SECTION PARKING BRAKE SYSTEM

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< PRECAUTION >

PRECAUTION PRECAUTIONS

Precaution for Technicians Using Medical Electric

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OPERATION PROHIBITION

WARNING:

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

NORMAL CHARGE PRECAUTION

WARNING:

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

Precaution at telematics system operation

WARNING:

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

Precaution at intelligent key system operation

WARNING:

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

Point to Be Checked Before Starting Maintenance Work

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The high voltage system may starts automatically. It is required to check that the timer air conditioner and timer charge (during EVSE connection) are not set before starting maintenance work. NOTE:

If the timer air conditioner or timer charge (during EVSE connection) is set, the high voltage system starts automatically even when the power switch is in OFF state.

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

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

PRECAUTIONS

< PRECAUTION >

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

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

Always observe the following items for preventing accidental activation.

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

Precaution for Removing 12V Battery

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

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

Precaution for Parking Brake System

WARNING:

Since dust covering the parking brake shoe has an affect on human body, the dust must be removed with a dust collector. Never splatter the dust with an air blow gun.

- The electric parking brake indicator lamp turns ON while the electric parking brake is operating.
- When a malfunction occurs in the electric parking brake system, master warning (yellow) turns ON. CAUTION:

When vehicle is parked, press the select lever P range position switch into the P range.

- When parking brake switch is pulled/pushed under electric parking brake system malfunction, master warning (red) turns ON when electric parking brake cannot be operated.
- When a malfunction occurs that prevents the parking brake from being released and the parking brake must Ν be released, manually release it. PB-9, "Parking Brake Actuator".
- When parking brake must be released while the 12V battery negative terminal is disconnected, manually release it. PB-9, "Parking Brake Actuator".
- When parking brake shoe is ground or replaced, perform break-in operation. Refer to <u>PB-86, "Inspection"</u>.

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PREPARATION

Commercial Service Tools

INFOID:000000006961533

Tool name		Description
Power tool	PBIC0190E	Loosening bolts and nuts.

<u>SYSTEM DESCRIPTION ></u> SYSTEM DESCRIPTION DESCRIPTION

Description

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- The electric parking brake system is adopted.
- 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).
- An emergency release cable is employed so that the parking brake can be manually released when electric parking brake malfunctions. In addition, the vehicle is equipped with a tool for releasing the parking brake.

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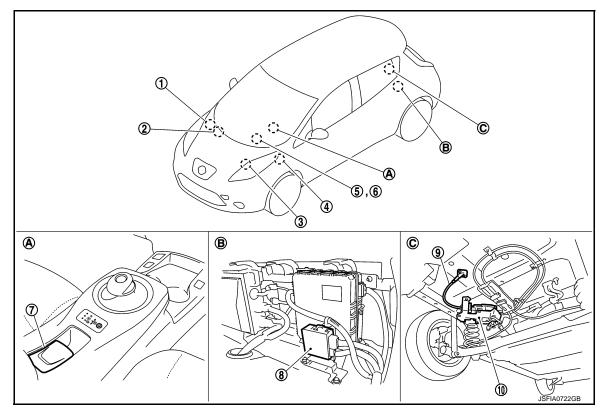
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COMPONENT PARTS

Component Parts Location

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A. Center console

- B. Back of rear seat (left)
- C. Rear under floor

COMPONENT DESCRIPTION

No.	Component part	Function
1.	ABS actuator and electric unit (control unit)	 Mainly transmits the following signals to electric parking brake control module via CAN communication. Decel G signal Rear LH Wheel speed signal Rear RH Wheel speed signal Vehicle speed signal (ABS)
2.	VCM	 Mainly transmits the following signals to electric parking brake control module via CAN communication. Sift position signal Accelerator pedal position signal VCM status signal
3.	IPDM E/R	Mainly transmits the following signals to electric parking brake control module viaCAN communication.Power switch signal
4.	BCM	Mainly transmits the following signals to electric parking brake control module viaCAN communication.Stop lamp switch signal
5.	Electric parking brake indication lamp (in combination meter) Master warning (yellow) Master warning (red)	PB-14, "System Description"

< SYSTEM DESCRIPTION >

No.	Component part	Function	
6. Combination meter		 Mainly transmits the following signals to electric parking brake control module via CAN communication. Seat belt buckle switch signal (driver side) Mainly receives the following signals from electric parking brake control module via CAN communication. Master warning signal Electric parking brake indication lamp signal 	
7.	Parking brake switch	PB-9, "Parking Brake Switch"	
8.	Electric parking brake control module	PB-9, "Electric Parking Brake Control Module"	
9.	Emergency release cable	DD 0. "Derking Droke Astronom"	
10.	Parking brake actuator	<u>PB-9, "Parking Brake Actuator"</u>	

Electric Parking Brake Control Module

- 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.
- When a malfunction is detected, the system enters fail-safe mode.

Parking Brake Switch

- 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.

Parking Brake Actuator

- The signal from the electric parking brake control module applies and releases the parking brake.
- The following components are integrated with parking brake actuator.

Emergency release cable

- When there is a malfunction that prevents the parking brake from being released, use the tool in the luggage room to manually turn and release the parking brake.
- When the emergency release cable is rotated counterclockwise while pressing it to parallel direction to axis with the cap removed, deceleration gear is rotated through release gear, which results in electric parking brake release.

CAUTION:

After manual release, perform "EHS/PKB" self diagnosis. When a malfunction is detected, erase self diagnosis result for "EHS/PKB".

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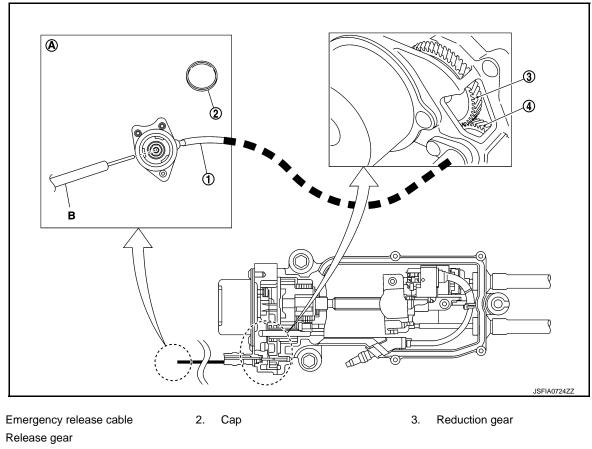
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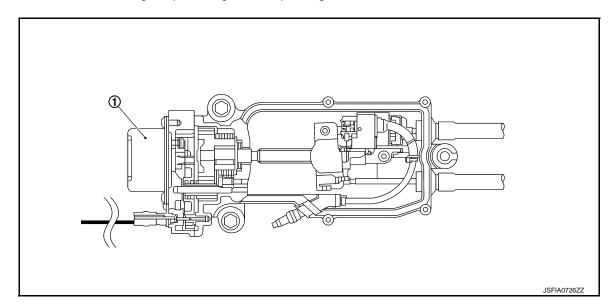
A. Luggage room B. Hand tool

Motor

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- Generates rotation starting torque using electric parking brake control module.

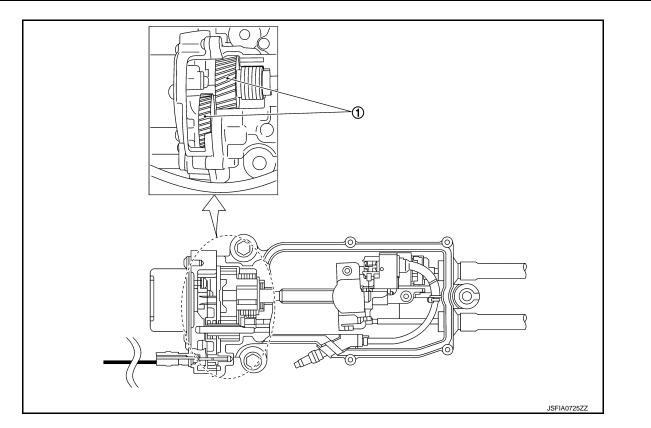


1. Motor

Reduction gear

- Decreases rotation speed and increases motor rotating torque.

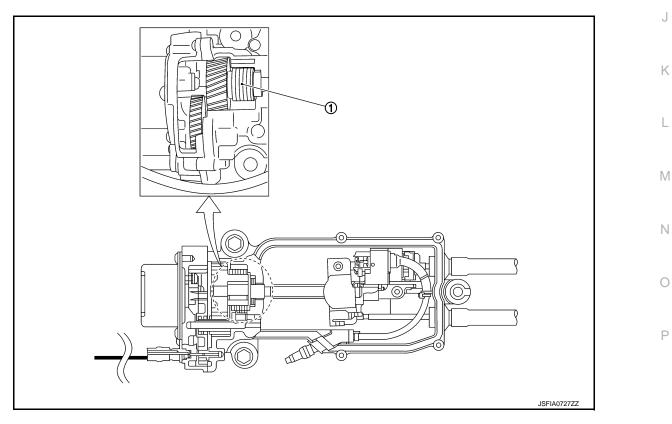
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1. Reduction gear

Clutch

- Maintains shaft rotating torque.



Clutch 1.

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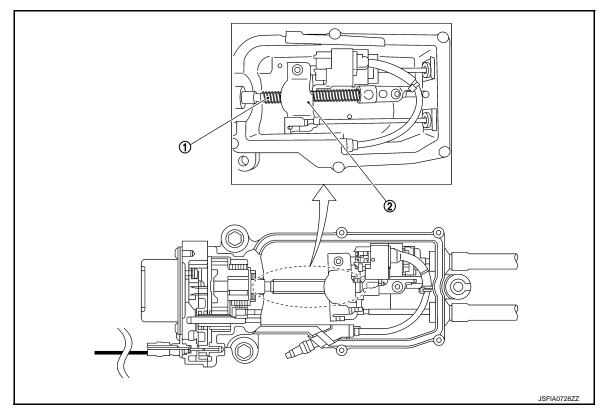
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Shaft

- The shaft is screw shaped and the equalizer is nut shaped. Rotating torque loaded to shaft is converted to cable tension through equalizer.



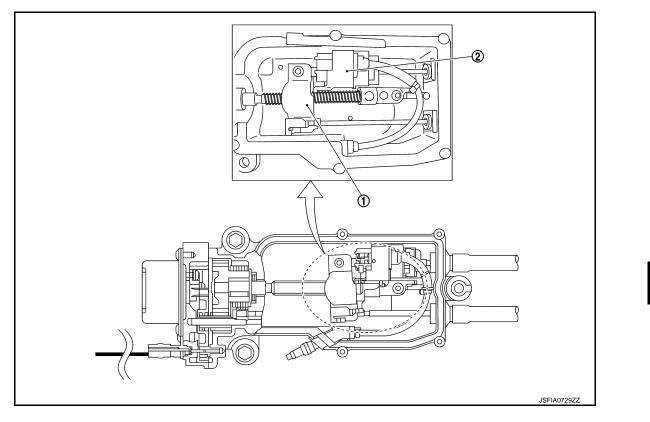
1. Shaft

2. Equalizer (tension sensor)

Equalizer (tension sensor)

- The equalizer and tension sensor are integrated.
- Equalize left and right cable tensions.
- This detects the tension applied to the rear cable and sends it to the electric parking brake control module.

< SYSTEM DESCRIPTION >



1. Equalizer

2. Tension sensor

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SYSTEM

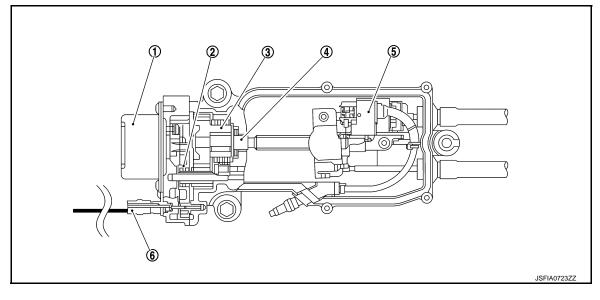
< SYSTEM DESCRIPTION >

SYSTEM

System Description

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- When the parking brake is being 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, electric parking brake indicator lamp in the combination meter and the parking brake switch indicator turn OFF.
- This sends the parking brake switch operation signal to the electric parking brake control module.
- The electric parking brake control module drives the motor in the parking brake actuator.
- The motor generates the rotational starting torque, which is transmitted to the reduction gear → clutch → shaft → equalizer (tension sensor) → rear cable → parking brake shoe to apply and release the parking brake.



- 1. Motor
- 4. Shaft

2. Reduction gear

5.

- 3. Clutch
- 6. Emergency release cable
- When a malfunction occurs with the system, the master warning (yellow and red) turn ON and the function for entering the fail-safe status is held.

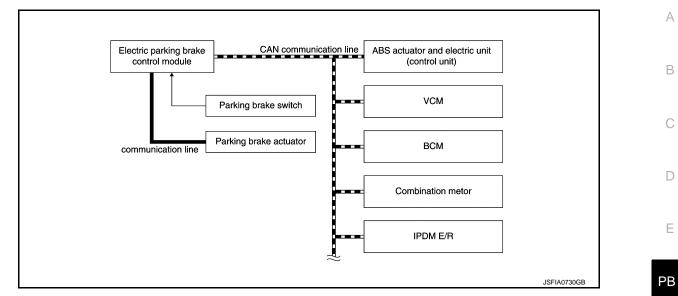
Equalizer (tension sensor)

• When a malfunction occurs with the system and the parking brake cannot be released, release the parking brake manually. To release, remove the cap on release hole in luggage floor, press and rotate counterclock-wise the emergency release cable until it locks.

