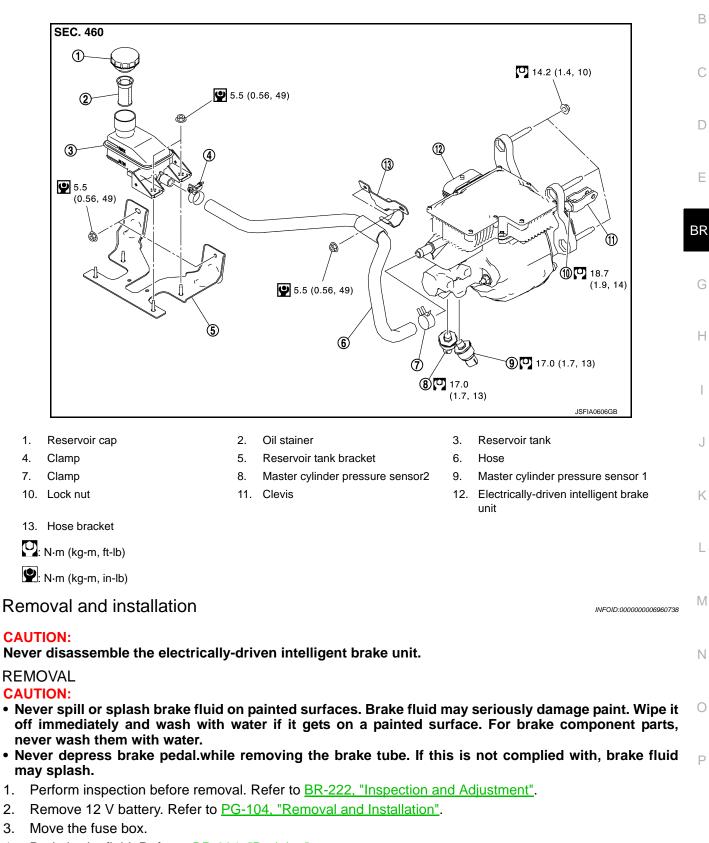
< REMOVAL AND INSTALLATION >

ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

Exploded View

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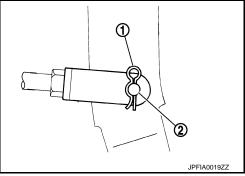
- 4. Drain brake fluid. Refer to <u>BR-204, "Draining"</u>.
- 5. Disconnect the brake fluid level switch harness connector.

BR-221

ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT

< REMOVAL AND INSTALLATION >

- 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 <u>BR-211.</u> <u>"Removal and Installation"</u>.
- Remove nuts on electrically-driven intelligent brake unit and brake pedal assembly.
 CAUTION:
 - To prevent damage to the parts, hold the electricallydriven 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 <u>BR-222</u>, "Inspection <u>and Adjustment"</u>.



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 <u>BR-205, "Bleeding Brake System"</u>.
- Check each item of brake pedal. Adjust it if the measurement value is not the standard. Refer to <u>BR-202</u>, <u>"Inspection and Adjustment"</u>.
- Perform stroke sensor 0 point learning when electrically-driven intelligent brake unit is removed and installed, or replaced. Refer to <u>BR-37, "Work Procedure"</u>.

Inspection and Adjustment

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INSPECTION BEFORE REMOVAL

Check the brake fluid level switch. Refer to BRC-111. "Component Inspection".

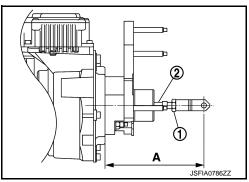
INSPECTION AFTER REMOVAL

Input Rod Length Inspection

1. Loosen the lock nut (1) and adjust the input rod (2) to the specified length (A).

A : Refer to <u>BR-240, "Electrically-driv-</u> en Intelligent Brake".

