SECTION PB
PARKING BRAKE SYSTEM

CONTENTS

HOW TO USE THIS MANUAL

HOW TO USE THIS SECTION

Information

INFOID:0000000010724389

- Both “VDC” and “ESP” are used in this manual. These indicate the same system.
- Both “hill start assist” and “Uphill start support” are used in this manual. These indicate the same system.
- Both “advanced hill descent control” and “downhill drive support” are used in this manual. These indicate the same system.
- Both “active trace control” and “dynamic cornering enhancement” are used in this manual. These indicate the same system.

PRECAUTION

PRECAUTIONS

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

INFOID:0000000010735271

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. Information necessary to service the system safely is included in the “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

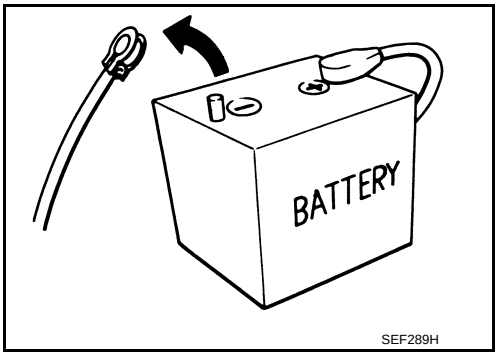
Always observe the following items for preventing accidental activation.

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

Precautions for Removing Battery Terminal

INFOID:0000000010735272

- With the adoption of Auto ACC function, ACC power is automatically supplied by operating the intelligent key or remote keyless entry or by opening/closing the driver side door. In addition, ACC power is supplied even after the ignition switch is turned to the OFF position, i.e. ACC power is supplied for a certain fixed time.
- When disconnecting the 12V battery terminal, turn off the ACC power before disconnecting the 12V battery terminal, observing “How to disconnect 12V battery terminal” described below.
  NOTE:
  Some ECUs operate for a certain fixed time even after ignition switch is turned OFF and ignition power supply is stopped. If the battery terminal is disconnected before ECU stops, accidental DTC detection or ECU data damage may occur.
- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  NOTE:
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  NOTE:
  The removal of 12V battery may cause a DTC detection error.



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HOW TO DISCONNECT 12V BATTERY TERMINAL

Disconnect 12V battery terminal according to Instruction 1 or Instruction 2 described below.
For vehicles parked by ignition switch OFF, refer to Instruction 2.

INSTRUCTION 1

1. Open the hood.

2. Turn key switch to the OFF position with the driver side door opened.
3. Get out of the vehicle and close the driver side door.
4. Wait at least 3 minutes. For vehicle with the engine listed below, remove the battery terminal after a lapse of the specified time.

D4D engine	: 20 minutes
HRA2DDT	: 12 minutes
K9K engine	: 4 minutes
M9R engine	: 4 minutes
R9M engine	: 4 minutes
V9X engine	: 4 minutes

CAUTION:
While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

5. Remove 12V battery terminal.
CAUTION:
After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

INSTRUCTION 2 (FOR VEHICLES PARKED BY IGNITION SWITCH OFF)

1. Unlock the door with intelligent key or remote keyless entry.
NOTE:
At this moment, ACC power is supplied.
2. Open the driver side door.
3. Open the hood.
4. Close the driver side door.
5. Wait at least 3 minutes.
CAUTION:
While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.
6. Remove 12V battery terminal.
CAUTION:
After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

Precaution for Stop/Start System Service

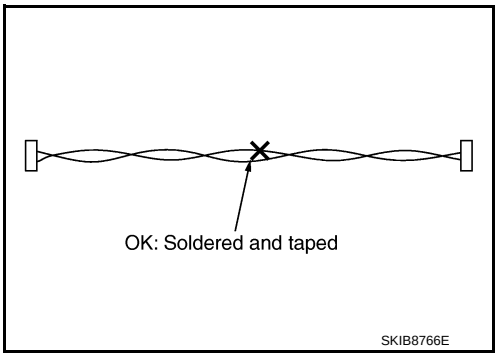
INFOID:0000000011003165

CAUTION:
When performing an inspection and its related work with the engine at idle, always turn the stop/start OFF switch ON or open the hood to release the stop/start system.

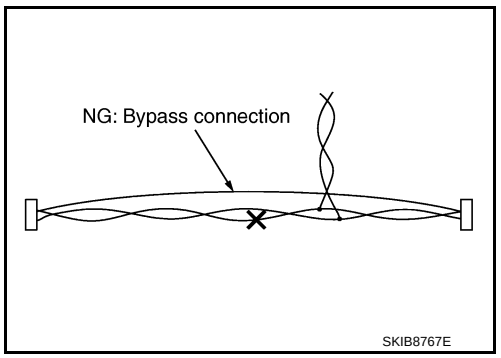
Precautions for Harness Repair

INFOID:0000000010735273

- Solder the repaired area and wrap tape around the soldered area.
NOTE:
A fray of twisted lines must be within 110 mm (4.33 in).



- Bypass connection is never allowed at the repaired area.
  NOTE:
  Bypass connection may cause CAN communication error. The spliced wire becomes separated and the characteristics of twisted line are lost.



- Replace the applicable harness as an assembly if error is detected on the shield lines of CAN communication line.

Precaution for Parking Brake System

INFOID:0000000010722914

WARNING:
Since dust covering the 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.

- When the parking brake is operated, the electric parking brake indicator lamp in the combination meter and the parking brake switch indicator turn ON.
- When a following malfunction occurs in the electric parking brake system, the brake system warning lamp and parking brake switch indicator turn blink.
- When a status cannot be judged between applied and released.
- When the parking brake switch is operated under the condition that the parking brake switch is malfunction.
- When the parking brake switch is operated under the condition that the parking brake actuator is malfunction.
- When the initial position adjustment of the parking brake actuator is incomplete.
- When a peaking brake system mode is factory mode

  CAUTION:
  When vehicle is parked, selector lever is in the P position.

- When a malfunction occurs in the electric parking brake system, parking brake can be mechanically released. Refer to PB-50, "Work Procedure".
- When parking brake must be released while the battery negative terminal is disconnected, mechanically release it. Refer to PB-50, "Work Procedure".
- When rear brake pad is ground or replaced, perform break-in operation.
- LHD models: Refer to BR-19, "BRAKE PAD : Inspection and Adjustment".
- RHD models: Refer to BR-83, "BRAKE PAD : Inspection and Adjustment"
- When rear disc rotor is ground or replaced, perform break-in operation.
- LHD models: Refer to BR-19, "DISC ROTOR : Inspection and Adjustment".
- RHD models: Refer to BR-83, "DISC ROTOR : Inspection and Adjustment"

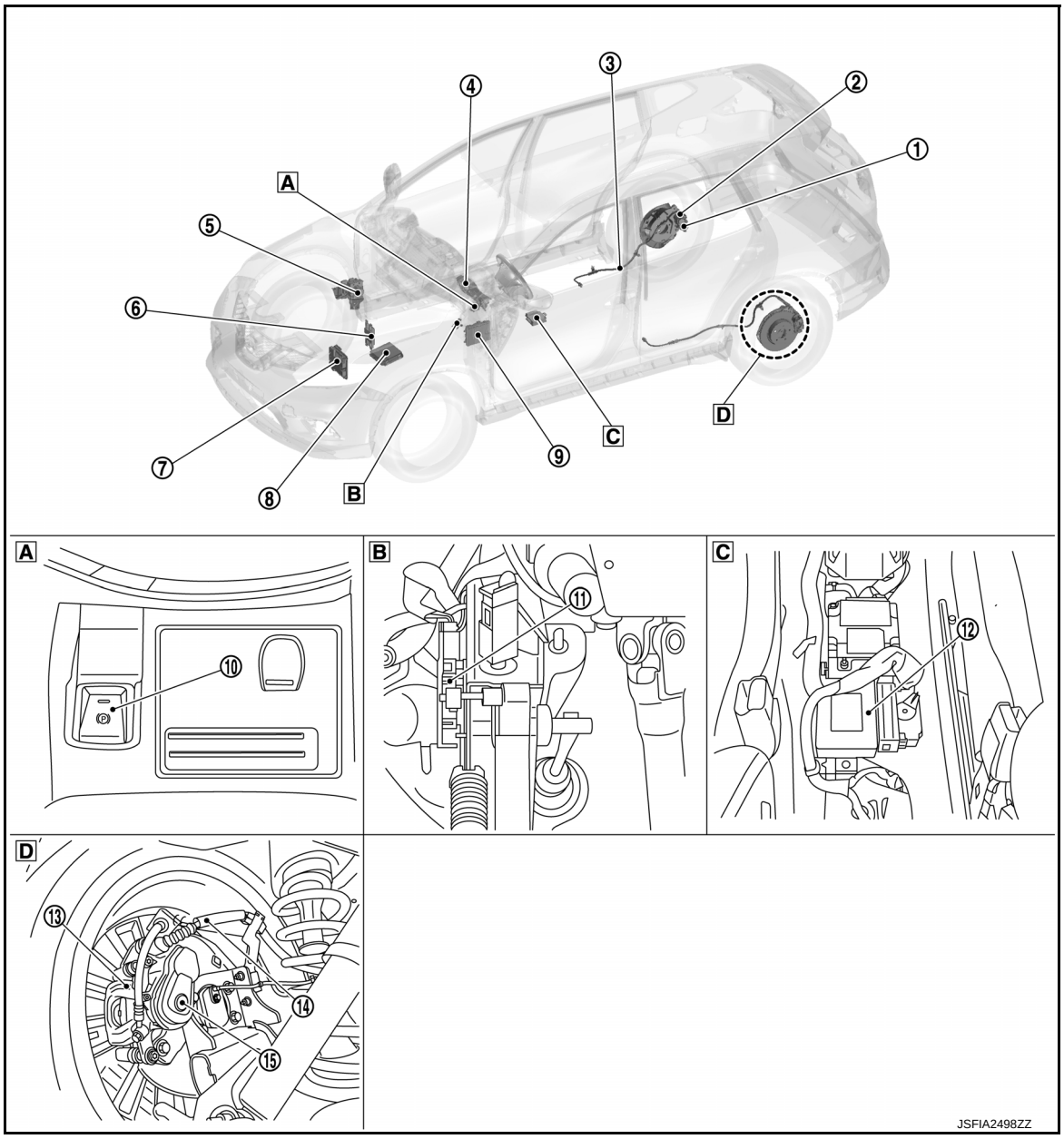
SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010722916

LHD models



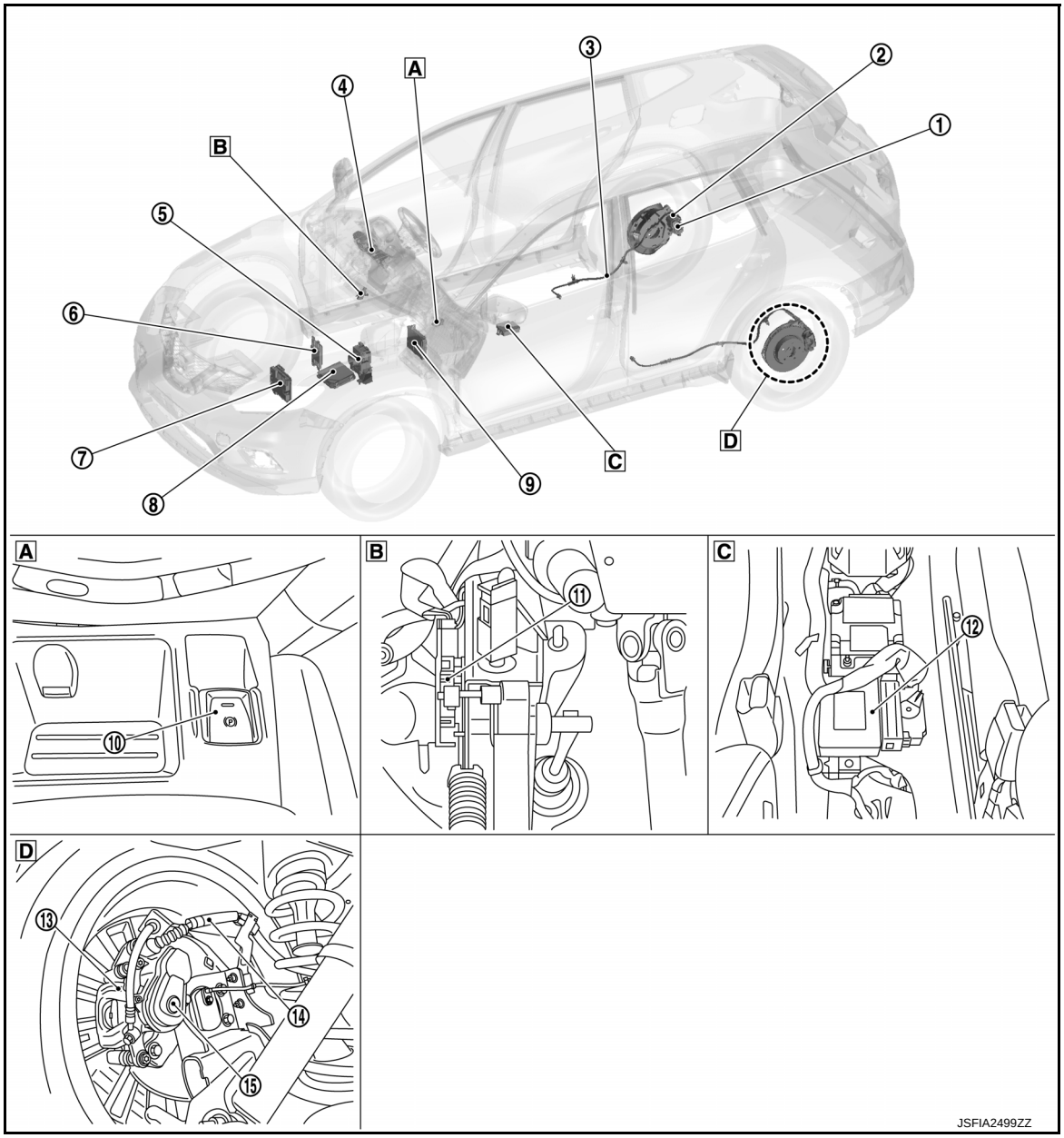
A Center console
B Clutch pedal
C Under center console
D Rear brake caliper assembly

No.	Component part	Function
①	Parking brake actuator (RH)	PB-12, "Parking Brake Actuator"
②	Rear brake caliper assembly (RH)	
③	Parking brake actuator harness	

No.	Component part	Function
④	Combination meter	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Seat belt buckle switch (driver side) signal Mainly receives the following signals from electric parking brake control module via CAN communication. • Electric parking brake indicator lamp signal • Brake system warning lamp signal • Master warning lamp signal • Electric parking brake display request signal Refer to MWI-7, "METER SYSTEM : Component Parts Location" for detailed installation location.
⑤	ABS actuator and electric unit (control unit)	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Rear LH wheel speed signal • Rear RH wheel speed signal • VDC operation signal • Brake fluid pressure signal • ABS operation signal Refer to BRC-14, "Component Parts Location" for detailed installation location.
⑥	TCM*1	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Target gear position signal Refer to TM-235, "CVT CONTROL SYSTEM : Component Parts Location" (gasoline engine models), TM-466, "CVT CONTROL SYSTEM : Component Parts Location" (diesel engine models) for detailed installation location.
⑦	ECM	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Engine speed signal • Engine torque signal Refer to EC-28, "ENGINE CONTROL SYSTEM : Component Parts Location" (MR20DD engine models), EC-440, "Component Parts Location" (QR25DE engine models), EC-812, "Component Parts Location" (R9M engine models) for detailed installation location.
⑧	IPDM E/R	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Ignition switch ON signal Refer to PCS-5, "Component Parts Location" for detailed installation location.
⑨	BCM	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Stop lamp switch signal • Steering lock status signal • Wake up sleep command signal • Door switch (driver side) signal Refer to BCS-6, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location.
⑩	Parking brake switch	PB-12, "Parking Brake Switch"
⑪	Clutch pedal stroke sensor*2	PB-12, "Clutch Pedal Stroke Sensor"
⑫	Electric parking brake control module	PB-12, "Electric Parking Brake Control Module"
⑬	Rear brake caliper assembly (LH)	PB-12, "Parking Brake Actuator"
⑭	Parking brake actuator harness	
⑮	Parking brake actuator (LH)	

*1: CVT models
*2: M/T models

RHD models



A Center console
B Clutch pedal
C Under center console
D Rear brake caliper assembly

No.	Component part	Function
①	Parking brake actuator (RH)	PB-12, "Parking Brake Actuator"
②	Rear brake caliper assembly (RH)	
③	Parking brake actuator harness	

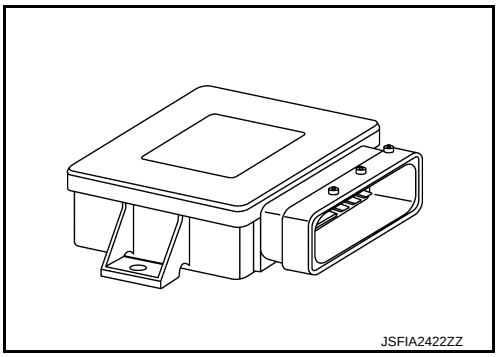
No.	Component part	Function
④	Combination meter	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Seat belt buckle switch (driver side) signal Mainly receives the following signals from electric parking brake control module via CAN communication. • Electric parking brake indicator lamp signal • Brake system warning lamp signal • Master warning lamp signal • Electric parking brake display request signal Refer to MWI-7, "METER SYSTEM : Component Parts Location" for detailed installation location.
⑤	ABS actuator and electric unit (control unit)	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Rear LH wheel speed signal • Rear RH wheel speed signal • VDC operation signal • Brake fluid pressure signal • ABS operation signal Refer to BRC-14, "Component Parts Location" for detailed installation location.
⑥	TCM*1	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Target gear position signal Refer to TM-466, "CVT CONTROL SYSTEM : Component Parts Location" for detailed installation location.
⑦	ECM	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Engine speed signal • Engine torque signal Refer to EC-812, "Component Parts Location" for detailed installation location.
⑧	IPDM E/R	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Ignition switch ON signal Refer to PCS-5, "Component Parts Location" for detailed installation location.
⑨	BCM	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Stop lamp switch signal • Steering lock status signal • Wake up sleep command signal • Door switch (driver side) signal Refer to BCS-6, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location.
⑩	Parking brake switch	PB-12, "Parking Brake Switch"
⑪	Clutch pedal stroke sensor*2	PB-12, "Clutch Pedal Stroke Sensor"
⑫	Electric parking brake control module	PB-12, "Electric Parking Brake Control Module"
⑬	Rear brake caliper assembly (LH)	PB-12, "Parking Brake Actuator"
⑭	Parking brake actuator harness	
⑮	Parking brake actuator (LH)	

*1: CVT models
*2: M/T models

Electric Parking Brake Control Module

INFOID:0000000010722917

- The parking brake actuator is controlled by the signals from the parking brake switch, sensors, and units.
  NOTE:
  The parking brake is released and applied by controlling the parking brake actuator.
- Calculates the G sensor signal information that affects the vehicle, and transmits a signal to parking brake control module. (G sensor is integrated in parking brake control module).
- When a malfunction is detected, the system enters fail-safe mode.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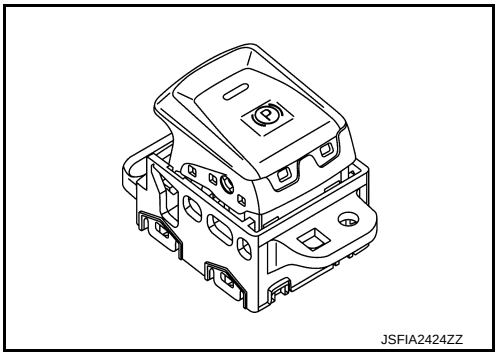
Parking Brake Switch

INFOID:0000000010722918

- Pulling the parking brake switch applies the parking brake.
- Pressing the parking brake switch releases the parking brake.
- When the parking brake is applied, the parking brake switch indicator turns ON. In addition, it turns OFF when the parking brake is released.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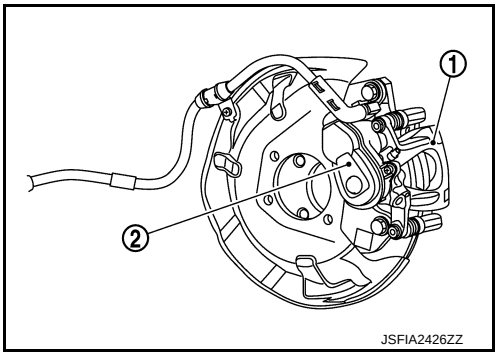
Parking Brake Actuator

INFOID:0000000010722919

- The parking brake actuator ② is installed on rear brake caliper ①.
  CAUTION:
  Never reuse the parking brake actuator if the parking brake actuator is removed.
- The signal from the electric parking brake control module applies and releases the parking brake.
- Parking brake actuator is composed of a motor, gear, pulley, belt, etc.
- It operates/releases the parking brake by transmitting the motor rotation output to the piston of the rear brake caliper.
  NOTE:
  Braking condition is mechanically maintained. It is not always energized.



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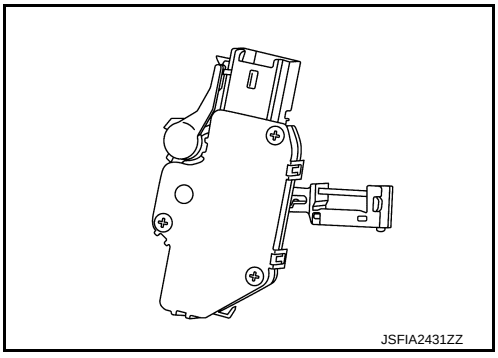
Clutch Pedal Stroke Sensor

INFOID:0000000010722920

Detects the amount that the clutch pedal is depressed and send it to the electric parking brake control module.
NOTE:
Clutch pedal stroke sensor is applied to M/T models.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SYSTEM

System Description

INFOID:0000000010722921

- The electric parking brake system uses the signal from the parking brake switch to have the electric parking brake control module operate the parking brake actuator to apply and release the parking brake.
- The parking brake switch is placed in the center console so that it can be operated close at hand (applied/released).
- When the parking brake is operated, the electric parking brake indicator lamp in the combination meter and the parking brake switch indicator turn ON.
- When the parking brake is released, the electric parking brake indicator lamp in the combination meter and the parking brake switch indicator turn OFF.
- When a malfunction occurs in the electric parking brake system, brake system warning lamp (yellow) and parking brake switch indicator turns blink, and the function for entering the fail-safe status is held.
- When a malfunction occurs in the electric parking brake system, the parking brake can be mechanically released. Refer to PB-148, "Diagnosis Procedure".

OPERATION

- When the parking brake switch is pulled, a parking brake operation switch signal is transmitted from the electric parking brake control module to the parking brake actuator.
- When the parking brake actuator receives a parking brake switch signal, it activates the motor in the parking brake actuator.
- When the motor is operated, rotating torque is generated, and transmitted to the piston in the parking brake actuator of the rear brake caliper via gears in parking brake actuator and belts in the parking brake actuator.
- The piston is pushed out by the rotating torque, and the parking brake operates by pressing the brake pad against the disc rotor.

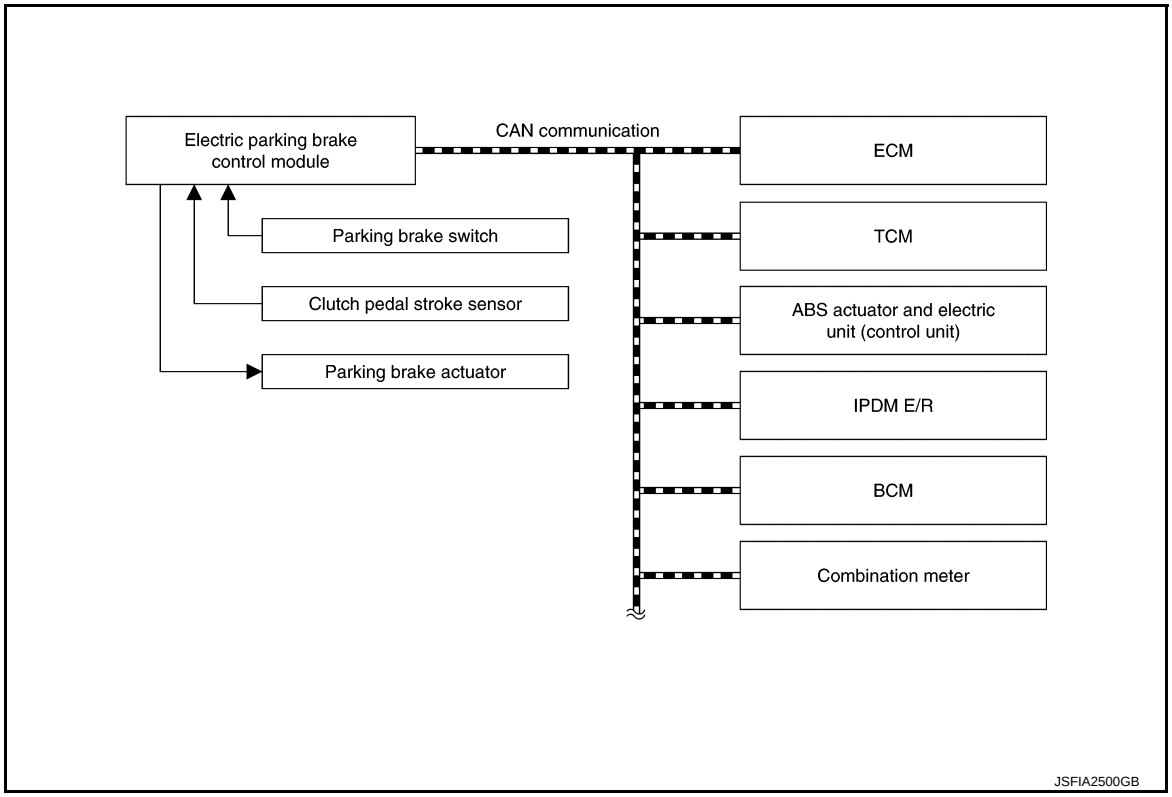
RELEASE

- When the parking brake switch is pushed, a parking brake release switch signal is transmitted from the electric parking brake control module to the parking brake actuator.
- When a parking brake switch signal is input, the motor in the parking brake actuator rotates in reverse and pulls back the piston of the rear brake caliper.
- By pulling back the piston of the rear brake caliper, the brake pad and disc rotor are released as with the normal brakes, and the parking brake is released.