SYSTEM DIAGRAM

SYSTEM

< SYSTEM DESCRIPTION >



INPUT SIGNAL AND AUTPUT SIGNAL

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

Component	Signal description	
ABS actuator and electric unit (control unit)	 Mainly transmits the following signals to electric parking brake control module via CAN communication. Decel G signal Rear LH Wheel speed signal Rear RH Wheel speed signal Vehicle speed signal (ABS) 	
VCM	 Mainly transmits the following signals to electric parking brake control module via CAN communication. Shift position signal Accelerator pedal position signal VCM status signal 	
IPDM E/R	 Mainly transmits the following signals to electric parking brake control module via CAN communication. Power switch signal 	
BCM	 Mainly transmits the following signals to electric parking brake control module via Communication. Stop lamp switch signal 	
Combination meter	 Mainly transmits the following signals to electric parking brake control module via CAN communication. Seat belt buckle switch signal (driver side) Mainly receives the following signals from electric parking brake control module via CAN communication. Master warning signal Electric parking brake indicator lamp signal 	

ELECTRIC PARKING BRAKE OPERATION

Normal Operation

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Vehicle speed	0km/h(0 MPH)		→
Parking brake switch	Neutral	Pull Neutral	
arking brake operation Parking brake force)	Release	Operation	
Electric parking brake indication lamp	Turn OFF	Turn ON	Turn OFF
Power switch	Power switch ON		Power switch OFF

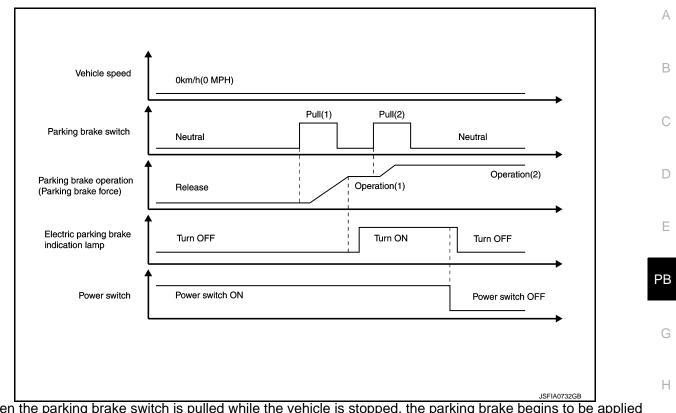
- When the parking brake switch is pulled while the vehicle is stopped, the parking brake begins to be applied (tensile force begins to be applied to the rear cable).
- When the parking brake braking force reaches the prescribed value (rear cable tensile force), the electric parking brake indicator lamp turns ON.
- When the power switch is turned OFF, the electric parking brake indicator lamp turns OFF. **NOTE:**

Braking force of the parking brake is held.

Pull Twice

SYSTEM

< SYSTEM DESCRIPTION >



- When the parking brake switch is pulled while the vehicle is stopped, the parking brake begins to be applied (tensile force begins to be applied to the rear cable).
- When the parking brake braking force reaches the prescribed value (rear cable tensile force), the electric parking brake indicator lamp turns ON.
- Pulling the parking brake switch again increases the parking brake braking force (increases the rear cable tensile force).

NOTE:

Use this when you feel the parking brake braking force is insufficient, such as when parking on a slope, etc.

• When the power switch is turned OFF, the electric parking brake indicator lamp turns OFF. **NOTE:**

Braking force of the parking brake is held.

Normal Release (power switch ON)

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< SYSTEM DESCRIPTION >

Brake pedal	Depress	
Parking brake switch	Push Push Neutral Neutral	
Parking brake operation (Parking brake force)	Operation	
Electric parking brake indication lamp	Turn ON Turn OFF	
Power switch	Power switch ON Power switch OFF	
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 When the parking brake switch is pressed while the brake pedal is depressed, the power switch is ON and the parking brake is operating the parking brake is released.
 NOTE:

Just pressing the parking brake switch does not release the parking brake.

• When release of the parking brake is completed (tensile force on the rear cable disappears), the electric parking brake indicator lamp turns OFF.

Depress Brake pedal Push Parking brake switch Neutral Neutral Operation Parking brake operation (Parking brake force) Electric parking brake Turn ON Turn OFF indication lamp Power switch ON Power switch Power switch OFF JSFIA0734GB

Normal Release (power switch OFF)

SYSTEM

< SYSTEM DESCRIPTION >

- The parking brake cannot be released by just pushing the parking brake switch while the power switch is OFF, the parking brake is applied, and the brake pedal is being depressed. **NOTE:**
 - Just pressing the parking brake switch does not release the parking brake.
 The parking brake can be released by turning ON the power switch and pressing 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

Depress		Accelerator pedal
	Not depress	
	OFF	Seat belt buckle switch (driver side)
·	Operation	Parking brake operation Parking brake force)
Turn OFF	Turn ON	Electric parking brake indication lamp
	READY	Vehicle status
	D N	Select lever position
	READY	Vehicle status

- The parking brake automatically releases When vehicle is driving under the following conditions.
- Vehicle READY status
- The seat belt (driver side) is fastened.
- The select lever is in the D, R, ECO position.
- The accelerator pedal is depressed.
- When release of the parking brake is completed (tensile force on the rear cable disappears), the electric marking brake indicator lamp turns OFF.

Driving

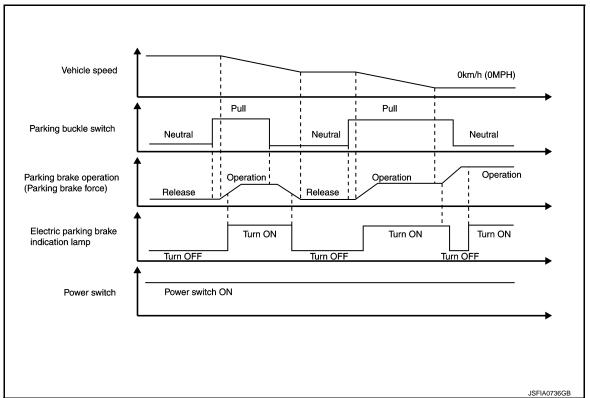
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- When parking brake switch is pulled while running, parking brake starts to operate (tension is loaded to rear cable), and electric parking brake indicator lamp illuminates. When pulling operation is stopped, the parking brake operation is canceled 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 (tensile force begins being applied to the rear cable) 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 (rear cable tensile force), the electric parking brake indicator lamp turns ON.

CONDITION FOR TURN THE INDICATION LAMP AND WARNING LAMP

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

Condition (status)	Electric parking brake indicator lamp	Master warning (yel- low)	Master warning (red)	Meter text
Parking brake is operating	ON	OFF	ON	—
When the parking brake switch is pressed without depressing the brake pedal.	ON	ON	ON	Press brake pedal
When automatic release is per- formed while the seat belt is not fas- tened.	ON	OFF	ON	Release parking brake
When the parking brake is dragging while driving.	ON	OFF	ON	Release parking brake
When the parking brake braking force is insufficient (vehicle is mov- ing backward).	ON	OFF	ON	Press brake pedal

SYSTEM

< SYSTEM DESCRIPTION >

Condition (status)	Electric parking brake indicator lamp	Master warning (yel- low)	Master warning (red)	Meter text	A
When the electric parking brake sys- tem is overheated. (When the elec- tric parking brake is being operated.)	ON	OFF	ON	Parking brake not avail- able	В
When the electric parking brake sys- tem is overheated. (When the elec- tric parking brake is released.)	OFF	OFF	ON	Parking brake not avail- able	C
When the electric parking brake sys- tem is overheated. (When the park- ing brake switch is pulled.)	Blinking	OFF	ON	Parking brake not avail- able	
When a malfunction with the electric parking brake system is detected. (When the electric parking brake is being operated.)	ON	ON	ON	Visit dealer	E
When a malfunction with the electric parking brake system is detected. (When the electric parking brake is released.)	OFF	ON	OFF	Visit dealer	PE
When parking brake switch is pulled/ pushed under system malfunction and electric parking brake cannot be operated.	Blinking	ON	ON	Visit dealer	G
When a malfunction with the electric parking brake system is detected. (it is unclear when it is operating or re- leased)	Blinking	ON	ON	Visit dealer	ŀ

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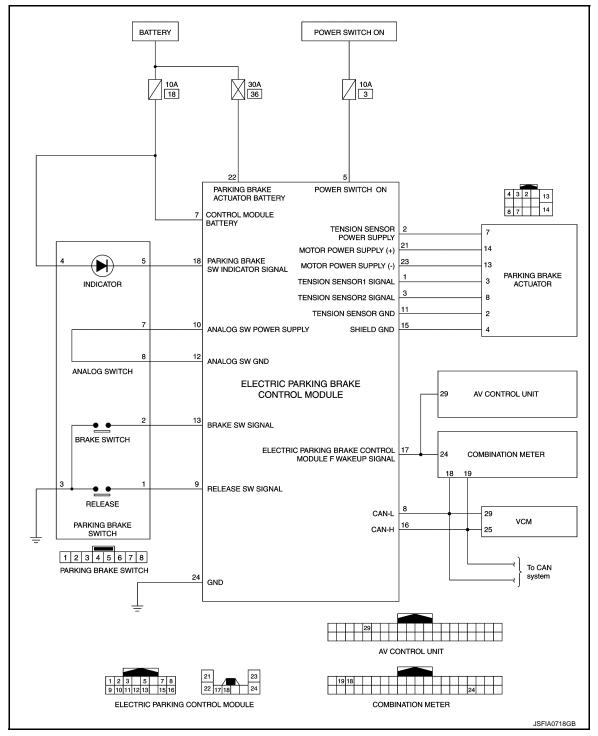
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< SYSTEM DESCRIPTION >

Schematic



Fail-Safe

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- The master warning (yellow) turns ON when a malfunction with the system occurs.
- When parking brake switch is pulled/pushed under system malfunction, electric parking brake indicator lamp blinks and master warning (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 manually released.

SYSTEM

< SYSTEM DESCRIPTION >

DTC	Monitor item	Vehicle condition	
C10C8	CONTROL MODULE SYSTEM INTER- NAL MALFUNCTION	 Applying the brake is prohibited. Release using the parking brake switch is prohibited. (It can be released only once or it can be released manually.) 	
	CONTROL MODULE INTERNAL ELEC- TRIC MALFUNCTN	Prohibits automatic cancel. (Manual release can be performed.)	
	ACTUATOR ACTUATOR SLIPPING		
	ACTUATOR COMMANDED POS NOT REACH	Applying the brake is prohibited.	
C10E0	ACTUATOR MECHANICAL LINKAGE MALFNCTN	• Release using the parking brake switch is prohibited. (It can be released only once or it can be released manually.)	
	ACTUATOR PERFORMANCE/INCRRCT OPERAT		
	ACTUATOR UNEXPECTED OPERA- TION	Applying the brake is prohibited.Prohibits automatic cancel. (Manual release can be performed.)	
C10E1	MOTOR CIRCUIT	 Applying the brake is prohibited. Release using the parking brake switch is prohibited. (It can be released manually.) 	
C10E2	MOTOR POWER SUPPLY	 Applying the brake is prohibited. Release using the parking brake switch is prohibited. (It can be released manually.) 	
C10E3	PARKING BRAKE SWITCH	 Applying the brake is prohibited. Release using the parking brake switch is prohibited. (It can be release automatically or manually.) 	
C10E4	TENSION SENSOR	 Applying the brake is prohibited. Release using the parking brake switch is prohibited. (It can be released only once or it can be released manually.) 	
C10E5	POWER SUPPLY VOLTAGE	Applying the brake is prohibited. (It can be released using the parking brake switch or automatically.)	
C10E6	IGNITION SWITCH		
C10E7	OVER HEAT	Applying the brake is prohibited. (It can be released using the parking brake switch or automatically.)	
U0100	ECM/PCM A	Automatic release is prohibited.	
U0111	BATTERY ENERGY CONTROL MOD- ULE A	_	
U0129	BRAKE SYSTEM CONTROL MODULE	Automatic release is prohibited.Perform operation of stopped condition while driving	
U0140	BCM	-	
U0155	IPC CONTROL MODULE	Automatic release is prohibited.	
U0401	VCM	Automatic release is prohibited.	
U0418	BRAKE SYSTEM CONTROL MODULE	Automatic release is prohibited.Perform operation of stopped condition while driving	
U0422	BCM	-	
U1000	CAN COMM CIRCUIT	Automatic release is prohibited.Perform operation of stopped condition while driving	

DIAGNOSIS SYSTEM (ELECTRIC PARKING BRAKE CONTROL MODULE)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (ELECTRIC PARKING BRAKE CONTROL MODULE)

CONSULT Function

INFOID:000000006960883

APPLICATION ITEM

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

Mode	Function description	
ECU identification	rts 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	nput/Output data in the electric parking brake control module can be read.	
Work support	Components can be quickly and accurately adjusted.	

*: 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-29, "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	Display item
IGN counter (0 – 39)	 The number of times that power switch is ON after the DTC is detected is displayed. When "0" is displayed: It indicates that the system is presently malfunctioning. When except "0" is displayed: It indicates that system malfunction in the past is detected, but the system is presently normal. NOTE: Each time when power switch is turned OFF to ON, numerical number increases in 1 → 2 → 338 → 39. When the operation number of times exceeds 39, the number do not increase and "39" is displayed until self-diagnosis is erased.