2. Tighten the lock nut to the specified torque.



BRAKE POWER SUPPLY BACKUP UNIT

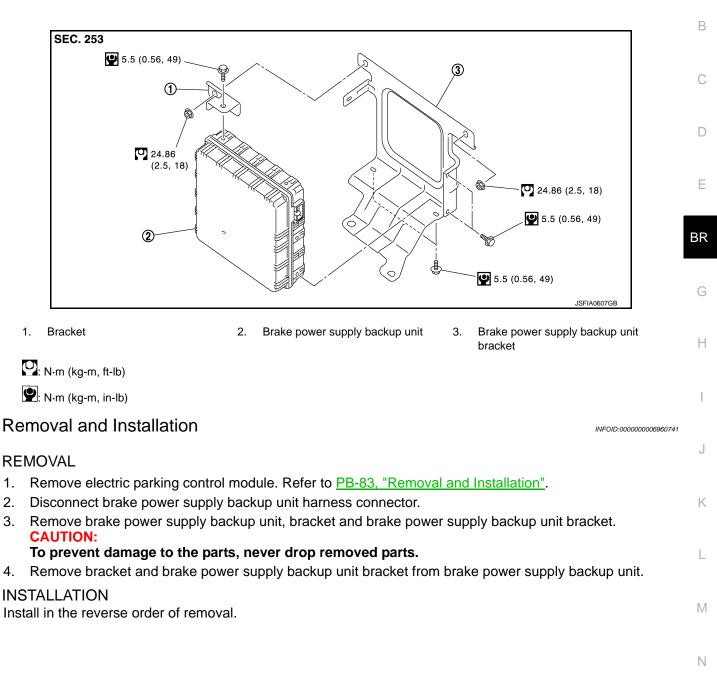
< REMOVAL AND INSTALLATION >

BRAKE POWER SUPPLY BACKUP UNIT

Exploded View

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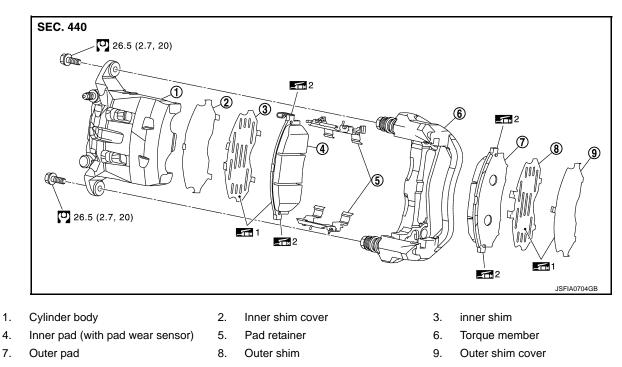
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< REMOVAL AND INSTALLATION >

FRONT DISC BRAKE **BRAKE PAD**

BRAKE PAD : Exploded View

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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

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REMOVAL

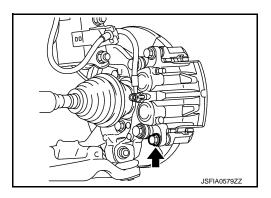
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WARNING:

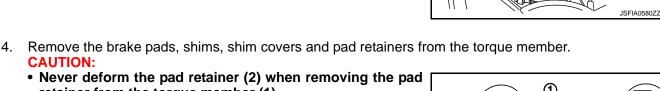
Since dust covering the front and rear brakes has an affect on human body, the dust must be removed with a dust collector. Never splatter the dust with an air blow gun. **CAUTION:**

- 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.
- Remove tires with power tool. 1.
- 2. Remove lower sliding pin bolt.

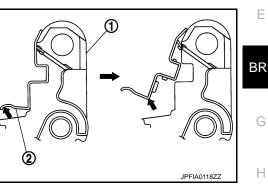


< REMOVAL AND INSTALLATION >

3. Remove cylinder body from torque member, and suspend the cylinder body with suitable wire so that the brake hose will not stretch.



- 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

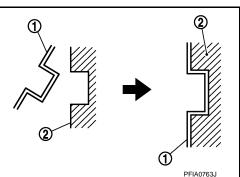
CAUTION:

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, guickly 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.