SYSTEM DIAGRAM

NOTE:

- TCM is applied to CVT models.
- Clutch pedal stroke sensor is applied to M/T models



INPUT SIGNAL AND OUTPUT SIGNAL

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

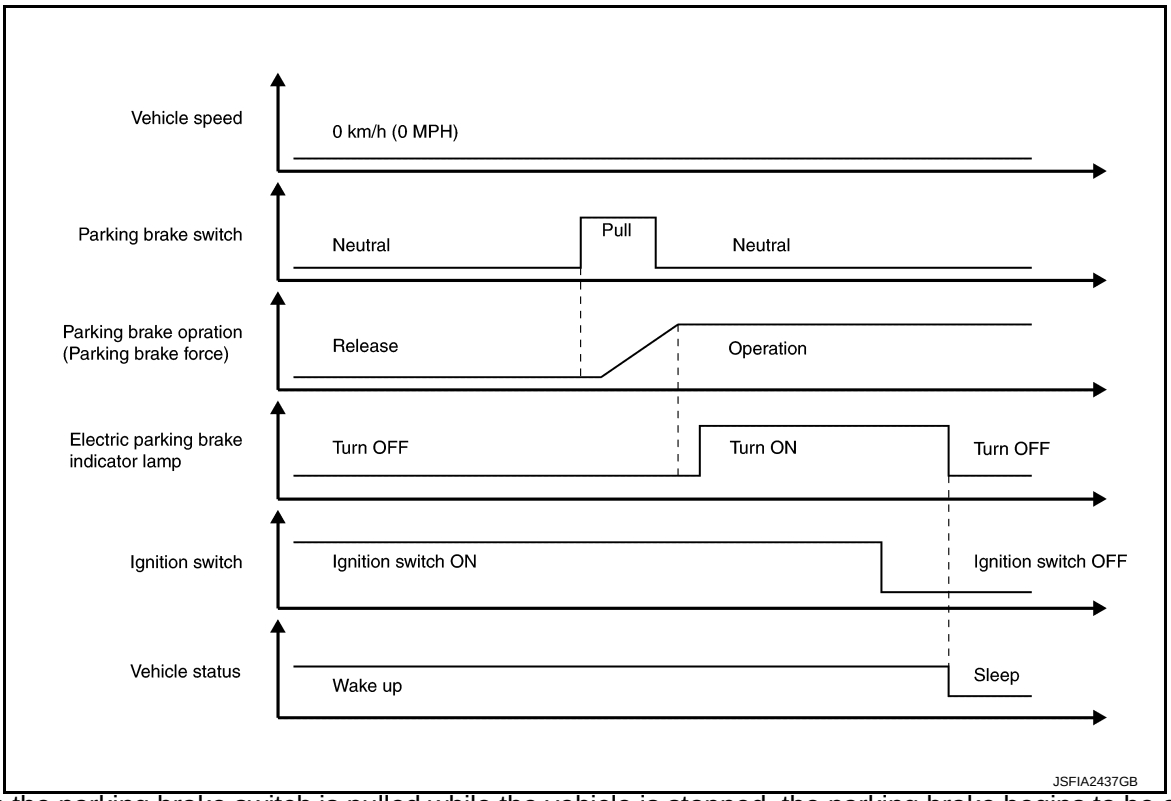
Component	Signal description
Combination meter	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Seat belt buckle switch (driver side) signal Mainly receives the following signals from electric parking brake control module via CAN communication. • Electric parking brake indicator lamp signal • Brake system warning lamp signal • Master warning lamp signal • Electric parking brake display request signal
ABS actuator and electric unit (control unit)	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Rear LH wheel speed signal • Rear RH wheel speed signal • VDC operation signal • Brake fluid pressure signal • ABS operation signal
IPDM E/R	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Ignition switch ON signal
ECM	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Engine speed signal • Engine torque signal

Component	Signal description
TCM*	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Target gear position signal
BCM	Mainly transmits the following signal to electric parking brake control module via CAN communication. • Stop lamp switch signal • Steering lock status signal • Wake up sleep command signal • Door switch (driver side) signal

*: CVT models

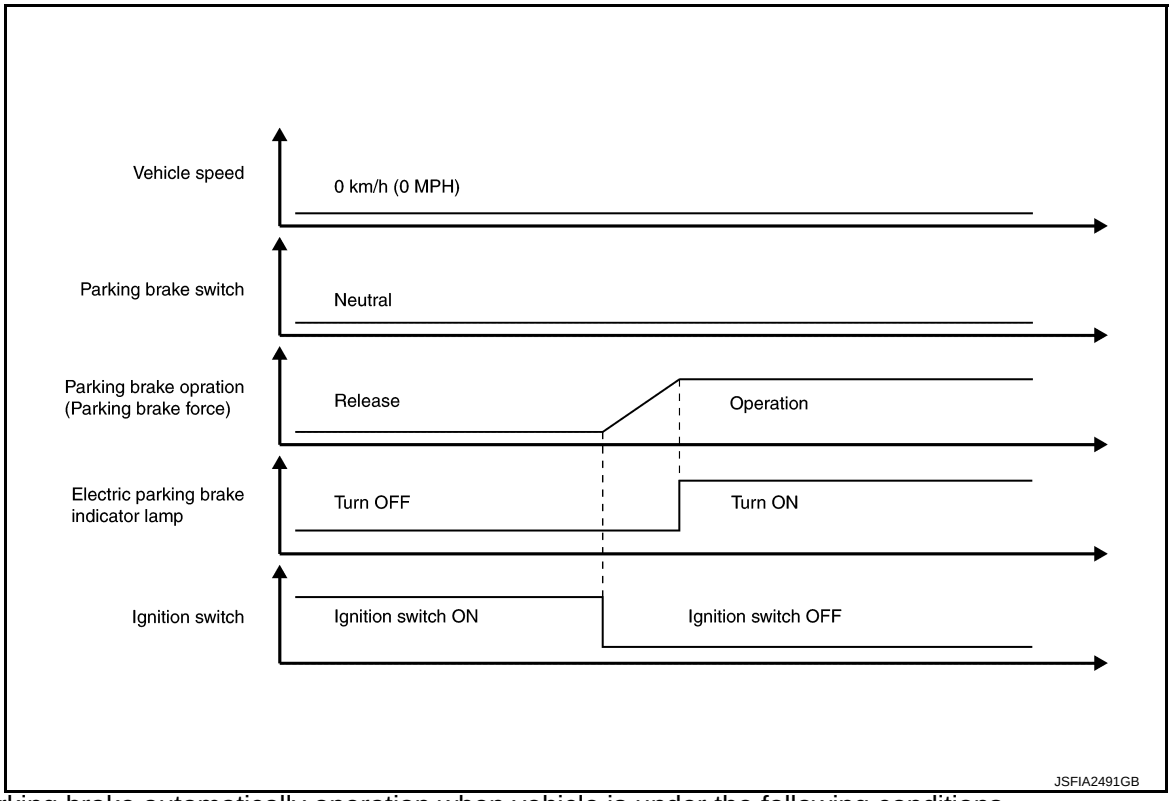
ELECTRIC PARKING BRAKE OPERATION

Normal Operation



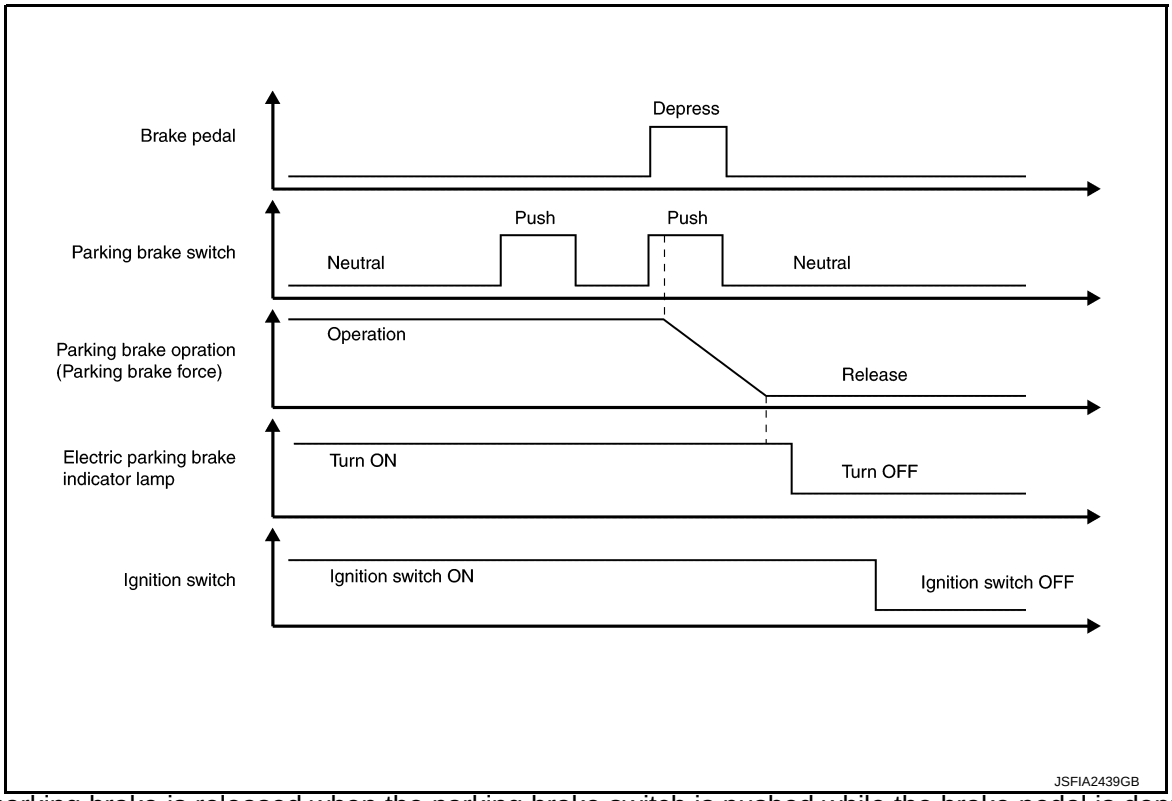
- When the parking brake switch is pulled while the vehicle is stopped, the parking brake begins to be applied. (The motor in the parking brake actuator starts generating rotating torque.)
- When the parking brake braking force reaches the prescribed value (rotating torque generated by the motor in the parking brake actuator), the electric parking brake indicator lamp turns ON.
- When the ignition switch is turned OFF.
  NOTE:
  Braking force of the parking brake is held.

Automatic Operation



The parking brake automatically operation when vehicle is under the following conditions.
- Vehicle stop status
- Ignition switch is OFF
- “AUTO ACTIVATION ON” of “WORK SUPPORT” result is “AVAILABLE” (CVT models)

Normal Release (ignition switch ON)

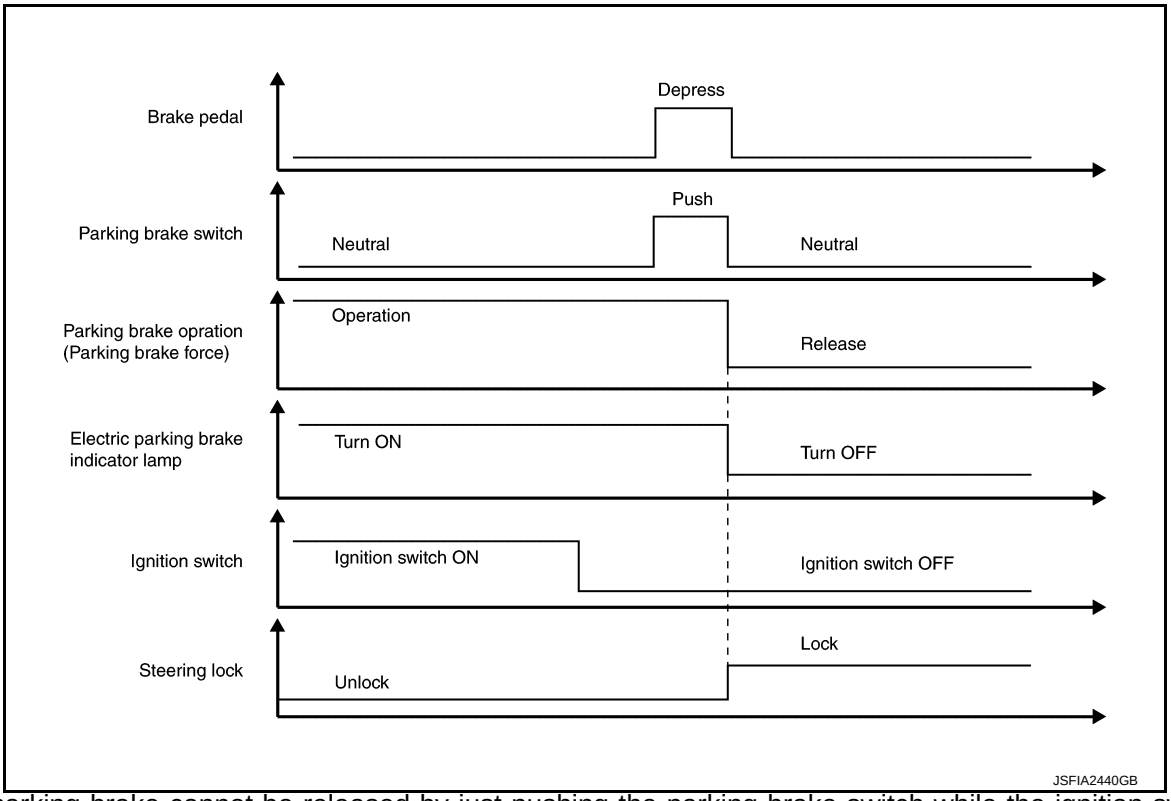


- The parking brake is released when the parking brake switch is pushed while the brake pedal is depressed, the ignition switch is ON, and the parking brake is operating.

NOTE:
Just pushing the parking brake switch does not release the parking brake.

- When release of the parking brake is completed (rotating torque generated by the motor in the parking brake actuator stops), the electric parking brake indicator lamp turns OFF.

Normal Release (Ignition Switch OFF)

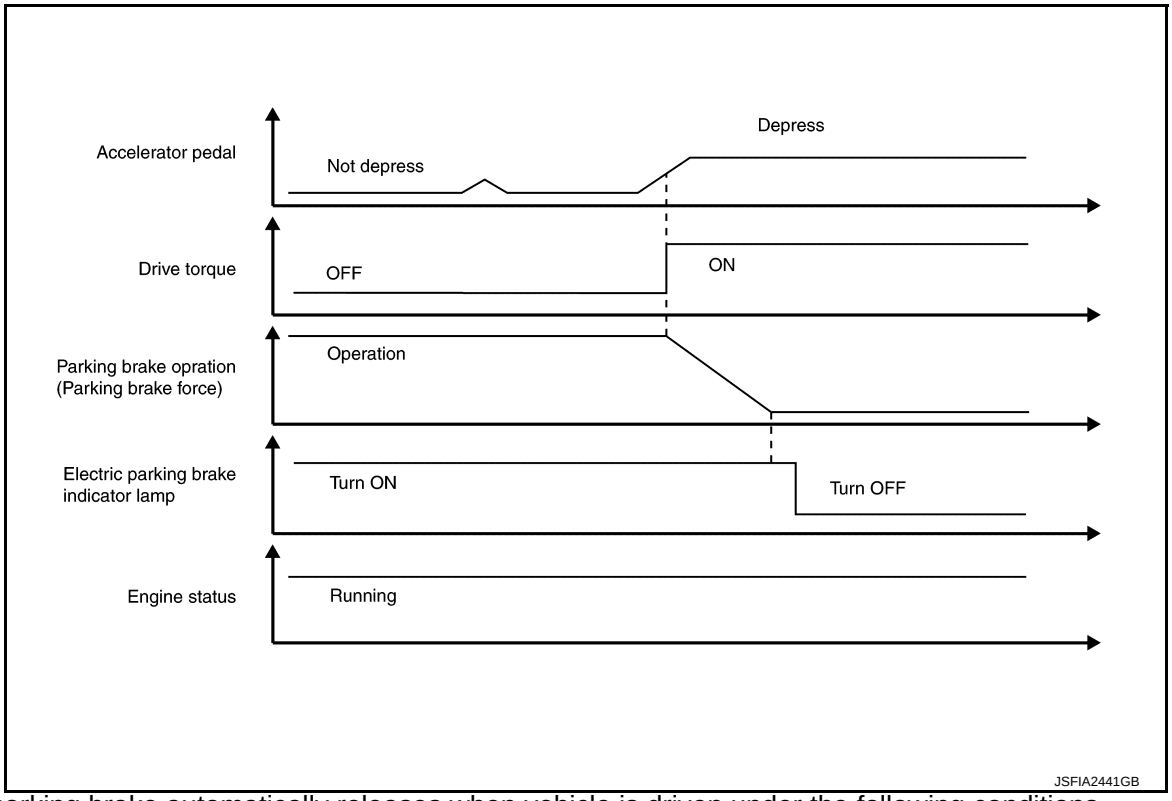


- The parking brake cannot be released by just pushing the parking brake switch while the ignition switch is OFF, the parking brake is applied, and the brake pedal is being depressed.

  NOTE:
  - Just pushing the parking brake switch does not release the parking brake.
  - The parking brake can be released by turning ON the ignition switch and pushing the parking brake switch while depressing the brake pedal.
- The electric parking brake indicator lamp turns OFF.

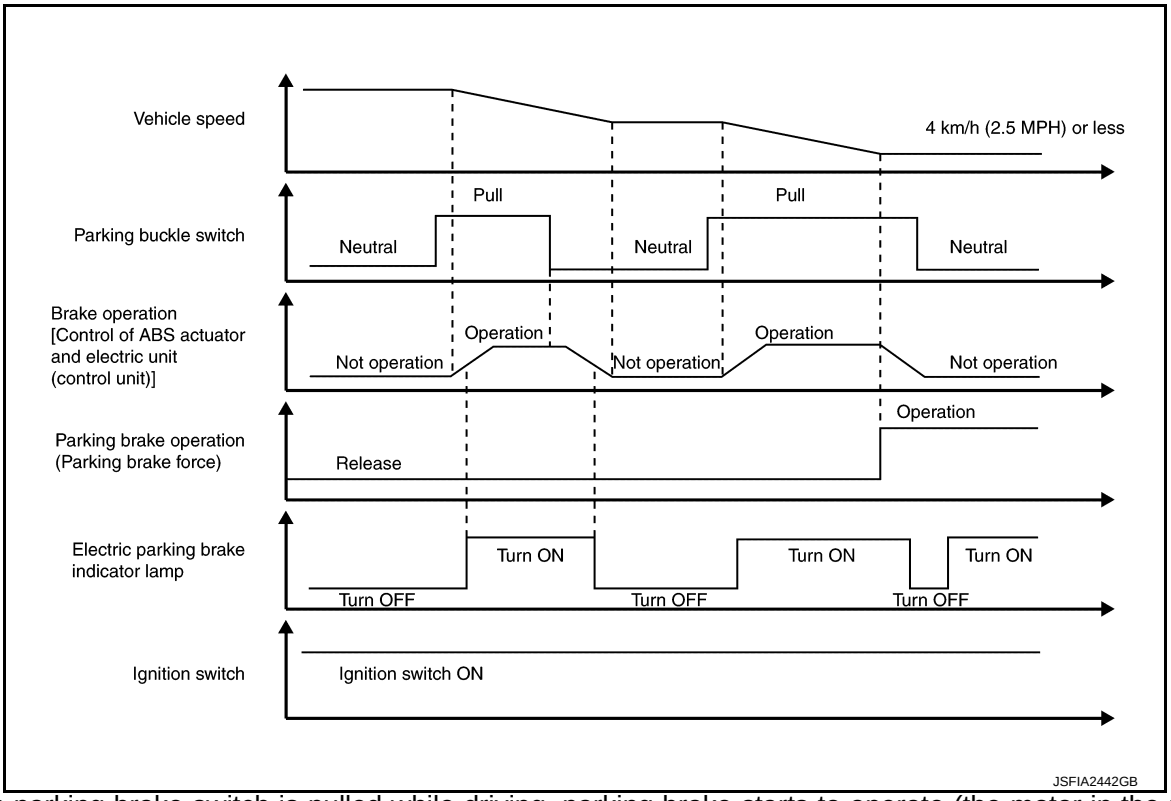
  NOTE:
  Braking force of the parking brake is in the hold status.

Automatic Release



- The parking brake automatically releases when vehicle is driven under the following conditions.
- Engine running.
- The selector lever is in the D or R position. (CVT models)
- The accelerator pedal is depressed.
- When engine torque necessary for travelling is generated after shifting the selector lever to other than P range and N range, depressing the accelerator pedal and seat belt (driver side) is fastened. (CVT models)
- When engine torque necessary for travelling is generated after engaging the clutch and depressing the accelerator pedal. (M/T models)
- When release of the parking brake is completed (not rotating torque generated by the motor in the parking brake actuator), the electric parking brake indicator lamp turns OFF.

Driving



- When parking brake switch is pulled while driving, parking brake starts to operate (the motor in the parking brake actuator starts generating rotating torque), and electric parking brake indicator lamp illuminates. When pulling operation is stopped, the parking brake operation is canceled and electric parking brake indicator lamp turns OFF.
- When parking brake is pulled while driving immediately before the vehicle stops, the parking brake begins to be applied (the motor in the parking brake actuator starts generating rotating torque) and the electric parking brake indicator lamp turns ON.
  NOTE:
  The parking brake braking force is weaker than when the vehicle is stopped until the vehicle comes to a stop.
- When parking brake switch is pulled after vehicle stop, parking brake starts to operate again (tension is loaded to rear cable), and electric parking brake indicator lamp turns OFF.
- When the parking brake braking force reaches the prescribed value (rotating torque generated by the motor in the parking brake actuator), the electric parking brake indicator lamp turns ON.
- When the parking brake switch is pulled while travelling, a command is transmitted to the ABS actuator and electric unit (control unit), and it applies brake on four wheels to reduce vehicle speed.
  NOTE:
  - When releasing the parking brake switch, the brake applied by the ABS actuator and electric unit (control unit) is released.
  - During the brake operation (deceleration) by the ABS actuator and electric unit (control unit), the status becomes as follows:
  - electric parking brake indicator lamp and master warning lam are turns ON.
  - Buzzer is ON.
  - “Release parking brake” is shown on the information display of the combination meter.
  - Stop lamp is turn ON.
  - If the parking brake switch is still pulled even after the vehicle speed becomes 4 km/h (2.5 MPH), the brake operation (deceleration) by the ABS actuator and electric unit (control unit) is stopped, and the vehicle speed is reduced by the braking force of parking brake.

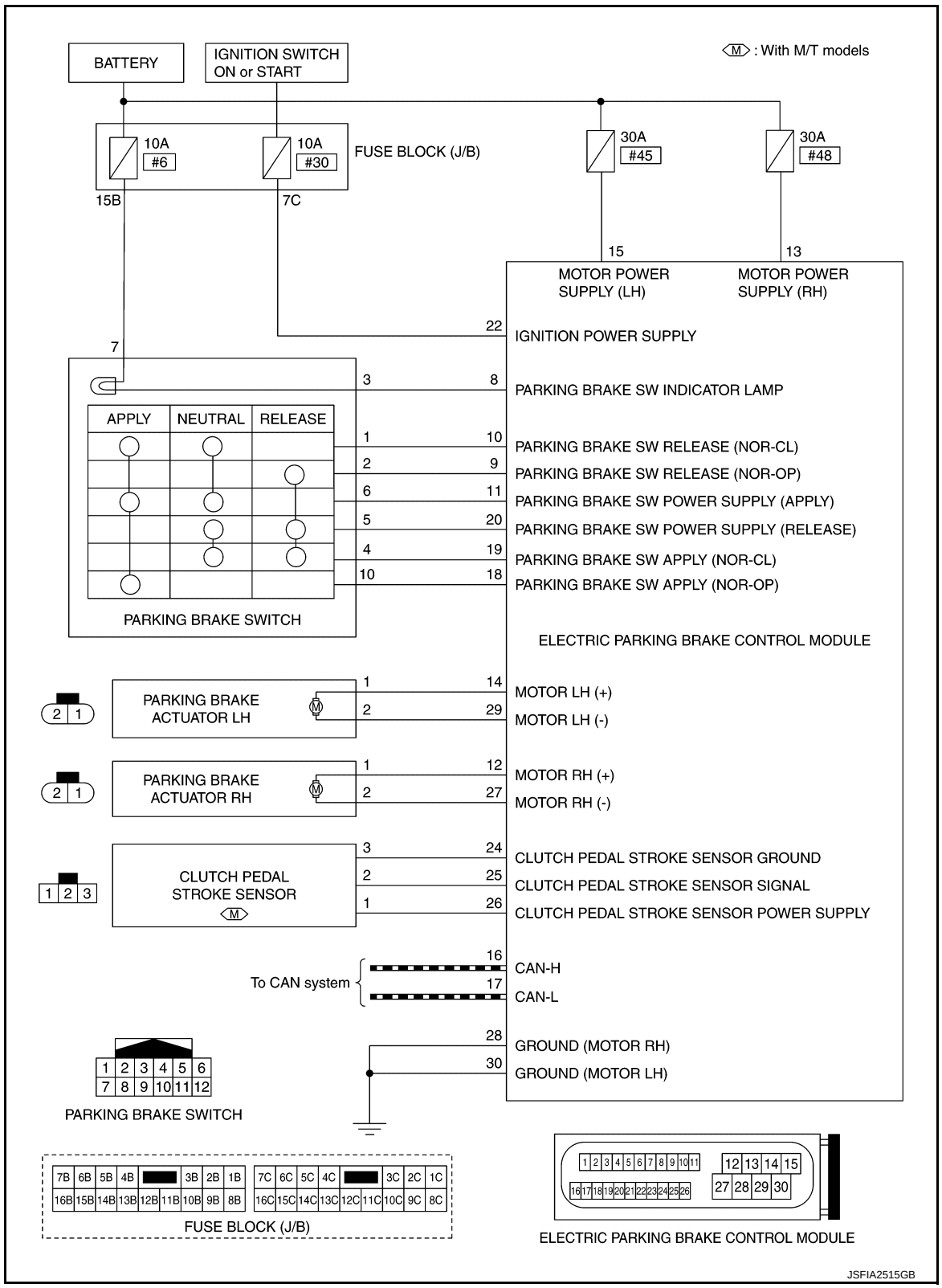
CONDITION FOR TURN ON THE WARNING LAMP, THE INDICATOR LAMP AND INFORMATION DISPLAY

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

Condition (status)	Electric parking brake indicator lamp (in combination meter)	Master warning lamp (red) (in combination meter)	Brake system warning lamp (yellow) (in combination meter)	Parking brake switch indicator lamp (in parking brake switch)	Warning buzzer (in electric parking control module)	Information display (in combination meter)
Electric parking brake system is operating	ON	OFF	OFF	ON	OFF	—
Electric parking brake system is released	OFF	OFF	OFF	OFF	OFF	—
Electric parking brake system is malfunctioning	ON/OFF (Depends on the status of the electric parking brake system.)	OFF	ON	ON/OFF (Depends on the status of the electric parking brake system.)	OFF	—
The parking brake switch is pushed without depressing the brake pedal.	ON	OFF	OFF	ON	OFF	Press brake pedal
The automatic release is applied during driving by depressing the accelerator pedal with the seat belt unfastened, and the engine running.	ON	OFF	OFF	ON	OFF	Release parking brake
The vehicle is driven by depressing the accelerator pedal without the automatic release applied, the seat belt unfastened, and the engine running.	ON	ON	OFF	ON	ON	Release parking brake
The parking brake is operated with the parking brake switch kept pulled during driving.	ON	ON	OFF	ON	ON	Release parking brake
Braking force is measured.	ON	OFF	OFF	ON	OFF	—
The parking brake braking force is insufficient (vehicle is moving backward).	ON	ON	OFF	ON	ON	Press brake pedal
The combination meter cannot receive signals from the electric parking control module via CAN communication.	Blinking	OFF	ON	ON/OFF (Depends on the status of the electric parking brake system.)	OFF	—
A malfunction of the parking brake switch is detected.	ON/OFF (Depends on the status of the electric parking brake system.)	OFF	ON	ON/OFF (Depends on the status of the electric parking brake system.)	OFF	—
The parking brake switch is operated while a malfunction of the parking brake switch is detected.	Blinking	OFF	ON	Blinking	OFF	—
Release of the parking brake is inhibited detecting malfunctions of other control units.	ON/OFF (Depends on the status of the electric parking brake system.)	OFF	ON	ON/OFF (Depends on the status of the electric parking brake system.)	OFF	—
The parking brake does not operate automatically even after the ignition switch turned OFF.	Blinking	ON	OFF	Blinking	ON	Press brake pedal
Electric parking brake system does not operate (malfunction check not possible).	Blinking	OFF	ON	Blinking	OFF	—

Circuit Diagram

INFOID:0000000010722922



Fail-Safe

INFOID:0000000010735275

- The brake system warning lamp (yellow) and/or electric parking indicator lamp turns ON when a malfunction with the system occurs.

- When parking brake switch is pulled/pushed during system malfunction, electric parking brake indicator lamp blinks and master warning lamp (red) turns ON when electric parking brake cannot be operated. It restricts braking and release operations of electric parking brake.
  NOTE:
  The parking brake can be mechanically released.

DTC	Display item		Vehicle condition
C10C8	CONTROL MODULE	[INTERNAL ELECTRIC MALFUNCTION]	Only mechanical release is available.
		[WATCHDOG/SAFETY μC ERROR]	
		[SUPERVISION SOFTWARE ERROR]	
		[EVENT INFORMATION]	
		[NOT CONFIGURED]	Automatic apply and release are prohibited.
C10E3	PARKING BRAKE SWITCH		• Applying the parking brake is prohibited. • Release using the parking brake switch is prohibited. (It can be released automatically.) • Automatic apply is available.
C10E6	IGNITION SWITCH		Normal control
C1BD0	MOTOR		One side motor is available.
C1BD1	PARKING BRAKE SW		• Apply and release by switch are prohibited. • Automatic apply and release are available.
C1BD2	PARKING BRAKE SW		
C1BD3	PARKING BRAKE SW		
C1BD4	G SENSOR		Automatic release is prohibited.
C1BD5	POWER SUPPLY VOLT		Only mechanical release is available.
C1BD6	DOOR SW		Normal control
C1BD7	CLUTCH SENSOR	[WRONG MOUNTING]	Automatic apply and release are prohibited. (Manual release can be performed.)
C1BD9	INITIALIZE POSITION		Automatic apply and release are prohibited.