DATA MONITOR

Item (Unit)	Note:	
STATIC OPE FREQUENCY	Displays the number of times the electric parking brake is applied while the vehicle is stopped	
DYNAMIC OPE FREQUENCY	Displays the number of times the electric parking brake is applied while the vehicle is being driven	
TENSION SENSOR 1 (V)	Displays output voltage value of the tension sensor 1*	
TENSION SENSOR 2 (V)	Displays output voltage value of the tension sensor 2*	
POWER SUPPLY VOLTAGE (V)	Displays power supply voltage of the electric parking brake control module	
TENSION SEN 1 MONITOR (N)	Displays the tensile force applied to the tension sensor 1*	
TENSION SEN 2 MONITOR (N)	Displays the tensile force applied to the tension sensor 2*	

DIAGNOSIS SYSTEM (ELECTRIC PARKING BRAKE CONTROL MODULE)

< SYSTEM DESCRIPTION >

Item (Unit)	Note:	
TARGET LOAD (N)	Displays the target tensile force	
BRAKE SWITCH (ON/OFF)	Displayed when the parking brake switch is pulled	
RELEASE SWITCH (ON/OFF)	Displayed when the parking brake switch is pressed	
ANALOG SWITCH (V)	Displays power supply voltage of the parking brake switch	
MALFUNCTION STATUS (NORMAL/DEFECT/SEVERE)	Displays malfunction status of the electric parking brake system	
PARKING BRAKE SATUS (NO DTR/RELEAS/LOCK/DR/LCK DR RLS)	Displays the electric parking brake system status	
IGNITION SWITCH FROM IPDM (ON/OFF)	Displays the power switch ON signal from the IPDM E/R via CAN communication	
BRAKE SWITCH FROM BCM (On/Off/INVALID)	Displays the stop lamp switch signal from the BCM via CAN communication	
WHEEL SENSOR REAR RH (rpm)	Displays the rear RH wheel sensor signal from the ABS actuator and electric unit (control unit) via CAN communication	
WHEEL SENSOR REAR LH (rpm)	Displays the rear LH wheel sensor signal from the ABS actuator and electric unit (control unit) via CAN communication	
DECEL G SENSOR (G)	Displays the rear decel G signal from the ABS actuator and electric unit (control unit) via CAN communication	
VEHICLE SPEED (km/h)	Displays the vehicle speed signal from the ABS actuator and electric unit (control unit) via CAN communication	
ACCELE OPEN ANGLE (%)	Displays the accelerator pedal position signal from the VCM via CAN communication	
ENGINE STATUS (STOP/Run)	Displays the traction motor status from the VCM via CAN communication	
DIAG PROHIBIT (On/Off)	Displays the diagnostic status via CONSULT	
SHIFT RANGE (LIMP/P/R/N/D)	Displays the shift position status from the VCM via CAN communication	
BUCKLE SWITCH (ON/OFF)	Displays the seat belt buckle switch signal (driver side) signal from the combination meter via CAN communication	

*: tension sensor has the tension sensor 1 and tension sensor 2 circuits.

WORK SUPPORT

Item	Description	Ν
ACTUATOR 0 POINT LEARNING	This conducts parking brake actuator 0 point learning.	

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< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION ELECTRIC PARKING BRAKE CONTROL MODULE

Reference Value

INFOID:000000006960884

CONSULT DATA MONITOR STANDARD VALUE

Monitor item	Condition	Reference values in normal operation
STATIC OPE FREQUENCY	Always	Times applied while vehicle stopped
DYNAMIC OPE FREQUENCY	Always	Times applied while vehicle being driven
TENSION SENSOR 1 *1	Always	0.35 – 4.5 V
TENSION SENSOR 2*1	Always	0.35 – 4.5 V
POWER SUPPLY VOLTAGE	Always	11 – 14 V
TENSION SEN 1 MONITOR *1	Always	0 – 1500 N
TENSION SEN 2 MONITOR *1	Always	0 – 1500 N
TARGET LOAD	Always	0 – 1040 N
	Pull the parking brake switch	ON
BRAKE SWITCH	Other than the above	OFF
RELEASE SWITCH	Press the parking brake switch	ON
RELEASE SWITCH	Other than the above	OFF
ANALOG SWITCH	Active (When battery voltage is 11 – 16 V)	0 – 0.8 V
ANALOG SWITCH	Not activated (When battery voltage is 11 –16 V)	2.8 – 5.5 V
	Normal	NORMAL
MALFUNCTION STATUS	When there is a malfunction with some functions	DEFECT
	When the system cannot operate	SEVERE
	Unconfirmed	NO DTR
	Released status	RELEAS
PARKING BRAKE STATUS	Operation status	LOCK
	Operate	DR LCK
	Being released	DR RLS
IGNITION SWITCH FROM IPDM	When the power switch is ON	ON
IGNITION SWITCH FROM IPDM	Other than when power switch is ON	OFF
	Brake pedal depressed	On
BRAKE SWITCH FROM BCM	Brake pedal not depressed	Off
	When there is a stop lamp switch mal- function	INVALID
	Vehicle stopped	0.00 rpm
WHEEL SENSOR REAR RH	While driving ^{*2}	Almost same reading as speedometer (within $\pm 10\%$)
	Vehicle stopped	0.00 rpm
WHEEL SENSOR REAR LH	While driving ^{*2}	Almost same reading as speedometer (within $\pm 10\%$)

< ECU DIAGNOSIS INFORMATION >

Monitor item	Condition	Reference values in normal operation
	Vehicle stopped	Approx. 0 G
DECEL G SENSOR	During acceleration	Positive value
	During deceleration	Negative value
	When stopped	0.00 km/h
VEHICLE SPEED	While driving ^{*2}	Almost same reading as speedometer (within $\pm 10\%$)
	Do not depress the accelerator pedal (power switch ON)	0%
ACCELE OPEN ANGLE	Depress the accelerator pedal (power switch ON)	0 – 100%
	When the traction motor is stopped	STOP
ENGINE STATUS	When the traction motor is operating	Run
DIAG PROHIBIT	When diagnostic allowed	On
	When diagnostic prohibited	Off
	When there is a sift position signal malfunction	LIMP
	When in the P position	Р
SHIFT RANGE	When in the R position	R
	When in the N position	N
	When in the D position	D
BUCKLE SWITCH	When the seat belt (driver side) is fas- tened	ON
DUCKLE SWITCH	When the seat belt (driver side) is not fastened	OPEN

*1: The tension sensor has the tension sensor 1 and tension sensor 2 circuits.

*2: Check that tire pressure is standard value.

Fail-Safe

- The master warning (yellow) turns ON when a malfunction with the system occurs.
- When parking brake switch is pulled/pushed under system malfunction, electric parking brake indicator lamp blinks and master warning (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 manually released.

DTC	Monitor item	Vehicle condition			
C10C8	CONTROL MODULE SYSTEM INTER- NAL MALFUNCTION	 Applying the brake is prohibited. Release using the parking brake switch is prohibited. (It can be released only once or it can be released manually.) 			
	CONTROL MODULE INTERNAL ELEC- TRIC MALFUNCTN	Prohibits automatic cancel. (Manual release can be performed.)			
C10E0	ACTUATOR ACTUATOR SLIPPING				
	ACTUATOR COMMANDED POS NOT REACH	 Applying the brake is prohibited. 			
	ACTUATOR MECHANICAL LINKAGE MALFNCTN	Release using the parking brake switch is prohibited. (It can be released only once or it can be released manually.)			
	ACTUATOR PERFORMANCE/INCRRCT OPERAT				
	ACTUATOR UNEXPECTED OPERA- TION	Applying the brake is prohibited.Prohibits automatic cancel. (Manual release can be performed.)			

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< ECU DIAGNOSIS INFORMATION >

DTC	Monitor item	Vehicle condition			
C10E1	MOTOR CIRCUIT	 Applying the brake is prohibited. Release using the parking brake switch is prohibited. (It can be releat manually.) 			
C10E2	MOTOR POWER SUPPLY	 Applying the brake is prohibited. Release using the parking brake switch is prohibited. (It can be released manually.) 			
C10E3	PARKING BRAKE SWITCH	 Applying the brake is prohibited. Release using the parking brake switch is prohibited. (It can be released automatically or manually.) 			
C10E4	TENSION SENSOR	 Applying the brake is prohibited. Release using the parking brake switch is prohibited. (It can be released only once or it can be released manually.) 			
C10E5	POWER SUPPLY VOLTAGE	Applying the brake is prohibited. (It can be released using the parking brake switch or automatically.)			
C10E6	IGNITION SWITCH	_			
C10E7	OVER HEAT	Applying the brake is prohibited. (It can be released using the parking brake switch or automatically.)			
U0100	ECM/PCM A	Automatic release is prohibited.			
U0111	BATTERY ENERGY CONTROL MOD- ULE A	_			
U0129	BRAKE SYSTEM CONTROL MODULE	Automatic release is prohibited.Perform operation of stopped condition while driving			
U0140	BCM	—			
U0155	IPC CONTROL MODULE	Automatic release is prohibited.			
U0401	VCM	Automatic release is prohibited.			
U0418	BRAKE SYSTEM CONTROL MODULE	Automatic release is prohibited.Perform operation of stopped condition while driving			
U0422	BCM	—			
U1000	CAN COMM CIRCUIT	Automatic release is prohibited.Perform operation of stopped condition while driving			

DTC Inspection Priority Chart

INFOID:000000006960886

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 U0111 BATTERY ENERGY CONTROL MODULE A U0129 BRAKE SYSTEM CONTROL MODULE U0140 BCM U0155 IPC CONTROL MODULE U0401 VCM U0418 BRAKE SYSTEM CONTROL MODULE U0422 BCM U1000 CAN COMM CIRCUIT 			
3	C10E3 PARKING BRAKE SWITCH			
4	 C10E1 MOTOR CIRCUIT C10E2 MOTOR POWER SUPPLY C10E5 POWER SUPPLY VOLTAGE C10E6 IGNITION SWITCH 			
5	C10E0 ACTUATOR C10E4 TENSION SENSOR C10E7 OVER HEAT			

< ECU DIAGNOSIS INFORMATION >

DTC Index

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DTC	Display item	Refer to	
C10C8	CONTROL MODULE	CONTROL MODULE PB-40. "DTC Logic"	
C10E0	ACTUATOR	PB-42, "DTC Logic"	
C10E1	MOTOR CIRCUIT	PB-50, "DTC Logic"	
C10E2	MOTOR POWER SUPPLY	PB-52, "DTC Logic"	
C10E3	PARKING BRAKE SWITCH	PB-54, "DTC Logic"	
C10E4	TENSION SENSOR	PB-57, "DTC Logic"	
C10E5	POWER SUPPLY VOLTAGE	PB-59, "DTC Logic"	
C10E6	IGNITION SWITCH	PB-61, "DTC Logic"	
C10E7	OVER HEAT	PB-63, "DTC Logic"	
U0100	ECM/PCM A	PB-64, "DTC Logic"	
U0111	BATTERY ENERGY CONTROL MODULE A	PB-65, "DTC Logic"	
U0129	BRAKE SYSTEM CONTROL MODULE	PB-66, "DTC Logic"	_
U0140	BCM	PB-67, "DTC Logic"	
U0155	IPC CONTROL MODULE	PB-68, "DTC Logic"	
U0401	VCM	PB-69, "DTC Logic"	
U0418	BRAKE SYSTEM CONTROL MODULE	PB-70, "DTC Logic"	
U0422	BCM	PB-71, "DTC Logic"	
U1000	CAN COMM CIRCUIT	PB-72, "DTC Logic"	

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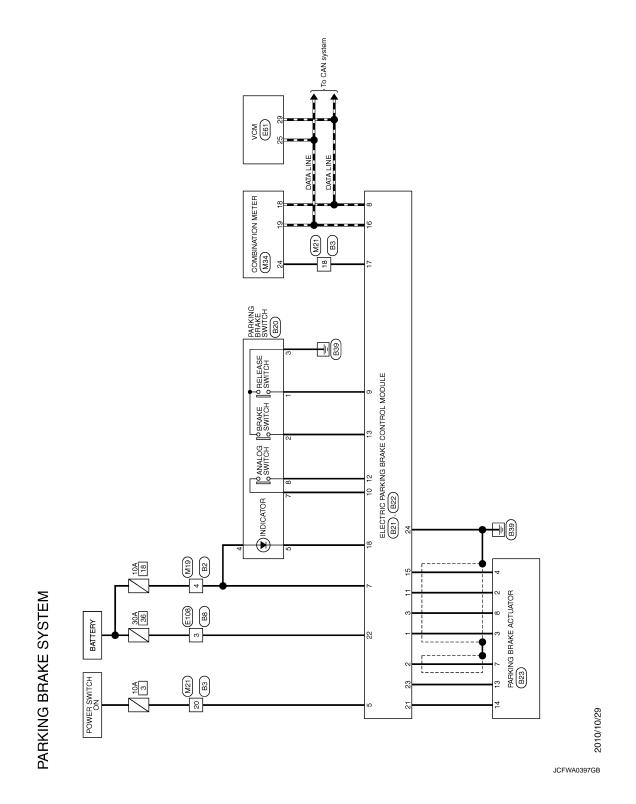
< WIRING DIAGRAM >

WIRING DIAGRAM PARKING BRAKE SYSTEM

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Wiring Diagram

INFOID:000000006960888

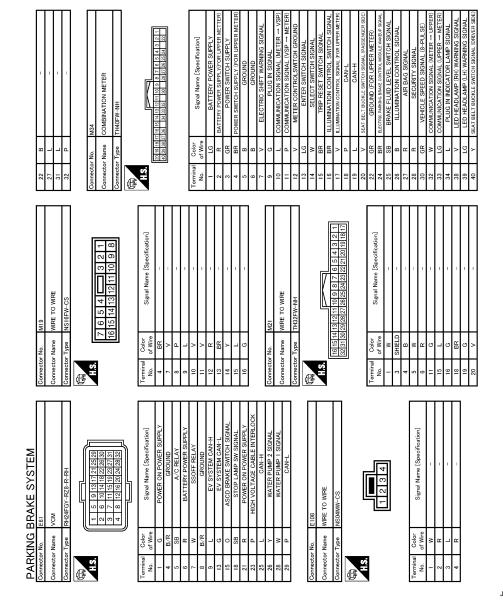


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RRAKE ACTUATOR RS2 RS2 Signal Name [Specification]	В
	С
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< BASIC INSPECTION >

BASIC INSPECTION DIAGNOSIS AND REPAIR WORK FLOW

Work Flow DETAILS OF TROUBLE DIAGNOSIS FLOWCHART

1.COLLECT THE INFORMATION FROM THE CUSTOMER

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

Customers are not 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 <u>PB-27</u>, "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

(P)With CONSULT

Perform "EHS/PKB"self-diagnosis

Is DTC detected?

YES >> Record or print self-diagnosis results. GO TO 4.

NO >> GO TO 6.

4.RECHECK THE SYMPTOM

With CONSULT

1. Erase self-diagnosis results from the memory.

2. Perform DTC reproduction procedures for the system that is malfunctioning.

NOTE:

If multiple DTCs are detected, refer to <u>PB-28, "DTC Inspection Priority Chart"</u> and determine the order for <u>M</u> performing the diagnosis.

Is DTC detected?

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

5.REPAIR OR REPLACE MALFUNCTIONING PART

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

>> GO TO 6.