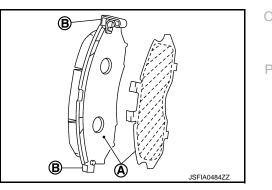
Revision: 2010 November



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.



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< REMOVAL AND INSTALLATION >

 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.

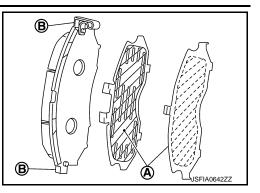
- 5. Apply MOLYKOTE[®] 7439 or equivalent to the mating faces (B) between the outer pad and the pad retainers.
- 6. Install the brake pads to the torque member. CAUTION:

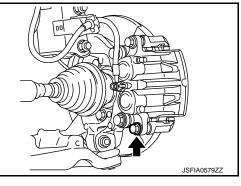
Never deform the pad retainers.

- 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 <u>BR-226, "BRAKE</u> <u>PAD : Inspection"</u>.
- 10. Install tires with power tool. Refer to <u>WT-45</u>, "Removal and <u>Installation"</u>.





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BRAKE PAD : Inspection

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 <u>BR-232, "BRAKE PAD : Removal and Installation"</u>.
- 2. Press the pistons. Refer to <u>BR-232</u>, "BRAKE PAD : Removal and Installation".
- 3. Install brake pads. Refer to <u>BR-232</u>, "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 <u>BR-237. "BRAKE CALIPER ASSEMBLY : Disassembly and Assembly"</u>
- 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 <u>BR-207</u>, "<u>BRAKE PAD</u> : <u>Inspection and Adjustment</u>".

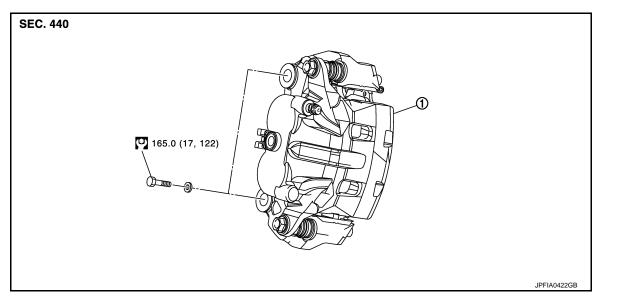
BRAKE CALIPER ASSEMBLY

BRAKE CALIPER ASSEMBLY : Exploded View

REMOVAL

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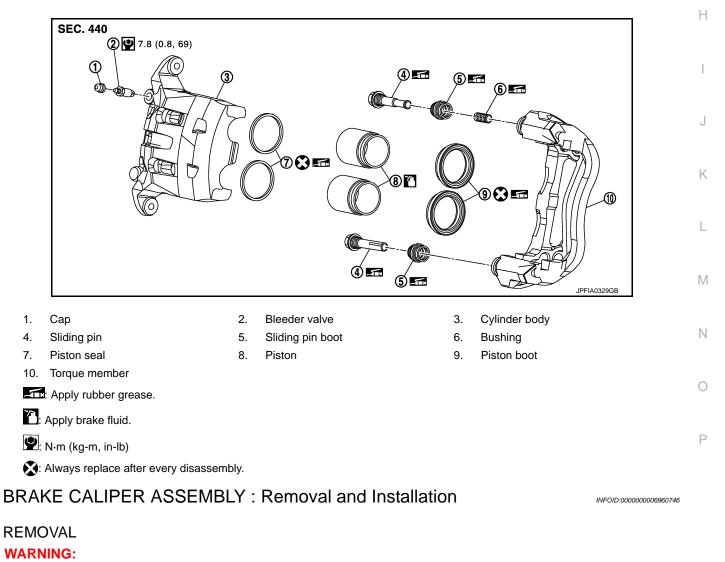
< REMOVAL AND INSTALLATION >



1. Brake caliper assembly

: N·m (kg-m, ft-lb)





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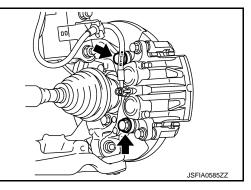
< REMOVAL AND INSTALLATION >

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 <u>BR-215, "FRONT : Removal and Installation"</u>.
- 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 <u>FAX-9</u>, "Removal and Installation".