DTC	Display item		Vehicle condition
C1BDA	ACTUATOR MALF (LH)	[MECHANICAL MAL-FUNCTION]	Other side actuator's apply and release are available.
		[COMMAND POSI NOT REACHABLE]	
		[PFM/INCORRECT OPERATION]	
		[CIRC CRRNT BE-LOW THRESHLD]	
		[CIRC CRRNT ABOVE THRESHOLD]	
		[CIRC CURRENT OUT OF RANGE]	
C1BDB	ACTUATOR MALF (RH)	[MECHANICAL MAL-FUNCTION]	
		[COMMAND POSI NOT REACHABLE]	
		[PFM/INCORRECT OPERATION]	
		[CIRC CRRNT BE-LOW THRESHLD]	
		[CIRC CRRNT ABOVE THRESHOLD]	
		[CIRC CURRENT OUT OF RANGE]	
C1BDF	MODE		Automatic apply and release are prohibited.
U0100	ECM/PCM A		
U0101	TCM		Automatic release is prohibited.
U0111	BATTERY ENERGY CONTROL MODULE A		Automatic apply and release are prohibited.
U0129	BRAKE SYSTEM CONTROL MODULE		• Automatic apply and release are prohibited. • Brake force is degraded.
U0140	BCM		Automatic apply and release are prohibited.
U0155	IPC CONTROL MODULE		Automatic release is prohibited.
U0401	VCM		Automatic apply and release are prohibited.
U0402	TCM		Automatic release is prohibited.
U0418	BRAKE CONTROL MODULE		• Automatic apply and release are prohibited. • Brake force is degraded.
U0422	BCM		Automatic release is prohibited.
U1000	CAN COMM CIRCUIT	[BUS OFF]	• Automatic apply and release are prohibited. • Brake force is degraded.
		[ERRATIC]	
U1060	VEHICLE SPEED		
U1061	IPDM E/R SYSTEM		Automatic release is prohibited.

WARNING/INDICATOR/CHIME LIST

WARNING/INDICATOR/CHIME LIST : Warning Lamp/Indicator Lamp

INFOID:0000000010722924

Name	Design	Layout/Function
Electric parking brake indicator lamp		For layout: Refer to MWI-10, "METER SYSTEM : Design".
		For function: Refer to MWI-33, "WARNING LAMPS/INDICATOR LAMPS : Electric Parking Brake Indicator Lamp".

Name	Design	Layout/Function
Brake system warning lamp (yellow)		For layout: Refer to MWI-10, "METER SYSTEM : Design". For function: Refer to MWI-28, "WARNING LAMPS/INDICATOR LAMPS : Brake System Warning Lamp (Yellow)".

INFORMATION DISPLAY (COMBINATION METER)

INFORMATION DISPLAY (COMBINATION METER) : Parking Brake Warning

INFOID:0000000010722925

DESIGN/PURPOSE

- Warns the driver of the necessity of depressing the brake pedal.
- Warns the driver of the necessity of releasing the parking brake.

Warning Message

Design	Warning Message
—	Press brake pedal Release parking brake

SYNCHRONIZATION WITH MASTER WARNING LAMP

Applicable

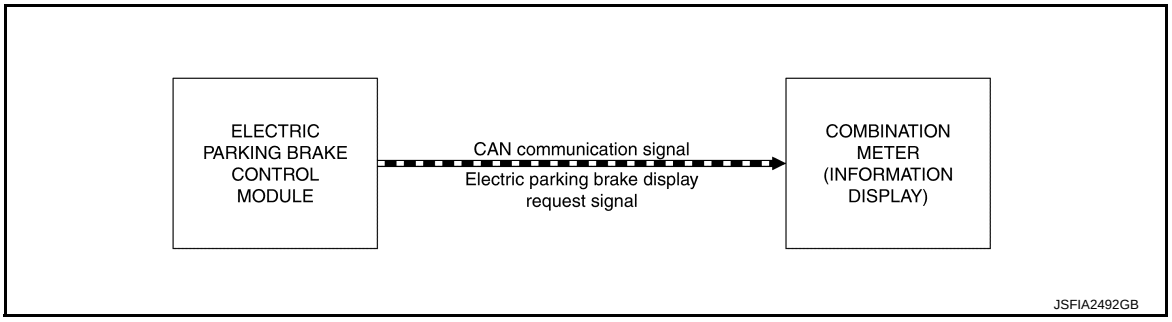
Refer to MWI-47, "WARNING LAMPS/INDICATOR LAMPS : Master Warning Lamp".

SYNCHRONIZATION WITH WARNING CHIME

Applicable

Refer to PB-13, "System Description".

SYSTEM DIAGRAM



SIGNAL PATH

The electric parking brake control module transmits a signal to the combination meter via CAN communication under the conditions bellow:

- When necessary to depress the brake pedal.
- When necessary to release the parking brake.

WARNING/INDICATOR OPERATING CONDITION

When the following conditions are satisfied (ignition switch ON)

- The parking brake switch is pushed without depressing the brake pedal.
- The automatic release is applied during driving by depressing the accelerator pedal with the seat belt unfastened, and the engine running.
- The vehicle is driven by depressing the accelerator pedal without the automatic release applied, the seat belt unfastened, and the engine running.
- The parking brake is operated with the parking brake switch kept pulled during driving.
- The parking brake braking force is insufficient (vehicle is moving backward).
- The parking brake does not operate automatically even after the ignition switch turned OFF.
- When trying to get off the vehicle.
- When the vehicle is moving.

DIAGNOSIS SYSTEM (ELECTRIC PARKING BRAKE CONTROL MODULE)

CONSULT Function

INFOID:0000000010722926

APPLICATION ITEM

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

Mode	Function description
ECU identification	Parts number of electric parking brake control module 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 electric parking brake control module can be read.
Work Support	Components can be quickly and accurately adjusted.
Re/programming, Configuration	• Read and save the vehicle specification (TYPE ID). • Write the vehicle specification (TYPE ID) when replacing electric parking brake control module.

*: The following diagnosis information is erased by erasing.
- DTC
- Freeze frame data (FFD)

ECU IDENTIFICATION

Electric parking brake control module part number can be read.

SELF DIAGNOSTIC RESULT

Refer to PB-36, "DTC Index".

When “CRNT” is displayed on self-diagnosis result
- The system is presently malfunctioning.

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

Freeze Frame Data (FFD)
When DTC is detected, a vehicle status shown below is recorded and displayed on CONSULT.

Item name	Indication/Unit	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 → 3...38 → 39. When the operation number of times exceeds 39, the number do not increase and “39” is displayed until self-diagnosis is erased.
DTC COUNTER	—	Displays the number of DTCs detected upon DTC detection.
BRAKE PEDAL STATUS	Off	Displays when the brake pedal is not depressed upon DTC detection.
	On 1	Displays when the either stop lamp switch or brake pedal position switch is ON upon DTC detected.
	On 2	Displays when the both stop lamp switch and brake pedal position switch are ON upon DTC detected.
	NO SIGNAL	Displays when the operation status of the brake pedal cannot be checked upon DTC detection.
IGN SW	Off	Displays when the ignition switch is OFF upon DTC detection.
	On	Displays when the ignition switch is ON upon DTC detection.
ENGINE STATUS	STOP	Displays when the engine is stopped upon DTC detection.
	RUN 1	Displays when the cranking status.
	RUN 2	Displays when the engine running status.

Item name	Indication/Unit	Display item
CAN DIAG PERMIS STATUS	On 1	Displays when the ignition switch is OFF upon DTC detection.
	On 2	Displays when the ignition switch is ON upon DTC detection.
	NO SIGNAL	Displays when signals cannot be received via CAN communication upon DTC detection.
LAST BRAKE OPERATING (LH)	NO REQUEST	Displays when no operation request of the rear LH brake is given upon DTC detection.
	INHIBIT	Displays when operation request of the rear LH brake is inhibited upon DTC detection.
	ACT 2	Displays when the braking of the rear LH brake is requested upon DTC detection.
	RLS 2	Displays when the releasing of the rear LH brake is requested upon DTC detection.
LAST BRAKE OPERATING (RH)	NO REQUEST	Displays when no operation request of the rear RH brake is given upon DTC detection.
	INHIBIT	Displays when operation request of the rear RH brake is inhibited upon DTC detection.
	ACT 2	Displays when the braking of the rear RH brake is requested upon DTC detection.
	RLS 2	Displays when the releasing of the rear RH brake is requested upon DTC detection.
BRAKE STATUS (LH)	ACT 1	Displays but not used
	ACT 2	Displays when the motor of the parking brake actuator LH is rotating upon DTC detection. (Braking)
	ACT 3	Displays when the motor of the parking brake actuator LH is OFF upon DTC detection. (Braking)
	RLS 1	Displays when the motor of the parking brake actuator LH is OFF after obtaining clearance of brake pad and disc rotor upon DTC detected. (Release)
	RLS 2	Displays when the motor of the parking brake actuator LH is rotating to obtain clearance of brake pad and disc rotor upon DTC detected. (Release)
	UNKNO	Displays when the operation status of the rear LH brake is unclear upon DTC detection.
	INIT	Displays when the operation status of the rear LH brake is the initial status upon DTC detection.
	RLS 3	Displays when the motor of the parking brake actuator LH is OFF after the piston is returned to the end upon DTC detection. (Release)
	RLS 4	Displayed when the motor of the parking brake actuator LH is rotating until the piston is returned to the end upon DTC detected. (Release)
BRAKE STATUS (RH)	ACT 1	Displayed but not used
	ACT 2	Displays when the motor of the parking brake actuator RH is rotating upon DTC detection. (Braking)
	ACT 3	Displays when the motor of the parking brake actuator RH is OFF upon DTC detection. (Braking)
	RLS 1	Displays when the motor of the parking brake actuator RH is OFF after obtaining clearance of brake pad and disc rotor upon DTC detected. (Release)
	RLS 2	Displays when the motor of the parking brake actuator RH is rotating to obtain clearance of brake pad and disc rotor upon DTC detected. (Release)
	UNKNO	Displays when the operation status of the rear RH brake is unclear upon DTC detection.
	INIT	Displays when the operation status of the rear RH brake is the initial status upon DTC detection.
	RLS 3	Displays when the motor of the parking brake actuator RH is OFF after the piston is returned to the end upon DTC detection. (Release)
	RLS 4	Displayed when the motor of the parking brake actuator RH is rotating until the piston is returned to the end upon DTC detected. (Release)
BATTERY VOLT	V	Display the electric parking brake control module power supply upon DTC detection.
BRAKE FORCE (LH)	KN	Displays the braking force of the rear LH brake upon DTC detection.
BRAKE FORCE (RH)	KN	Displays the braking force of the rear RH brake upon DTC detection.
SLOPE RATIO	%	Displays the inclination of road surface upon DTC detection.
STOP/START SYSTEM STATUS	Off	Displays when the stop/start system is deactivated upon DTC detection.
	On	Displays when the stop/start system is activated upon DTC detection.

DATA MONITOR

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

Item [Indication/Unit]		Description
ACTUATOR VOLT (RH)	[V]	Displays the voltage value applied to the parking brake actuator (RH side).
ACTUATOR VOLT (LH)	[V]	Displays the voltage value applied to the parking brake actuator (LH side).
ACTUATOR CURRENT (RH)	[A]	Displays the current value applied to the parking brake actuator (RH side).
ACTUATOR CURRENT (LH)	[A]	Displays the current value applied to the parking brake actuator (LH side).
SLOPE RATIO	[%]	Displays the slope ratio of road.
BR FORCE EST (LH)	[KN]	Displays the estimated braking force applied to the rear brake (LH side).
BR FORCE EST (RH)	[KN]	Displays the estimated braking force applied to the rear brake (RH side).
CLUTCH PEDAL	[%]	Displays the clutch pedal status.
PB SW	[PULL/N/PUSH/MALF]	Displays the parking brake switch status.
MALF LEVEL	[NORMAL/REPAIR/ STOP]	Displays the malfunction level of electric parking brake system.
BRAKE STATUS (LH)	[ACT 1/ACT 2/ACT 3/ RLS 1/RLS 2/UNKNO/ INIT/RLS 3/RLS 4]	Displays the piston status of the rear brake caliper assembly (LH side) [parking brake actuator (LH side) driving status].
BRAKE STATUS (RH)	[ACT 1/ACT 2/ACT 3/ RLS 1/RLS 2/UNKNO/ INIT/RLS 3/RLS 4]	Displays the piston status of the rear brake caliper assembly (RH side) [parking brake actuator (LH side) driving status].
BR DISC TEMP 1	[°C]	Displays the (current) temperature of the brake disc.
BR DISC TEMP 2	[°C]	Displays the (maximum) temperature of the brake disc.
BR DISC TEMP (MILE)	[km]	Displays the driving distance with the brake disc at maximum temperature.
PB ACT COUNTER (LH)		Displays the number of operations of the electric parking brake system (LH side).
PB ACT COUNTER (RH)		Displays the number of operations of the electric parking brake system (RH side).
PB STATUS	[RLS INHI/STOP/ DRIVE/MALF]	Displays the status of electric parking brake system.
PB ACTIVE STATUS DISP	[REL/ACT 1/UNCON/ ACT 2]	Displays the active status of electric parking brake system.
PB MALF DISP	[NORMAL/MALF 1/ MALF 2]	Displays the malfunction status of electric parking brake system displayed on the information display in the combination meter.
VEHICLE STATUS	[NOT/WARN]	Displays the vehicle status.
PB WARNING 1*	[NO/WARN 1/WARN 2]	Displays the information display in the combination meter displaying status.
PB WARNING 2*	[NO/WARN 1/WARN 2]	Displays the information display in the combination meter displaying status.
PB WARNING 3*	[NO/ WARN]	Displays the information display in the combination meter and master warning lamp displaying status and buzzer status.
PB WARNING 4*	[NO/WARN 1/WARN 2]	Displays the information display in the combination meter displaying status.
PB WARNING 5*	[NO/WARN]	Displays the information display in the combination meter and master warning lamp displaying status and buzzer status.
PB SW INDICATOR*	[Off/On/BLINK]	Displays the status of parking brake switch indicator.

*: Refer to PB-13, "System Description" for ON/OFF/BRINK conditions of each warning lamp and each indicator lamp, buzzer and information display in the combination meter.

WORK SUPPORT

Work support item	Description
START BRAKE PAD REPLACEMENT	Return the piston of the brake caliper assembly before replacing rear brake pad.
FINISH BRAKE PAD REPLACEMENT	Push out the piston of the brake caliper assembly after replacing rear brake pad.
INITIALIZATION POSITION ADJUSTMENT	Perform the initial position adjustment of the piston of the rear caliper assembly.
G SENSOR CALIBRATION	Perform G sensor calibration.
CLUTCH SENSOR RESET*1	Reset the learning value of the clutch pedal stroke sensor.
BRAKE OPERATION	Operate the rear brake.
BRAKE RELEASE	Release the rear brake.
SYSTEM MODE CHANGE	Stop the factory mode.
AUTO ACTIVATION ON (AT/CVT)*2	Set the automatic operation.

*1: Models with M/T
*2: Models with CVT

RE/PROGRAMMING, CONFIGURATION

Configuration includes the following functions.

Function		Description
Read/Write Configuration	Before replacing ECU	Allows the reading of vehicle specification (Type ID) written in electric parking brake control module to store the specification in CONSULT.
	After replacing ECU	Allows the writing of vehicle information (Type ID) stored in CONSULT into the electric parking brake control module.
Manual Configuration		Allows the writing of vehicle specification (Type ID) into the electric parking brake control module by hand.

CAUTION:
Use “Manual Configuration” only when “TYPE ID” of electric parking brake control module cannot be read.

ECU DIAGNOSIS INFORMATION

ELECTRIC PARKING BRAKE CONTROL MODULE

Reference Value

INFOID:0000000010722927

CONSULT DATA MONITOR STANDARD VALUE

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

Monitor item	Condition	Reference values in normal operation
ACTUATOR VOLT (RH)	Ignition switch ON	9 – 16 V
ACTUATOR VOLT (LH)	Ignition switch ON	9 – 16 V
ACTUATOR CURRENT (RH)	Ignition switch ON (motor is stop: apply or release)	Approx. 0 A
	Ignition switch ON (motor is active: apply)	12 – 20 A
	Ignition switch ON (motor is active: release)	1 – 12 A
ACTUATOR CURRENT (LH)	Ignition switch ON (motor is stop: apply or release)	Approx. 0 A
	Ignition switch ON (motor is active: apply)	12 – 20 A
	Ignition switch ON (motor is active: release)	1 – 12 A
SLOPE RATIO	When on a level road	0 %
	When on a sloping road	(–90) % – 90 %
BR FORCE EST (LH)	Rear brake (LH side) is inactive	0 kN
	Rear brake (LH side) is active	16.5 – 25.0 kN
BR FORCE EST (RH)	Rear brake (RH side) is inactive	0 kN
	Rear brake (RH side) is active	16.5 – 25.0 kN
CLUTCH PEDAL	Clutch pedal is released	0 %
	Clutch pedal is depressed	0 – 100 %
PB SW	Parking brake switch is pulled	PULL
	Parking brake switch is not operated	N
	Parking brake switch is pushed	PUSH
	Parking brake switch is malfunctioning	MALF
MALF LEVEL	Electric parking brake system is normal	NORMAL
	Electric parking brake system is malfunctioning (part replacement required)	REPAIR
	Electric parking brake system is malfunctioning (function stopped)	STOP

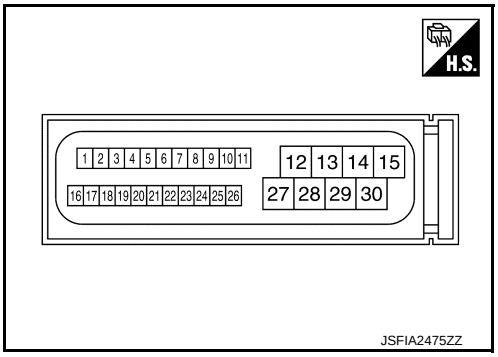
Monitor item	Condition	Reference values in normal operation
BRAKE STATUS (LH)	Displayed but not used	ACT 1
	Piston of the rear brake caliper assembly (LH side) is pushed out [when the parking brake actuator (LH side) operation is activated]	ACT 2
	Push-out of the piston of the rear brake caliper assembly (LH side) is complete [when the parking brake actuator (LH side) operation activation is completed]	ACT 3
	Piston of the rear brake caliper assembly (LH side) is pulled back [when the parking brake actuator (LH side) release is completed]	RLS 1
	Piston of the rear brake caliper assembly (LH side) is pulled back [when the parking brake actuator (LH side) release is activated]	RLS 2
	Piston position of the rear brake caliper assembly (LH side) is unclear [when the parking brake actuator (LH side) activation is unclear]	UNKNO
	Piston of the rear brake caliper assembly (LH side) is at the initial position [when the parking brake actuator (LH side) is in the initial position status]	INIT
	Pull-back of the piston of the rear brake caliper assembly (LH side) is complete [when driving of the parking brake actuator (LH side) release activation is complete]	RLS 3
	Piston of the rear brake caliper assembly (LH side) is pulled back [when the parking brake actuator (LH side) release for replace of rear brake pad is activated]	RLS 4
BRAKE STATUS (RH)	Displayed but not used	ACT 1
	Piston of the rear brake caliper assembly (RH side) is pushed out [when the parking brake actuator (RH side) operation is activated]	ACT 2
	Push-out of the piston of the rear brake caliper assembly (RH side) is complete [when the parking brake actuator (RH side) operation activation is completed]	ACT 3
	Piston of the rear brake caliper assembly (RH side) is pulled back [when the parking brake actuator (RH side) release is completed]	RLS 1
	Piston of the rear brake caliper assembly (RH side) is pulled back [when the parking brake actuator (RH side) release is activated]	RLS 2
	Piston position of the rear brake caliper assembly (RH side) is unclear [when the parking brake actuator (RH side) activation is unclear]	UNKNO
	Piston of the rear brake caliper assembly (RH side) is at the initial position [when the parking brake actuator (RH side) is in the initial position status]	INIT
	Pull-back of the piston of the rear brake caliper assembly (RH side) is complete [when driving of the parking brake actuator (RH side) release activation is complete]	RLS 3
	Piston of the rear brake caliper assembly (RH side) is pulled back [when the parking brake actuator (RH side) release for replace of rear brake pad is activated]	RLS 4

Monitor item	Condition	Reference values in normal operation
BR DISC TEMP 1	Always	Changes according to (current) temperature of disc rotor.
BR DISC TEMP 2	Always	Changes according to (maximum) temperature of disc rotor.
BR DISC TEMP (MILE)	Always	Changes according to (maximum) temperature of disc rotor.
PB ACT COUNTER (LH)	Always	Changes according to the number of times electric parking brake system is operated.
PB ACT COUNTER (RH)	Always	Changes according to the number of times electric parking brake system is operated.
PB status	Release of the electric parking brake system is inhibited	RLS INIT
	Electric parking brake system is stopped	STOP
	Vehicle is driving	DRIVE
	Electric parking brake system is malfunctioning	MALF
PB ACTIVE STATUS DISP	Electric parking brake system is released	REL
	Electric parking brake system operates (when the parking brake switch is pulled once)	ACT 1
	Electric parking brake system operation in not confirmed	UNCON
	Electric parking brake system operates (when the parking brake switch is pulled twice ore more)	ATC 2
PB MALF DISP	Electric parking brake system is normal	NORMAL
	Electric parking brake system is malfunction	MALF 1
	Displayed but not used	MALF 2
VEHICLE STATUS	No warning	NOT
	Vehicle is move backward	WARN
PB WARNING 1*	No warning	NO
	When the condition that the electric parking brake system is turned ON under the condition that it is unable to be activated. (Displays the “Press brake pedal” by information display in the combination meter)	WARN 1
	When the condition that the electric parking brake system is turned ON again under the condition that it is unable to be activated. (Displays the “Press brake pedal” by information display in the combination meter)	WARN 2
PB WARNING 2*	No warning	NO
	When the parking brake switch is pressed without depressing the brake pedal. (Displays the “Press brake pedal” by information display in the combination meter)	WARN 1
	When the parking brake switch is pressed again without depressing the brake pedal. (Displays the “Press brake pedal” by information display in the combination meter)	WARN 2

Monitor item	Condition	Reference values in normal operation
PB WARNING 3*	No warning	NO
	When the parking brake switch is continued to be pulled while the vehicle is travelling. (Displays the “Release parking brake” by information display in the combination meter, master warning lamp turns ON and buzzer is operate)	WARN
PB WARNING 4*	No warning	NO
	When the electric parking brake system cannot be cancelled automatically after trying this without fastening the seat belt. (Displays the “Release parking brake” by information display in the combination meter)	WARN 1
	When the electric parking brake system cannot be cancelled automatically after trying this again without fastening the seat belt. (Displays the “Release parking brake” by information display in the combination meter)	WARN 2
PB WARNING 5*	No warning	NO
	When driving the vehicle without releasing the parking brake. (Displays the “Release parking brake” by information display in the combination meter, master warning lamp turns ON and buzzer is operate)	WARN
PB SW INDICATOR*	Parking switch indicator lamp is OFF	Off
	Parking switch indicator lamp is ON	On
	Parking switch indicator lamp is blinking	BLINK

*: Refer to PB-13, "System Description" for ON/OFF/BRINK conditions of each warning lamp and each indicator lamp, buzzer and information display in the combination meter.

TERMINAL LAYOUT



PHYSICAL VALUE

NOTE:
Clutch pedal stroke sensor is applied to M/T models.

Terminal No.		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
8 (SB)	Ground	Parking brake switch indicator lamp	Output	Ignition switch ON	Parking brake switch is pulling	0 V
					Parking brake switch is neutral	0 V
					Parking brake switch is pushing	9 – 16 V
9 (BR)	Ground	Parking brake switch release (NOR-OP)	Input	Ignition switch ON	Parking brake switch is pulling	0.8 – 3.7 V
					Parking brake switch is neutral	0.8 – 3.7 V
					Parking brake switch is pushing	9 – 16 V

Terminal No.		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
10 (BG)	Ground	Parking brake switch release (NOR-CL)	Input	Ignition switch ON	Parking brake switch is pulling	9 – 16 V
					Parking brake switch is neutral	9 – 16 V
					Parking brake switch is pushing	0.8 – 3.7 V
11 (V)	Ground	Parking brake switch power supply (apply)	Output	Ignition switch ON	Parking brake switch is pulling	9 – 16 V
					Parking brake switch is neutral	9 – 16 V
					Parking brake switch is pushing	0.8 – 3.7 V
12 (GR)	Ground	Motor RH (+)	Output	Ignition switch ON	Motor is active (apply)	9 – 16 V
					Motor is active (release)	0 V
13 (R)	Ground	Motor power supply (RH)	Input	—		9 – 16 V
14 (W)	Ground	Motor LH (+)	Output	Ignition switch ON	Motor is active (apply)	9 – 16 V
					Motor is active (release)	0 V
15 (V)	Ground	Motor power supply (LH)	Input	—		9 – 16 V
16 (L)	Ground	CAN-H	Input/ Output	—		—
17 (P)	Ground	CAN-L	Input/ Output	—		—
18 (BG)	Ground	Parking brake switch apply (NOR-OP)	Input	Ignition switch ON	Parking brake switch is pulling	9 – 16 V
					Parking brake switch is neutral	0.8 – 3.7 V
					Parking brake switch is pushing	0.8 – 3.7 V
19 (G)	Ground	Parking brake switch apply (NOR-CL)	Input	Ignition switch ON	Parking brake switch is pulling	0.8 – 3.7 V
					Parking brake switch is neutral	9 – 16 V
					Parking brake switch is pushing	9 – 16 V
20 (Y)	Ground	Parking brake switch power supply (release)	Input	Ignition switch ON	Parking brake switch is pulling	0.8 – 3.7 V
					Parking brake switch is neutral	9 – 16 V
					Parking brake switch is pushing	9 – 16 V
22 (GR)	Ground	Ignition power supply	Input	Ignition switch ON		9 – 16 V
24 (LG)	Ground	Clutch pedal stroke sensor ground	—	Ignition switch ON		0 V
25 (G)	Ground	Clutch pedal stroke sensor signal	Input	Ignition switch ON		0.04 – 4.96 V
26 (GR)	Ground	Clutch pedal stroke sensor power supply	Output	Ignition switch ON		4.75 – 5.25 V
27 (G)	Ground	Motor RH (–)	Output	Ignition switch ON	Motor is active (apply)	0 V
					Motor is active (release)	9 – 16 V
28 (B)	Ground	Ground (Motor RH)	—	Ignition switch ON	—	0 V

Terminal No.		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
29 (BR)	Ground	Motor LH (–)	Output	Ignition switch ON	Motor is active (apply)	0 V
					Motor is active (release)	9 – 16 V
30 (B)	Ground	Ground (Motor LH)	—	Ignition switch ON	—	0 V

Fail-Safe

INFOID:0000000010722928

- The brake system warning lamp (yellow) and/or electric parking indicator lamp turns ON when a malfunction with the system occurs.
- When parking brake switch is pulled/pushed during system malfunction, electric parking brake indicator lamp blinks and master warning lamp (red) turns ON when electric parking brake cannot be operated. It restricts braking and release operations of electric parking brake.
  NOTE:
  The parking brake can be mechanically released.

DTC	Display item		Vehicle condition
C10C8	CONTROL MODULE	[INTERNAL ELECTRIC MALFUNCTION]	Only mechanical release is available.
		[WATCHDOG/SAFETY μC ERROR]	
		[SUPERVISION SOFTWARE ERROR]	
		[EVENT INFORMATION]	
		[NOT CONFIGURED]	Automatic apply and release are prohibited.
C10E3	PARKING BRAKE SWITCH		• Applying the parking brake is prohibited. • Release using the parking brake switch is prohibited. (It can be released automatically.) • Automatic apply is available.
C10E6	IGNITION SWITCH		Normal control
C1BD0	MOTOR		One side motor is available.
C1BD1	PARKING BRAKE SW		• Apply and release by switch are prohibited. • Automatic apply and release are available.
C1BD2	PARKING BRAKE SW		
C1BD3	PARKING BRAKE SW		
C1BD4	G SENSOR		Automatic release is prohibited.
C1BD5	POWER SUPPLY VOLT		Only mechanical release is available.
C1BD6	DOOR SW		Normal control
C1BD7	CLUTCH SENSOR	[WRONG MOUNTING]	Automatic apply and release are prohibited. (Manual release can be performed.)
C1BD9	INITIALIZE POSITION		Automatic apply and release are prohibited.