6. IDENTIFY MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

Determine malfunctioning system according to the possible symptoms based on symptom diagnosis and perform check.

Can the malfunctioning part be identified?

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INFOID:000000006960889

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

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

7.FINAL CHECK

() With CONSULT

- 1. Check the reference value for "EHS/PKB". Refer to PB-26. "Reference Value".
- 2. Check the operation. Check that the symptom is not reproduced under the same conditions that reproduced the symptom before.

Is the symptom reproduced?

YES >> GO TO 3.

NO >> INSPECTION END

Diagnostic Work Sheet

INFOID:000000006960890

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

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

		Interv	iew sheet				
Customer	MR/MS	Registration num- ber		Initial year registration			
name		Vehicle type		VIN			
Storage date		Traction motor		Mileage	km (Mile)	
	Malfunction category	 Parking brake cc Hooked at autom Vehicle slides do Electric parking b Electric parking b Electric parking b Master warning t 	atic release operation wn at automatic rele orake indicator lamp orake indicator lamp orake indicator lamp	operation spite release operatio on ase operation does not turns ON keep turns ON blinks	Generates abnorn	nal sound	
		Detailed abnor- mal sound					
	Select lever position	DP DR	□N	D D			
	Seat belt operation		I				
	Brake pedal status	Not depress Depress					
Situation where mal-	Electric parking brake sta- tus	□ At release operation □ At braking operation □ During release □ During braking □ Continuously					
function is	Vehicle status	Power switch OF	F D Power swite	ch ACC D Power	switch ON	I READY	
occurred	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 Flat road Gentle uphill road Steep uphill road 					
	Number of occupants			□ 1			
	Vehicle loading condition (quantity)						
	Manual release history						

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DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

		Interv	view sheet			
Customer name	MR/MS	Registration num- ber		Initial year registration		
		Vehicle type		VIN		
Storage date		Traction motor		Mileage		km (Mile)
	Self-diagnosis result					
	12V battery condition	□ Normal □ At	onormal ()	□ Not confirmed
	Harness and connector condition	D Normal D Abnormal ()	□ Not confirmed	
	Parking brake cable mounting condition	Normal Abnormal ()	□ Not confirmed
	Bracket deformed condi- tion	Normal Abnormal ()	□ Not confirmed
Inspection re- sult	Parking brake shoe wear condition		onormal ()	□ Not confirmed
	Other condition					

ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL

< BASIC INSPECTION >

ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMI-NAL

Description

INFOID:000000006960891

Disconnecting the 12V battery negative terminal with the parking brake on, prevents the parking brake from releasing. To release, remove the cap on release hole in luggage floor, press and rotate counterclockwise the emergency release cable until it locks.

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PARKING BRAKE ACTUATOR 0 POINT LEARNING

< BASIC INSPECTION >

PARKING BRAKE ACTUATOR 0 POINT LEARNING

Description

INFOID:000000006960893

×: Required —: not required

CAUTION:

When following operations are performed, always perform parking brake actuator 0 point learning before driving.

Procedure	Parking brake actuator 0 point learning
When electric parking brake control module is removed and reinstalled	_
When electric parking brake control module is replaced	_
When parking brake actuator is removed and reinstalled	×
When parking brake actuator is replaced	×
When parking brake shoe is removed and reinstalled	×
When parking brake shoe is replaced	×
When parking brake switch is removed and reinstalled	
When parking brake switch is replaced	_

Work Procedure

INFOID:000000006960894

CAUTION:

Be sure to use CONSULT to perform parking brake actuator 0 point learning. (Learning is not possible without CONSULT.)

1.VEHICLE CONDITION

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

>> GO TO 2.

2. CHECK ELECTRIC PARKING BRAKE COMPONENTS INSTALLATION STATUS CHECK

Check the installation status of the electric parking brake components.

Is the check result normal?

YES >> GO TO 3.

NO >> For repair or replacement of defective parts, GO TO 3.

 ${f 3.}$ PERFORM THE SELF-DIAGNOSIS (1)

With CONSULT

Perform "EHS/PKB" self-diagnosis

Is malfunction detected?

YES >> Check the DTC. Refer to <u>PB-29, "DTC Index"</u>. GO TO 4.

NO >> GO TO 4.

4.PERFORM PARKING BRAKE ACTUATOR 0 POINT LEARNING.

With CONSULT

1. Select "EHS/PKB", "WORK SUPPORT" and "ACTUATOR 0 POINT LEARNING" according this order. CAUTION:

Never operate the parking brake switch.

2. Touch "START"

>> GO TO 5.

5. PERFORM THE SELF-DIAGNOSIS (2)

With CONSULT

- 1. Pull parking brake switch to activate electric parking brake.
- 2. Push parking brake switch to release electric parking brake.

PARKING BRAKE ACTUATOR 0 POINT LEARNING

< BASIC INSPECTION >

3. Perform "EHS/PKB" self-diagnosis	
s malfunction detected?	
YES >> Check the DTC. Refer to PB-29, "DTC Index". GO TO 6.	
NO >> Check harnesses and connectors based on information obtained by interview sheet. Refer 34, "Diagnostic Work Sheet".	^r to <u>PB-</u>
6. CHECK DATA MONITOR	
With CONSULT Select "EHS/PKB", "DATA MONITOR", "TENSION SEN 1 MONITOR" and "TENSION SENSOR 2 MOI according to this order. Check that signals are within specified value.	NITOR"
TENSION SEN 1 MONITOR : 0 N	
TENSION SEN 1 MONITOR : 0 N	
Is the check result normal?	
YES >> GO TO 7. NO >> GO TO 1.	
7. ERASE SELF-DIAGNOSIS MEMORY	
1. Turn the power switch OFF and then ON again.	
CAUTION: Be sure to perform the above operation.	
Erase self-diagnosis results memory of "EHS/PKB"	
s the memory erased?	
YES >> INSPECTION END NO >> Check the items indicated by the self-diagnosis.	

C10C8 ELECTRIC PARKING BRAKE CONTROL MODULE

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS C10C8 ELECTRIC PARKING BRAKE CONTROL MODULE

DTC Logic

INFOID:000000006960895

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
	CONTROL MODULE SYSTEM INTERNAL MALFUNCTION	When there is an internal malfunction in the electric park-	Harness and connec- tor
C10C8	CONTROL MODULE INTERNAL ELECTRIC MALFUNCTN	ing brake control module.	Electric parking brake control moduleParking brake switch

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

()With CONSULT

Turn the power switch OFF to ON.

2. Perform self-diagnosis for "EHS/PKB".

Is DTC "C10C8" detected?

YES (CONTROL MODULE SYSTEM INTERNAL MALFUNCTION)>>Proceed to <u>PB-40, "SYSTEM INTER-</u> <u>NAL MALFUNCTION : Diagnosis Procedure"</u>.

YES (CONTROL MODULE INTERNAL ELECTRIC MALFUNCTN)>>Proceed to <u>PB-40, "INTERNAL ELEC-</u> <u>TRIC MALFUNCTN : Diagnosis Procedure"</u>.

NO >> INSPECTION END

SYSTEM INTERNAL MALFUNCTION

SYSTEM INTERNAL MALFUNCTION : Diagnosis Procedure

INFOID:000000006960896

1.REPLACE PARKING BRAKE CONTROL MODULE

Replace electric parking brake control module even if other display than "C10C8" (CONTROL MODULE SYS-TEM INTERNAL MALFUNCTION) is displayed in self-diagnosis for "EHS/PKB".

>> Replace electric parking brake control module. Refer to <u>PB-83, "Removal and Installation"</u>. INTERNAL ELECTRIC MALFUNCTN

INTERNAL ELECTRIC MALFUNCTN : Diagnosis Procedure

INFOID:000000006960897

1.CHECK PARKING BRAKE SWITCH

Check the parking brake switch. Refer to PB-54, "Diagnosis Procedure".

Is inspection result normal?

YES >> GO TO 2.

MO >> Replace the parking brake switch. Refer to <u>PB-90, "Removal and Installation"</u>.

2. CHECK PARKING BRAKE SWITCH CIRCUIT

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

PB-40

C10C8 ELECTRIC PARKING BRAKE CONTROL MODULE

< DTC/CIRCUIT DIAGNOSIS >

4. Check 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	Continuity	E
B21	13	B20	2	Existed	_

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

Electric parking brake control module			Continuity	
Connector	Connector Terminal			
B21	13	Ground	Not existed	

Is inspection result normal?

YES >> Replace electric parking brake control module. Refer to <u>PB-83, "Removal and Installation"</u>.

NO >> Repair or replace error-detected parts.

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< DTC/CIRCUIT DIAGNOSIS >

C10E0 PARKING BRAKE ACTUATOR

DTC Logic

INFOID:000000006960898

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
	ACTUATOR ACTUATOR SLIP- PING	When motor and reduction gear within parking brake actuator is spinning.	
	ACTUATOR COMMANDED POS NOT REACH	When motor and reduction gear within parking brake actuator is locked.	
C10E0	ACTUATOR MECHANICAL LINKAGE MALFNCTN	When parking brake control is not completed.	 parking brake actuator Cable
	ACTUATOR PERFORMANCE/ INCRRCT OPERAT	When cable is stuck.When cable is broken.	
	ACTUATOR UNEXPECTED OP- ERATION	When re-pull is repeated due to insufficient tension.	

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn power 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 power switch OFF to ON.
- 2. Press 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 "C10E0" detected?

YES (ACTUATOR ACTUATOR SLIPPING)>>Proceed to <u>PB-42, "ACTUATOR SLIPPING : Diagnosis Proce-</u> <u>dure"</u>.

- YES (ACTUATOR COMMANDED POS NOT REACH)>>Proceed to <u>PB-44. "COMMANDED POS NOT</u> <u>REACH : Diagnosis Procedure"</u>.
- YES (ACTUATOR MECHANICAL LINKAGE MALFNCTN)>>Proceed to <u>PB-45</u>, <u>"MECHANICAL LINKAGE</u> <u>MALFNCTN : Diagnosis Procedure"</u>.
- YES (ACTUATOR PERFORMANCE/INCRRCT OPERAT)>>Proceed to <u>PB-47</u>, "<u>PERFORMANCE/INCR-</u> <u>RCT OPERAT</u>: <u>Diagnosis Procedure</u>".
- YES (ACTUATOR UNEXPECTED OPERATION)>>Proceed to <u>PB-48, "UNEXPECTED OPERATION : Diag-</u> nosis Procedure". NO >> INSPECTION END

NO >> INSPECTION END ACTUATOR SLIPPING

ACTUATOR SLIPPING : Diagnosis Procedure

INFOID:000000006960899

1.CHECK THE CABLE

1. Turn the power switch OFF.

2. Check each cable to see if it is stuck or broken.

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> Replace the parking brake actuator or parking brake rear cable.

PB-42

< DTC/CIRCUIT DIAGNOSIS >

- Parking brake actuator: Refer to PB-85, "Removal and Installation".
- Parking brake rear cable: <u>PB-87, "Removal and Installation"</u>.

2.CHECK PARKING BRAKE ACTUATOR CIRCUIT (1)

- 1. Disconnect parking brake actuator harness connector.
- 2. Disconnect electric parking brake control module harness connector.

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

_	Continuity	Electric parking brake control module		Parking brake actuator	
D	Continuity	Terminal	Connector	Terminal	Connector
_ D		11		2	
		1		3	-
E	Existed	15	B21	4	B23
		2	-	7	7
		3		8	

4. Check continuity between parking brake actuator and ground.

Parking br	ake actuator		Continuity
Connector	Terminal		Continuity
	2		
	3	Ground	Ground Not existed
B23	4		
	7		
	8	-	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace error-detected parts.

3.CHECK PARKING BRAKE ACTUATOR CIRCUIT (2)

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

Orationity	Electric parking brake control module		ke actuator	Parking bra
Continuity	Terminal	Connector	Terminal	Connector
Eviated	23	D OO	13	B23
Existed	21	B22 -	14	

2. Check continuity between parking brake actuator and ground.

Parking brake actuator			Continuity
Connector	Terminal		Continuity
B23	13 Cround Net avia	Ground	Not existed
D25	14	Giouna	INOT EXISTED

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.PERFORM SELF-DIAGNOSIS RESULTS

With CONSULT

- 1. Connect parking brake actuator harness connector.
- 2. Connect electric parking brake control module harness connector.

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< DTC/CIRCUIT DIAGNOSIS >

3. Turn the power switch OFF to ON. CAUTION:

Be sure to perform the operation above.

- 4. Erase Self-diagnosis result for "EHS/PKB".
- 5. Turn the power switch OFF, and wait 10 seconds or more.
- 6. Turn the power switch ON.
- 7. Pull parking brake switch to activate electric parking brake.
- 8. Push parking brake switch to release electric parking brake.
- 9. Perform self-diagnosis for "EHS/PKB".

Is any DTC detected?

YES ("C11E0")>>Replace parking brake actuator. Refer to PB-85, "Removal and Installation".

- YES (Except "C11E0")>>Check the DTC. Refer to PB-29, "DTC Index".
- NO >> INSPECTIÓN END

COMMANDED POS NOT REACH

COMMANDED POS NOT REACH : Diagnosis Procedure

INFOID:000000006960900

1.CHECK THE CABLE

- 1. Turn the power switch OFF.
- 2. Check each cable to see if it is stuck or broken.

Is the inspection result normal?

YES >> GO TO 2.

NO

- >> Replace the parking brake actuator or parking brake rear cable.
 - Parking brake actuator: Refer to PB-85, "Removal and Installation".
 - Parking brake rear cable: PB-87, "Removal and Installation".

2.CHECK PARKING BRAKE ACTUATOR CIRCUIT (1)

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

Parking bra	ake actuator	Electric parking bra	ake control module	Continuity
Connector	Terminal	Connector	Terminal	Continuity
B23	2	B21	11	
	3		1	
	4		15	Existed
	7		2	
	8	-	3	

4. Check continuity between parking brake actuator and ground.

Parking br	Parking brake actuator		Continuity	
Connector	Terminal		Continuity	
	2			
B23	3		Not existed	
	4	Ground		
	7			
	8			

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace error-detected parts.