INSTALLATION

WARNING:

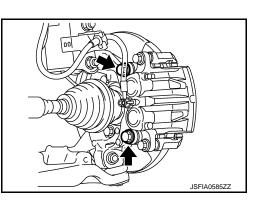
Since dust covering the front and rear brakes has an affect on human body, the dust must be removed with a dust collector. Never splatter the dust with an air blow gun.

- 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 <u>BR-215, "FRONT : Removal and</u> <u>Installation"</u>.
- 4. Perform the air bleeding. Refer to <u>BR-205, "Bleeding Brake System"</u>.
- 5. Check a drag of front disc brake. If any drag is found, refer to <u>BR-231, "BRAKE CALIPER ASSEMBLY : Inspection"</u>.
- 6. Install tires with power tool. Refer to WT-45, "Removal and Installation".
- 7. Perform inspection after installation. Refer to <u>BR-231, "BRAKE CALIPER ASSEMBLY : Inspection"</u>.



< REMOVAL AND INSTALLATION >

BRAKE CALIPER ASSEMBLY : Disassembly and Assembly

DISASSEMBLY

NOTE:

Never remove the torque member, brake pad and pad retainers when disassembling and assembling the cylinder body.

 Remove the sliding pin bolt, and remove the cylinder body from the torque member. Refer to <u>BR-224</u>. <u>"BRAKE PAD : Removal and Installation"</u>. CAUTION:

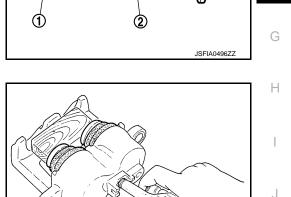
Fix the brake pad at suitable tape so that the brake pad will not drop.

- 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.

- 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 <u>BR-231, "BRAKE</u> <u>CALIPER ASSEMBLY : Inspection"</u>.



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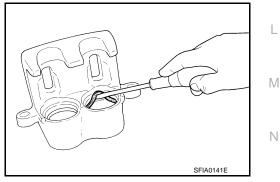
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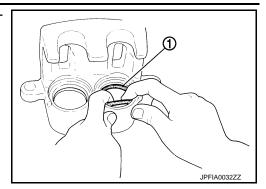
ASSEMBLY

1. Install bleeder valve and cap.

< REMOVAL AND INSTALLATION >

Apply rubber grease to piston seals (1), and install them to cylinder body.
 CAUTION:

Never reuse piston seals.



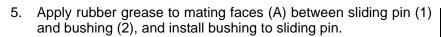
3. Apply rubber grease to piston boots (1). Cover the piston (2) end with piston boot, and then install cylinder side lip on piston boot securely into a groove on cylinder body. CAUTION:

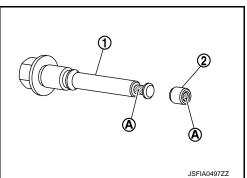
Never reuse piston boots.

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 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.

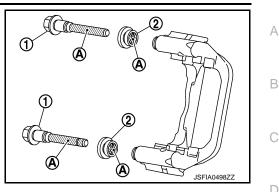




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< REMOVAL AND INSTALLATION >

- 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.
- Install the cylinder body to tighten cylinder body mounting bolts to the specified torque. Refer to <u>BR-224</u>, "<u>BRAKE PAD</u> : <u>Exploded View</u>".