DTC	Display item		Vehicle condition
C1BDA	ACTUATOR MALF (LH)	[MECHANICAL MAL-FUNCTION]	Other side actuator's apply and release are available.
		[COMMAND POSI NOT REACHABLE]	
		[PFM/INCORRECT OPERATION]	
		[CIRC CRRNT BE-LOW THRESHLD]	
		[CIRC CRRNT ABOVE THRESHOLD]	
		[CIRC CURRENT OUT OF RANGE]	
C1BDB	ACTUATOR MALF (RH)	[MECHANICAL MAL-FUNCTION]	
		[COMMAND POSI NOT REACHABLE]	
		[PFM/INCORRECT OPERATION]	
		[CIRC CRRNT BE-LOW THRESHLD]	
		[CIRC CRRNT ABOVE THRESHOLD]	
		[CIRC CURRENT OUT OF RANGE]	
C1BDF	MODE		Automatic apply and release are prohibited.
U0100	ECM/PCM A		
U0101	TCM		Automatic release is prohibited.
U0111	BATTERY ENERGY CONTROL MODULE A		Automatic apply and release are prohibited.
U0129	BRAKE SYSTEM CONTROL MODULE		• Automatic apply and release are prohibited. • Brake force is degraded.
U0140	BCM		Automatic apply and release are prohibited.
U0155	IPC CONTROL MODULE		Automatic release is prohibited.
U0401	VCM		Automatic apply and release are prohibited.
U0402	TCM		Automatic release is prohibited.
U0418	BRAKE CONTROL MODULE		• Automatic apply and release are prohibited. • Brake force is degraded.
U0422	BCM		Automatic release is prohibited.
U1000	CAN COMM CIRCUIT	[BUS OFF]	• Automatic apply and release are prohibited. • Brake force is degraded.
		[ERRATIC]	
U1060	VEHICLE SPEED		
U1061	IPDM E/R SYSTEM		Automatic release is prohibited.

DTC Inspection Priority Chart

INFOID:0000000010722929

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

Priority	Detected item (DTC)
1	• C10C8 CONTROL MODULE
2	• U0100 ECM/PCM A • U0101 TCM • U0111 BATTERY ENERGY CONTROL MODULE A • U0129 BRAKE SYSTEM CONTROL MODULE • U0140 BCM • U0401 VCM • U0402 TCM • U0418 BRAKE SYSTEM CONTROL MODULE • U0422 BCM • U0155 IPC CONTROL MODULE • U1000 CAN COMM CIRCUIT • U1060 VEHICLE SPEED • U1061 IPDM E/R SYSTEM
3	• C10E3 PARKING BRAKE SW • C1BD1 PARKING BRAKE SW • C1BD2 PARKING BRAKE SW • C1BD3 PARKING BRAKE SW
4	• C10E6 IGNITION SWITCH • C1BD4 G SENSOR • C1BD6 DOOR SW • C1BD7 CLUTCH SENSOR
5	• C1BD5 POWER SUPPLY VOLT
6	• C1BD0 MOTOR • C1BD9 INITIALIZE POSITION • C1BDA ACTUATOR MALF (LH) • C1BDB ACTUATOR MALF (RH) • C1BDF MODE

DTC Index

INFOID:0000000010722930

DTC	Display item		Electric parking indicator lamp	Master warning lamp (red)	Brake system warning lamp (yellow)	Parking switch indicator lamp	Refer to
C10C8	CONTROL MODULE	[INTERNAL ELECTRIC MALFUNCTION]	ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-69, "DTC Description"
		[WATCHDOG/ SAFTYμC ERROR]	ON*1 OFF*2	OFF	ON	ON*1 OFF*2	
		[SUPERVISION SOFTWARE ERROR]	ON*1 OFF*2	OFF	ON	ON*1 OFF*2	
		[EVENT INFORMATION]	ON*1 OFF*2	OFF	ON	ON*1 OFF*2	
		[NOT COFIGURED]	ON*1 OFF*2	OFF	ON	ON*1 OFF*2	
		[DEACTIVATED]	ON*1 OFF*2	OFF	ON	ON*1 OFF*2	
C10E3	PARKING BRAKE SW		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-72, "DTC Description"
C10E6	IGNITION SWITCH		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-75, "DTC Description"

DTC	Display item		Electric parking indicator lamp	Master warning lamp (red)	Brake system warning lamp (yellow)	Parking switch indicator lamp	Refer to
C1BD0	MOTOR		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-78, "DTC Description"
C1BD1	PARKING BRAKE SW		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-81, "DTC Description"
C1BD2	PARKING BRAKE SW		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-84, "DTC Description"
C1BD3	PARKING BRAKE SW		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-87, "DTC Description"
C1BD4	G SENSOR		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-90, "DTC Description"
C1BD5	POWER SUPPLY VOLT		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-91, "DTC Description"
C1BD6	DOOR SW		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-94, "DTC Description"
C1BD7	CLUTCH SENSOR	[WRONG MOUNTING]	ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-96, "DTC Description"
C1BD9	INITIALIZE POSITION		Blink	OFF	ON	Blink	PB-100, "DTC Description"
C1BDA	ACTUATOR MALF (LH)	[MECHANICAL MALFUNCTION]	Blink	OFF	ON	Blink	PB-102, "DTC Description"
		[COMMAND POSI NOT REACHABLE]	Blink	OFF	ON	Blink	
		[PFM/INCORRECT OPERATION]	Blink	OFF	ON	Blink	
		[CIRC CRRNT BELOW THRESHLD]	Blink	OFF	ON	Blink	
		[CIRC CRRNT ABOVE THRESHOLD]	Blink	OFF	ON	Blink	
		[CIRC CURRENT OUT OF RANGE]	Blink	OFF	ON	Blink	
C1BDB	ACTUATOR MALF (RH)	[MECHANICAL MALFUNCTION]	Blink	OFF	ON	Blink	PB-110, "DTC Description"
		[COMMAND POSI NOT REACHABLE]	Blink	OFF	ON	Blink	
		[PFM/INCORRECT OPERATION]	Blink	OFF	ON	Blink	
		[CIRC CRRNT BELOW THRESHLD]	Blink	OFF	ON	Blink	
		[CIRC CRRNT ABOVE THRESHOLD]	Blink	OFF	ON	Blink	
		[CIRC CURRENT OUT OF RANGE]	Blink	OFF	ON	Blink	
C1BDF	MODE		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-118, "DTC Description"
U0100	ECM/PCM A		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-120, "DTC Description"

DTC	Display item		Electric parking indicator lamp	Master warning lamp (red)	Brake system warning lamp (yellow)	Parking switch indicator lamp	Refer to
U0101	TCM		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-122, "DTC Description"
U0111	BATTERY ENERGY CONTROL MODULE A		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-124, "DTC Description"
U0129	BRAKE SYSTEM CONTROL MODULE		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-126, "DTC Description"
U0140	BCM		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-128, "DTC Description"
U0155	IPC CONTROL MODULE		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-130, "DTC Description"
U0401	VCM		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-132, "DTC Description"
U0402	TCM		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-134, "DTC Description"
U0418	BRAKE SYSTEM CONTROL MODULE		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-136, "DTC Description"
U0422	BCM		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-138, "DTC Description"
U1000	CAN COMM CIRCUIT	[BUS OFF]	ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-140, "DTC Description"
		[ERRATIC]	ON*1 OFF*2	OFF	ON	ON*1 OFF*2	
U1060	VEHICLE SPEED		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-141, "DTC Description"
U1061	IPDM E/R SYSTEM		ON*1 OFF*2	OFF	ON	ON*1 OFF*2	PB-143, "DTC Description"

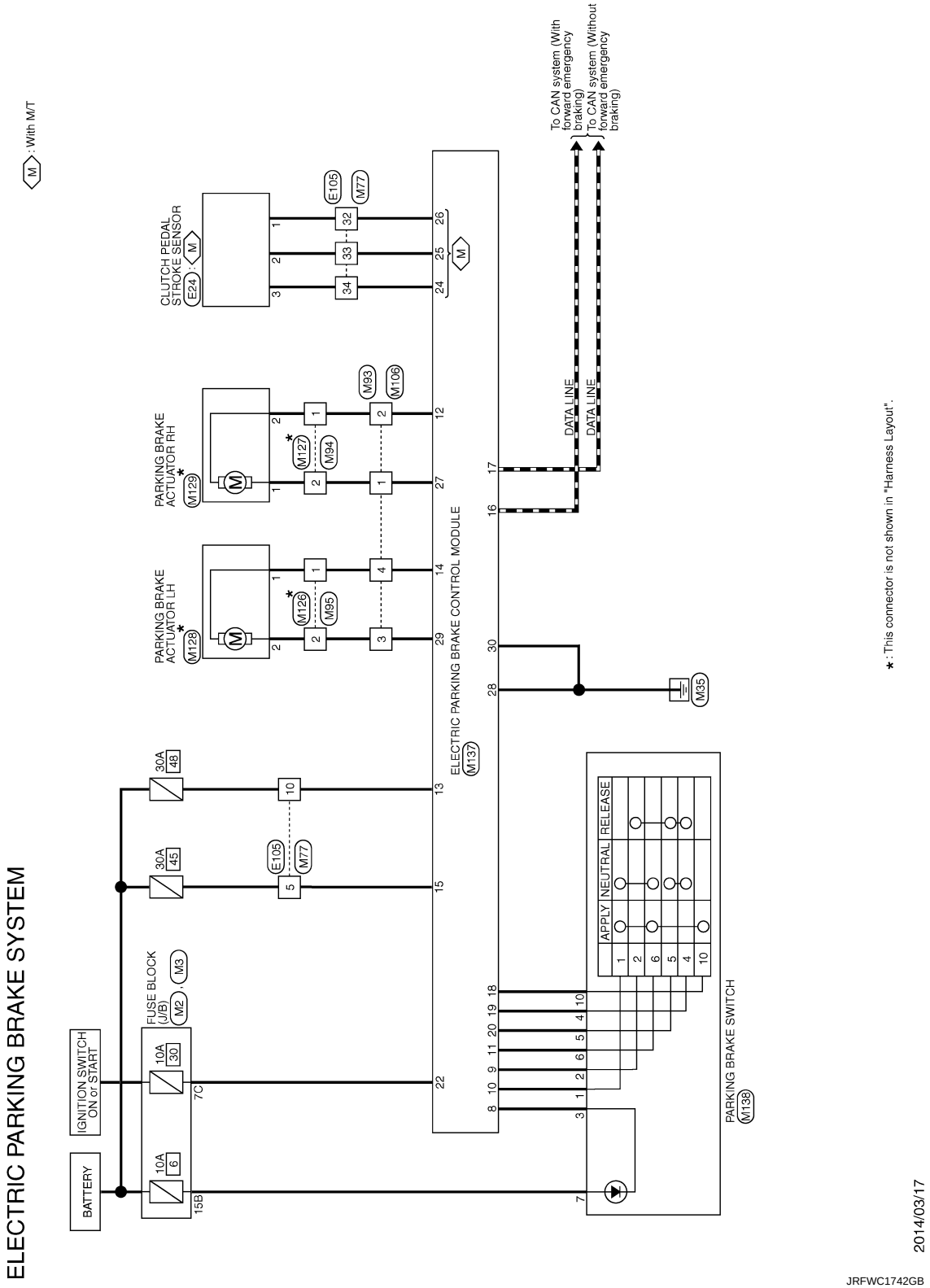
*1: Electric parking brake system is apply status
*2: Electric parking brake system is release status

WIRING DIAGRAM

ELECTRIC PARKING BRAKE SYSTEM

Wiring Diagram

INFOID:0000000010722931



ELECTRIC PARKING BRAKE SYSTEM

Connector No.	E24
Connector Name	CLUTCH PEDAL STROKE SENSOR
Connector Type	renault_8200451078

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	W	-
2	SB	-
3	LG	-

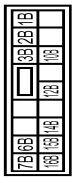
Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
2	W	-
5	V	- [Without ISS]
5	W	- [With ISS]
8	L	-
9	LG	-
10	W	-
20	W	-
21	B	-
22	SHIELD	-
31	Y	-
32	W	-
33	SB	-
34	LG	-
35	BG	-
36	LG	-
37	V	-
38	G	-
39	BR	-
40	L	-
41	P	-
47	GR	-
48	SB	-
51	P	-
52	L	-
53	W	-
54	Y	-
55	BR	-
56	P	-
57	B	-
58	L	-
59	W	-
60	G	-
61	BR	-
62	V	-
63	BR	-
64	GR	-
65	LG	-
66	BG	-
67	L	-
68	R	-
71	V	-
72	L	-
73	R	-
76	L	-
77	V	-
78	LG	-
79	SHIELD	-
80	GR	-
82	Y	-
83	SB	-
84	L	-
85	G	-
86	Y	-
87	B	-
88	B	-
91	R	-
92	BR	-
93	W	-
96	GR	-
97	R	-
98	V	-
99	Y	-

Connector No.	M2
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS16FBR-CS

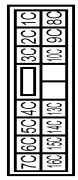
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
10B	GR	- [With MR20 engine or R9M engine]
10B	LA/GR	- [With QR25 Engine]
12B	BR	-
14B	W	-
15B	W	-
16B	GR	-
1B	G	-
2B	R	-
3B	V	-
6B	LA/L	-
7B	LA/V	-

Connector No.	M3
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS16FW-CS

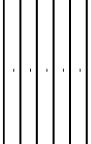
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
10C	LG	-
13C	LA/G	-
14C	R	-
15C	L	-
16C	LA/W	-
1C	R	-
2C	G	-
3C	Y	-
4C	LG	-
5C	GR	-
6C	LA/R	-
7C	Y	-
8C	BR	- [With ISS]
8C	LA/BR	- [Without ISS]
9C	L	-

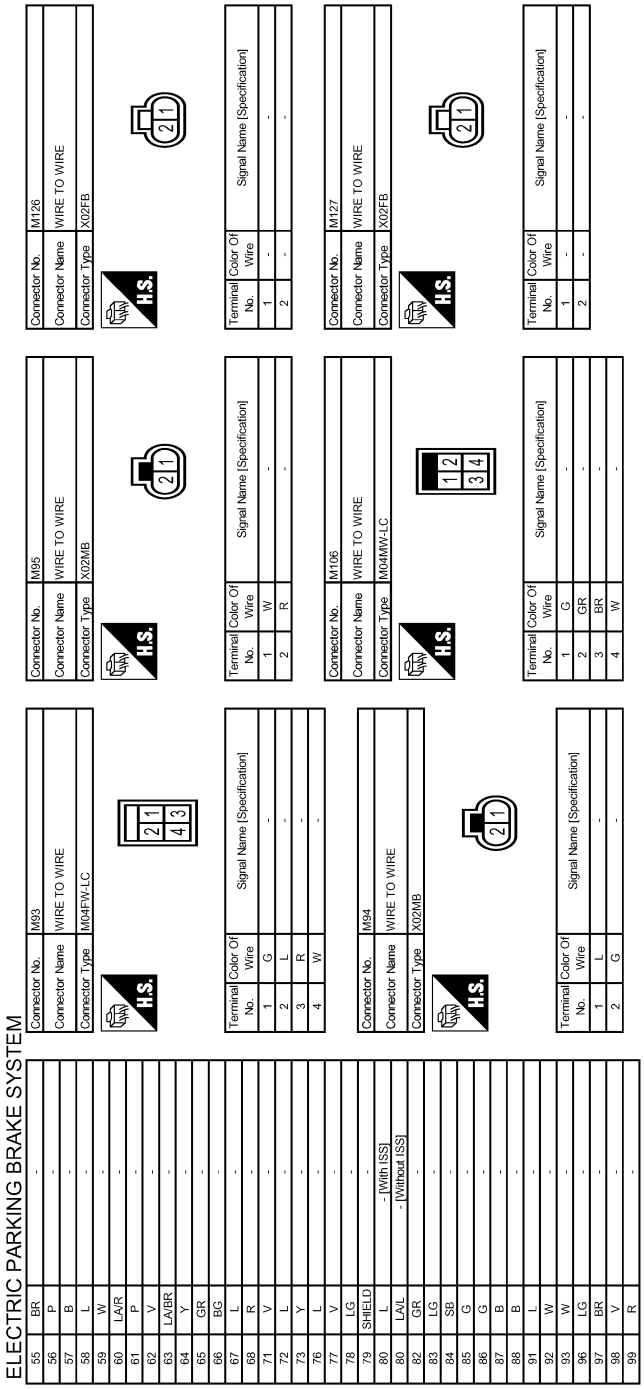
Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
2	LA/R	-
5	V	- [Without ISS]
5	W	- [With ISS]
8	G	-
9	Y	-
10	R	-
20	W	-
21	B	-
22	SHIELD	-
31	V	-
32	GR	-
33	G	-
34	LG	-
35	BG	-
36	LG	-
37	V	-
38	G	-
39	BR	-
40	L	-
41	P	-
47	Y	-
48	BG	-
51	GR	-
52	SB	-
53	R	-
54	LA/L	-

JRFWC1743GB



JRFWC1744GB

ELECTRIC PARKING BRAKE SYSTEM

Connector No.	M128
Connector Name	PARKING BRAKE ACTUATOR LH
Connector Type	X02FB

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	-	-
2	-	-

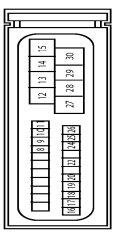
Connector No.	M129
Connector Name	PARKING BRAKE ACTUATOR RH
Connector Type	X02FB

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	-	-
2	-	-

Connector No.	M137
Connector Name	ELECTRIC PARKING BRAKE CONTROL MODULE
Connector Type	Renault_8200668609

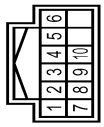
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
8	SB	PARKING BRAKE SW INDICATOR LAMP
9	BR	PARKING BRAKE SW RELEASE (NOR-OP)
10	BG	PARKING BRAKE SW RELEASE (NOR-CL)
11	V	PARKING BRAKE SW POWER SUPPLY (APPLY)
12	GR	MOTOR RH (+)
13	R	MOTOR POWER SUPPLY (RH)
14	W	MOTOR LH (+)
15	V	MOTOR POWER SUPPLY (LH)
16	L	CAN-H
17	P	CAN-L
18	BG	PARKING BRAKE SW APPLY (NOR-OP)
19	G	PARKING BRAKE SW APPLY (NOR-CL)
20	Y	PARKING BRAKE SW POWER SUPPLY (RELEASE)
22	GR	IGNITION POWER SUPPLY
24	LG	CLUTCH PEDAL STROKE SENSOR GROUND
25	G	CLUTCH PEDAL STROKE SENSOR SIGNAL
26	GR	CLUTCH PEDAL STROKE SENSOR POWER SUPPLY
27	G	MOTOR RH (-)
28	B	GROUND (MOTOR RH)
29	BR	MOTOR LH (-)
30	B	GROUND (MOTOR LH)

Connector No.	M138
Connector Name	PARKING BRAKE SWITCH
Connector Type	TH12FW-NH

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	BG	-
2	BR	-
3	SB	-
4	G	-
5	Y	-
6	V	-
7	W	-
8	GR	-
9	LG	-
10	BG	-

JRFWC1745GB

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000010722932

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 PB-44, "Diagnostic Work Sheet" and reproduce the symptom as well as fully understand it. Depending on the situations, drive the vehicle with the customer and check the symptom.

CAUTION:

Customers are not professionals. 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 interview. Also check that the symptom is not caused by fail-safe mode. Refer to PB-34, "Fail-Safe".

CAUTION:

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

>> GO TO 3.

3.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure wait of 10 seconds after turning ignition switch OFF or ON.
2. Perform self-diagnosis for “EHS/PKB”.

Is DTC detected?

YES >> Record or print self-diagnosis results and freeze frame data (FFD). GO TO 4.
NO >> GO TO 6.

4.RECHECK THE SYMPTOM

With CONSULT

1. Erase self-diagnostic result for “EHS/PKB”.
2. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure wait of 10 seconds after turning ignition switch OFF or ON.
3. Perform DTC confirmation procedure for error-detected system.
   NOTE:
   If some DTCs are detected at the some time, determine the order for performing the diagnosis based on PB-35, "DTC Inspection Priority Chart".

Is DTC detected?

YES >> GO TO 5.
NO >> Check harness and connectors based on the information obtained by interview. Refer to GI-44, "Intermittent Incident".

5.REPAIR OR REPLACE ERROR-DETECTED PART

1. Repair or replace error-detected parts.
2. Reconnect part or connector after repairing or replacing.
3. When DTC is detected, erase self-diagnostic result for “EHS/PKB”.
   CAUTION:

Be sure wait of 10 seconds after turning ignition switch OFF or ON.

>> GO TO 6.

6. IDENTIFY ERROR-DETECTED SYSTEM BY SYMPTOM DIAGNOSIS

Estimate error-detected system based on symptom diagnosis and perform inspection.

Can the error-detected system be identified?

YES >> GO TO 7.
NO >> Check harness and connectors based on the information obtained by interview. Refer to GI-44, "Intermittent Incident".

7. FINAL CHECK

With CONSULT
1. Check the reference value for “EHS/PKB”.
2. Recheck the symptom and check that the symptom is not reproduced on the same conditions.

Is the symptom reproduced?

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

Diagnostic Work Sheet

INFOID:0000000010722933

DESCRIPTION

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

INTERVIEW SHEET SAMPLE

Interview sheet

Customer name	MR/MS	Registration number		Initial year registration	
		Vehicle type		VIN	
Storage date		Engine		Mileage	km (Mile)
Situation where malfunction is occurred	Malfunction category	☐ Unable to brake ☐ Unable to release ☐ Generates abnormal sound ☐ Vehicle does not stop despite braking operation ☐ Parking brake continues breaking despite release operation ☐ Hooked at automatic release operation ☐ Vehicle slides down at automatic release operation ☐ Electric parking brake indicator lamp does not turns ON ☐ Electric parking brake indicator lamp keep turns ON ☐ Electric parking brake indicator lamp blinks ☐ Master warning lamp turns ON ☐ A text displayed on combination meter			
		Detailed symptom			
		Detailed abnormal sound			
	Select lever position	☐ P ☐ R ☐N ☐ D			
	Seat belt operation	☐ OFF ☐ ON			
	Brake pedal status	☐ Not depress ☐ Depress			
	Electric parking brake status	☐ At release operation ☐ At braking operation ☐ During release ☐ During braking ☐ Continuously			
	Vehicle status	☐ Ignition switch OFF ☐ Ignition switch ON			
	Vehicle running status	☐ At start with shift in D-range ☐ While driving with shift in D-range ☐ When stopped with shift in D-range ☐ At start with shift in R-range ☐ While driving with shift in R-range ☐ When stopped with shift in R-range ☐ When stopped with shift in N-range ☐ When stopped with shift in P-range ☐ Low speed (while driving) ☐ Normal speed (while driving) ☐ High speed (while driving)			
	Road condition	☐ Steep downhill road ☐ Gentle downhill road ☐ Flat road ☐ Gentle uphill road ☐ Steep uphill road			
	Number of occupants	☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1			
	Vehicle loading condition (quantity)				
	Mechanical release history				

Interview sheet					
Customer name	MR/MS	Registration number		Initial year registration	
		Vehicle type		VIN	
Storage date		Engine		Mileage	km (Mile)
Inspection result	Self-diagnosis result				
	Battery condition	☐ Normal	☐ Abnormal ( )		☐ Not confirmed
	Harness and connector condition	☐ Normal	☐ Abnormal ( )		☐ Not confirmed
	Brake caliper assembly condition	☐ Normal	☐ Abnormal ( )		☐ Not confirmed
	Rear brake pad condition	☐ Normal	☐ Abnormal ( )		☐ Not confirmed
	Rear disc rotor condition	☐ Normal	☐ Abnormal ( )		☐ Not confirmed
	Other condition				

CONFIGURATION (ELECTRIC PARKING BRAKE CONTROL MODULE)

Work Procedure

INFOID:0000000010722934

CAUTION:
- **Use “Manual Configuration” only when “TYPE ID” of electric parking brake control module cannot be read.**
- **After configuration, turn the ignition switch from OFF to ON and check that the brake system warning lamp turns OFF after staying illuminated for approximately two seconds.**
- **If an error occurs during configuration, start over from the beginning.**

1. CHECKING TYPE ID (1)

Use FAST (service parts catalogue) to search electric parking brake control module of the applicable vehicle and find “Type ID”.

Is “Type ID” displayed?

YES >> Print out “Type ID” and GO TO 2.
NO >> “Configuration” is not required for electric parking brake control module. Replace in the usual manner. Refer to PB-153, "Removal and Installation".

2. CHECKING TYPE ID (2)

CONSULT Configuration
1. Select “Before Replace ECU” of “Read/Write Configuration”.
2. Check that “Type ID” is displayed on the CONSULT screen.

Is “Type ID” displayed?

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

3. VERIFYING TYPE ID (1)

CONSULT Configuration
Compare a “Type ID” displayed on the CONSULT screen with the one searched by using FAST (service parts catalogue) to check that these “Type ID” agree with each other.

NOTE:
For the “Type ID” searched by using FAST (service parts catalog), use the last five digits of the “Type ID”.

>> GO TO 4.

4. SAVING TYPE ID

CONSULT Configuration
Save “Type ID” on CONSULT.

>> GO TO 5.

5. REPLACING ELECTRIC PARKING BRAKE CONTROL MODULE (1)

Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".

CAUTION:
Never perform the following work items:
- **Change of system mode**
- **Calibration of G sensor**
- **Reset of clutch stroke sensor (M/T models)**
- **Adjustment of rear brake caliper initial position**
- **Operation of rear brake caliper**
- **Release of rear brake caliper**
- **Automatic activation ON setting (CVT models)**

>> GO TO 6.

6. WRITING (AUTOMATIC WRITING)

CONSULT Configuration

1. Select “After Replace ECU” of “Re/programming, Configuration” or that of “Read / Write Configuration”.
2. Select the “Type ID” agreeing with the one stored on CONSULT and the one searched by using FAST (service parts catalogue) to write the “Type ID” into the electric parking brake control module.
   NOTE:
   For the “Type ID” searched by using FAST (service parts catalog), use the last five digits of the “Type ID”.

>> GO TO 9.

7. REPLACING ELECTRIC PARKING BRAKE CONTROL MODULE (2)

Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".

CAUTION:

Never perform the following work items:

- **Change of system mode**
- **Calibration of G sensor**
- **Reset of clutch stroke sensor (M/T models)**
- **Adjustment of rear brake caliper initial position**
- **Operation of rear brake caliper**
- **Release of rear brake caliper**
- **Automatic activation ON setting (CVT models)**

>> GO TO 8.

8. WRITING (MANUAL WRITING)

CONSULT Configuration

1. Select “Manual Configuration”.
2. Select the “Type ID” searched by using FAST (service parts catalogue) to write the “Type ID” into the electric parking brake control module.
   NOTE:
   For the “Type ID” searched by using FAST (service parts catalog), use the last five digits of the “Type ID”.

>> GO TO 9.

9. VERIFYING TYPE ID (2)

Compare “Type ID” written into the electric parking brake control module with the one searched by using FAST (service parts catalogue) to check that these “Type ID” agree with each other.

NOTE:

For the “Type ID” searched by using FAST (service parts catalog), use the last five digits of the “Type ID”.

>> GO TO 10.

10. CHECKING VDC WARNING LAMP

1. Turn the ignition switch OFF.
2. Turn the ignition switch ON and check that the brake system warning lamp turns OFF after staying illuminated for approximately two seconds.
   CAUTION:
   Never start the engine.

Is the inspection result normal?

YES >> GO TO 11.
NO >> Perform the self-diagnosis of “EHS/PKB”.

11. PERFORMING SUPPLEMENTARY WORK

1. Perform the calibration of G sensor. Refer to PB-57, "Work Procedure".
2. Perform the reset of clutch stroke sensor. Refer to PB-59, "Work Procedure". (M/T models)
3. Perform the adjustment of rear brake caliper initial position. Refer to PB-55, "Work Procedure".
4. Perform the operation of rear brake caliper. Refer to PB-61, "Work Procedure".
5. Perform the release of rear brake caliper. Refer to PB-63, "Work Procedure".
6. Perform the change of system mode. Refer to PB-65, "Work Procedure".
7. Record or print self-diagnosis result and freeze frame data (FFD).
8. Erase self-diagnosis results.

>> End of work.

INSTRUCTIONS FOR RELEASING PARKING BRAKE WHERE PARKING BRAKE SWITCH CANNOT BE USED

Description

INFOID:0000000010722935

Disconnecting the battery negative terminal with the parking brake on, prevents the parking brake from releasing. Releasing is performed mechanically.