3.CHECK PARKING BRAKE ACTUATOR CIRCUIT (2)

< DTC/CIRCUIT DIAGNOSIS >

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

Connector Terminal Connector Terminal B23 13 B22 23 E B23 14 B22 21 E Check continuity between parking brake actuator and ground. E Connector Terminal Continuity Connector Terminal Continuity Continuity E B23 13 Ground Not existed E B23 13 Ground Not existed E B23 14 Ground Not existed E B23 14 Ground Not existed E PERFORM SELF-DIAGNOSIS RESULTS With CONSULT Connect parking brake actuator harness connector. Connect parking brake actuator harness connector. Connect parking brake setuator harness connector. Connect parking brake setuator harness connector. Connect parking brake setuator harness connector. Connect electric parking brake actuator harness connector. Connect parking brake setuator harness connector. Curi the power switch OFF to ON. CAUTION: E Besure to perform the operation above. E trass Self-diagnosis result for "EHS/PKB". <	or
B23 14 B22 21 E Check continuity between parking brake actuator and ground. Parking brake actuator — Continuity Connector Terminal — Continuity B23 13 Ground Not existed B23 14 Ground Not existed B23 GO TO 4. NO >> Repair or replace error-detected parts. PERFORM SELF-DIAGNOSIS RESULTS Connect parking brake actuator harness connector. Connect parking brake actuator harness connector. Connect parking brake actuator harness connector. Connect parking brake switch OFF to ON. CAUTION: Be sure to perform the operation above. Erase Self-diagnosis result for "EHS/PKB". Turn the power switch OFF, and wait 10 seconds or more. Turn the power switch OFF. Server PB-29. "DTC	erminal
14 21 2. Check continuity between parking brake actuator and ground. Parking brake actuator Connector Terminal B23 13 Ground Not existed B23 14 Connect Continuity YES > Repair or replace error-detected parts. PERFORM SELF-DIAGNOSIS RESULTS With CONSULT Connect electric parking brake actuator harness connector. Connect electric parking brake actuator boxe. Erase Self-diagnosis result for "EHS/PKB". Turn the power switch OFF. Tot may brake switch to activate electric parking brake. Pull parking brake switch to activate electric parking brake. Pull parking brake sw	13
Parking brake actuator Continuity Connector Terminal Continuity B23 13 Ground Not existed sthe inspection result normal? YES > GO TO 4. Not existed VES > GO TO 4. Not existed Not existed PERFORM SELF-DIAGNOSIS RESULTS With CONSULT Connect parking brake actuator harness connector. Connect electric parking brake control module harness connector. Connect parking brake actuator harness connector. Connect electric parking brake control module harness connector. Turn the power switch OFF to ON. CAUTION: Be sure to perform the operation above. Erase Self-diagnosis result for "EHS/PKB". Turn the power switch OFF, and wait 10 seconds or more. Turn the power switch OFF. Turn the power switch OFF. Turn the power switch OFF. Sany DTC detected? YES ("C'11E0")>Replace parking brake actuator. Refer to PB-85. "Removal and Installation". YES (Except "C'11E0")>>Check the DTC. Refer to PB-29. "DTC Index". Mo NO > INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN Diagnosis Procedure M . CHECK THE CABLE Turn the power switch OFF. <td< td=""><td>14</td></td<>	14
Connector Terminal Continuity B23 13 Ground Not existed B23 14 Ground Not existed s the inspection result normal? YES >> GO TO 4. Not existed NO >> Repair or replace error-detected parts. . . PERFORM SELF-DIAGNOSIS RESULTS . . . With CONSULT . Connect parking brake actuator harness connector. . Connect parking brake actuator harness connector. . Connect parking brake actuator harness connector. . CAUTION: Be sure to perform the operation above. . Erase Self-diagnosis result for "EHS/PKB". Turn the power switch OFF, and wait 10 seconds or more. . Turn the power switch ON. Pull parking brake switch to activate electric parking brake. . Perform self-diagnosis for "EHS/PKB". S any DTC detected? . YES ("Catted")>>Replace parking brake actuator. Refer to PB-85. "Removal and Installation". YES ("Catted") . . . ACTION: . . . MECHANICAL LINKAGE MALFNCTN <td< td=""><td>parking brains</td></td<>	parking brains
Connector Terminal Continuity B23 13 Ground Not existed B23 14 Ground Not existed s the inspection result normal? YES >> GO TO 4. Not existed NO >> Repair or replace error-detected parts. . . PERFORM SELF-DIAGNOSIS RESULTS . . . With CONSULT . Connect parking brake actuator harness connector. . Connect parking brake actuator harness connector. . Connect parking brake actuator harness connector. . CAUTION: Be sure to perform the operation above. . Erase Self-diagnosis result for "EHS/PKB". Turn the power switch OFF, and wait 10 seconds or more. . Turn the power switch ON. Pull parking brake switch to activate electric parking brake. . Perform self-diagnosis for "EHS/PKB". S any DTC detected? . YES ("Catted")>>Replace parking brake actuator. Refer to PB-85. "Removal and Installation". YES ("Catted") . . . ACTION: . . . MECHANICAL LINKAGE MALFNCTN <td< td=""><td></td></td<>	
Connector Terminal B23 13 Ground Not existed as the inspection result normal? YES >> GO TO 4. NO >> Repair or replace error-detected parts. . PERFORM SELF-DIAGNOSIS RESULTS)r
B23 14 Ground Not existed as the inspection result normal? YES >> GO TO 4. NO >> Repair or replace error-detected parts. MO >> Repair or replace error-detected parts. . . . PERFORM SELF-DIAGNOSIS RESULTS With CONSULT Connect parking brake actuator harness connector. Torn the power switch OFF to ON. Turn the power switch OFF, and wait 10 seconds or more. Turn the power switch ON. 	erminal
14 YES >> GO TO 4. NO >> Repair or replace error-detected parts. PERFORM SELF-DIAGNOSIS RESULTS With CONSULT Connect parking brake actuator harness connector. Connect parking brake actuator harness connector. Turn the power switch OFF to ON. CAUTION: Be sure to perform the operation above. Frase Self-diagnosis result for "EHS/PKB". Turn the power switch OFF, and wait 10 seconds or more. Turn the power switch to activate electric parking brake. Pull parking brake switch to activate electric parking brake. Pull parking brake switch to release electric parking brake. Push parking brake switch to release electric parking brake. Perform self-diagnosis for "EHS/PKB". s any DTC detected? YES ("C11E0")>>Replace parking brake actuator. Refer to PB-85. "Removal and Installation". YES (Except "C11E0")>>Check the DTC. Refer to PB-29. "DTC Index". NO >> INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure CHECK THE CABLE Turn the power switch OFF. Check each cable to see if it is stuck or broken. the inspection result normal?	13
YES >> GO TO 4. NO >> Repair or replace error-detected parts. PERFORM SELF-DIAGNOSIS RESULTS With CONSULT Connect parking brake actuator harness connector. 2Connect electric parking brake control module harness connector. 3Connect electric parking brake control module harness connector. 4Turn the power switch OFF to ON. CAUTION: Be sure to perform the operation above. 6Erase Self-diagnosis result for "EHS/PKB". 7Turn the power switch OFF, and wait 10 seconds or more. 9Turn the power switch OFF, and wait 10 seconds or more. 9Turn the power switch to release electric parking brake. 9Perform self-diagnosis for "EHS/PKB". 9Perfore tede? Y	14
 NO >> Repair or replace error-detected parts. PERFORM SELF-DIAGNOSIS RESULTS With CONSULT Connect parking brake actuator harness connector. Connect electric parking brake control module harness connector. Turn the power switch OFF to ON. CAUTION: Be sure to perform the operation above. Frase Self-diagnosis result for "EHS/PKB". Turn the power switch OFF, and wait 10 seconds or more. Turn the power switch ON. Pull parking brake switch to activate electric parking brake. Push parking brake switch to release electric parking brake. Perform self-diagnosis for "EHS/PKB". any DTC detected? YES ("C11E0")>>Replace parking brake actuator. Refer to PB-85. "Removal and Installation". YES (%C11E0")>>Check the DTC. Refer to PB-29. "DTC Index". NO >> INSPECTION END ACHECK THE CABLE Turn the power switch OFF. Check each cable to see if it is stuck or broken. sthe inspection result normal? YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to PB-85. "Removal and Installation". 	?
With CONSULT With CONSULT Connect parking brake actuator harness connector. Connect electric parking brake control module harness connector. Turn the power switch OFF to ON. CAUTION: Be sure to perform the operation above. Erase Self-diagnosis result for "EHS/PKB". Turn the power switch OFF, and wait 10 seconds or more. Turn the power switch ON. Pull parking brake switch to release electric parking brake. Perform self-diagnosis for "EHS/PKB". Sany DTC detected? YES ("C11E0")>>Replace parking brake actuator. Refer to PB-85. "Removal and Installation". YES ("C11E0")>>Check the DTC. Refer to PB-29. "DTC Index". NO >> INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure	
With CONSULT Connect parking brake actuator harness connector. Connect electric parking brake control module harness connector. Turn the power switch OFF to ON. CAUTION: Be sure to perform the operation above. Erase Self-diagnosis result for "EHS/PKB". Turn the power switch OFF, and wait 10 seconds or more. Turn the power switch ON. Pull parking brake switch to activate electric parking brake. Perform self-diagnosis for "EHS/PKB". S any DTC detected? YES ("C11E0")>>Replace parking brake actuator. Refer to PB-85. "Removal and Installation". YES ("C11E0")>>Replace parking brake actuator. Refer to PB-85. "Removal and Installation". YES ("C11E0")>>Replace parking brake actuator. Refer to PB-85. "Removal and Installation". YES ("C11E0")>>Check the DTC. Refer to PB-29. "DTC Index". NO >> INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure .CHECK THE CABLE Turn the power switch OFF. .Check each cable to see if it is stuck or broken. s the inspection result normal? YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to PB-85, "Removal and Installation"	
 Connect parking brake actuator harness connector. Connect electric parking brake control module harness connector. Turn the power switch OFF to ON. CAUTION: Be sure to perform the operation above. Erase Self-diagnosis result for "EHS/PKB". Turn the power switch OFF, and wait 10 seconds or more. Turn the power switch ON. Pull parking brake switch to activate electric parking brake. Push parking brake switch to release electric parking brake. Perform self-diagnosis for "EHS/PKB". Sany DTC detected? YES ("C11E0")>>Replace parking brake actuator. Refer to PB-85, "Removal and Installation". YES ("C11E0")>>Check the DTC. Refer to PB-29, "DTC Index". NO >> INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure Turn the power switch OFF. Check each cable to see if it is stuck or broken. Sthe inspection result normal? YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to PB-85, "Removal and Installation". 	SIS RESU
 Connect electric parking brake control module harness connector. Turn the power switch OFF to ON. CAUTION: Be sure to perform the operation above. Erase Self-diagnosis result for "EHS/PKB". Turn the power switch OFF, and wait 10 seconds or more. Turn the power switch ON. Pull parking brake switch to activate electric parking brake. Push parking brake switch to release electric parking brake. Perform self-diagnosis for "EHS/PKB". any DTC detected? YES ("C11E0")>>Replace parking brake actuator. Refer to <u>PB-85, "Removal and Installation"</u>. YES ("C11E0")>>Check the DTC. Refer to <u>PB-29, "DTC Index"</u>. NO >> INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure Turn the power switch OFF. Check each cable to see if it is stuck or broken. s the inspection result normal? YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u>. 	
 a. Turn the power switch OFF to ON. CAUTION: Be sure to perform the operation above. b. Erase Self-diagnosis result for "EHS/PKB". c. Turn the power switch OFF, and wait 10 seconds or more. c. Turn the power switch ON. Pull parking brake switch to activate electric parking brake. Push parking brake switch to release electric parking brake. Perform self-diagnosis for "EHS/PKB". s any DTC detected? YES ("C11E0")>>Replace parking brake actuator. Refer to PB-85. "Removal and Installation". YES ("C11E0")>>Check the DTC. Refer to PB-29. "DTC Index". NO >> INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure . Turn the power switch OFF. Check each cable to see if it is stuck or broken. s the inspection result normal? YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to PB-85, "Removal and Installation". 	
CAUTION: Be sure to perform the operation above. Erase Self-diagnosis result for "EHS/PKB". Turn the power switch OFF, and wait 10 seconds or more. Turn the power switch OFF, and wait 10 seconds or more. Turn the power switch OFF, and wait 10 seconds or more. Pull parking brake switch to activate electric parking brake. Push parking brake switch to release electric parking brake. Perform self-diagnosis for "EHS/PKB". Sany DTC detected? YES ("C11E0")>>Replace parking brake actuator. Refer to PB-85, "Removal and Installation". YES (Except "C11E0")>>Check the DTC. Refer to PB-29, "DTC Index". NO >> INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure CHECK THE CABLE Turn the power switch OFF. Check each cable to see if it is stuck or broken. Sthe inspection result normal? YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to PB-85, "Removal and Installation".	
 Erase Self-diagnosis result for "EHS/PKB". Turn the power switch OFF, and wait 10 seconds or more. Turn the power switch ON. Pull parking brake switch to activate electric parking brake. Push parking brake switch to release electric parking brake. Perform self-diagnosis for "EHS/PKB". any DTC detected? YES ("C11E0")>>Replace parking brake actuator. Refer to <u>PB-85, "Removal and Installation"</u>. YES ("C11E0")>>Check the DTC. Refer to <u>PB-29, "DTC Index"</u>. NO >> INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure . CHECK THE CABLE Turn the power switch OFF. Check each cable to see if it is stuck or broken. the inspection result normal? YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u>. 	
 Turn the power switch OFF, and wait 10 seconds or more. Turn the power switch ON. Pull parking brake switch to activate electric parking brake. Push parking brake switch to release electric parking brake. Perform self-diagnosis for "EHS/PKB". sany DTC detected? YES ("C11E0")>>Replace parking brake actuator. Refer to PB-85. "Removal and Installation". YES ("C11E0")>>Check the DTC. Refer to PB-29. "DTC Index". NO >> INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure . CHECK THE CABLE Turn the power switch OFF. Check each cable to see if it is stuck or broken. s the inspection result normal? YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to PB-85. "Removal and Installation". 	
 Turn the power switch ON. Pull parking brake switch to activate electric parking brake. Push parking brake switch to release electric parking brake. Perform self-diagnosis for "EHS/PKB". sany DTC detected? YES ("C11E0")>>Replace parking brake actuator. Refer to <u>PB-85, "Removal and Installation"</u>. YES ("C11E0")>>Check the DTC. Refer to <u>PB-29, "DTC Index"</u>. NO >> INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure .CHECK THE CABLE Turn the power switch OFF. Check each cable to see if it is stuck or broken. s the inspection result normal? YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u>. 	
 Pull parking brake switch to activate electric parking brake. Push parking brake switch to release electric parking brake. Perform self-diagnosis for "EHS/PKB". sany DTC detected? YES ("C11E0")>>Replace parking brake actuator. Refer to <u>PB-85. "Removal and Installation"</u>. YES ("C11E0")>>Check the DTC. Refer to <u>PB-29. "DTC Index"</u>. NO >> INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure .CHECK THE CABLE Turn the power switch OFF. Check each cable to see if it is stuck or broken. s the inspection result normal? YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u>. 	
 B. Push parking brake switch to release electric parking brake. Perform self-diagnosis for "EHS/PKB". <u>s any DTC detected?</u> YES ("C11E0")>>Replace parking brake actuator. Refer to <u>PB-85. "Removal and Installation"</u>. YES (Except "C11E0")>>Check the DTC. Refer to <u>PB-29. "DTC Index"</u>. NO >> INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure .CHECK THE CABLE Turn the power switch OFF. Check each cable to see if it is stuck or broken. <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u>. 	
s any DTC detected? YES ("C11E0")>>Replace parking brake actuator. Refer to <u>PB-85, "Removal and Installation"</u> . YES (Except "C11E0")>>Check the DTC. Refer to <u>PB-29, "DTC Index"</u> . NO >> INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure . CHECK THE CABLE . Turn the power switch OFF. . Check each cable to see if it is stuck or broken. s the inspection result normal? YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. . Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u> .	to release
YES ("C11E0")>>Replace parking brake actuator. Refer to <u>PB-85, "Removal and Installation"</u> . YES (Except "C11E0")>>Check the DTC. Refer to <u>PB-29, "DTC Index"</u> . NO >> INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure .CHECK THE CABLE . Turn the power switch OFF. . Check each cable to see if it is stuck or broken. <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. . Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u> .	"EHS/PKB
YES (Except "C11E0")>>Check the DTC. Refer to <u>PB-29, "DTC Index"</u> . NO >> INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure .CHECK THE CABLE . Turn the power switch OFF. . Check each cable to see if it is stuck or broken. <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. . Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u> .	
NO >> INSPECTION END MECHANICAL LINKAGE MALFNCTN MECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure .CHECK THE CABLE . Turn the power switch OFF. . Check each cable to see if it is stuck or broken. . Check each cable to see if it is stuck or broken. . sthe inspection result normal? YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. . Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u> .	
AECHANICAL LINKAGE MALFNCTN AECHANICAL LINKAGE MALFNCTN : Diagnosis Procedure .CHECK THE CABLE . Turn the power switch OFF. . Check each cable to see if it is stuck or broken. <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. . Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u> .	
CHECK THE CABLE Turn the power switch OFF. Check each cable to see if it is stuck or broken. <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u> .	
CHECK THE CABLE Turn the power switch OFF. Check each cable to see if it is stuck or broken. <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u> .	
 Turn the power switch OFF. Check each cable to see if it is stuck or broken. <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u>. 	
 Turn the power switch OFF. Check each cable to see if it is stuck or broken. <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u>. 	
 Check each cable to see if it is stuck or broken. <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u>. 	
 <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. • Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u>. 	
 YES >> GO TO 2. NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u>. 	
 NO >> Replace the parking brake actuator or parking brake rear cable. Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u>. 	-
• Farking brake real cable: PB-67, Removal and Installation.	
2. CHECK PARKING BRAKE ACTUATOR CIRCUIT (1)	
 Disconnect parking brake actuator harness connector. Disconnect electric parking brake control module harness connector. 	