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BRAKE CALIPER ASSEMBLY : Inspection

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. BR **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. Н 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. Remove brake pads. Refer to BR-224, "BRAKE PAD : Removal and Installation". 1. Press the pistons. Refer to <u>BR-224, "BRAKE PAD : Removal and Installation".</u> Κ Install brake pads. Refer to <u>BR-224, "BRAKE PAD : Removal and Installation".</u> Securely depress the brake pedal several times. 4. Check a drag of front disc brake again. If any drag is found, disassemble the cylinder body and replace if 5. 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". Μ

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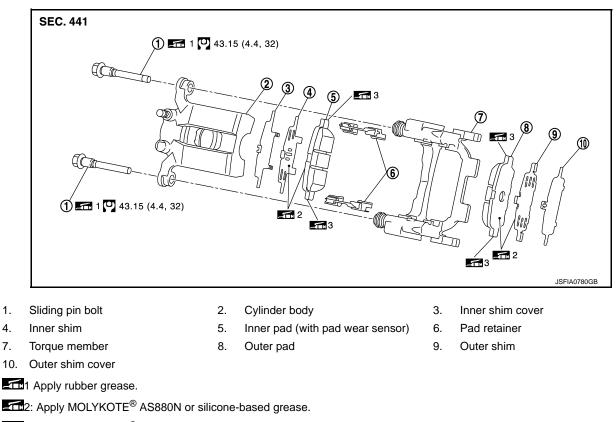
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< REMOVAL AND INSTALLATION >

REAR DISC BRAKE BRAKE PAD

BRAKE PAD : Exploded View

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3: Apply MOLYKOTE[®] 7439 or equivalent

N·m (kg-m, ft-lb)

BRAKE PAD : Removal and Installation

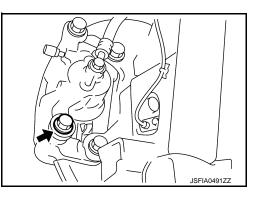
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REMOVAL

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:

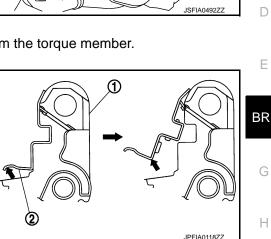
- Never depress brake pedal.while removing the brake pads because the piston may pop out.
- Never spill or splash brake fluid on the disc rotor.
- If the brake fluid or grease adheres to the disc rotor, quickly wipe it off.
- 1. Remove tires with power tool.
- 2. Remove lower sliding pin bolt.



< REMOVAL AND INSTALLATION >

3. Remove cylinder body from torque member, and suspend the cylinder body with suitable wire so that the brake hose will not stretch.

- 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 torgue 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".

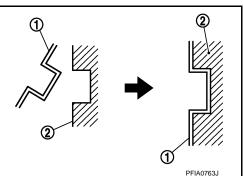


INSTALLATION

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:

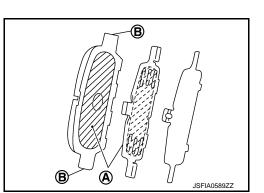
- Never depress brake pedal.while removing the brake pads or the cylinder body because the piston may pop out.
- Never spill or splash brake fluid on the disc rotor.
- If the brake fluid or grease adheres to the disc rotor, quickly wipe it off.
- Install the pad retainers (1) to the torque member (2) if the pad 1 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.
- Install the brake pads to the torque member. 4.
- Install cylinder body to torque member. 5.





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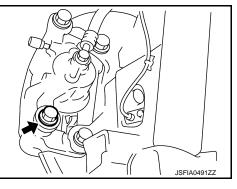
< REMOVAL AND INSTALLATION >

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 <u>BR-226</u>, "<u>BRAKE</u> <u>PAD : Inspection</u>".
- 8. Install tires with power tool. Refer to <u>WT-45</u>, "Removal and <u>Installation</u>".



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BRAKE PAD : Inspection

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 <u>BR-232, "BRAKE PAD : Removal and Installation"</u>.
- 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 <u>BR-237. "BRAKE CALIPER ASSEMBLY : Disassembly and Assembly"</u>
- 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 <u>BR-209</u>, "<u>BRAKE PAD</u> : <u>Inspection and Adjustment</u>".