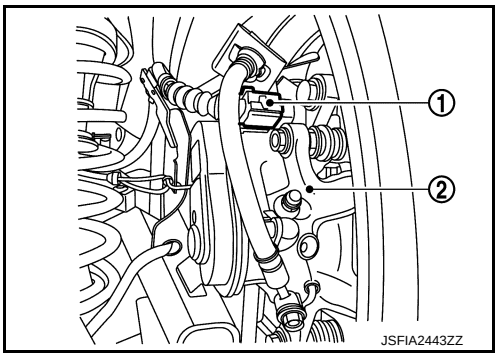
Work Procedure

INFOID:0000000010722936

1.DISCONNECT PARKING BRAKE ACTUATOR HARNES CONNECTOR

1. Disconnect the parking brake actuator harness connector ① from the rear caliper assembly ②.

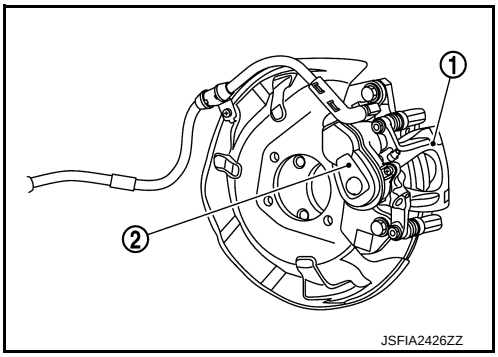
>> GO TO 2.



2.REMOVE PARKING BRAKE ACTUATOR

Remove the parking brake actuator ② from the rear brake caliper assembly ①.

>> GO TO 3.



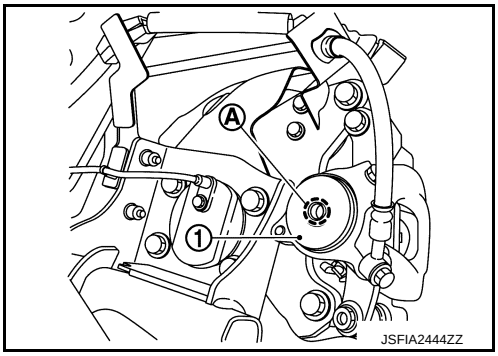
3.RELEASE OF PARKING BRAKE

Rotate the rear brake caliper assembly ① spindle part Ⓐ clockwise.

Is the parking brake released?

YES >> GO TO 4.

NO >> Check the rear brake caliper assembly.
- LHD models: Refer to BR-66, "BRAKE CALIPER ASSEMBLY : Inspection and Adjustment".
- RHD models: Refer to BR-126, "BRAKE CALIPER ASSEMBLY : Inspection and Adjustment".



4.REPLACE REAR CALIPER ASSEMBLY

Replace the rear caliper assembly.
- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

CAUTION:

Never reuse the parking brake actuator.

>> End of work.

ADDITIONAL SERVICE WHEN REPLACING ELECTRIC PARKING BRAKE CONTROL MODULE

Work Procedure

INFOID:0000000010722937

When replacing the electric parking brake control module be sure to perform the following procedure.

1.CONFIGURATION

Perform the configuration. Refer to PB-47, "Work Procedure".

>> GO TO 2.

2.CALIBRATION OF G SENSOR

Perform the calibration of G sensor. Refer to PB-57, "Work Procedure".

M/T models>>GO TO 3.
CVT models>>GO TO 4.

3.RESET OF CLUTCH PEDAL STROKE SENSOR (M/T MODELS)

Perform the reset of clutch stroke sensor. Refer to PB-59, "Work Procedure".

>> GO TO 5.

4.AUTOMATIC ACTIVATION ON SETTING (CVT MODELS)

Perform the automatic activation ON setting: Refer to PB-67, "Work Procedure".

>> GO TO 5.

5.ADJUSTMENT OF REAR BRAKE CALIPER INITIAL POSITION

Perform the adjustment of rear brake caliper initial position: Refer to PB-55, "Work Procedure".

>> GO TO 6.

6.OPERATION OF REAR BRAKE CALIPER

Perform the operation of rear brake caliper: Refer to PB-61, "Work Procedure".

>> GO TO 7.

7.RELEASE OF REAR BRAKE CALIPER

Perform the release of rear brake caliper: Refer to PB-63, "Work Procedure".

>> GO TO 8.

8.CHANGE OF SYSTEM MODE

Perform the change of system mode: Refer to PB-65, "Work Procedure".

>> End of work.

REPLACEMENT OF REAR BRAKE PAD

Description

INFOID:0000000010722938

CAUTION:
When performing the following operations, always use CONSULT, for performing "START BRAKE PAD REPLACEMENT", "FINISH BRAKE PAD REPLACEMENT", "INITIALIZATION POSITION ADJUSTMENT", "BRAKE OPERATION" and "BRAKE RELEASE" of "WORK SUPPORT".

×: Required —: not required

Procedure	• START BRAKE PAD REPLACEMENT • FINISH BRAKE PAD REPLACEMENT • INITIALIZATION POSITION ADJUSTMENT • BRAKE OPERATION • BRAKE RELEASE
Removing/installing electric parking brake control module	—
Replacing electric parking brake control module	—
Removing/installing rear brake pad (When not pressing piston of rear brake caliper assembly)	—
Removing/installing rear brake pad (When pressing piston of rear brake caliper assembly)	×
Replacing rear brake pad	×
Removing/installing rear brake caliper assembly	—
Replacing rear brake caliper assembly	×
Removing/installing parking brake switch	—
Replacing parking brake switch	—
Removing/installing clutch stroke sensor*	—
Replacing clutch stroke sensor*	—
Removing/installing clutch pedal*	—
Replacing clutch pedal*	—

*: M/T models

Work Procedure

INFOID:0000000010722939

CAUTION:
When performing the following operations, always use CONSULT. (It cannot be performed by any means other than CONSULT.)
- **Removing/installing rear brake pad (When pressing piston of rear brake caliper assembly)**
- **Replacing rear brake pad**
- **Replacing rear brake caliper assembly**

1. BEFORE REMOVAL/REPLACEMENT OF REAR BRAKE PAD OR REAR CALIPER ASSEMBLY

With CONSULT
1. Turn the ignition switch OFF to ON.
   CAUTION:
   Never start the engine.
2. Select "EHS/PKB", "WORK SUPPORT", and "START BRAKE PAD REPLACEMENT" according to this order.
   CAUTION:
   - **Never operate the parking brake switch.**
   - **Never depress the brake pedal.**
3. Touch "START".

>> GO TO 2.

2. REMOVAL AND INSTALLATION/REPLACEMENT OF REAR BRAKE PAD OR REAR BRAKE CALIPER

ASSEMBLY

Replace the rear brake pad or rear brake caliper.
- Rear brake pad
- LHD models: Refer to BR-60, "BRAKE PAD : Removal and Installation".
- RHD models: Refer to BR-120, "BRAKE PAD : Removal and Installation".
- Rear brake caliper assembly
- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

>> GO TO 3.

3. AFTER INSTALLATION/REPLACEMENT OF REAR BRAKE PAD OR REAR CALIPER ASSEMBLY

With CONSULT
1. Select “EHS/PKB”, “WORK SUPPORT”, and “FINISH BRAKE PAD REPLACEMENT” according to this order.
   CAUTION:
   - **Never operate the parking brake switch.**
   - **Never depress the brake pedal.**
2. Touch “START”.

>> GO TO 4.

4. PERFORM INITIALIZATION POSITION ADJUSTMENT

With CONSULT
1. Select “EHS/PKB”, “WORK SUPPORT”, and “INITIALIZATION POSITION ADJUSTMENT” according to this order.
   CAUTION:
   - **Never operate the parking brake switch.**
   - **Never depress the brake pedal.**
2. Touch “START”.

>> GO TO 5.

5. PERFORM BRAKE OPERATION

With CONSULT
1. Select “EHS/PKB”, “WORK SUPPORT”, and “BRAKE OPERATION” according to this order.
   CAUTION:
   - **Never operate the parking brake switch.**
   - **Never depress the brake pedal.**
2. Touch “START”.

>> GO TO 6.

6. PERFORM BRAKE RELEASE

With CONSULT
1. Select “EHS/PKB”, “WORK SUPPORT”, and “BRAKE RELEASE” according to this order.
   CAUTION:
   - **Never operate the parking brake switch.**
   - **Never depress the brake pedal.**
2. Touch “START”.

>> GO TO 7.

7. PERFORM THE SELF-DIAGNOSIS

With CONSULT
1. Pull parking brake switch to activate electric parking brake.
2. Push parking brake switch to release electric parking brake.
3. Perform “EHS/PKB” self-diagnosis.

Is malfunction detected?

YES >> Check the DTC. Refer to PB-36, "DTC Index". GO TO 8.
NO >> GO TO 8.

8. CHECK DATA MONITOR

With CONSULT

Select “EHS/PKB”, “DATA MONITOR”, “BR FORCE EST (LH)” and “BR FORCE EST (RH)” according to this order. Check that signals are within the specified value. Refer to PB-29, "Reference Value".

Is the check result normal?

YES >> GO TO 9.
NO >> GO TO 1.

9. ERASE SELF-DIAGNOSIS MEMORY

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF or ON.
2. Erase self-diagnosis results memory of “EHS/PKB”.

Is the memory erased?

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

ADJUSTMENT OF REAR BRAKE CALIPER INITIAL POSITION

Description

INFOID:0000000010722940

CAUTION:
When performing the following operations, always use CONSULT, for performing "INITIALIZATION POSITION ADJUSTMENT", "BRAKE OPERATION" and "BRAKE RELEASE" of "WORK SUPPORT".

×: Required —: not required

Procedure	• INITIALIZATION POSITION ADJUSTMENT • BRAKE OPERATION • BRAKE RELEASE
Removing/installing electric parking brake control module	—
Replacing electric parking brake control module	×
Removing/installing rear brake pad (When not pressing piston of rear brake caliper assembly)	—
Removing/installing rear brake pad (When pressing piston of rear brake caliper assembly)	×
Replacing rear brake pad	×
Removing/installing rear brake caliper assembly	—
Replacing rear brake caliper assembly	×
Removing/installing parking brake switch	—
Replacing parking brake switch	—
Removing/installing clutch stroke sensor*	—
Replacing clutch stroke sensor*	—
Removing/installing clutch pedal*	—
Replacing clutch pedal*	—

*: M/T models

Work Procedure

INFOID:0000000010722941

CAUTION:
When performing the following operations, always use CONSULT. (It cannot be performed by any means other than CONSULT.)
- **Replacing electric parking brake control module**
- **Removing/installing rear brake pad (When pressing piston of rear brake caliper assembly)**
- **Replacing rear brake pad**
- **Replacing rear brake caliper assembly**

1. PERFORM INITIALIZATION POSITION ADJUSTMENT

With CONSULT
1. Turn the ignition switch OFF to ON.
2. Select "EHS/PKB", "WORK SUPPORT", and "INITIALIZATION POSITION ADJUSTMENT" according to this order.
   CAUTION:
   - **Never operate the parking brake switch.**
   - **Never depress the brake pedal.**
3. Touch "START".

>> GO TO 2.

2. PERFORM BRAKE OPERATION

With CONSULT
1. Select "EHS/PKB", "WORK SUPPORT", and "BRAKE OPERATION" according to this order.
   CAUTION:
   - **Never operate the parking brake switch.**

- **Never depress the brake pedal.**

2. Touch “START”.

>> GO TO 3.

3. PERFORM BRAKE RELEASE

With CONSULT

1. Select “EHS/PKB”, “WORK SUPPORT”, and “BRAKE RELEASE” according to this order.

CAUTION:

- **Never operate the parking brake switch.**
- **Never depress the brake pedal.**

2. Touch “START”.

>> GO TO 4.

4. PERFORM THE SELF-DIAGNOSIS

With CONSULT

1. Pull parking brake switch to activate electric parking brake.
2. Push parking brake switch to release electric parking brake.
3. Perform “EHS/PKB” self-diagnosis.

Is malfunction detected?

YES >> Check the DTC. Refer to PB-36, "DTC Index". GO TO 5.
NO >> GO TO 5.

5. CHECK DATA MONITOR

With CONSULT

Select “EHS/PKB”, “DATA MONITOR”, “BR FORCE EST (LH)”, and “BR FORCE EST (RH)” according to this order. Check that signals are within the specified value. Refer to PB-29, "Reference Value".

Is the check result normal?

YES >> GO TO 6.
NO >> GO TO 1.

6. ERASE SELF-DIAGNOSIS MEMORY

With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait for 10 seconds or more after turning the ignition switch OFF or ON.

2. Erase self-diagnosis results memory of “EHS/PKB”.

Is the memory erased?

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

CALIBRATION OF G SENSOR

Description

INFOID:0000000010722942

CAUTION:
When performing the following operations, always use CONSULT, for performing "G SENSOR CALIBRATION" of "WORK SUPPORT".
NOTE:
G sensor is integrated in electric parking control module.

×: Required —: not required

Procedure	G SENSOR CALIBRATION
Removing/installing electric parking brake control module	×
Replacing electric parking brake control module	×
Removing/installing rear brake pad (When not pressing piston of rear brake caliper assembly)	—
Removing/installing rear brake pad (When pressing piston of rear brake caliper assembly)	—
Replacing rear brake pad	—
Removing/installing rear brake caliper assembly	—
Replacing rear brake caliper assembly	—
Removing/installing parking brake switch	—
Replacing parking brake switch	—
Removing/installing clutch stroke sensor*	—
Replacing clutch stroke sensor*	—
Removing/installing clutch pedal*	—
Replacing clutch pedal*	—

*: M/T models

Work Procedure

INFOID:0000000010722943

CAUTION:
When the following operations are performed, always use CONSULT. (It cannot be performed by any means other than CONSULT.)
- **Replacing electric parking brake control module (G sensor is integrated in electric parking brake control module)**

1.CHECK THE VEHICLE STATUS

1. Steer the steering wheel to the straight-ahead position.
2. Stop the vehicle on level surface.
3. Stop the engine.
4. Turn the ignition switch OFF.

Is the vehicle stopped with steering wheel in the straight-ahead on level surface?

YES >> GO TO 2.
NO >> Steer the steering wheel to the straight-ahead position. Stop the vehicle on level surface.

2.PERFORM G SENSOR CALIBRATION

CAUTION:
- **Never allow passenger or load on the vehicle.**
- **Never apply vibration to the vehicle body when opening or closing door during calibration.**

With CONSULT
1. Turn the ignition switch ON.
   CAUTION:
   Never start the engine.
2. Select "EHS/PKB", "WORK SUPPORT", and "G SENSOR CALIBRATION" according to this order.
3. Touch "START".

4. After approx. 10 seconds, touch “END”.
5. Turn the ignition switch OFF and then turn it ON again.

CAUTION:

- **Be sure to perform the operation above.**
- **Be sure to wait for 10 seconds or more after turning the ignition switch OFF or ON.**

>> GO TO 3.

3. PERFORM THE SELF-DIAGNOSIS

With CONSULT

1. Pull parking brake switch to activate electric parking brake.
2. Push parking brake switch to release electric parking brake.
3. Perform “EHS/PKB” self-diagnosis.

Is malfunction detected?

YES >> Check the DTC. Refer to PB-36, "DTC Index". GO TO 4.
NO >> GO TO 4.

4. CHECK DATA MONITOR

With CONSULT

1. Drive the vehicle.
2. Steer the steering wheel to the straight-ahead position.
3. Stop the vehicle on level surface.
4. Select “EHS/PKB”, “DATA MONITOR”, and “SLOPE RATIO” according to this order. Check that signals is within the specified value. Refer to PB-29, "Reference Value".

Is the check result normal?

YES >> GO TO 5.
NO >> GO TO 1.

5. ERASE SELF-DIAGNOSIS MEMORY

With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait for 10 seconds or more after turning the ignition switch OFF or ON.

2. Erase self-diagnosis results memory of “EHS/PKB”.

Is the memory erased?

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

RESET OF CLUTCH STROKE SENSOR

Description

INFOID:0000000010722944

CAUTION:
When the following operations are performed, always use CONSULT, and carry "CLUTCH SENSOR RESET" of "WORK SUPPORT".
NOTE:
This work is M/T models.

×: Required —: not required

Procedure	CLUTCH SENSOR RESET
Removing/installing electric parking brake control module	—
Replacing electric parking brake control module	×
Removing/installing rear brake pad (When not pressing piston of rear brake caliper assembly)	—
Removing/installing rear brake pad (When pressing piston of rear brake caliper assembly)	—
Replacing rear brake pad	—
Removing/installing rear brake caliper assembly	—
Replacing rear brake caliper assembly	—
Removing/installing parking brake switch	—
Replacing parking brake switch	—
Removing/installing clutch stroke sensor	×
Replacing clutch stroke sensor	×
Removing/installing clutch pedal	×
Replacing clutch pedal	×

Work Procedure

INFOID:0000000010722945

CAUTION:
When the following operations are performed, always use CONSULT. (It cannot be performed by any means other than CONSULT.)
- **Replacing electric parking brake control module**
- **Removing/installing clutch stroke sensor**
- **Replacing clutch stroke sensor**
- **Removing/installing clutch pedal**
- **Replacing clutch pedal**

NOTE:
This work is M/T models.

1.CHECK THE VEHICLE STATUS

1. Stop the vehicle.
2. Stop the engine.
3. Turn the ignition switch OFF.

>> GO TO 2.

2.CHECKING INSTALLATION CONDITION OF CLUTCH COMPONENTS

Check the installation conditions of clutch components.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace error-detected parts and GO TO 3.

3.PERFORM CLUTCH SENSOR RESET

CAUTION:

- **Never allow passenger or load on the vehicle.**
- **Never apply vibration to the vehicle body when opening or closing door during calibration.**

With CONSULT
1. Turn the ignition switch ON.
   CAUTION:
   Never start the engine.
2. Select “EHS/PKB”, “WORK SUPPORT”, and “CLUTCH SENSOR RESET” according to this order.
   CAUTION:
   Never depress the clutch pedal.
3. Touch “START”.

>> GO TO 4.

4. PERFORM THE SELF-DIAGNOSIS

With CONSULT
1. Pull parking brake switch to activate electric parking brake.
2. Drive the vehicle and check the automatic release.
3. Perform “EHS/PKB” self-diagnosis.

Is malfunction detected?

YES >> Check the DTC. Refer to PB-36, "DTC Index". GO TO 5.
NO >> GO TO 5.

5. CHECK DATA MONITOR

With CONSULT
Select “EHS/PKB”, “DATA MONITOR”, and “CLUTCH PEDAL” according to this order. Check that signals are within the specified value. Refer to PB-29, "Reference Value".

Is the check result normal?

YES >> GO TO 6.
NO >> GO TO 1.

6. ERASE SELF-DIAGNOSIS MEMORY

With CONSULT
1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF or ON.
2. Erase self-diagnosis results memory of “EHS/PKB”.

Is the memory erased?

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

OPERATION OF REAR BRAKE CALIPER

Description

INFOID:0000000010722946

CAUTION:
When the following operations are performed, always use CONSULT, for performing "BRAKE OPERATION" of "WORK SUPPORT".

×: Required —: not required

Procedure	BRAKE OPERATION
Removing/installing electric parking brake control module	×
Replacing electric parking brake control module	×
Removing/installing rear brake pad (When not pressing piston of rear brake caliper assembly)	×
Removing/installing rear brake pad (When pressing piston of rear brake caliper assembly)	×
Replacing rear brake pad	×
Removing/installing rear brake caliper assembly	×
Replacing rear brake caliper assembly	×
Removing/installing parking brake switch	—
Replacing parking brake switch	—
Removing/installing clutch stroke sensor*	—
Replacing clutch stroke sensor*	—
Removing/installing clutch pedal*	—
Replacing clutch pedal*	—

*: M/T models

Work Procedure

INFOID:0000000010722947

CAUTION:
When the following operations are performed, always use CONSULT. (It cannot be performed by any means other than CONSULT.)
- **Removing/installing electric parking brake control module**
- **Replacing electric parking brake control module**
- **Removing/installing rear brake pad (When not pressing piston of rear brake caliper assembly)**
- **Removing/installing rear brake pad (When pressing piston of rear brake caliper assembly)**
- **Replacing rear brake pad**
- **Removing/installing rear brake caliper assembly**
- **Replacing rear brake caliper assembly**

NOTE:
When the replaced rear brake pad, refer to PB-52, "Work Procedure".

1.PERFORM BRAKE OPERATION

With CONSULT
1. Select "EHS/PKB", "WORK SUPPORT", and "BRAKE OPERATION" according to this order.
   CAUTION:
   - **Never operate the parking brake switch.**
   - **Never depress the brake pedal.**
2. Touch "START".

>> GO TO 2.

2.PERFORM BRAKE RELEASE

With CONSULT
1. Select "EHS/PKB", "WORK SUPPORT", and "BRAKE RELEASE" according to this order.
   CAUTION:

- **Never operate the parking brake switch.**
- **Never depress the brake pedal.**

2. Touch “START”.

>> GO TO 3.

3.PERFORM THE SELF-DIAGNOSIS

With CONSULT

1. Pull parking brake switch to activate electric parking brake.
2. Push parking brake switch to release electric parking brake.
3. Perform “EHS/PKB” self-diagnosis.

Is malfunction detected?

YES >> Check the DTC. Refer to PB-36, "DTC Index". GO TO 4.
NO >> GO TO 4.

4.CHECK DATA MONITOR

With CONSULT

Select “EHS/PKB”, “DATA MONITOR”, “BR FORCE EST (LH)” and “BR FORCE EST (RH)” according to this order. Check that signals are within the specified value. Refer to PB-29, "Reference Value".

Is the check result normal?

YES >> GO TO 5.
NO >> GO TO 1.

5.ERASE SELF-DIAGNOSIS MEMORY

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF or ON.
2. Erase self-diagnosis results memory of “EHS/PKB”.

Is the memory erased?

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

RELEASE OF REAR BRAKE CALIPER

Description

INFOID:0000000010722948

CAUTION:
When the following operations are performed, always use CONSULT, for performing "BRAKE RELEASE" of "WORK SUPPORT".

×: Required —: not required

Procedure	BRAKE RELEASE
Removing/installing electric parking brake control module	×
Replacing electric parking brake control module	×
Removing/installing rear brake pad (When not pressing piston of rear brake caliper assembly)	×
Removing/installing rear brake pad (When pressing piston of rear brake caliper assembly)	×
Replacing rear brake pad	×
Removing/installing rear brake caliper assembly	×
Replacing rear brake caliper assembly	×
Removing/installing parking brake switch	—
Replacing parking brake switch	—
Removing/installing clutch stroke sensor*	—
Replacing clutch stroke sensor*	—
Removing/installing clutch pedal*	—
Replacing clutch pedal*	—

*: M/T models

Work Procedure

INFOID:0000000010722949

CAUTION:
When the following operations are performed, always use CONSULT. (It cannot be performed by any means other than CONSULT.)
- **Removing/installing electric parking brake control module**
- **Replacing electric parking brake control module**
- **Removing/installing rear brake pad (When not pressing piston of rear brake caliper assembly)**
- **Removing/installing rear brake pad (When pressing piston of rear brake caliper assembly)**
- **Replacing rear brake pad**
- **Removing/installing rear brake caliper assembly**
- **Replacing rear brake caliper assembly**

NOTE:
When the replaced rear brake pad, refer to PB-52, "Work Procedure".

1. PERFORM BRAKE OPERATION

With CONSULT
1. Select "EHS/PKB", "WORK SUPPORT", and "BRAKE OPERATION" according to this order.
   CAUTION:
   - **Never operate the parking brake switch.**
   - **Never depress the brake pedal.**
2. Touch "START".

>> GO TO 2.

2. PERFORM BRAKE RELEASE

With CONSULT
1. Select "EHS/PKB", "WORK SUPPORT", and "BRAKE RELEASE" according to this order.
   CAUTION:

- **Never operate the parking brake switch.**
- **Never depress the brake pedal.**

2. Touch “START”.

>> GO TO 3.

3.PERFORM THE SELF-DIAGNOSIS

With CONSULT

1. Pull parking brake switch to activate electric parking brake.
2. Push parking brake switch to release electric parking brake.
3. Perform “EHS/PKB” self-diagnosis.

Is malfunction detected?

YES >> Check the DTC. Refer to PB-36, "DTC Index". GO TO 4.
NO >> GO TO 4.

4.CHECK DATA MONITOR

With CONSULT

Select “EHS/PKB”, “DATA MONITOR”, “BR FORCE EST (LH)”, and “BR FORCE EST (RH)” according to this order. Check that signals are within the specified value. Refer to PB-29, "Reference Value".

Is the check result normal?

YES >> GO TO 5.
NO >> GO TO 1.

5.ERASE SELF-DIAGNOSIS MEMORY

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF or ON.
2. Erase self-diagnosis results memory of “EHS/PKB”.

Is the memory erased?

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

CHANGE OF SYSTEM MODE

Description

INFOID:0000000010722950

CAUTION:
When the following operations are performed, always use CONSULT, for performing "SYSTEM MODE CHANGE" of "WORK SUPPORT".

×: Required —: not required

Procedure	SYSTEM MODE CHANGE
Removing/installing electric parking brake control module	—
Replacing electric parking brake control module	×
Removing/installing rear brake pad (When not pressing piston of rear brake caliper assembly)	—
Replacing rear brake caliper assembly	—
Removing/installing parking brake switch	—
Replacing parking brake switch	—
Removing/installing clutch stroke sensor*	—
Replacing clutch stroke sensor*	—
Removing/installing clutch pedal*	—
Replacing clutch pedal*	—

*: M/T models

Work Procedure

INFOID:0000000010722951

CAUTION:
When performing the following operations, always use CONSULT. (It cannot be performed by any means other than CONSULT.)
- **Replacing electric parking brake control module**

1.CONFIGURATION

Perform the configuration. Refer to PB-47, "Work Procedure".

>> GO TO 2.

2.CALIBRATION OF G SENSOR

Perform the calibration of G sensor. Refer to PB-57, "Work Procedure".

M/T models>>GO TO 3.
CVT models>>GO TO 4.

3.RESET OF CLUTCH PEDAL STROKE SENSOR (M/T MODELS)

Perform the reset of clutch stroke sensor. Refer to PB-59, "Work Procedure".

>> GO TO 4.

4.ADJUSTMENT OF REAR BRAKE CALIPER INITIAL POSITION

Perform the adjustment of rear brake caliper initial position: Refer to PB-55, "Work Procedure".

>> GO TO 5.

5.OPERATION OF REAR BRAKE CALIPER

Perform the operation of rear brake caliper: Refer to PB-61, "Work Procedure".

>> GO TO 6.

6. RELEASE OF REAR BRAKE CALIPER

Perform the release of rear brake caliper: Refer to PB-63, "Work Procedure".

>> GO TO 7.

7. CHANGE OF SYSTEM MODE

With CONSULT
1. Select “EHS/PKB”, “WORK SUPPORT”, and “SYSTEM MODE CHANGE” according to this order.
   CAUTION:
   Never operate the parking brake switch.
2. Touch “START”.
3. Check display item “FACTORY MODE”.

Is the inspection result “Off”?

YES >> GO TO 8.
NO >> Perform change of system mode again.

8. PERFORM THE SELF-DIAGNOSIS

With CONSULT
1. Pull parking brake switch to activate electric parking brake.
2. Push parking brake switch to release electric parking brake.
3. Perform “EHS/PKB” self-diagnosis.

Is malfunction detected?

YES >> Check the DTC. Refer to PB-36, "DTC Index". GO TO 9.
NO >> GO TO 9.

9. ERASE SELF-DIAGNOSIS MEMORY

With CONSULT
1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF or ON.
2. Erase self-diagnosis results memory of “EHS/PKB”.

Is the memory erased?

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

AUTOMATIC ACTIVATION ON SETTING

Description

INFOID:0000000010728188

CAUTION:
When the following operations are performed, always use CONSULT, for performing "AUTO ACTIVATION ON (AT/CVT)" of "WORK SUPPORT".
NOTE:
This work is CVT models.

×: Required —: not required

Procedure	AUTO ACTIVATION ON (AT/CVT)
Removing/installing electric parking brake control module	×
Replacing electric parking brake control module	×
Removing/installing rear brake pad (When not pressing piston of rear brake caliper assembly)	—
Replacing rear brake caliper assembly	—
Removing/installing parking brake switch	—
Replacing parking brake switch	—
Setting electric parking brake automatically operation is ON	×

Work Procedure

INFOID:0000000010728189

CAUTION:
When performing the following operations, always use CONSULT. (It cannot be performed by any means other than CONSULT.)
- **Setting electric parking brake automatically operation is ON**

NOTE:
This work is CVT models.

1. AUTO ACTIVATION ON (AT/CVT)

With CONSULT
1. Select "EHS/PKB", "WORK SUPPORT", and "AUTO ACTIVATION ON (AT/CVT)" according to this order.
   CAUTION:
   Never operate the parking brake switch.
2. Touch "START".
3. Check display item "Auto Apply for CVT".