3. Check continuity between parking brake actuator and electric parking brake control module harness connector.

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< DTC/CIRCUIT DIAGNOSIS >

Parking bra	ke actuator	Electric parking bra	ake control module	Continuity
Connector	Terminal	Connector	Terminal	Continuity
	2		11	
-	3	-	1	
B23	4	B21	15	Existed
-	7	-	2	
-	8	-	3	

4. Check continuity between parking brake actuator and ground.

Parking br	ake actuator		Continuity
Connector	Terminal		Continuity
	2		
B23	3		
	4	Ground	Not existed
	7		
	8		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace error-detected parts.

3.CHECK PARKING BRAKE ACTUATOR CIRCUIT (2)

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

Parking bra	ake actuator	Electric parking brake control module		Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
B23	13	B22	23	Existed	
D25	14	DZZ	21	LXISIEU	

2. Check continuity between parking brake actuator and ground.

Parking bra	ake actuator		Continuity	
Connector	Terminal			
B23	13	Ground	Not existed	
B23	14	Ground	NOL EXISTED	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.PERFORM SELF-DIAGNOSIS RESULTS

With CONSULT

- 1. Connect parking brake actuator harness connector.
- 2. Connect electric parking brake control module harness connector.
- Turn the power switch OFF to ON. CAUTION:

Be sure to perform the operation above.

- 4. Erase Self-diagnosis result for "EHS/PKB".
- 5. Turn the power switch OFF, and wait 10 seconds or more.
- 6. Turn the power switch ON.
- 7. Pull parking brake switch to activate electric parking brake.
- 8. Push parking brake switch to release electric parking brake.

PB-46

< DTC/CIRCUIT DIAC	GNOSIS >				
9. Perform self-diagn	osis for "EHS/PKB".				
Is any DTC detected?					А
		ctuator. Refer to PB-85		llation".	
NO >> INSPECTI		Refer to <u>PB-29, "DTC I</u>	<u>ndex"</u> .		В
PERFORMANCE		ERAT			D
PERFORMANCE	INCRRCT OPE	RAT : Diagnosis F	Procedure	INFOID:00000006960902	С
1.CHECK THE CABL	E				
1. Turn the power sw		h ma lua m			D
2. Check each cable Is the inspection result	to see if it is stuck or	broken.			
YES >> GO TO 2.	<u>nomar</u>				Е
	the parking brake act	tuator or parking brake	e rear cable.		
		to PB-85, "Removal a			
•		87, "Removal and Inst	<u>allation"</u> .	F	ΡВ
2.CHECK PARKING	BRAKE ACTUATOR	CIRCUIT (1)			
	g brake actuator harn		u a atau		0
		ol module harness con a actuator and electric		module harness con-	G
nector.			po		
					Н
Parking brak	ke actuator	Electric parking bra	ake control module	Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
	2		11		I
	3		1		
B23	4	B21	15	Existed	J
	7	-	2		
	8	-	3		
4. Check continuity b	etween parking brake	e actuator and ground.			Κ
Parking bra	ke actuator		Continuity		L
Connector	Terminal		Continuity		-
	2				
-	3				M
B23	4	Ground	Not existed		
-	7				NI
-	8				Ν
Is the inspection result	normal?				
YES >> GO TO 3.					0
^	eplace error-detected	•			
3.CHECK PARKING I	BRAKE ACTUATOR	CIRCUIT (2)			
1. Check continuity b nector.	etween parking brake	e actuator and electric	parking brake control	module harness con-	Ρ
Parking brak	ke actuator	Electric parking bra	ake control module		

Parking bra	tke actuator Electric parking brake control module		Continuity	
 Connector	Terminal	Connector	Terminal	Continuity

< DTC/CIRCUIT DIAGNOSIS >

B23	13	B22	23	Evisted
D25	14	DZZ	21	

2. Check continuity between parking brake actuator and ground.

Parking bra	ake actuator		Continuity	
Connector	Terminal	—	Continuity	
B23	13	Ground	Not existed	
D25	14	Gibana	NOT EXISTED	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4. PERFORM SELF-DIAGNOSIS RESULTS

() With CONSULT

- 1. Connect parking brake actuator harness connector.
- 2. Connect electric parking brake control module harness connector.
- 3. Turn the power switch OFF to ON. CAUTION:

Be sure to perform the operation above.

- 4. Erase Self-diagnosis result for "EHS/PKB".
- 5. Turn the power switch OFF, and wait 10 seconds or more.
- 6. Turn the power switch ON.
- 7. Pull parking brake switch to activate electric parking brake.
- 8. Push parking brake switch to release electric parking brake.
- 9. Perform self-diagnosis for "EHS/PKB".

Is any DTC detected?

YES ("C11E0")>>Replace parking brake actuator. Refer to PB-85, "Removal and Installation".

YES (Except "C11E0")>>Check the DTC. Refer to PB-29, "DTC Index".

NO >> INSPECTION END

UNEXPECTED OPERATION

UNEXPECTED OPERATION : Diagnosis Procedure

INFOID:000000006960903

1.CHECK THE CABLE

1. Turn the power switch OFF.

2. Check each cable to see if it is stuck or broken.

Is the inspection result normal?

- YES >> Replace the parking brake actuator or parking brake rear cable.
 - Parking brake actuator: Refer to <u>PB-85, "Removal and Installation"</u>.
 - Parking brake rear cable: PB-87, "Removal and Installation".

NO >> GO TO 2.

2.CHECK PARKING BRAKE ACTUATOR CIRCUIT (1)

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

Parking bra	ake actuator	Electric parking brake control module		Continuity
Connector	Terminal	Connector	Terminal	Continuity

	2		11	
-	3		1	
B23	4	B21 15 2	15	Existed
-	7			
-	8		3	
Check continuity b	between parking brake	e actuator and ground		
Parking bra	ke actuator		Continuity	
Connector	Terminal		Continuity	
	2			
	3			
B23	4	Ground	Not existed	
	7			
	8			
CHECK PARKING	t normal? replace error-detected BRAKE ACTUATOR	CIRCUIT (2)	c parking brake control	module harness cor
YES >> GO TO 3. NO >> Repair or CHECK PARKING Check continuity b nector.	t normal? replace error-detected BRAKE ACTUATOR between parking brake	CIRCUIT (2) e actuator and electric		module harness cor
YES >> GO TO 3. NO >> Repair or CHECK PARKING Check continuity to nector. Parking bra	t normal? replace error-detected BRAKE ACTUATOR between parking brake ke actuator	CIRCUIT (2) e actuator and electric Electric parking br	ake control module	
YES >> GO TO 3. NO >> Repair or CHECK PARKING Check continuity b nector.	t normal? replace error-detected BRAKE ACTUATOR between parking brake ke actuator Terminal	CIRCUIT (2) e actuator and electric	ake control module	module harness cor Continuity
YES >> GO TO 3. NO >> Repair or CHECK PARKING Check continuity to nector. Parking bra	t normal? replace error-detected BRAKE ACTUATOR between parking brake ke actuator Terminal 13	CIRCUIT (2) e actuator and electric Electric parking br	rake control module Terminal 23	
YES >> GO TO 3. NO >> Repair or CHECK PARKING Check continuity to nector. Parking bra Connector B23	t normal? replace error-detected BRAKE ACTUATOR between parking brake ke actuator Terminal 13 14	CIRCUIT (2) e actuator and electric Electric parking br Connector B22	ake control module Terminal 23 21	Continuity
YES >> GO TO 3. NO >> Repair or CHECK PARKING Check continuity to nector. Parking bra Connector B23	t normal? replace error-detected BRAKE ACTUATOR between parking brake ke actuator Terminal 13 14	CIRCUIT (2) e actuator and electric Electric parking br Connector	ake control module Terminal 23 21	Continuity
YES >> GO TO 3. NO >> Repair or CHECK PARKING Check continuity to nector. Parking bra Connector B23 Check continuity to	t normal? replace error-detected BRAKE ACTUATOR between parking brake ke actuator Terminal 13 14	CIRCUIT (2) e actuator and electric Electric parking br Connector B22	ake control module Terminal 23 21	Continuity
YES >> GO TO 3. NO >> Repair or CHECK PARKING Check continuity to nector. Parking bra Connector B23 Check continuity to	t normal? replace error-detected BRAKE ACTUATOR between parking brake ke actuator Terminal 13 14 between parking brake	CIRCUIT (2) e actuator and electric Electric parking br Connector B22	ake control module Terminal 23 21	Continuity
YES >> GO TO 3. NO >> Repair or CHECK PARKING Check continuity to nector. Parking bra Connector B23 Check continuity to Parking bra Connector	t normal? replace error-detected BRAKE ACTUATOR between parking brake ke actuator Terminal 13 14 between parking brake ke actuator	CIRCUIT (2) e actuator and electric Electric parking br Connector B22 e actuator and ground	ake control module Terminal 23 21 . Continuity	Continuity
YES >> GO TO 3. NO >> Repair or CHECK PARKING Check continuity to nector. Parking bra Connector B23 Check continuity to Parking bra	t normal? replace error-detected BRAKE ACTUATOR between parking brake ke actuator 13 14 between parking brake ke actuator ke actuator rerminal	CIRCUIT (2) e actuator and electric Electric parking br Connector B22	ake control module Terminal 23 21	Continuity
YES >> GO TO 3. NO >> Repair or CHECK PARKING Check continuity to nector. Parking bra Connector B23 Check continuity to Parking bra Connector	t normal? replace error-detected BRAKE ACTUATOR between parking brake ke actuator Terminal 13 14 between parking brake ke actuator Terminal 13 14	CIRCUIT (2) e actuator and electric Electric parking br Connector B22 e actuator and ground	ake control module Terminal 23 21 . Continuity	Continuity
YES >> GO TO 3. IO >> Repair or CHECK PARKING Check continuity to nector. Parking bra Connector B23 Check continuity to nector. Connector B23 Check continuity to nector B23 Connector B23 Connector B23 Connector B23 Connector Connector B23 Check continuity to nector Connector Connector B23 Check contence to nector B23 Check contence to nector B23 Check contence to nector Connector Connector Connector Connector Connector Connector Connector Connector Connector Connector Connector Connector Connector Connector	t normal? replace error-detected BRAKE ACTUATOR between parking brake ke actuator Terminal 13 14 between parking brake ke actuator Terminal 13 14 between parking brake ke actuator 13 14 between parking brake ke actuator 13 14 between parking brake ke actuator 13 14 between parking brake	CIRCUIT (2) e actuator and electric Electric parking br Connector B22 e actuator and ground Ground	ake control module Terminal 23 21 . Continuity	Continuity Existed

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C10E1 MOTOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

C10E1 MOTOR CIRCUIT

DTC Logic

INFOID:000000006960904

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C10E1	CONTROL MODULE	When an open circuit is detected in the motor.When a short-circuit is detected in the motor.	 Harness or connector electric parking brake control module

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn power 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 power switch OFF to ON.
- 2. Perform self-diagnosis for "EHS/PKB".