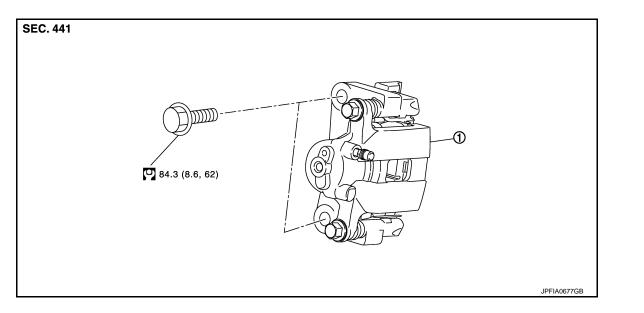
BRAKE CALIPER ASSEMBLY

BRAKE CALIPER ASSEMBLY : Exploded View

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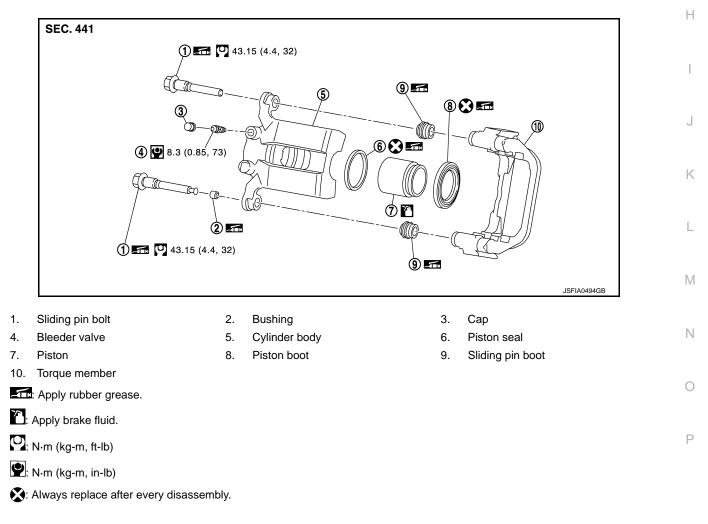
REMOVAL

< REMOVAL AND INSTALLATION >



- 1. Brake caliper assembly
- : N·m (kg-m, ft-lb)





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< REMOVAL AND INSTALLATION >

BRAKE CALIPER ASSEMBLY : Removal and Installation

REMOVAL

WARNING:

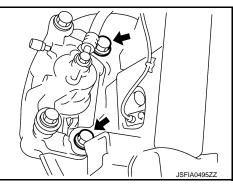
Since dust covering the front and rear brakes has an affect on human body, the dust must be removed with a dust collector. Never splatter the dust with an air blow gun.

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 <u>BR-218, "REAR : Removal and Installation"</u>.
- 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 <u>RAX-6. "Removal and Instal-</u> lation".



INSTALLATION

WARNING:

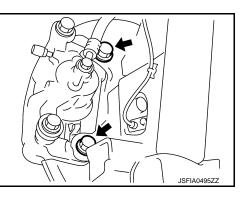
Since dust covering the front and rear brakes has an affect on human body, the dust must be removed with a dust collector. Never splatter the dust with an air blow gun. CAUTION:

- 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 <u>BR-218</u>, "<u>REAR</u> : <u>Removal and</u> <u>Installation</u>".
- 4. Perform the air bleeding. Refer to <u>BR-205. "Bleeding Brake Sys-</u> tem".
- 5. Check a drag of rear disc brake. If any drag is found, refer to <u>BR-234, "BRAKE PAD : Inspection"</u>.



< REMOVAL AND INSTALLATION >

- 6. Install tires with power tool. Refer to WT-45, "Removal and Installation".
- Perform inspection after installation. Refer to BR-239, "BRAKE CALIPER ASSEMBLY : Inspection". 7.

BRAKE CALIPER ASSEMBLY : Disassembly and Assembly

DISASSEMBLY

NOTE:

Never remove the torgue member, brake pad and pad retainers when disassembling and assembling the cylinder body.