Is the inspection result "AVAILABLE"?

YES >> GO TO 2.
NO >> Perform "AUTO ACTIVATION ON (AT/CVT)" again.

2. PERFORM THE SELF-DIAGNOSIS

With CONSULT
1. Pull parking brake switch to activate electric parking brake.
2. Push parking brake switch to release electric parking brake.
3. Perform "EHS/PKB" self-diagnosis.

Is malfunction detected?

YES >> Check the DTC. Refer to PB-36, "DTC Index". GO TO 3.
NO >> GO TO 3.

3. ERASE SELF-DIAGNOSIS MEMORY

With CONSULT
1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF or ON.
2. Erase self-diagnosis results memory of "EHS/PKB".

Is the memory erased?

YES >> INSPECTION END

NO >> Check the items indicated by the self-diagnosis.

DTC/CIRCUIT DIAGNOSIS

C10C8 ELECTRIC PARKING BRAKE CONTROL MODULE

DTC Description

INFOID:0000000010722952

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)		Malfunction detected condition	Type
C10C8	CONTROL MODULE (CONTROL MODULE)	INTERNAL ELECTRIC MALFNCTN (INTERNAL ELECTRIC MALFNCTN)	When there is an internal malfunction in the electric parking brake control module. (Malfunction of hardware)	1
		WATCHDOG/SAFETY µC ERROR (Watchdog/safety µC error)	When there is an internal malfunction in the electric parking brake control module. (Malfunction of communication)	2
		SUPERVISION SOFTWARE ERROR (Supervision software error)	When there is an internal malfunction in the electric parking brake control module. (Malfunction of software)	3
		EVENT INFORMATION (Event information)	When there is an internal malfunction in the electric parking brake control module. (Maintenance mode)	4
		NOT CONFIGURED (Not configured)	When variant coding is incomplete.	5

POSSIBLE CAUSE

- Harness or connector
- Electric parking brake control module
- Parking brake switch

FAIL-SAFE

Type 1
Only mechanical release is available.

Type 2
Only mechanical release is available.

Type 3
Only mechanical release is available.

Type 4
Only mechanical release is available.

Type 5
Automatic apply and release are prohibited.

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:

- **Set the select lever in the P position.**
- **Depress the brake pedal.**

3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C10C8” detected?

YES (Type 1)>>Proceed to PB-70, "TYPE 1 : Diagnosis Procedure".
YES (Type 2)>>Proceed to PB-70, "TYPE 2 : Diagnosis Procedure".
YES (Type 3)>>Proceed to PB-70, "TYPE 3 : Diagnosis Procedure".
YES (Type 4)>>Proceed to PB-70, "TYPE 4 : Diagnosis Procedure".
YES (Type 5)>>Proceed to PB-71, "TYPE 5 : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident"
NO-2 >> Confirmation after repair: INSPECTION END

TYPE 1

TYPE 1 : Diagnosis Procedure

INFOID:0000000010722953

1.REPLACE ELECTRIC PARKING BRAKE CONTROL MODULE

Replace the electric parking brake control module even if other display than “C10C8” (CONTROL MODULE INTERNAL ELECTRIC) is displayed in self-diagnosis for “EHS/PKB”.

>> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".

TYPE 2

TYPE 2 : Diagnosis Procedure

INFOID:0000000010722954

1.REPLACE ELECTRIC PARKING BRAKE CONTROL MODULE

Replace the electric parking brake control module even if other display than “C10C8” (CONTROL MODULE WATCHDOG/SAFETY μC ERROR) is displayed in self-diagnosis for “EHS/PKB”.

>> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".

TYPE 3

TYPE 3 : Diagnosis Procedure

INFOID:0000000010722955

1.REPLACE ELECTRIC PARKING BRAKE CONTROL MODULE

Replace the electric parking brake control module even if other display than “C10C8” (CONTROL MODULE SUPERVISION SOFTWARE ERROR) is displayed in self-diagnosis for “EHS/PKB”.

>> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".

TYPE 4

TYPE 4 : Diagnosis Procedure

INFOID:0000000010722956

1.ERASE SELF-DIAGNOSIS RESULT

With CONSULT
1. Turn the ignition switch ON.
2. Erase self-diagnosis result for “EHS/PKB”.

>> GO TO 2.

2.PERFORM WORK SUPPORT (1)

With CONSULT
Select “WORK SUPPORT” and “FINISH BRAKE PAD REPLACEMENT” according to this order.

>> GO TO 3.

3.PERFORM WORK SUPPORT (2)

With CONSULT
Touch “INITIALIZATION POSITION ADJUSTMENT”.

>> GO TO 4.

4.PERFORM SELF-DIAGNOSIS

With CONSULT
Perform self-diagnosis for “EHS/PKB”.
Is DTC “C10C8 (CONTROL MODULE EVENT INFORMATION)” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

TYPE 5

TYPE 5 : Diagnosis Procedure

INFOID:0000000010722957

1.PERFORM CONFIGURATION

Perform configuration of electric parking brake control module. Refer to PB-47, "Work Procedure".

>> GO TO 2.

2.PERFORM SELF-DIAGNOSIS

With CONSULT
1. Turn the ignition switch ON.
2. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1C08 (NOT CONFIGURED)” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

C10E3 PARKING BRAKE SWITCH

DTC Description

INFOID:0000000010722958

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C10E3	PARKING BRAKE SWITCH (Parking brake switch)	When the signal is not input even when the parking brake switch is operated.

POSSIBLE CAUSE

- Harness or connector
- Parking brake switch
- Electric parking brake control module

FAIL-SAFE

- Applying the parking brake is prohibited.
- Release using the parking brake switch is prohibited. (It can be released automatically.)
- Automatic apply is available.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C10E3” detected?

YES >> Proceed to PB-72, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010722959

1.CHECK DATA MONITOR

With CONSULT

1. Turn the ignition switch ON.
2. Select “EHS/PKB”, “DATA MONITOR” and “PB SW” according to this order. Check that data monitor displays when parking brake switch is pull, neutral or push. Refer to PB-29, "Reference Value".

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 2.

2.CHECK PARKING BRAKE SWITCH CIRCUIT (1)

1. Turn the ignition switch OFF.
2. Disconnect the parking brake switch harness connector.

3. Disconnect the electric parking brake control module harness connector.
4. Check the continuity between electric parking brake control module harness connector and parking brake switch harness connector.

Electric parking brake control module		Parking brake switch		Continuity
Connector	Terminal	Connector	Terminal	
M137	9	M138	2	Existed
	10		1	
	11		6	
	18		10	
	19		4	
	20		5	

5. Check the continuity between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Continuity
Connector	Terminal		
M137	9	Ground	Not existed
	10		
	11		
	18		
	19		
	20		

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace error-detected parts, and GO TO 3.

3.CHECK PARKING BRAKE SWITCH

Check the parking brake switch. Refer to PB-74, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the parking brake switch. Refer to PB-156, "Removal and Installation".

4.CHECK CONNECTOR AND TERMINAL

1. Check the parking brake switch harness connector for disconnection or looseness.
2. Check the parking brake switch pin terminals for damage or loose connection with harness connector.
3. Check the electric parking brake control module harness connector for disconnection or looseness.
4. Check the electric parking brake control module pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace error-detected parts, and GO TO 5.

5.PERFORM SELF-DIAGNOSIS

With CONSULT
1. Connect the parking brake switch harness connector.
2. Connect the electric parking brake control module harness connector.
3. Turn the ignition switch ON.
4. Erase self-diagnosis result for “EHS/PKB”.
5. Repeat the parking brake switch operation (pull and push) five times.
6. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C10E3” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

Component Inspection

INFOID:0000000010722960

1. CHECK PARKING BRAKE SWITCH

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

Condition	Terminal	Continuity
When parking brake switch is neutral	1 – 6	Existed
	4 – 5	Existed
	2 – 5	Not existed
	6 – 10	Not existed
When parking brake switch is pull	6 – 10	Existed
	1 – 6	Existed
	4 – 5	Not existed
	2 – 5	Not existed
When parking brake switch is push	4 – 5	Existed
	2 – 5	Existed
	1 – 6	Not existed
	6 – 10	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the parking brake switch. Refer to PB-156, "Removal and Installation".

C10E6 IGNITION SWITCH

DTC Description

INFOID:0000000010722961

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BE6	IGNITION SWITCH (Ignition switch)	Ignition power supply voltage of electric parking brake control module is as shown below. • Ignition power supply voltage: 9 V ≥ Ignition power supply voltage • Ignition power supply voltage: 16 V ≤ Ignition power supply voltage

POSSIBLE CAUSE

- Harness or connector
- Electric parking brake control module
- Ignition power supply system

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BE6” detected?

YES >> Proceed to PB-75, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010722962

1.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY

1. Turn the ignition switch OFF.
2. Disconnect the electric parking brake control module harness connector.
3. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	22	Ground	Approx. 0 V

4. Turn the ignition switch ON.
5. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	22	Ground	9 – 16 V

Is the inspection result normal?

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

2.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Check the 10A fuse (#30).
3. Check the continuity between electric parking brake control module harness connector and fuse block (J/B).

Electric parking brake control module		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
M137	22	M3	7C	Existed

Is the inspection result normal?

YES >> Perform trouble diagnosis for ignition power supply.
NO >> Repair or replace error-detected parts.

3.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Check the continuity between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Continuity
Connector	Terminal		
M137	28	Ground	Existed
	30		

Is the inspection result normal?

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

4.CHECK CONNECTOR AND TERMINAL

1. Turn the ignition switch OFF.
2. Check the electric parking brake control module harness connector for disconnection or looseness.
3. Check the electric parking brake control module pin terminals for damage or loose connection with harness connector.
4. Disconnect the fuse block (J/B) harness connector.
5. Check the fuse block (J/B) harness connector for disconnection or looseness.
6. Check the fuse block (J/B) pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace error-detected parts, and GO TO 5.

5.PERFORM SELF-DIAGNOSIS

With CONSULT
1. Connect the electric parking brake control module harness connector.
2. Connect the fuse block (J/B) harness connector.
3. Turn the ignition switch ON.
4. Erase self-diagnosis result for “EHS/PKB”.
5. Repeat the parking brake switch operation (pull and push) five times.
6. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C10E6” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

C1BD0 MOTOR

DTC Description

INFOID:0000000010722963

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BD0	MOTOR (Motor)	• A short circuit is detected in the circuit between electric parking brake control module and parking brake actuator. • A open circuit is detected in the circuit between electric parking brake control module and parking brake actuator.

POSSIBLE CAUSE

- Harness or connector
- Electric parking brake control module

FAIL-SAFE

One side motor is available.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD0” detected?

YES >> Proceed to PB-78, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010722964

1.CHECK PARKING BRAKE ACTUATOR CIRCUIT

1. Disconnect the parking brake actuator harness connector.
2. Disconnect the electric parking brake control module.
3. Check the continuity between electric parking brake control module harness connector and parking brake actuator harness connector.

Electric parking brake control module		Parking brake actuator		Continuity
Connector	Terminal	Connector	Terminal	
M137	14	M128	1	Existed
	29		2	
	12	M129	1	
	27		2	

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace error-detected parts, and GO TO 2.

2.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE CIRCUIT (1)

1. Check the continuity between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Continuity
Connector	Terminal		
M137	14	Ground	Not existed
	29		
	12		
	27		

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace error-detected parts, and GO TO 3.

3.CHECK PARKING BRAKE ACTUATOR CIRCUIT

1. Check the continuity electric parking brake control module harness connector terminals.

Electric parking brake control module		Continuity
Connector	Terminal	
M137	14 – 22	Not existed
	29 – 22	
	12 – 22	
	27 – 22	

Is the inspection result normal?

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

4.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE GROUND CIRCUIT

1. Disconnect the electric parking brake control module harness connector.
2. Turn the ignition switch OFF.
3. Check the continuity between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Continuity
Connector	Terminal		
M137	28	Ground	Existed
	30		

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace error-detected parts, and GO TO 5.

5.CHECK CONNECTOR AND TERMINAL

1. Check the electric parking brake control module harness connector for disconnection or looseness.
2. Check the electric parking brake control module pin terminals for damage or loose connection with harness connector.
3. Check the parking brake actuator harness connector for disconnection or looseness.
4. Check the parking brake actuator pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace error-detected parts, and GO TO 6.

6. PERFORM SELF-DIAGNOSIS

With CONSULT

1. Connect the electric parking brake control module harness connector.
2. Connect the parking brake actuator harness connector.
3. Turn the ignition switch ON.
4. Erase self-diagnosis result for “EHS/PKB”.
5. Repeat the parking brake switch operation (pull and push) five times.
6. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD0” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

C1BD1 PARKING BRAKE SWITCH

DTC Description

INFOID:0000000010722965

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BD1	PARKING BRAKE SWITCH (Parking brake switch)	When malfunction is detected in the parking brake switch (apply side).

POSSIBLE CAUSE

- Harness or connector
- Parking brake switch
- Electric parking brake control module

FAIL-SAFE

- Apply and release by switch are prohibited.
- Automatic apply and release are available.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD1” detected?

YES >> Proceed to PB-81, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010722966

1.CHECK DATA MONITOR

With CONSULT

1. Turn the ignition switch ON.
2. Select “EHS/PKB”, “DATA MONITOR” and “PB SW” according to this order. Check that data monitor displays when parking brake switch is pull, neutral or push. Refer to PB-29, "Reference Value".

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 2.

2.CHECK PARKING BRAKE SWITCH CIRCUIT (1)

1. Turn the ignition switch OFF.
2. Disconnect the parking brake switch harness connector.
3. Disconnect the electric parking brake control module harness connector.

4. Check the continuity between electric parking brake control module harness connector and parking brake switch harness connector.

Electric parking brake control module		Parking brake switch		Continuity
Connector	Terminal	Connector	Terminal	
M137	9	M138	2	Existed
	10		1	
	11		6	
	18		10	
	19		4	
	20		5	

5. Check the continuity between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Continuity
Connector	Terminal		
M137	9	Ground	Not existed
	10		
	11		
	18		
	19		
	20		

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace error-detected parts, and GO TO 3.

3.CHECK PARKING BRAKE SWITCH

Check the parking brake switch. Refer to PB-74, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the parking brake switch. Refer to PB-156, "Removal and Installation".

4.CHECK CONNECTOR AND TERMINAL

1. Check the parking brake switch harness connector for disconnection or looseness.
2. Check the parking brake switch pin terminals for damage or loose connection with harness connector.
3. Check the electric parking brake control module harness connector for disconnection or looseness.
4. Check the electric parking brake control module pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace error-detected parts, and GO TO 5.

5.PERFORM SELF-DIAGNOSIS

With CONSULT
1. Connect the parking brake switch harness connector.
2. Connect the electric parking brake control module harness connector.
3. Turn the ignition switch ON.
4. Erase self-diagnosis result for “EHS/PKB”.
5. Repeat the parking brake switch operation (pull and push) five times.
6. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD1” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

Component Inspection

INFOID:0000000010722967

1. CHECK PARKING BRAKE SWITCH

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

Condition	Terminal	Continuity
When parking brake switch is neutral	1 – 6	Existed
	4 – 5	Existed
	2 – 5	Not existed
	6 – 10	Not existed
When parking brake switch is pull	6 – 10	Existed
	1 – 6	Existed
	4 – 5	Not existed
	2 – 5	Not existed
When parking brake switch is push	4 – 5	Existed
	2 – 5	Existed
	1 – 6	Not existed
	6 – 10	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the parking brake switch. Refer to PB-156, "Removal and Installation".

C1BD2 PARKING BRAKE SWITCH

DTC Description

INFOID:0000000010722968

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BD2	PARKING BRAKE SWITCH (Parking brake switch)	When malfunction is detected in the parking brake switch (release side).

POSSIBLE CAUSE

- Harness or connector
- Parking brake switch
- Electric parking brake control module

FAIL-SAFE

- Apply and release by switch are prohibited.
- Automatic apply and release are available.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD2” detected?

YES >> Proceed to PB-84, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010722969

1.CHECK DATA MONITOR

With CONSULT

1. Turn the ignition switch ON.
2. Select “EHS/PKB”, “DATA MONITOR” and “PB SW” according to this order. Check that data monitor displays when parking brake switch is pull, neutral or push. Refer to PB-29, "Reference Value".

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 2.

2.CHECK PARKING BRAKE SWITCH CIRCUIT (1)

1. Turn the ignition switch OFF.
2. Disconnect the parking brake switch harness connector.
3. Disconnect the electric parking brake control module harness connector.

4. Check the continuity between electric parking brake control module harness connector and parking brake switch harness connector.

Electric parking brake control module		Parking brake switch		Continuity
Connector	Terminal	Connector	Terminal	
M137	9	M138	2	Existed
	10		1	
	11		6	
	18		10	
	19		4	
	20		5	

5. Check the continuity between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Continuity
Connector	Terminal		
M137	9	Ground	Not existed
	10		
	11		
	18		
	19		
	20		

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace error-detected parts, and GO TO 3.

3. CHECK PARKING BRAKE SWITCH

Check the parking brake switch. Refer to PB-74, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the parking brake switch. Refer to PB-156, "Removal and Installation".

4. CHECK CONNECTOR AND TERMINAL

1. Check the parking brake switch harness connector for disconnection or looseness.
2. Check the parking brake switch pin terminals for damage or loose connection with harness connector.
3. Check the electric parking brake control module harness connector for disconnection or looseness.
4. Check the electric parking brake control module pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace error-detected parts, and GO TO 5.

5. PERFORM SELF-DIAGNOSIS

With CONSULT

1. Connect the parking brake switch harness connector.
2. Connect the electric parking brake control module harness connector.
3. Turn the ignition switch ON.
4. Erase self-diagnosis result for “EHS/PKB”.
5. Repeat the parking brake switch operation (pull and push) five times.
6. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD2” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

Component Inspection

INFOID:0000000010722970

1. CHECK PARKING BRAKE SWITCH

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

Condition	Terminal	Continuity
When parking brake switch is neutral	1 – 6	Existed
	4 – 5	Existed
	2 – 5	Not existed
	6 – 10	Not existed
When parking brake switch is pull	6 – 10	Existed
	1 – 6	Existed
	4 – 5	Not existed
	2 – 5	Not existed
When parking brake switch is push	4 – 5	Existed
	2 – 5	Existed
	1 – 6	Not existed
	6 – 10	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the parking brake switch. Refer to PB-156, "Removal and Installation".

C1BD3 PARKING BRAKE SWITCH

DTC Description

INFOID:0000000010722971

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BD3	PARKING BRAKE SWITCH (Parking brake switch)	Parking brake switch indicator lamp does not illuminate when the parking brake is apply status (parking brake switch is apply).

POSSIBLE CAUSE

- Harness or connector
- Parking brake switch
- Electric parking brake control module

FAIL-SAFE

- Apply and release by switch are prohibited.
- Automatic apply and release are available.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Put the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD3” detected?

YES >> Proceed to PB-87, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010722972

1.CHECK PARKING BRAKE SWITCH INDICATOR LAMP POWER SUPPLY

1. Turn the ignition switch OFF.
2. Disconnect the parking brake switch harness connector.
3. Check the voltage between parking brake switch harness connector and ground.

Parking brake switch		—	Voltage
Connector	Terminal		
M138	7	Ground	9 – 16 V

4. Turn the ignition switch ON.
5. Check the voltage between parking brake switch harness connector and ground.

Parking brake switch		—	Voltage
Connector	Terminal		
M138	7	Ground	9 – 16 V

Is the inspection result normal?

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

2.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the fuse block (J/B) harness connector.
3. Check the 10A fuse (#6).
4. Check the continuity between parking brake switch harness connector and fuse block (J/B).

Parking brake switch		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
M138	7	M2	15B	Existed

Is the inspection result normal?

YES >> Perform trouble diagnosis for ignition power supply.
NO >> Repair or replace error-detected parts.

3.CHECK PARKING BRAKE SWITCH CIRCUIT (1)

1. Turn the ignition switch OFF.
2. Disconnect the electric parking brake control module harness connector.
3. Check the continuity between electric parking brake control module harness connector and parking brake switch harness connector.

Electric parking brake control module		Parking brake switch		Continuity
Connector	Terminal	Connector	Terminal	
M137	8	M138	3	Existed

4. Check the continuity between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Continuity
Connector	Terminal		
M137	8	Ground	Not existed

Is the inspection result normal?

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

4.CHECK PARKING BRAKE SWITCH

Check the parking brake switch. Refer to PB-74, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Replace the parking brake switch. Refer to PB-156, "Removal and Installation".

5.CHECK CONNECTOR AND TERMINAL

1. Check the parking brake switch harness connector for disconnection or looseness.
2. Check the parking brake switch pin terminals for damage or loose connection with harness connector.
3. Check the electric parking brake control module harness connector for disconnection or looseness.
4. Check the electric parking brake control module pin terminals for damage or loose connection with harness connector.
5. Check the fuse block (J/B) harness connector for disconnection or looseness.
6. Check the fuse block (J/B) pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace error-detected parts, and GO TO 6.

6.PERFORM SELF-DIAGNOSIS

With CONSULT
1. Connect the parking brake switch harness connector.
2. Connect the electric parking brake control module harness connector.
3. Connect the fuse block (J/B) harness connector.
4. Turn the ignition switch ON.
5. Erase self-diagnosis result for “EHS/PKB”.
6. Repeat the parking brake switch operation (pull and push) five times.
7. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD3” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

Component Inspection

INFOID:0000000010722973

1.CHECK PARKING BRAKE SWITCH

1. Turn the ignition switch OFF.
2. Disconnect the parking brake switch harness connector.
3. Check the continuity when parking brake switch is operated (pull).

Terminal	Continuity
3 – 7	Existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the parking brake switch. Refer to PB-156, "Removal and Installation".

C1BD4 G SENSOR

DTC Description

INFOID:0000000010722974

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BD4	G SENSOR (G sensor)	• When a malfunction is detected in signal of G sensor. • When a signal circuit of G sensor is open or short.

POSSIBLE CAUSE

- G sensor (integrated in electric parking brake control module)
- Electric parking brake control module

FAIL-SAFE

Automatic release is prohibited.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD4” detected?

YES >> Proceed to PB-90, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010722975

1.PERFORM CALIBRATION OF G SENSOR

Perform calibration of G sensor. Refer to PB-57, "Work Procedure".

>> GO TO 2.

2.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Turn the ignition switch ON.
2. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD4” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

C1BD5 CONTROL MODULE POWER SUPPLY

DTC Description

INFOID:0000000010722976

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BD5	POWER SUPPLY VOLT (Power supply voltage)	• When a battery power supply voltage is in following status for 60 seconds or more. - Battery power supply voltage: 10 V ≥ battery power supply voltage - Battery power supply voltage: 18 V ≤ battery power supply voltage • After turning the ignition switch OFF, battery terminals are disconnect without waiting for 90 seconds or more.

POSSIBLE CAUSE

- Harness or connector
- Electric parking brake control module
- Battery power supply system
- Fuse
- Battery

FAIL-SAFE

Only mechanical release is available.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD5” detected?

YES >> Proceed to PB-91, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010722977

1.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY

1. Turn the ignition switch OFF.
2. Disconnect the electric parking brake control module harness connector.
3. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	15	Ground	9 – 16 V
	13		

4. Turn the ignition switch ON.
5. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	15	Ground	9 – 16 V
	13		

Is the inspection result normal?

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

2.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Check the 30A fuse (#45) and (#48).
3. Check the continuity and short circuit between electric parking brake control module harness connector terminal (15) and 30A fuse (#45).
4. Check the continuity and short circuit between electric parking brake control module harness connector terminal (13) and 30A fuse (#48).

Is the inspection result normal?

YES >> Perform trouble diagnosis for battery power supply.
NO >> Repair or replace error-detected parts.

3.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Check the continuity between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Continuity
Connector	Terminal		
M137	28	Ground	Existed
	30		

Is the inspection result normal?

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

4.CHECK CONNECTOR AND TERMINAL

Check the electric parking brake control module pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace error-detected parts, and GO TO 5.

5.PERFORM SELF-DIAGNOSIS

With CONSULT
1. Connect the electric parking brake control module harness connector.
2. Connect the parking brake actuator harness connector.
3. Turn the ignition switch ON.
4. Erase self-diagnosis result for “EHS/PKB”.
5. Repeat the parking brake switch operation (pull and push) five times.
6. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD5” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

C1BD6 DOOR SYSTEM

DTC Description

INFOID:0000000010722978

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BD6	DOOR SW (Door switch)	Door switch (driver side) signal is not input when door open or close.

POSSIBLE CAUSE

- Harness or connector
- Electric parking brake control module
- Door switch (Driver side)
- BCM

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD6” detected?

YES >> Proceed to PB-94, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010722979

1.ERFORM SELF-DIAGNOSIS (1)

With CONSULT

Perform self-diagnosis for “BCM”.

Is DTC detected?

YES >> Check the DTC. Refer to BCS-78, "DTC Index".
NO >> GO TO 2.

2.CHECK DATA MONITOR

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.
2. Select “BCM” and “DATA MONITOR” according to this order.
3. Check the “DOOR STAT-DR” of monitor item. Refer to BCS-53, "Reference Value".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the door switch system.
- With Intelligent Key and super lock: Refer to DLK-186, "Diagnosis Procedure".
- With Intelligent Key, without super lock: Refer to DLK-495, "Diagnosis Procedure".
- Without Intelligent Key, with super lock: Refer to DLK-695, "Diagnosis Procedure".
- Without Intelligent Key and super lock: Refer to DLK-842, "Diagnosis Procedure".

3. PERFORM SELF-DIAGNOSIS (2)

With CONSULT
1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.
2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD6” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

C1BD7 CLUTCH SENSOR SYSTEM

DTC Description

INFOID:0000000010722980

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BD7	CLUTCH SENSOR (Clutch sensor)	• Open circuit is detected in clutch pedal stroke sensor circuit. • Short circuit is detected in clutch pedal stroke sensor circuit. • Malfunction is detected in clutch pedal stroke sensor circuit. • An internal malfunction is detected in clutch pedal stroke sensor. (With fluctuations in output voltage of clutch pedal stroke sensor) • An internal malfunction is detected in clutch pedal stroke sensor. (Without fluctuations in output voltage of clutch pedal stroke sensor) • Poor installation is detected in clutch pedal stroke sensor. • When reset of clutch pedal stroke sensor is not complete.

POSSIBLE CAUSE

- Harness or connector
- Clutch pedal stroke sensor
- Electric parking brake control module

FAIL-SAFE

Automatic apply and release are prohibited. (Mechanical release can be performed.)

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD7” detected?

YES >> Proceed to PB-96, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010722981

1.VISUALLY CHECK CLUTCH PEDAL STROKE SENSOR

1. Turn the ignition switch OFF.
2. Check the clutch pedal stroke sensor for damage.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace error-detected part, and GO TO 2.

2.CHECK CLUTCH PEDAL STROKE SENSOR INSTALLATION

Check the clutch pedal stroke sensor for looseness and disconnection.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace error-detected part, and GO TO 3.

3.CULTCH PEDAL STROKE SENSOR RESET

With CONSULT
1. Turn the ignition switch ON.
2. Perform clutch pedal stroke sensor reset. Refer to PB-59, "Work Procedure".

>> GO TO 4.

4.PERFORM SELF-DIAGNOSIS (1)

With CONSULT
1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.
2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD7” detected?

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

5.CHECK CLUTCH PEDAL STROKE SENSOR CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the clutch pedal stroke sensor harness connector.
3. Disconnect the electric parking brake control module harness connector.
4. Check the continuity between clutch pedal stroke sensor harness connector and electric parking brake control module harness connector.

Electric parking brake control module		Clutch pedal stroke sensor		Continuity
Connector	Terminal	Connector	Terminal	
M137	24	E24	1	Not existed
	24		2	Not existed
	24		3	Existed
	25		1	Not existed
	25		2	Existed
	25		3	Not existed
	26		1	Existed
	26		2	Not existed
	26		3	Not existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace error-detected parts, and GO TO 6.

6.CHECK CLUTCH PEDAL STROKE SENSOR POWER SUPPLY

1. Connect the electric parking brake control module harness connector.
2. Turn the ignition switch ON.
3. Check the voltage clutch pedal stroke sensor harness connector terminals.

Clutch pedal stroke sensor		—	Voltage
Connector	Terminal		
E24	1	Ground	4.75 – 5.25 V

s the inspection result normal?

YES >> GO TO 7.
NO >> Repair or replace error-detected parts, and GO TO 7.