Is DTC "C10E1" detected?

- YES >> Proceed to <u>PB-50, "Diagnosis Procedure"</u>.
- NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006960905

1.CHECK MOTOR CIRCUIT (1)

- 1. Turn the power switch OFF.
- 2. Disconnect electric parking brake control module harness connector.
- 3. Disconnect parking brake actuator harness connector.
- 4. Check 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	Continuity	
B22	21	B23	14	Existed	
	23	620	13		

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

Electric parking brake control module			Continuity	
Connector	Terminal	_	Continuity	
B22	21	Ground	Not existed	
	23	Giouna	NOT EXISTED	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace error-detected parts.

2.CHECK MOTOR CIRCUIT (2)

Check resistance between parking brake actuator connector terminals.

C10E1 MOTOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Parking brake actuator	Resistance	
Terminal		
13 – 14	4 Ω or less	

Is the inspection result normal?

YES >> Replace electric parking brake control module. Refer to <u>PB-83, "Removal and Installation"</u>.

NO >> Replace parking brake actuator. Refer to <u>PB-85, "Removal and Installation"</u>.

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C10E2 MOTOR

< DTC/CIRCUIT DIAGNOSIS >

C10E2 MOTOR

DTC Logic

INFOID:000000006960906

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C10E2	MOTOR POWER SUPPLY	 When the motor power supply voltage is in the following status. Motor power supply voltage: 11 V ≥ Motor power supply voltage 	 Harness or connector Electric parking brake control module

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

()With CONSULT

- Turn the power switch OFF to ON.
- 2. Perform self-diagnosis for "EHS/PKB".

Is DTC "C10E2" detected?

- YES >> Proceed to PB-52, "Diagnosis Procedure".
- NO >> INSPECTION END

Diagnosis Procedure

1.CHECK MOTOR POWER SUPPLY

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

Electric parking br	ake control module		Voltage
Connector	Terminal		vollage
B22	22	Ground	11 – 14 V

4. Turn the power switch ON.

CAUTION: Never set the vehicle to READY.

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

Electric parking br	ake control module		Voltage
Connector	Terminal		vollage
B22	22	Ground	11 – 14 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK MOTOR POWER SUPPLY CIRCUIT

1. Turn the power switch OFF.

2. Check 30A fuse (#36).

3. Check continuity and short circuit between electric parking brake control module harness connector terminal (22) and 30A fuse (#36).

PB-52

INFOID:000000006960907

C10E2 MOTOR

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> Perform trouble diagnosis for 12V battery power supply. Refer to <u>PG-15, "Wiring Diagram BAT-</u> A <u>TERY POWER SUPPLY -"</u>.
- NO >> Repair or replace error-detected parts.

3.CHECK MOTOR GROUND CIRCUIT

1. Turn the power switch OFF.

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

Electric parking brake control module			Continuity
Connector	Terminal		Continuity
B22	24	Ground	Existed

Is the inspection result normal?

YES >> Replace electric parking brake control module. Refer to <u>PB-83, "Removal and Installation"</u>.

NO >> Repair or replace error-detected parts.

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C10E3 PARKING BRAKE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

C10E3 PARKING BRAKE SWITCH

DTC Logic

INFOID:000000006960908

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C10E3	PARKING BRAKE SWITCH	When the signal is not input even when the parking brake switch is operated.	 Harness or connector Parking brake switch Electric parking brake control module

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn power 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 power switch OFF to ON.
- 2. Press the parking brake switch.
- Put the select leve

• Put the select lever in the P position.

- Depress the brake pedal.
- 3. Pull the parking brake switch.
- Perform self-diagnosis for "EHS/PKB".

Is DTC "C10E3" detected?

- YES >> Proceed to PB-54, "Diagnosis Procedure".
- NO >> INSPECTION END

Diagnosis Procedure

1.CHECK DATA MONITOR

(D) With CONSULT

Select "EHS/PKB", "DATA MONITOR", "BRAKE SWITCH" and "RELEASE SWITCH" according to this order. Check that data monitor displays "ON" or "OFF" when parking brake switch is pull or push. Refer to <u>PB-26.</u> "<u>Reference Value</u>".

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 3.

2.PERFORM SELF-DIAGNOSIS

With CONSULT

- 1. Erase Self-diagnosis result for "EHS/PKB".
- 2. Repeat the parking brake switch operation (pull and push) 5 times.
- 3. Perform self-diagnosis for "EHS/PKB".

Is DTC "C10E3" detected?

- YES >> GO TO 3.
- NO >> INSPECTION END
- **3.**CHECK PARKING BRAKE SWITCH CIRCUIT
- 1. Turn the power switch OFF.
- 2. Disconnect electric parking brake control module harness connector.
- 3. Disconnect parking brake switch harness connector.

PB-54

INFOID:000000006960909

C10E3 PARKING BRAKE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

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

Electric parking br	ake control module	Parking bra	ake switch	Continuity	_
Connector	Terminal	Connector	Terminal	Continuity	
	9	B20	1		_
B21	10		7	-	
D2 I	12		8	Existed	
13	13		2		
B22	18		5		

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

Electric parking brake control module		ontrol module	Continuity	
Connector	Terminal		Continuity	
	9		Not existed	PB
B21	10	Ground		
	12			
	13			G
B22	18			
Is the inspection result	t normal?			H

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK PARKING BRAKE SWITCH

Check parking brake switch. Refer to <u>PB-55, "Component Inspection"</u>. Is the inspection result normal?

YES >> Replace the electric parking brake control module. Refer to <u>PB-83, "Removal and Installation"</u>.

NO >> Replace the parking brake switch. Refer to PB-90, "Removal and Installation".

Component Inspection

1.CHECK PARKING BRAKE SWITCH (1)

1. Turn the power switch OFF.

2. Disconnect parking brake switch harness connector.

3. Check continuity when parking brake switch is operated.

Parking brake switch	Condition	Continuity	
Terminal	Condition	Continuity	
1 – 3 (Release switch)	When parking brake switch is pull	Existed	
	When parking brake switch is push	Not existed	
2 – 3 (Brake switch)	When parking brake switch is pull	Not existed	
z = 3 (blace switch)	When parking brake switch is push	Existed	

Is the inspection result normal?

YES >> GO TO 2.

NO	>> Replace the parking brake switch	. Refer to <u>PB-90, "Removal and Installation"</u> .
----	-------------------------------------	-------------------------------------------------------

2.CHECK PARKING BRAKE SWITCH (2)

Check resistance when parking brake switch is operated.

INFOID:000000006960910

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C10E3 PARKING BRAKE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

Parking brake switch	Condition	Resistance
Terminal	Condition	Resistance
	When parking brake switch is pull	159 – 176 Ω
7 – 8 (Analog switch)	When parking brake switch is push	159 - 176 22
	When parking brake is neutral position	2565 – 2835 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the parking brake switch. Refer to <u>PB-90, "Removal and Installation"</u>.

C10E4 TENSION SENSOR

< DTC/CIRCUIT DIAGNOSIS >

C10E4 TENSION SENSOR

DTC Logic

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INFOID:000000006960911

DTC DETECTION LOGIC

DTC	Display Item	Malfur	nction detected condition	P	ossible causes
C10E4	TENSION SENSOR	When a tension ser	nsor malfunction is detecte		ness or connector king brake actua-
TC CON	FIRMATION PROCI	EDURE			
.PRECO	NDITIONING				
		EDURE" has been prev conducting the next test.		vays turn power	switch OFF and
		-			
	• GO TO 2.				
_	DTC DETECTION				
With CO . Turn th	NSULT he power switch OFF t	o ON.			
. Press	the parking brake swit				
• Put f	ON: he select lever in the	e P position.			
 Depi 	ess the brake pedal.				
. Pull the	t step 2 to 3 three time e parking brake switch	1.			
	n self-diagnosis for "E	HS/PKB".			
	<u>0E4" detected?</u> Proceed to PB-57. "[Diagnosis Procedure".			
	INSPECTION END	<u></u> .			
Diagnosi	s Procedure				INFOID:0000000069609
CHECK	PARKING BRAKE AG	CTUATOR CIRCUIT			
	e power switch OFF.				
. Discon	nect parking brake ac	tuator harness connecto			
		orake control module ha arking brake actuator an		ike control modu	lle harness cor
nector.		-			
	arking brake actuator	Electric parking b	rake control module		_
- F			Terminal	Continuity	
Conne	ctor Terminal	Connector	Torrinia		
	ctor Terminal 2	Connector	11		
					_

5. Check continuity between parking brake actuator harness connector and ground.

7

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Parking bra	ake actuator	 Continuity
Connector Terminal		Continuity

2

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C10E4 TENSION SENSOR

< DTC/CIRCUIT DIAGNOSIS >

	2		
	3		
B23	4	Ground	Not existed
	7		
	8		

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace error-detected parts.

 $2. {\sf CHECK TENSION SENSOR}$

1. Connect electric parking brake control module harness connector.

2. Turn the power switch ON.

3. Check voltage between parking brake actuator harness connector terminals.

Parking brake actuator	M. Hanna	
Terminal	Voltage	
3 - 2	4.75 – 5.25 V	
8 - 2	4.75 - 5.25 V	

Is the inspection result normal?

YES >> Replace parking brake actuator. Refer to <u>PB-85, "Removal and Installation"</u>.

NO >> Replace electric parking brake control module. Refer to PB-83, "Removal and Installation".

C10E5 ELECTRIC PARKING BRAKE CONTROL MODULE

< DTC/CIRCUIT DIAGNOSIS >

C10E5 ELECTRIC PARKING BRAKE CONTROL MODULE

DTC Logic

INFOID:000000006960913

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DTC DETECTION LOGIC

DTC	Display Item	Malfunction dete	ected condition	Possible causes
C10E5	POWER SUPPLY VOLTAGE	When power supply voltage is Power supply voltage: 10.5		 Harness or connector Electric parking brake control module
DTC COM	FIRMATION PROCED	URE		
1.PRECO	ONDITIONING			
	ONFIRMATION PROCED st 10 seconds before con-	URE" has been previously c ducting the next test.	onducted, always turn p	power switch OFF and
>	> GO TO 2.			
2.CHEC	OTC DETECTION			
2. Perfor	he power switch OFF to C m self-diagnosis for "EHS			
YES >	<u>10E5" detected?</u> > Proceed to <u>PB-59, "Dia</u> > INSPECTION END	<u>gnosis Procedure"</u> .		
Diagnos	is Procedure			INFOID:000000006960914
1. CHECK	(12V BATTERY			
	he power switch OFF to C			
	12V battery. Refer to <u>PG</u> ection result normal?	<u>-101, WORKTIOW</u> .		
YES >	> GO TO 2.			
-		y. Refer to <u>PG-104, "Remova</u>		
		RAKE CONTROL MODULE	POWER SUPPLY	
2. Disco		te control module harness co parking brake control modul		nd ground.
Ele	ectric parking brake control mod	ule	Voltage	
Сог	nnector Termi	nal		
	B21 7	Ground	11 – 14 V	
CAUT	he power switch ON. ' <mark>ION:</mark> ' set the vehicle to REAI	DY.		
5. Check	voltage between electric	parking brake control modul	e harness connector ar	nd ground.
Ele	ectric parking brake control mod	ule		
			Voltage	
Со	nnector Termi	nai		

Revision: 2010 November

>> GO TO 4.

>> GO TO 3.

YES

NO

C10E5 ELECTRIC PARKING BRAKE CONTROL MODULE

< DTC/CIRCUIT DIAGNOSIS >

3.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE POWER SUPPLY CIRCUIT

- 1. Turn the power switch OFF.
- 2. Check 10A fuse (#18).
- 3. Check continuity and short circuit between electric parking brake control module harness connector terminal (7) and 10A fuse (#18).

Is the inspection result normal?

- YES >> Perform trouble diagnosis for 12V battery power supply. Refer to <u>PG-15, "Wiring Diagram BAT-</u> <u>TERY POWER SUPPLY -"</u>.
- NO >> Repair or replace error-detected parts.

4. CHECK ELECTRIC PARKING BRAKE CONTROL MODULE GROUND CIRCUIT

1. Turn the power switch OFF.

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

Electric parking br	ake control module		Continuity
Connector	Connector Terminal		Continuity
B22	24	Ground	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace error-detected parts.