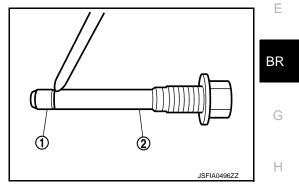
Remove the sliding pin bolt, and remove the cylinder body from the torque member. Refer to <u>BR-232</u>, 1. "BRAKE PAD : Removal and Installation". **CAUTION:**

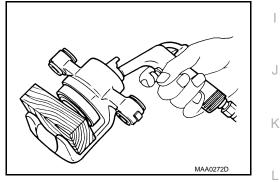
Fix the brake pad at suitable tape so that the brake pad will not drop.

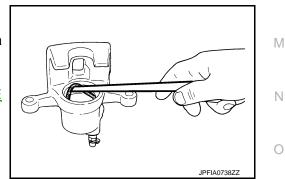
- 2. Remove sliding pin boots from torque member.
- 3. Remove bushing (1) from sliding pin bolt (2).

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

6. Remove bleeder valve and cap.

cylinder inner wall.

 Perform inspection after disassembly. Refer to <u>BR-231, "BRAKE</u> CALIPER ASSEMBLY : Inspection".

ASSEMBLY

1. Install bleeder valve and cap.

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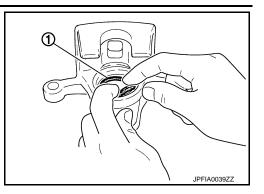
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< REMOVAL AND INSTALLATION >

2. Apply rubber grease to piston seals (1), and install them to cylinder body. **CAUTION:**

Never reuse piston seals.



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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.

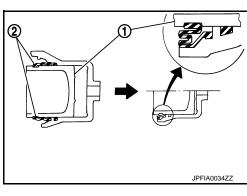
4.

piston groove. **CAUTION:**

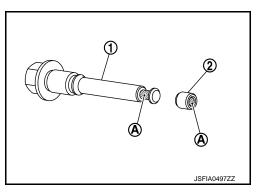
Apply new brake fluid to pistons (1). Push piston into cylinder body by hand and push piston boot (2) piston-side lip into the 2

Press the pistons evenly and vary the pressing point to prevent cylinder inner wall from being rubbed.

Apply rubber grease to mating faces (A) between sliding pin bolt 5. (1) and bushing (2), and install bushing to sliding pin.

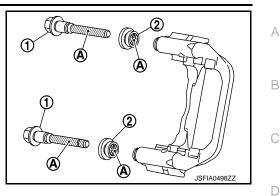


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< REMOVAL AND INSTALLATION >

- 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.
- Install the cylinder body to tighten sliding pin bolts to the specified torque. Refer to <u>BR-232</u>, "<u>BRAKE PAD</u> : <u>Exploded View</u>".



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BRAKE CALIPER ASSEMBLY : Inspection

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 <u>BR-224, "BRAKE PAD : Removal and Installation"</u>.
- 2. Press the pistons. Refer to <u>BR-224, "BRAKE PAD : Removal and Installation"</u>.
- 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 <u>BR-229</u>, "<u>BRAKE CALIPER ASSEMBLY</u>: <u>Disassembly and Assembly</u>".
- 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 <u>BR-209</u>, "<u>DISC ROTOR</u> : <u>Inspection and Adjustment</u>".
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SERVICE DATA AND SPECIFICATIONS (SDS)

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General Specifications

INFOID:000000006960756

		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:000000006960757

Unit: mm (in)

Item	Standard
Brake pedal height	159.9 – 169.9 (6.30 – 6.69)
Depressed brake pedal height 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:000000006960758

Unit: mm (in)

Item	Standard
Input rod length	154.5 – 155.5 (6.08 – 6.12)

Front Disc Brake

INFOID:000000006960759

Unit: mm (in)

Item		Limit
Brake pad	Wear thickness	2.0 (0.079)
	Wear thickness	26.0 (1.024)
Disc rotor	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:000000006960760

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)