7.CHECK CLUTCH PEDAL STROKE SENSOR CIRCUIT

1. Turn the ignition switch OFF.
2. Check the continuity between clutch pedal stroke sensor harness connector and ground.

Clutch pedal stroke sensor		—	Continuity
Connector	Terminal		
E24	2	Ground	Not existed
	3		Existed

s the inspection result normal?

YES >> GO TO 8.
NO >> Repair or replace error-detected parts, and GO TO 8.

8.CHECK CONNECTOR AND TERMINAL

1. Check the clutch pedal stroke sensor harness connector for disconnection or looseness.
2. Check the clutch pedal stroke sensor pin terminals for damage or loose connection with harness connector.
3. Check the electric parking brake control module harness connector for disconnection or looseness.
4. Check the electric parking brake control module pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 9.
NO >> Repair or replace error-detected parts, and GO TO 9.

9.CHECK DATA MONITOR

With CONSULT
1. Turn the ignition switch ON.
2. Select “EHS/PKB” and “DATA MONITOR” according to this order.
3. Check the “CLUTCH PEDAL” of monitor item.

Is the inspection result normal?

YES >> GO TO 12.
NO >> Repair or replace error-detected parts, and GO TO 10.

10.REPLACE CLUTCH PEDAL STROKE SENSOR

Replace the clutch pedal stroke sensor.
- LHD models: Refer to CL-14, "LHD : Removal and Installation".
- RHD models: Refer to CL-18, "RHD : Removal and Installation".

>> GO TO 11.

11.CULTCH PEDAL STROKE SENSOR RESET

With CONSULT
1. Connect the clutch pedal stroke sensor harness connector.
2. Turn the ignition switch ON.
3. Perform clutch pedal stroke sensor reset. Refer to PB-59, "Work Procedure".

>> GO TO 12.

12.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.
2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD7” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

C1BD9 INITIALIZE POSITION

DTC Description

INFOID:0000000010722982

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BD9	INITIALIZE POSITION (Initialize position)	Parking brake actuator (integrated in spindle and nut) has not been initialized.

POSSIBLE CAUSE

- Parking brake actuator
- Electric parking brake control module

FAIL-SAFE

Automatic apply and release are prohibited.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BD9” detected?

YES >> Proceed to PB-100, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010722983

1.ERASE SELF-DIAGNOSIS RESULT

With CONSULT

1. Turn the ignition switch ON.
2. Erase self-diagnosis result for “EHS/PKB”.

>> GO TO 2.

2.PERFORM WORK SUPPORT

With CONSULT

Perform “INITIALZATION POSITION ADJUSTMENT” of “WORK SUPPORT”. Refer to PB-55, "Work Procedure".

Is the inspection result normal?

>> GO TO 3.

3.PERFORM SELF-DIAGNOSIS

With CONSULT
Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDF” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

C1BDA PARKING BRAKE ACTUATOR LEFT

DTC Description

INFOID:0000000010722984

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)		Malfunction detected condition	TYPE
C1BDA	ACTUATOR MALF (LH) [Actuator malfunction (left)]	MECHANICAL MALFUNCTION (Mechanical malfunction)	Motor of the parking brake actuator is rotates for 25 seconds or more.	1
		COMMAND POSI NOT REACHABLE (Commanded position not reachable)	Piston position of the rear brake caliper does not reach the target position.	2
		PFM/INCORRECT OPERATN (Performance/Incorrect operation)	• The current when left side parking brake actuator is operates is 50% or less than the current for when right side parking brake actuator is operates. • The current when left side parking brake actuator is released is 50% or less than current for when right side parking brake actuator is released.	3
		CIRC CRRNT BELOW THRESHOLD (Circuit current below threshold)	A open circuit is detected in circuit motor of parking brake actuator.	4
		CIRC CRRNT ABOVE THRESHOLD (Circuit current above threshold)	• A short circuit is detected in circuit motor of parking brake actuator. • Operation of the motor of parking brake actuator is delayed. • Torque of the motor of parking brake actuator is low. • Motor of parking brake actuator is stuck.	5
		CIRC CURRENT OUT OF RANGE (Circuit current out of range)	Load is high when the parking brake actuator operates, and the parking brake is released.	6

POSSIBLE CAUSE

- Harness or connector
- Parking brake actuator

FAIL-SAFE

Other side actuator's apply and release are available.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Put the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.

4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDA” detected?

YES (Type 1)>>Proceed to PB-103, "TYPE 1 : Diagnosis Procedure".
YES (Type 2)>>Proceed to PB-103, "TYPE 2 : Diagnosis Procedure".
YES (Type 3)>>Proceed to PB-104, "TYPE 3 : Diagnosis Procedure".
YES (Type 4)>>Proceed to PB-105, "TYPE 4 : Diagnosis Procedure".
YES (Type 5)>>Proceed to PB-106, "TYPE 5 : Diagnosis Procedure".
YES (Type 6)>>Proceed to PB-108, "TYPE 6 : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

TYPE 1

TYPE 1 : Diagnosis Procedure

INFOID:0000000010722985

1.CHECK REAR BRAKE COMPONENT PARTS

1. Parking brake switch operation (pull and push).
2. Turn the ignition switch OFF.
3. Check the rear brake pad, rear brake caliper assembly, rear disc rotor and parking brake actuator.

- Rear brake pad
• LHD models: Refer to BR-62, "BRAKE PAD : Inspection and Adjustment".
• RHD models: Refer to BR-122, "BRAKE PAD : Inspection and Adjustment".
- Rear brake caliper assembly (and parking brake actuator)
• LHD models: Refer to BR-66, "BRAKE CALIPER ASSEMBLY : Inspection and Adjustment".
• RHD models: Refer to BR-126, "BRAKE CALIPER ASSEMBLY : Inspection and Adjustment".
- Rear disc rotor
• LHD models: Refer to BR-19, "DISC ROTOR : Inspection and Adjustment".
• RHD models: Refer to BR-83, "DISC ROTOR : Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace error-detected parts, and GO TO 2.

2.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.
2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDA (MECHANICAL MALFUNCTION)” detected?

YES >> Replace the rear brake caliper assembly.
• LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
• RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
NO >> INSPECTION END

TYPE 2

TYPE 2 : Diagnosis Procedure

INFOID:0000000010722986

1.CHECK PARKING BRAKE ACTUATOR CIRCUIT (1)

1. Parking brake switch operation (pull and push).
2. Turn the ignition switch OFF.
3. Disconnect the electric parking control module harness connector.
4. Check the continuity between electric parking brake control module harness connector terminals.

Electric parking brake control module		Continuity
Connector	Terminal	

M137	14 – 29	Existed
	12 – 27	

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the rear brake caliper assembly.
- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

2.CHECK PARKING BRAKE ACTUATOR CIRCUIT (2)

1. Parking brake switch operation (pull and push).
2. Disconnect the parking brake actuator harness connector.
3. Check the continuity between electric parking brake control module harness connector and parking brake actuator harness connector.

Electric parking brake control module		Parking brake actuator		Continuity
Connector	Terminal	Connector	Terminal	
M137	14	M128	1	Existed
	29		2	
	12	M129	1	
	27		2	

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace error-detected parts, and GO TO 3.

3.PERFORM SELF-DIAGNOSIS

With CONSULT
1. Connect the electric parking brake control module harness connector.
2. Connect the parking brake actuator harness connector.
3. Turn the ignition switch ON.
4. Erase self-diagnosis result for “EHS/PKB”.
5. Repeat the parking brake switch operation (pull and push) five times.
6. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDA (COMMAND POSI NOT REACHABLE)” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

TYPE 3

TYPE 3 : Diagnosis Procedure

INFOID:0000000010722987

1.CHECK REAR DISC BRAKE

1. Parking brake switch operation (pull and push).
2. Turn the ignition switch OFF.
3. Check the drag of rear disc brake.

- LHD models: Refer to BR-19, "DISC ROTOR : Inspection and Adjustment".
- RHD models: Refer to BR-83, "DISC ROTOR : Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace error-detected parts, and GO TO 2.

2.CHECK PARKING BRAKE ACTUATOR INSTALLATION

Check the parking brake actuator for looseness and disconnection.
- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace error-detected parts, and GO TO 3.

3.PERFORM SELF-DIAGNOSIS

With CONSULT
1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.
2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDA (PFM/INCORRECT OPERATN)” detected?

YES >> Replace the rear brake caliper assembly.
- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

NO >> INSPECTION END

TYPE 4

TYPE 4 : Diagnosis Procedure

INFOID:0000000010722988

1.CHECK PARKING BRAKE ACTUATOR CIRCUIT

1. Parking brake switch operation (pull and push).
2. Turn the ignition switch OFF.
3. Disconnect the electric parking control module harness connector.
4. Check the continuity between electric parking brake control module harness connector terminals.

Electric parking brake control module		Continuity
Connector	Terminal	
M137	14 – 29	Existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace error-detected parts, and GO TO 2.

2.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY

1. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	15	Ground	9 – 16 V

2. Turn the ignition switch ON.
3. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	15	Ground	9 – 16 V

Is the inspection result normal?

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

3.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Check the 30A fuse (#45).
3. Check the continuity and short circuit between electric parking brake control module harness connector terminal (15) and 30A fuse (#45).

Is the inspection result normal?

YES >> Perform trouble diagnosis for battery power supply.
NO >> Repair or replace error-detected parts.

4.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE GROUND CIRCUIT

1. Disconnect the electric parking brake control module harness connector.
2. Turn the ignition switch OFF.
3. Check the continuity between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Continuity
Connector	Terminal		
M137	28	Ground	Existed
	30		

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace error-detected parts, and GO TO 5.

5.CHECK CONNECTOR AND TERMINAL

Check the electric parking brake control module pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace error-detected parts, and GO TO 6.

6.PERFORM SELF-DIAGNOSIS

With CONSULT
1. Connect the electric parking brake control module harness connector.
2. Turn the ignition switch ON.
3. Erase self-diagnosis result for “EHS/PKB”.
4. Repeat the parking brake switch operation (pull and push) five times.
5. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDA (CIRC CRRNT BELOW THRESHOLD)” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

TYPE 5

TYPE 5 : Diagnosis Procedure

INFOID:0000000010722989

1.CHECK PARKING BRAKE ACTUATOR CIRCUIT

1. Parking brake switch operation (pull and push).
2. Turn the ignition switch OFF.
3. Disconnect the electric parking control module harness connector.
4. Check the continuity between electric parking brake control module harness connector terminals.

Electric parking brake control module		Continuity
Connector	Terminal	
M137	14 – 29	Existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace error-detected parts, and GO TO 2.

2.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY

1. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	15	Ground	9 – 16 V

2. Turn the ignition switch ON.
3. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	15	Ground	9 – 16 V

Is the inspection result normal?

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

3. CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Check the 30A fuse (#45).
3. Check the continuity and short circuit between electric parking brake control module harness connector terminal (15) and 30A fuse (#45).

Is the inspection result normal?

YES >> Perform trouble diagnosis for battery power supply.
NO >> Repair or replace error-detected parts.

4. CHECK ELECTRIC PARKING BRAKE CONTROL MODULE GROUND CIRCUIT

Check the continuity between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Continuity
Connector	Terminal		
M137	28	Ground	Existed
	30		

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace error-detected parts, and GO TO 5.

5. CHECK CONNECTOR

Check the parking brake actuator harness connector for damage or looseness.

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace error-detected parts, and GO TO 6.

6. CHECK PARKING BRAKE ACTUATOR

1. Connect the electric parking brake control module harness connector.
2. Turn the ignition switch ON.
3. Pull or push parking brake switch, and check the operation sound of parking brake actuator.

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace the rear brake caliper assembly.
- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

7. PERFORM SELF-DIAGNOSIS

With CONSULT
1. Erase self-diagnosis result for “EHS/PKB”.
2. Repeat the parking brake switch operation (pull and push) five times.

3. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDA (CIRC CRRNT ABOVE THRESHOLD)” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

TYPE 6

TYPE 6 : Diagnosis Procedure

INFOID:0000000010722990

1.CHECK REAR DISC BRAKE

1. Parking brake switch operation (pull and push).
2. Turn the ignition switch OFF.
3. Check the drag of rear disc brake.

- LHD models: Refer to BR-19, "DISC ROTOR : Inspection and Adjustment".
- RHD models: Refer to BR-83, "DISC ROTOR : Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace error-detected parts, and GO TO 2.

2.CHECK PARKING BRAKE ACTUATOR INSTALLATION

Check the parking brake actuator for looseness and disconnection.

- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace error-detected parts, and GO TO 3.

3.CHECK PARKING BRAKE ACTUATOR CIRCUIT

1. Parking brake switch operation (pull and push).
2. Turn the ignition switch OFF.
3. Disconnect the electric parking control module harness connector.
4. Check the continuity between electric parking brake control module harness connector terminals.

Electric parking brake control module		Continuity
Connector	Terminal	
M137	14 – 29	Existed

Is the inspection result normal?

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

4.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY

1. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	15	Ground	9 – 16 V

2. Turn the ignition switch ON.
3. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	15	Ground	9 – 16 V

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 5.

5. CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Check the 30A fuse (#45).
3. Check the continuity and short circuit between electric parking brake control module harness connector terminal (15) and 30A fuse (#45).

Is the inspection result normal?

YES >> Perform trouble diagnosis for battery power supply.
NO >> Repair or replace error-detected parts.

6. CHECK ELECTRIC PARKING BRAKE CONTROL MODULE GROUND CIRCUIT

Check the continuity between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Continuity
Connector	Terminal		
M137	28	Ground	Existed
	30		

Is the inspection result normal?

YES >> GO TO 7.
NO >> Repair or replace error-detected parts, and GO TO 7.

7. CHECK CONNECTOR

Check the parking brake actuator harness connector for damage or looseness.

Is the inspection result normal?

YES >> GO TO 8.
NO >> Repair or replace error-detected parts, and GO TO 8.

8. CHECK PARKING BRAKE ACTUATOR

1. Connect the electric parking brake control module harness connector.
2. Turn the ignition switch ON.
3. Pull or push parking brake switch, and check the operation sound of parking brake actuator.

Is the inspection result normal?

YES >> GO TO 9.
NO >> Replace the rear brake caliper assembly.
- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

9. PERFORM SELF-DIAGNOSIS

With CONSULT
1. Erase self-diagnosis result for “EHS/PKB”.
2. Repeat the parking brake switch operation (pull and push) five times.
3. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDA (CIRC CURRENT OUT OF RANGE)” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

C1BDB PARKING BRAKE ACTUATOR RIGHT

DTC Description

INFOID:0000000010722991

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)		Malfunction detected condition	TYPE
C1BDB	ACTUATOR MALF (RH) [Actuator malfunction (right)]	MECHANICAL MALFUNCTION (Mechanical malfunction)	Motor of the parking brake actuator is rotates for 25 seconds or more.	1
		COMMAND POSI NOT REACHABLE (Commanded position not reachable)	Piston position of the rear brake caliper does not reach the target position.	2
		PFM/INCORRECT OPERATN (Performance/Incorrect operation)	• The current when right side parking brake actuator is operates is 50% or less than the current for when left side parking brake actuator is operates. • The current when right side parking brake actuator is released is 50% or less than current for when left side parking brake actuator is released.	3
		CIRC CRRNT BELOW THRESHOLD (Circuit current below threshold)	A open circuit is detected in circuit motor of parking brake actuator.	4
		CIRC CRRNT ABOVE THRESHOLD (Circuit current above threshold)	• A short circuit is detected in circuit motor of parking brake actuator. • Operation of the motor of parking brake actuator is delayed. • Torque of the motor of parking brake actuator is low. • Motor of parking brake actuator is stuck.	5
		CIRC CURRENT OUT OF RANGE (Circuit current out of range)	Load is high when the parking brake actuator operates, and the parking brake is released.	6

POSSIBLE CAUSE

- Harness or connector
- Parking brake actuator

FAIL-SAFE

Other side actuator's apply and release are available.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Put the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.

4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDB” detected?

YES (Type 1)>>Proceed to PB-111, "TYPE 1 : Diagnosis Procedure".
YES (Type 2)>>Proceed to PB-111, "TYPE 2 : Diagnosis Procedure".
YES (Type 3)>>Proceed to PB-112, "TYPE 3 : Diagnosis Procedure".
YES (Type 4)>>Proceed to PB-113, "TYPE 4 : Diagnosis Procedure".
YES (Type 5)>>Proceed to PB-114, "TYPE 5 : Diagnosis Procedure".
YES (Type 6)>>Proceed to PB-116, "TYPE 6 : Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

TYPE 1

TYPE 1 : Diagnosis Procedure

INFOID:0000000010722992

1.CHECK REAR BRAKE COMPONENT PARTS

1. Parking brake switch operation (pull and push).
2. Turn the ignition switch OFF.
3. Check the rear brake pad, rear brake caliper assembly, rear disc rotor and parking brake actuator.

- Rear brake pad
  - LHD models: Refer to BR-62, "BRAKE PAD : Inspection and Adjustment".
  - RHD models: Refer to BR-122, "BRAKE PAD : Inspection and Adjustment".
- Rear brake caliper assembly (and parking brake actuator)
  - LHD models: Refer to BR-66, "BRAKE CALIPER ASSEMBLY : Inspection and Adjustment".
  - RHD models: Refer to BR-126, "BRAKE CALIPER ASSEMBLY : Inspection and Adjustment".
- Rear disc rotor
  - LHD models: Refer to BR-19, "DISC ROTOR : Inspection and Adjustment".
  - RHD models: Refer to BR-83, "DISC ROTOR : Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace error-detected parts, and GO TO 2.

2.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.
2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDB (MECHANICAL MALFUNCTION)” detected?

YES >> Replace the rear brake caliper assembly.
- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

NO >> INSPECTION END

TYPE 2

TYPE 2 : Diagnosis Procedure

INFOID:0000000010722993

1.CHECK PARKING BRAKE ACTUATOR CIRCUIT (1)

1. Parking brake switch operation (pull and push).
2. Turn the ignition switch OFF.
3. Disconnect the electric parking control module harness connector.
4. Check the continuity between electric parking brake control module harness connector terminals.

Electric parking brake control module		Continuity
Connector	Terminal	

M137	14 – 29	Existed
	12 – 27	

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the rear brake caliper assembly.
- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

2.CHECK PARKING BRAKE ACTUATOR CIRCUIT (2)

1. Parking brake switch operation (pull and push).
2. Disconnect the parking brake actuator harness connector.
3. Check the continuity between electric parking brake control module harness connector and parking brake actuator harness connector.

Electric parking brake control module		Parking brake actuator		Continuity
Connector	Terminal	Connector	Terminal	
M137	14	M128	1	Existed
	29		2	
	12	M129	1	
	27		2	

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace error-detected parts, and GO TO 3.

3.PERFORM SELF-DIAGNOSIS

With CONSULT
1. Connect the electric parking brake control module harness connector.
2. Connect the parking brake actuator harness connector.
3. Turn the ignition switch ON.
4. Erase self-diagnosis result for “EHS/PKB”.
5. Repeat the parking brake switch operation (pull and push) five times.
6. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDB (COMMAND POSI NOT REACHABLE)” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

TYPE 3

TYPE 3 : Diagnosis Procedure

INFOID:0000000010722994

1.CHECK REAR DISC BRAKE

1. Parking brake switch operation (pull and push).
2. Turn the ignition switch OFF.
3. Check the drag of rear disc brake.

- LHD models: Refer to BR-19, "DISC ROTOR : Inspection and Adjustment".
- RHD models: Refer to BR-83, "DISC ROTOR : Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace error-detected parts, and GO TO 2.

2.CHECK PARKING BRAKE ACTUATOR INSTALLATION

Check the parking brake actuator for looseness and disconnection.
- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace error-detected parts, and GO TO 3.

3.PERFORM SELF-DIAGNOSIS

With CONSULT
1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.
2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDB (PFM/INCORRECT OPERATN)” detected?

YES >> Replace the rear brake caliper assembly.
- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

NO >> INSPECTION END

TYPE 4

TYPE 4 : Diagnosis Procedure

INFOID:0000000010722995

1.CHECK PARKING BRAKE ACTUATOR CIRCUIT

1. Parking brake switch operation (pull and push).
2. Turn the ignition switch OFF.
3. Disconnect the electric parking control module harness connector.
4. Check the continuity between electric parking brake control module harness connector terminals.

Electric parking brake control module		Continuity
Connector	Terminal	
M137	12 – 27	Existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace error-detected parts, and GO TO 2.

2.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY

1. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	13	Ground	9 – 16 V

2. Turn the ignition switch ON.
3. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	13	Ground	9 – 16 V

Is the inspection result normal?

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

3.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Check the 30A fuse (#48).
3. Check the continuity and short circuit between electric parking brake control module harness connector terminal (13) and 30A fuse (#48).

Is the inspection result normal?

YES >> Perform trouble diagnosis for battery power supply.
NO >> Repair or replace error-detected parts.

4.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE GROUND CIRCUIT

1. Disconnect the electric parking brake control module harness connector.
2. Turn the ignition switch OFF.
3. Check the continuity between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Continuity
Connector	Terminal		
M137	28	Ground	Existed
	30		

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace error-detected parts, and GO TO 5.

5.CHECK CONNECTOR AND TERMINAL

Check the electric parking brake control module pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace error-detected parts, and GO TO 6.

6.PERFORM SELF-DIAGNOSIS

With CONSULT
1. Connect the electric parking brake control module harness connector.
2. Turn the ignition switch ON.
3. Erase self-diagnosis result for “EHS/PKB”.
4. Repeat the parking brake switch operation (pull and push) five times.
5. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDB (CIRC CRRNT BELOW THRESHOLD)” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

TYPE 5

TYPE 5 : Diagnosis Procedure

INFOID:0000000010722996

1.CHECK PARKING BRAKE ACTUATOR CIRCUIT

1. Parking brake switch operation (pull and push).
2. Turn the ignition switch OFF.
3. Disconnect the electric parking control module harness connector.
4. Check the continuity between electric parking brake control module harness connector terminals.

Electric parking brake control module		Continuity
Connector	Terminal	
M137	12 – 27	Existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace error-detected parts, and GO TO 2.

2.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY

1. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	13	Ground	9 – 16 V

2. Turn the ignition switch ON.
3. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	13	Ground	9 – 16 V

Is the inspection result normal?

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

3. CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Check the 30A fuse (#48).
3. Check the continuity and short circuit between electric parking brake control module harness connector terminal (13) and 30A fuse (#48).

Is the inspection result normal?

YES >> Perform trouble diagnosis for battery power supply.
NO >> Repair or replace error-detected parts.

4. CHECK ELECTRIC PARKING BRAKE CONTROL MODULE GROUND CIRCUIT

Check the continuity between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Continuity
Connector	Terminal		
M137	28	Ground	Existed
	30		

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace error-detected parts, and GO TO 5.

5. CHECK CONNECTOR

Check the parking brake actuator harness connector for damage or looseness.

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace error-detected parts, and GO TO 6.

6. CHECK PARKING BRAKE ACTUATOR

1. Connect the electric parking brake control module harness connector.
2. Turn the ignition switch ON.
3. Pull or push parking brake switch, and check the operation sound of parking brake actuator.

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace the rear brake caliper assembly.
- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

7. PERFORM SELF-DIAGNOSIS

With CONSULT
1. Erase self-diagnosis result for “EHS/PKB”.
2. Repeat the parking brake switch operation (pull and push) five times.

3. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDB (CIRC CRRNT ABOVE THRESHOLD)” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

TYPE 6

TYPE 6 : Diagnosis Procedure

INFOID:0000000010722997

1.CHECK REAR DISC BRAKE

1. Parking brake switch operation (pull and push).
2. Turn the ignition switch OFF.
3. Check the drag of rear disc brake.

- LHD models: Refer to BR-19, "DISC ROTOR : Inspection and Adjustment".
- RHD models: Refer to BR-83, "DISC ROTOR : Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace error-detected parts, and GO TO 2.

2.CHECK PARKING BRAKE ACTUATOR INSTALLATION

Check the parking brake actuator for looseness and disconnection.

- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace error-detected parts, and GO TO 3.

3.CHECK PARKING BRAKE ACTUATOR CIRCUIT

1. Parking brake switch operation (pull and push).
2. Turn the ignition switch OFF.
3. Disconnect the electric parking control module harness connector.
4. Check the continuity between electric parking brake control module harness connector terminals.

Electric parking brake control module		Continuity
Connector	Terminal	
M137	12 – 27	Existed

Is the inspection result normal?

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

4.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY

1. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	13	Ground	9 – 16 V

2. Turn the ignition switch ON.
3. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	13	Ground	9 – 16 V

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 5.

5. CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Check the 30A fuse (#48).
3. Check the continuity and short circuit between electric parking brake control module harness connector terminal (13) and 30A fuse (#48).

Is the inspection result normal?

YES >> Perform trouble diagnosis for battery power supply.
NO >> Repair or replace error-detected parts.

6. CHECK ELECTRIC PARKING BRAKE CONTROL MODULE GROUND CIRCUIT

Check the continuity between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Continuity
Connector	Terminal		
M137	28	Ground	Existed
	30		

Is the inspection result normal?

YES >> GO TO 7.
NO >> Repair or replace error-detected parts, and GO TO 7.

7. CHECK CONNECTOR

Check the parking brake actuator harness connector for damage or looseness.

Is the inspection result normal?

YES >> GO TO 8.
NO >> Repair or replace error-detected parts, and GO TO 8.

8. CHECK PARKING BRAKE ACTUATOR

1. Connect the electric parking brake control module harness connector.
2. Turn the ignition switch ON.
3. Pull or push parking brake switch, and check the operation sound of parking brake actuator.

Is the inspection result normal?

YES >> GO TO 9.
NO >> Replace the rear brake caliper assembly.
- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

9. PERFORM SELF-DIAGNOSIS

With CONSULT
1. Erase self-diagnosis result for “EHS/PKB”.
2. Repeat the parking brake switch operation (pull and push) five times.
3. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDB (CIRC CURRENT OUT OF RANGE)” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

C1BDF MODE

DTC Description

INFOID:0000000010722998

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BDF	MODE (Mode)	When there is an internal malfunction in the electric parking brake control module. (Factory mode)

POSSIBLE CAUSE

- Electric parking brake control module

FAIL-SAFE

Automatic apply and release are prohibited.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDF” detected?

YES >> Proceed to PB-118, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010722999

1.CHANGE OF SYSTEM MODE

With CONSULT

Perform change of system mode. Refer to PB-65, "Work Procedure".

>> GO TO 2.

2.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.
2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1BDF” detected?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> INSPECTION END

U0100 ECM COMMUNICATION

DTC Description

INFOID:0000000010723000

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U0100	ECM/PCM A (ECM/PCM A)	When CAN communication signal with ECM is not continuously received for 2 seconds or more.

POSSIBLE CAUSE

- ECM
- CAN communication line
- Electric parking brake control module

FAIL-SAFE

Automatic apply and release are prohibited.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0100” detected?

YES >> Proceed to PB-120, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010723001

1.ERFORM SELF-DIAGNOSIS (1)

With CONSULT

Perform self-diagnosis for “ENGINE”.

Is DTC detected?

YES >> Check the DTC.
- MR20DD engine models: Refer to EC-109, "DTC Index".
- QR25DE engine models: Refer to EC-517, "DTC Index".
- R9M engine models: Refer to EC-908, "DTC Index".

NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:
Be sure to wait for 10 seconds or more after turning the ignition switch OFF.

2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0100”, “U1000” detected?

YES (“U0100”)>>Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
YES (“U1000”)>>Proceed to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> INSPECTION END

U0101 TCM COMMUNICATION

DTC Description

INFOID:0000000010953411

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U0101	TCM (TCM)	When CAN communication signal with TCM is not continuously received for 2 seconds or more.

POSSIBLE CAUSE

- TCM
- CAN communication line
- Electric parking brake control module

FAIL-SAFE

Automatic release is prohibited.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0101” detected?

YES >> Proceed to PB-122, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010953412

1.ERFORM SELF-DIAGNOSIS (1)

With CONSULT

Perform self-diagnosis for “TRANSMISSION”.

Is DTC detected?

YES >> Check the DTC.
- RE0F10D models: Refer to TM-288, "DTC Index".
- RE0F10G models: Refer to TM-529, "DTC Index".

NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:

Be sure to wait for 10 seconds or more after turning the ignition switch OFF.

2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0101”, “U1000” detected?

YES (“U0101”)>>Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
YES (“U1000”)>>Proceed to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> INSPECTION END

U0111 IPDM E/R COMMUNICATION

DTC Description

INFOID:0000000010723002

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U0111	BATTERY ENERGY CONTROL MODULE A (BATTERY ENERGY CONTROL MODULE A)	When CAN communication signal with IPDM E/R is not continuously received for 2 seconds or more.

POSSIBLE CAUSE

- IPDM E/R
- CAN communication line
- Electric parking brake control module

FAIL-SAFE

Automatic apply and release are prohibited.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0111” detected?

YES >> Proceed to PB-124, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010723003

1.ERFORM SELF-DIAGNOSIS (1)

With CONSULT

Perform self-diagnosis for “IPDM E/R”.

Is DTC detected?

YES >> Check the DTC. Refer to PCS-38, "DTC Index".
NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.

2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0111”, “U1000” detected?

YES (“U0111”)>>Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
YES (“U1000”)>>Proceed to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> INSPECTION END

U0129 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) COMMUNICATION

DTC Description

INFOID:0000000010723004

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U0129	BRAKE SYSTEM CONTROL MODULE (BRAKE SYSTEM CONTROL MODULE)	When CAN communication signal with ABS actuator and electric unit (control unit) is not continuously received for 2 seconds or more.

POSSIBLE CAUSE

- ABS actuator and electric unit (control unit)
- CAN communication line
- Electric parking brake control module

FAIL-SAFE

- Automatic apply and release are prohibited.
- Brake force is degraded.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0129” detected?

YES >> Proceed to PB-126, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010723005

1.ERFORM SELF-DIAGNOSIS (1)

With CONSULT

Perform self-diagnosis for “ABS”.

Is DTC detected?

YES >> Check the DTC. Refer to BRC-84, "DTC Index".
NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.
2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0129”, “U1000” detected?

YES (“U0129”)>>Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
YES (“U1000”)>>Proceed to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> INSPECTION END

U0140 BCM COMMUNICATION

DTC Description

INFOID:0000000010723006

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U0140	BCM (BCM)	When CAN communication signal with BCM is not continuously received for 2 seconds or more.

POSSIBLE CAUSE

- BCM
- CAN communication line
- Electric parking brake control module

FAIL-SAFE

Automatic apply and release are prohibited.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0140” detected?

YES >> Proceed to PB-128, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010723007

1.ERFORM SELF-DIAGNOSIS (1)

With CONSULT

Perform self-diagnosis for “BCM”.

Is DTC detected?

YES >> Check the DTC. Refer to BCS-78, "DTC Index".
NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.
2. Erase self-diagnosis result for “EHS/PKB”.

3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0140”, “U1000” detected?

YES (“U0410”)>>Replace the electric parking brake control module. Refer to PB-156, "Removal and Installation".
YES (“U1000”)>>Proceed to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> INSPECTION END

U0155 METER COMMUNICATION

DTC Description

INFOID:0000000010723008

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U0155	IPC CONTROL MODULE (IPC CONTROL MODULE)	When CAN communication signal with combination meter is not continuously received for 2 seconds or more.

POSSIBLE CAUSE

- Combination meter
- CAN communication line
- Electric parking brake control module

FAIL-SAFE

Automatic release is prohibited.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0155” detected?

YES >> Proceed to PB-130, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010723009

1.ERFORM SELF-DIAGNOSIS (1)

With CONSULT

Perform self-diagnosis for “METER M&A”.

Is DTC detected?

YES >> Check the DTC. Refer to MWI-105, "DTC Index".
NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.
2. Erase self-diagnosis result for “EHS/PKB”.

3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0155”, “U1000” detected?

YES (“U0155”)>>Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
YES (“U1000”)>>Proceed to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> INSPECTION END

U0401 ECM SIGNAL

DTC Description

INFOID:0000000010723010

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U0401	VCM (Vehicle control module)	When a malfunction is detected in ECM system.

POSSIBLE CAUSE

- ECM
- Electric parking brake control module

FAIL-SAFE

Automatic apply and release are prohibited.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0401” detected?

YES >> Proceed to PB-132, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010723011

1.ERFORM SELF-DIAGNOSIS (1)

With CONSULT

Perform self-diagnosis for “ENGINE”.

Is DTC detected?

YES >> Check the DTC.
- MR20DD engine models: Refer to EC-109, "DTC Index".
- QR25DE engine models: Refer to EC-517, "DTC Index".
- R9M engine models: Refer to EC-908, "DTC Index".

NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:

Be sure to wait for 10 seconds or more after turning the ignition switch OFF.

2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0401”, “U1000” detected?

YES (“U0401”)>>Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
YES (“U1000”)>>Proceed to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> INSPECTION END

U0402 TCM SIGNAL

DTC Description

INFOID:0000000010953413

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U0402	TCM (Transmission control module)	When a malfunction is detected in TCM system.

POSSIBLE CAUSE

- TCM
- Electric parking brake control module

FAIL-SAFE

Automatic apply and release are prohibited.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0402” detected?

YES >> Proceed to PB-134, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010953414

1.ERFORM SELF-DIAGNOSIS (1)

With CONSULT

Perform self-diagnosis for “TRANSMISSION”.

Is DTC detected?

YES >> Check the DTC.
- RE0F10D models: Refer to TM-288, "DTC Index".
- RE0F10G models: Refer to TM-529, "DTC Index".

NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.

2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0402”, “U1000” detected?

YES (“U0402”)>>Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
YES (“U1000”)>>Proceed to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> INSPECTION END

U0418 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SIGNAL

DTC Description

INFOID:0000000010723012

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U0418	BRAKE SYSTEM CONTROL MODULE (Brake system control module)	When a malfunction is detected in ABS actuator and electric unit (control unit) system.

POSSIBLE CAUSE

- ABS actuator and electric unit (control unit)
- Electric parking brake control module

FAIL-SAFE

- Automatic apply and release are prohibited.
- Brake force is degraded.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0418” detected?

YES >> Proceed to PB-136, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010723013

1.ERFORM SELF-DIAGNOSIS (1)

With CONSULT

Perform self-diagnosis for “ABS”.

Is DTC detected?

YES >> Check the DTC. Refer to BRC-84, "DTC Index".
NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.

2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0418”, “U1000” detected?

YES (“U0418”)>>Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
YES (“U1000”)>>Proceed to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> INSPECTION END

U0422 BCM SIGNAL

DTC Description

INFOID:0000000010723014

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U0422	BCM (Body control module)	When a malfunction is detected in BCM system.

POSSIBLE CAUSE

- BCM
- Electric parking brake control module

FAIL-SAFE

Automatic release is prohibited.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0422” detected?

YES >> Proceed to PB-138, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010723015

1.ERFORM SELF-DIAGNOSIS (1)

With CONSULT

Perform self-diagnosis for “BCM”.

Is DTC detected?

YES >> Check the DTC. Refer to BCS-78, "DTC Index".
NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.
2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.

4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U0422”, “U1000” detected?

YES (“U0422”)>>Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
YES (“U1000”)>>Proceed to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> INSPECTION END

U1000 CAN COMM CIRCUIT

DTC Description

INFOID:0000000010723016

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)		Malfunction detected condition
U1000	CAN COMM CIRCUIT (CAN communication circuit)	BUS OFF (Bus off)	When CAN communication signal is not continuously transmitted or received for 2 seconds or more.
		ERRATIC (Erratic)	When no inaccurate signal is received.

POSSIBLE CAUSE

- CAN communication system malfunction

FAIL-SAFE

- Automatic apply and release are prohibited.
- Brake force is degraded.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “C1000” detected?

YES >> Proceed to PB-140, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010723017

Proceed to LAN-17, "Trouble Diagnosis Flow Chart".

U1060 VEHICLE SPEED

DTC Description

INFOID:0000000010723018

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U1060	VEHICLE SPPED (Vehicle speed)	When CAN communication signal with wheel speed signal from ABS actuator and electric unit (control unit) is not continuously received for 2 seconds or more.

POSSIBLE CAUSE

- CAN communication line
- ABS actuator and electric unit (control unit) system
- Electric parking brake control module

FAIL-SAFE

- Automatic apply and release are prohibited.
- Brake force is degraded.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U1060” detected?

YES >> Proceed to PB-141, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010723019

1.ERFORM SELF-DIAGNOSIS (1)

With CONSULT

Perform self-diagnosis for “ABS”.

Is DTC detected?

YES >> Check the DTC. Refer to BRC-84, "DTC Index".
NO >> GO TO 2.

2.CHECK DATA MONITOR (1)

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.

2. Select “ABS” and “DATA MONITOR” according to this order.
3. Check the following monitor item. Refer to BRC-76, "Reference Value".

- “RR LH SENSOR”
- “RR RH SENSOR”

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the ABS actuator and electric unit (control unit) system. Refer to BRC-109, "Diagnosis Procedure", BRC-114, "Diagnosis Procedure" and BRC-127, "Diagnosis Procedure".

3. PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.
2. Erase self-diagnosis result for “EHS/PKB”.
3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U1060”, “U1000” detected?

YES (“U1060”)>>Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
YES (“U1000”)>>Proceed to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> INSPECTION END

U1061 IPDM E/R SYSTEM

DTC Description

INFOID:0000000010723020

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U1061	IPDM E/R SYSTEM (Intelligent power distribution module engine room system)	When a malfunction is detected in IPDM E/R

POSSIBLE CAUSE

- IPDM E/R
- Electric parking brake control module

FAIL-SAFE

Automatic release is prohibited.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2.CHECK DTC DETECTION

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds after turning ignition switch OFF or ON.
2. Push the parking brake switch.
   CAUTION:
   - **Set the select lever in the P position.**
   - **Depress the brake pedal.**
3. Pull the parking brake switch.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U1061” detected?

YES >> Proceed to PB-143, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010723021

1.ERFORM SELF-DIAGNOSIS (1)

With CONSULT

Perform self-diagnosis for “IPDM E/R”.

Is DTC detected?

YES >> Check the DTC. Refer to PCS-38, "DTC Index".
NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS (2)

With CONSULT

1. Turn the ignition switch OFF to ON.
   CAUTION:
   Be sure to wait for 10 seconds or more after turning the ignition switch OFF.
2. Erase self-diagnosis result for “EHS/PKB”.

3. Repeat the parking brake switch operation (pull and push) five times.
4. Perform self-diagnosis for “EHS/PKB”.

Is DTC “U1061”, “U1000” detected?

YES (“U1061”)>>Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
YES (“U1000”)>>Proceed to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> INSPECTION END

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:0000000010723022

1.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY

1. Turn the ignition switch OFF.
2. Disconnect the electric parking brake control module harness connector.
3. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	22	Ground	Approx. 0 V

4. Turn the ignition switch ON
5. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	22	Ground	9 – 16 V

Is the inspection result normal?

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

2.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE IGNITION POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Check 10A fuse (#30).
3. Check the continuity between electric parking brake control module harness connector and fuse block (J/B) harness connector.

Electric parking brake control module		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
M137	22	M3	7C	Existed

Is the inspection result normal?

YES >> Perform trouble diagnosis for ignition power supply.
NO >> Repair or replace error-detected parts.

3.CHECK MOTOR POWER SUPPLY

1. Turn the ignition switch OFF.
2. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	13	Ground	9 – 16 V
	15		

3. Turn the ignition switch ON
4. Check the voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		—	Voltage
Connector	Terminal		
M137	13	Ground	9 – 16 V
	15		

Is the inspection result normal?

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

4.CHECK MOTOR POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Check the 30A fuse (#48) and 30A fuse (#45).
3. Check the continuity and short circuit between electric parking brake control module harness connector terminal (13) and 30A fuse (#48).
4. Check the continuity and short circuit between electric parking brake control module harness connector terminal (15) and 30A fuse (#45).

Is the inspection result normal?

YES >> Perform trouble diagnosis for battery power supply.
NO >> Repair or replace error-detected parts.

5.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Check for continuity between electric parking brake control module harness connector and the ground.

Electric parking brake control module		—	Continuity
Connector	Terminal		
M137	28	Ground	Existed
	30		

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace error-detected parts.

6.CHECK TERMINAL

Check electric parking brake control module pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair or replace error-detected parts.

ELECTRIC PARKING BRAKE INDICATOR LAMP

Component Function Check

INFOID:0000000010723023

1.CHECK ELECTRIC PARKING BRAKE INDICATOR LAMP FUNCTION

Check that electric parking brake indicator lamp in combination meter turns ON/OFF when parking brake is operated.

NOTE:

Electric parking brake indicator lamp turns ON when parking brake is operated (when parking brake switch is pull).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Proceed to PB-147, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000010723024

1.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE POWER SUPPLY AND GROUND CIRCUIT

Perform the trouble diagnosis for electric parking brake control module power supply and ground circuit. Refer to PB-145, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace error-detected parts.

2.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait for 10 seconds or more after turning the ignition switch OFF.

2. Repeat the parking brake switch operation (pull and push) five times.
3. Perform self-diagnosis for “EHS/PKB”.

Is DTC detected?

YES >> Check the DTC. Refer to PB-36, "DTC Index".

NO >> GO TO 3.

3.CHECK ELECTRIC PARKING BRAKE INDICATOR LAMP SIGNAL

With CONSULT

1. Select “EHS/PKB” and “DATA MONITOR” according to this order.
2. Check the following monitor item. Refer to PB-29, "Reference Value".

- “PB WARNING 1”
- “PB WARNING 2”
- “PB WARNING 3”
- “PB WARNING 4”
- “PB WARNING 5”

Is the inspection result normal?

YES >> Replace the combination meter. Refer to MWI-151, "Removal and Installation".

NO >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".

SYMPTOM DIAGNOSIS

PARKING BRAKE DOES NOT RELEASE

Description

INFOID:0000000010723025

When the parking brake cannot be released by the parking brake switch.

Diagnosis Procedure

INFOID:0000000010723026

1.PERFORM THE SELF-DIAGNOSIS

With CONSULT
Perform self-diagnosis for “EHS/PKB”.

Is DTC detected?

YES >> Check the DTC. Refer to PB-36, "DTC Index".
NO >> GO TO 2.

2.CHECK REAR DISC BRAKE DRAG

Check if the rear disc brake is dragging.
- LHD models: Refer to BR-19, "DISC ROTOR : Inspection and Adjustment".
- RHD models: Refer to BR-83, "DISC ROTOR : Inspection and Adjustment".

Is the rear disc brake dragging?

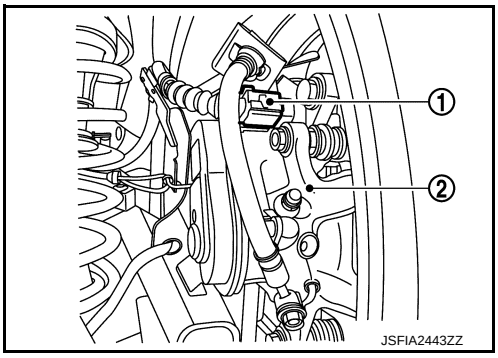
YES >> Check the rear disc brake system.
- LHD models: Refer to BR-66, "BRAKE CALIPER ASSEMBLY : Inspection and Adjustment".
- RHD models: Refer to BR-126, "BRAKE CALIPER ASSEMBLY : Inspection and Adjustment".

NO >> GO TO 3.

3.DISCONNECT PARKING BRAKE ACTUATOR HARNES CONNECTOR

1. Disconnect parking brake actuator harness connector ① from rear caliper assembly ②.

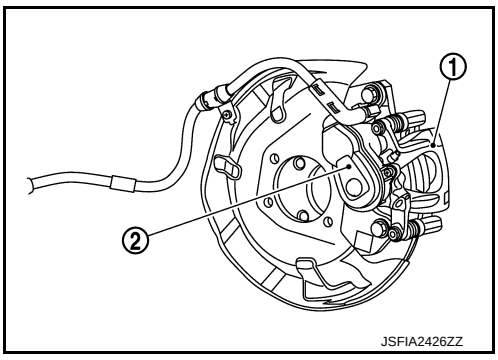
>> GO TO 4.



4.REMOVE PARKING BRAKE ACTUATOR

Remove parking brake actuator ② from rear brake caliper assembly ①.

>> GO TO 5.



5.RELEASE OF PARKING BRAKE

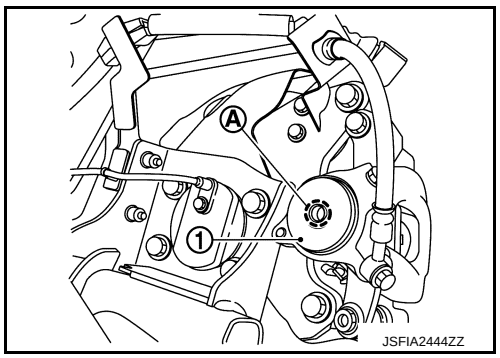
Rotate the rear brake caliper assembly ① spindle part Ⓐ clockwise.

Is the parking brake released?

YES >> GO TO 6.

NO >> Check the rear brake caliper assembly.

- LHD models: Refer to BR-66, "BRAKE CALIPER ASSEMBLY : Inspection and Adjustment".
- RHD models: Refer to BR-126, "BRAKE CALIPER ASSEMBLY : Inspection and Adjustment".



6. REPLACE REAR CALIPER ASSEMBLY

Replace the rear caliper assembly.

- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

CAUTION:

Never reuse the parking brake actuator.

>> End of work.

PARKING BRAKE DOES NOT OPERATE

Description

INFOID:0000000010723027

The parking brake is not applied even when the parking brake switch is pulled.

Diagnosis Procedure

INFOID:0000000010723028

1.PERFORM THE SELF-DIAGNOSIS

With CONSULT
Perform self-diagnosis for “EHS/PKB”.

Is DTC detected?

YES >> Check the DTC. Refer to PB-36, "DTC Index".
NO >> GO TO 2.

2.CHECK PARKING BRAKE ACTUATOR

Pull or push parking brake switch, check operation sound of parking brake actuator.

Is the inspection result normal?

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

3.CHECK REAR DISC BRAKE SYSTEM

Check the rear disc brake system.
- LHD models: Refer to BR-66, "BRAKE CALIPER ASSEMBLY : Inspection and Adjustment".
- RHD models: Refer to BR-126, "BRAKE CALIPER ASSEMBLY : Inspection and Adjustment".

Is the inspection result normal?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> Repair or replace the rear disc brake system.
- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

THE BRAKING FORCE OF PARKING BRAKE IS LOW

Description

INFOID:0000000010723029

The parking brake braking force is low and the vehicle moves backward when parked on an incline.

Diagnosis Procedure

INFOID:0000000010723030

1.REAPPLY THE PARKING BRAKE (1)

1. Pull the parking brake switch, and apply the parking brake.
2. Pull the parking brake switch again.

Is the vehicle moving backward?

YES >> GO TO 2.
NO >> NORMAL

2.PERFORM THE SELF-DIAGNOSIS

With CONSULT
Perform self-diagnosis for “EHS/PKB”.

Is any DTC detected?

YES >> Check the DTC. Refer to PB-36, "DTC Index".
NO >> GO TO 3.

3.CHECK REAR DISC BRAKE SYSTEM

Check the rear disc brake system.

- Rear brake pad
  - LHD models: Refer to BR-19, "BRAKE PAD : Inspection and Adjustment".
  - RHD models: Refer to BR-83, "BRAKE PAD : Inspection and Adjustment".
- Rear disc rotor
  - LHD models: Refer to BR-19, "DISC ROTOR : Inspection and Adjustment".
  - RHD models: Refer to BR-83, "DISC ROTOR : Inspection and Adjustment".
- Rear brake caliper (and parking brake actuator)
  - LHD models: Refer to BR-66, "BRAKE CALIPER ASSEMBLY : Inspection and Adjustment".
  - RHD models: Refer to BR-126, "BRAKE CALIPER ASSEMBLY : Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace error-detected pars.
- Rear brake pad
  - LHD models: Refer to BR-60, "BRAKE PAD : Removal and Installation".
  - RHD models: Refer to BR-120, "BRAKE PAD : Removal and Installation".
- Rear disc rotor
  - LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
  - RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- Rear brake caliper (and parking brake actuator)
  - LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
  - RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

4.REAPPLY THE PARKING BRAKE (2)

Pull the parking brake switch again.

Is the vehicle moving backward?

YES >> Replace the electric parking brake control module. Refer to PB-153, "Removal and Installation".
NO >> NORMAL

THE BRAKING FORCE OF PARKING BRAKE IS HIGH

Description

INFOID:0000000010723031

The parking brake breaking force is too high.

Diagnosis Procedure

INFOID:0000000010723032

1.PERFORM THE SELF-DIAGNOSIS

With CONSULT
Perform self-diagnosis for “EHS/PKB”.

Is any DTC detected?

YES >> Check the DTC. Refer to PB-36, "DTC Index".
NO >> GO TO 2.

2.CHECK REAR DISC BRAKE SYSTEM (1)

Check if the rear disc brake is dragging.
- LHD models: Refer to BR-19, "DISC ROTOR : Inspection and Adjustment".
- RHD models: Refer to BR-83, "DISC ROTOR : Inspection and Adjustment".

Is the rear disc brake dragging?

YES >> Check the rear disc brake system.
- LHD models: Refer to BR-66, "BRAKE CALIPER ASSEMBLY : Inspection and Adjustment".
- RHD models: Refer to BR-126, "BRAKE CALIPER ASSEMBLY : Inspection and Adjustment".

NO >> GO TO 3.

3.CHECK REAR DISC BRAKE SYSTEM (2)

1. Depress the brake pedal 3 times or more.
2. Drive the vehicle at approx. 30 km/h (19 MPH) or more.
3. Stop the vehicle.
4. Depress the brake pedal 3 times or more again.

Is the braking force of parking brake is high?

YES >> Replace the rear brake caliper assembly.
- LHD models: Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
- RHD models: Refer to BR-123, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

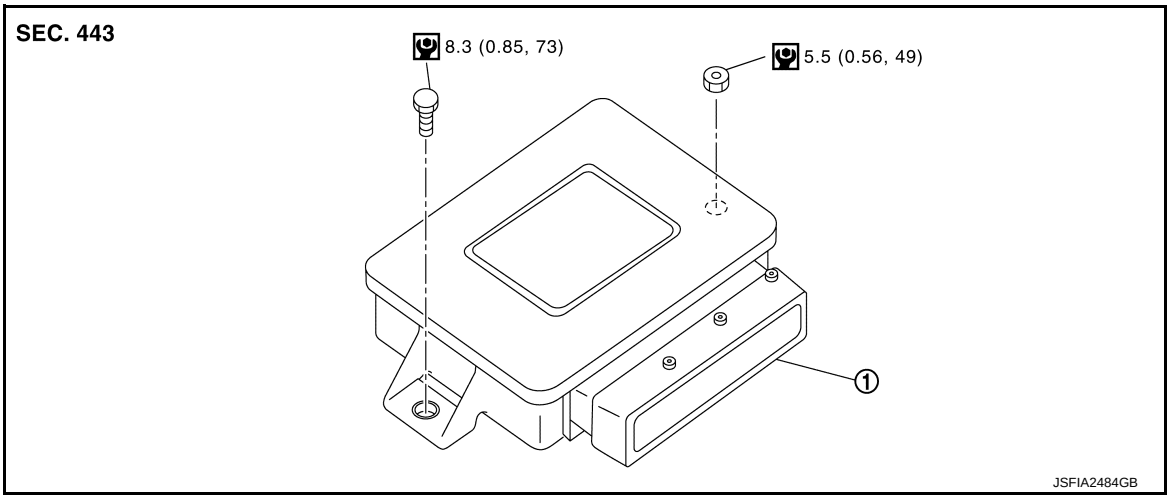
NO >> INSPECTION END

REMOVAL AND INSTALLATION

ELECTRIC PARKING BRAKE CONTROL MODULE

Exploded View

INFOID:0000000010723033



① Electric parking brake control module

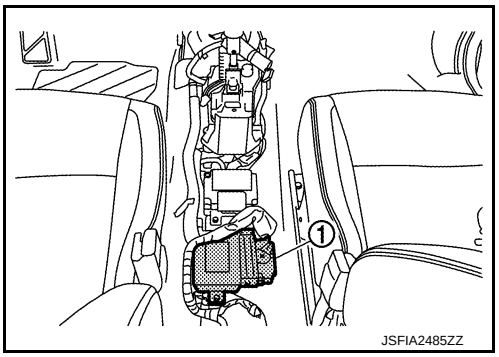
: N·m (kg-m, in-lb)

Removal and Installation

INFOID:0000000010723034

REMOVAL

1. Turn the ignition switch ON.
   CAUTION:
   Never start the engine.
2. Release the parking brake.
   CAUTION:
   If the brake cannot be released, release it manually. Refer to PB-148, "Diagnosis Procedure".
3. Turn the ignition switch OFF.
4. Disconnect battery negative terminal. Refer to PB-50, "Work Procedure".
5. Remove center console. Refer to IP-25, "Removal and Installation" (LHD), IP-52, "Removal and Installation" (RHD).
6. Disconnect electric parking brake control module harness connector.
7. Remove electric parking brake control module ①.
   CAUTION:
   Never drop removed parts.



INSTALLATION

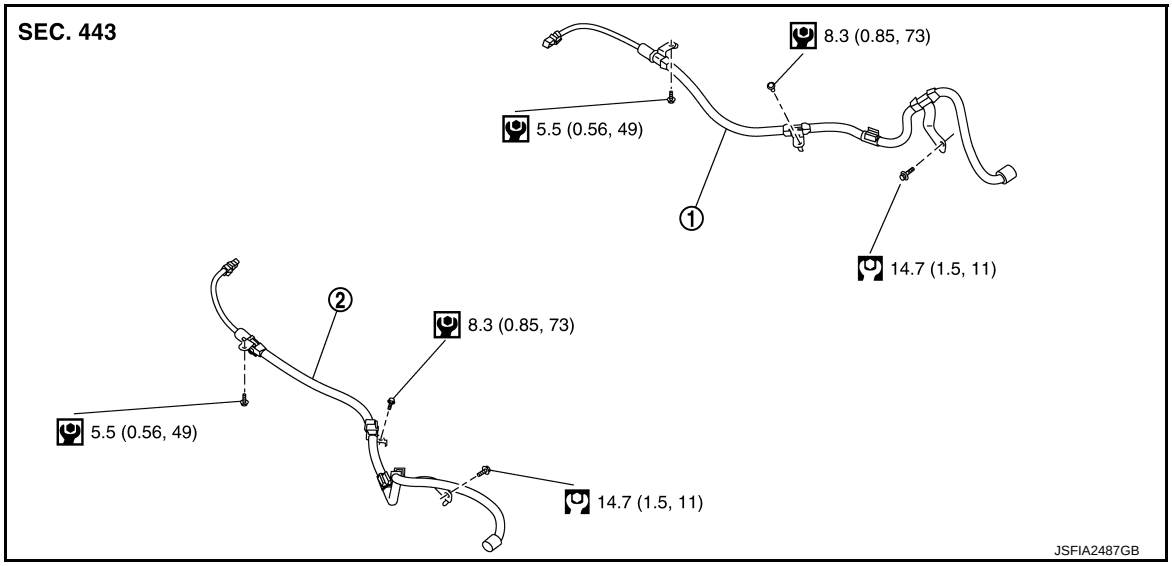
Note the following, and install in the reverse order of removal.

- Must be perform additional service when replacing electric parking brake control module. Refer to PB-51, "Work Procedure".

PARKING BRAKE CONTROL

Exploded View

INFOID:0000000010723035



① Parking brake actuator harness RH ② Parking brake actuator harness LH

: N·m (kg-m, ft-lb)

: N·m (kg-m, in-lb)

Removal and Installation

INFOID:0000000010723036

REMOVAL

1. Turn the ignition switch ON.
   CAUTION:
   Never start the engine.
2. Release the parking brake.
   CAUTION:
   If the brake cannot be released, release it manually. Refer to PB-148, "Diagnosis Procedure".
3. Turn the ignition switch OFF.
4. Disconnect battery negative terminal. Refer to PB-50, "Work Procedure".
5. Remove rear tires. Refer to WT-61, "Exploded View".
6. Disconnect parking brake actuator harness connector.
7. Remove parking brake actuator harness mounting bolts.
8. Remove parking brake actuator harness from the vehicle.

INSTALLATION

Install the reverse order of the removal.

PARKING BRAKE ACTUATOR

Removal and Installation

INFOID:0000000010723037

Never remove parking brake actuator from rear brake caliper assembly. When replacing parking brake actuator, replace rear brake caliper assembly. Refer to BR-63, "BRAKE CALIPER ASSEMBLY : Removal and Installation".

PARKING BRAKE SWITCH

Removal and Installation

INFOID:0000000010723038

REMOVAL

1. Remove the console finisher assembly. Refer to IP-25, "Removal and Installation" (LHD), IP-52, "Removal and Installation" (RHD).
2. Remove parking brake switch.

INSTALLATION

Install in the reverse order of removal.