C10E6 IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

C10E6 IGNITION SWITCH

DTC Logic

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INFOID:000000006960915

DTC DETECTION LOGIC

DTC	Display It	em	Malfunction detected condition	Possible causes
C10E6	IGNITION SWITCH	When tem.	a malfunction is detected in the power switch sys-	 Harness or connector Electric parking brake control module Power switch system
TC CON	FIRMATION PF	ROCEDURE		
1.PRECC	ONDITIONING			
			been previously conducted, always turn	power switch OFF and
vait at lea	st 10 seconds bef	ore conducting th	e next test.	
	> GO TO 2.			
•	C DTC DETECTIC	N		
With CC With CC	he power switch (OFF to ON.		
	m self-diagnosis f	for "EHS/PKB".		
	10E6" detected?			
	> Proceed to <u>PB-</u> > INSPECTION E		<u>ocedure"</u> .	
Diagnos	is Procedure			INFOID:000000006960916
I.CHECK	KELECTRIC PAR	KING BRAKE CC	NTROL MODULE POWER ON POWER	SUPPLY
	he power switch (modulo barnoss connector	
2. Discor	nnect electric park	king brake control	module harness connector. brake control module harness connector a	nd ground.
2. Discor	nnect electric park	king brake control		nd ground.
2. Discor 3. Check	nnect electric park	king brake control electric parking b	prake control module harness connector a	nd ground.
2. Discor 3. Check Ele	nnect electric park voltage between	king brake control electric parking b ontrol module Terminal		nd ground.
2. Discor 3. Check Ele Cor	ectric parking brake connector	king brake control electric parking b ontrol module Terminal 5	prake control module harness connector a	nd ground.
2. Discor 3. Check Ele Cor 1 4. Turn tl	ectric parking brake connector B21 he power switch C	king brake control electric parking b ontrol module Terminal 5	orake control module harness connector a	nd ground.
2. Discor 3. Check Ele Cor 1 4. Turn th CAUT	ectric parking brake connector B21 he power switch C	king brake control electric parking b ontrol module Terminal 5 DN.	orake control module harness connector a	nd ground.
2. Discor 3. Check Ele Cor 1. Turn th CAUT Never	ectric parking brake connector B21 he power switch (10N: set the vehicle for	king brake control electric parking b ontrol module Terminal 5 DN. to READY.	orake control module harness connector a	
2. Discor 3. Check Ele Cor 4. Turn th CAUT Never 5. Check	Annect electric park a voltage between ectric parking brake co nnector B21 he power switch (ION: set the vehicle to a voltage between	king brake control electric parking b ontrol module Terminal 5 DN. to READY. electric parking b	orake control module harness connector an 	
2. Discor 3. Check Ele Cor 4. Turn th CAUT Never 5. Check	Annect electric park voltage between ectric parking brake co nector B21 he power switch (10N: set the vehicle to voltage between ectric parking brake co	king brake control electric parking b ontrol module Terminal 5 DN. to READY. electric parking b	orake control module harness connector an 	
2. Discor 3. Check Cor 4. Turn th CAUT Never 5. Check Ele Cor	Annect electric parking between a voltage between a connector B21 a between	king brake control electric parking b ontrol module Terminal 5 DN. to READY. electric parking b ontrol module Terminal	orake control module harness connector an 	
2. Discor 3. Check Ele Cor 4. Turn tl CAUT Never 5. Check Ele Cor	Annect electric parking between ectric parking brake connector B21 he power switch Connector Set the vehicle of a voltage between ectric parking brake connector B21 he power switch Conne	king brake control electric parking b ontrol module Terminal 5 DN. to READY. electric parking b ontrol module Terminal 5	Prake control module harness connector an 	
2. Discor 3. Check Ele Cor 4. Turn th CAUT Never 5. Check Ele Cor	Annect electric parking between a voltage between a connector B21 a between	king brake control electric parking b ontrol module Terminal 5 DN. to READY. electric parking b ontrol module Terminal 5	orake control module harness connector an 	
2. Discor 3. Check Ele Cor 4. Turn th CAUT Never 5. Check Ele Cor I s the insp YES > NO >	Annect electric park a voltage between ectric parking brake co nector B21 he power switch (10N: set the vehicle for a voltage between ectric parking brake co nector B21 ectrion result norm > GO TO 3. > GO TO 2.	king brake control electric parking b ontrol module Terminal 5 DN. to READY. electric parking b ontrol module Terminal 5 hal?	rake control module harness connector an Voltage Ground 0 V orake control module harness connector an Voltage Ground 11 – 14 V	nd ground.
2. Discor 3. Check Ele Cor 4. Turn th CAUT Never 5. Check Ele Cor I s the insp YES > NO >	Annect electric park a voltage between ectric parking brake co nector B21 he power switch (10N: set the vehicle for a voltage between ectric parking brake co nector B21 ectrion result norm > GO TO 3. > GO TO 2.	king brake control electric parking b ontrol module Terminal 5 DN. to READY. electric parking b ontrol module Terminal 5 hal?	orake control module harness connector an 	nd ground.
2. Discor 3. Check Cor 4. Turn th CAUT Never 5. Check Ele Cor 1 s the insp YES > NO > 2.CHECK 1. Turn th	Annect electric parking brake connector B21 he power switch (Connector) B21 he power switch (Connector) Set the vehicle for a voltage between ectric parking brake connector B21 ection result norm > GO TO 3. > GO TO 3. > GO TO 2. (ELECTRIC PAR he power switch (Connector)	king brake control electric parking b ontrol module Terminal 5 DN. to READY. electric parking b ontrol module Terminal 5 nal? KING BRAKE CC	rake control module harness connector an Voltage Ground 0 V orake control module harness connector an Voltage Ground 11 – 14 V	nd ground.
2. Discor 3. Check Cor 4. Turn th CAUT Never 5. Check Ele Cor Ele Cor S the insp YES > NO > 2.CHECk 1. Turn th 2. Check	Annect electric parking brake connector B21 he power switch (Connector) B21 he power switch (Connector) B21 he power switch (Connector) B21 ectric parking brake connector B21 ectric parking brake connector) B21 ectric parking brake connector B21 ectric parking brake connector) B21 ectric parking brake connector B21 ectric parking brake connector) B21 ectric parking brake connector) ectric parking brake connector) B21 ectric parking brake connector) ectric parki	king brake control electric parking b ontrol module Terminal 5 DN. to READY. electric parking b ontrol module Terminal 5 hal? KING BRAKE CO	rake control module harness connector an Voltage Ground 0 V orake control module harness connector an Voltage Ground 11 – 14 V	nd ground.

PB-61

C10E6 IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> Perform trouble diagnosis for power ON power supply. Refer to <u>PG-59</u>, "Wiring Diagram ON <u>POWER SUPPLY -"</u>
- NO >> Repair or replace error-detected parts.

$\mathbf{3.}$ CHECK DATA MONITOR

(B) With CONSULT

Select "EHS/PKB", "DATA MONITOR", "IGNITION SWITCH FROM IPDM" according to this order. Check that data monitor displays when power switch is ON or OFF. Refer to <u>PB-26, "Reference Value"</u>.

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Check the BCM. Refer to <u>BCS-26, "BCM : CONSULT Function (BCM BCM)"</u>.

C10E7 OVER HEAT

< DTC/CIRCUIT DIAGNOSIS >

C10E7 OVER HEAT

DTC Logic

INFOID:000000006960917

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DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C10E7	OVER HEAT	When braking application and release is repeated and the electric parking brake system is hot.	 Electric parking brake control module Parking brake actua- tor Cable
TC CON	FIRMATION PROCED	URE	
.PRECC	ONDITIONING		
		URE" has been previously conducted, always turn p	ower switch OFF and
all al lea	st 10 seconds before con	ducting the next test.	
>	> GO TO 2.		
CHECK	CODECTION		
)With CC			
	he power switch OFF to C the parking brake switch.	JN.	
CAUT	ION:	nosition	
	the select lever in the P ress the brake pedal.	position.	
	e parking brake switch. m self-diagnosis for "EHS		
	10E7" detected?		
YES >	> Proceed to PB-63, "Dia	gnosis Procedure".	
NO >	> INSPECTION END		
iagnos	is Procedure		INFOID:0000000696091
.PERFC	ORM SELF-DIAGNOSIS (1)	
With CC	DNSULT		
	Self-diagnosis result for '		1 minuto
	m self-diagnosis for "EHS	peration (pull and push) after leaving approximately /PKB".	
DTC "C	10E7" detected?		
YES >		brake actuator and parking brake rear cable are stud or: Refer to <u>PB-86, "Inspection"</u> .	ck.
	 Parking brake rear ca 	ble: Refer to <u>PB-88, "Inspection"</u> .	
	> GO TO 2.		
.PERFC	ORM SELF-DIAGNOSIS (2	2)	
With CC		e energian (pull and puch) E times	
	at the parking brake switcl	n operation (pull and push) 5 times. /PKB".	
	10E7" detected?		
YES >	> Replace parking brake	actuator. Refer to PB-85, "Removal and Installation".	

NO >> INSPECTION END

< DTC/CIRCUIT DIAGNOSIS >

U0100 VCM COMMUNICATION

Description

INFOID:000000006960919

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC Logic

INFOID:000000006960920

INFOID:00000006960921

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
U0100	ECM/PCM A	When CAN communication signal with VCM is not contin- uously received for 2 seconds or more.	 CAN communication line Electric parking brake control module

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

(D) With CONSULT

- Turn the power switch OFF to ON.
- 2. Perform self-diagnosis for "EHS/PKB".

Is DTC "U0100" detected?

- YES >> Proceed to <u>PB-64, "Diagnosis Procedure"</u>.
- NO >> INSPECTION END

Diagnosis Procedure

1.PERFORM SELF-DIAGNOSIS

With CONSULT

Perform self-diagnosis for "EV/HEV". Refer to EVC-51, "CONSULT Function".

Is DTC "U1000" detected?

- YES >> Proceed to LAN-15, "Trouble Diagnosis Flow Chart".
- NO >> GO TO 2.
- 2.CHECK CAN COMMUNICATION LINE

Check "EHS/PKB BRANCH LINE CIRCUIT". Refer to LAN-59. "Diagnosis Procedure".

Is the inspection result normal?

- YES >> Replace the electric parking brake control module. Refer to PB-83, "Removal and Installation".
- NO >> Repair or replace error- detected parts. Refer to LAN-25, "Precautions for Harness Repair".

< DTC/CIRCUIT DIAGNOSIS >

U0111 IPDM COMMUNICATION

Description

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC Logic

INFOID:000000006960923

INFOID:000000006960922

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DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
U0111	BATTERY ENERGY CONTROL MODULU A	When CAN communication signal with IPDM E/R is not continuously received for 2 seconds or more.	 CAN communication line Electric parking brake control module
OTC CON	IFIRMATION PROCEDUR	E	
1. PRECC	ONDITIONING		
		E" has been previously conducted, always turn	power switch OFF and
wait at leas	st 10 seconds before conduc	ting the next test.	
>	> GO TO 2.		
2.снеск	C DTC DETECTION		
With CC			
	he power switch OFF to ON. m self-diagnosis for "EHS/Pk	KB".	
Is DTC "U	0111" detected?		
	> Proceed to <u>PB-65, "Diagno</u> > INSPECTION END	sis Procedure".	
-	is Procedure		INFOID:00000006960924
	RM SELF-DIAGNOSIS		
With CC Perform se		Refer to PCS-10, "Diagnosis Description".	
	1000" detected?		
	Proceed to <u>LAN-15, "Troub</u> > GO TO 2.	<u>le Diagnosis Flow Chart"</u> .	
•	CAN COMMUNICATION LI	NF	
		CUIT". Refer to <u>LAN-59, "Diagnosis Procedure"</u> .	
	ection result normal?		
YES >	Devices the cleating particular		
		g brake control module. Refer to <u>PB-83, "Remov</u> tected parts. Refer to <u>LAN-25, "Precautions for F</u>	

U0129 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) COMMUNICA-TION

< DTC/CIRCUIT DIAGNOSIS >

U0129 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) COMMU-NICATION

Description

INFOID:000000006960925

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC Logic

INFOID:000000006960926

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
U0129	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.	 CAN communication line Electric parking brake control module

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

(I) With CONSULT

Turn the power switch OFF to ON.

2. Perform self-diagnosis for "EHS/PKB".

Is DTC "U0129" detected?

- YES >> Proceed to <u>PB-66, "Diagnosis Procedure"</u>.
- NO >> INSPECTION END

Diagnosis Procedure

1.PERFORM SELF-DIAGNOSIS

BWith CONSULT

Perform self-diagnosis for "ABS". Refer to <u>BRC-38, "CONSULT Function"</u>.

Is DTC "U1000" detected?

YES >> Proceed to LAN-15. "Trouble Diagnosis Flow Chart".

NO >> GO TO 2.

2. CHECK CAN COMMUNICATION LINE

Check "EHS/PKB BRANCH LINE CIRCUIT". Refer to LAN-59. "Diagnosis Procedure".

Is the inspection result normal?

YES >> Replace the electric parking brake control module. Refer to <u>PB-83, "Removal and Installation"</u>.

NO >> Repair or replace error- detected parts. Refer to LAN-25, "Precautions for Harness Repair".

INFOID:000000006960927

< DTC/CIRCUIT DIAGNOSIS >

U0140 BCM COMMUNICATION

Description

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC Logic

INFOID:000000006960929

INFOID:000000006960928

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DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes	E
U0140	ВСМ	When CAN communication signal with BCM is not contin- uously received for 2 seconds or more.	 CAN communication line Electric parking brake control module 	PI
DTC CON	FIRMATION PROCEDU	RE		(
1.PRECC	ONDITIONING			
	DNFIRMATION PROCEDU st 10 seconds before condu	RE" has been previously conducted, always turn pucting the next test.	oower switch OFF and	ŀ
-	> GO TO 2.			
2.CHECK	C DTC DETECTION			
2. Perfor	DNSULT he power switch OFF to ON m self-diagnosis for "EHS/F 0140" detected?			,
YES >> Proceed to <u>PB-67, "Diagnosis Procedure"</u> . NO >> INSPECTION END				ŀ
Diagnos	is Procedure		INFOID:00000006960930	
1.PERFC	ORM SELF-DIAGNOSIS			L
With CC Perform se ITEM)".		er to <u>BCS-13, "COMMON ITEM : CONSULT Funct</u>	tion (BCM - COMMON	N
YES >	<u>1000" detected?</u> > Proceed to <u>LAN-15, "Trou</u> > GO TO 2.	uble Diagnosis Flow Chart".		ľ
•	CAN COMMUNICATION	LINE		(
		CUIT". Refer to LAN-59, "Diagnosis Procedure".		C
	ection result normal?			
		ing brake control module. Refer to <u>PB-83, "Remov</u> letected parts. Refer to <u>LAN-25, "Precautions for H</u>		F

< DTC/CIRCUIT DIAGNOSIS >

U0155 METER COMMUNICATION

Description

INFOID:000000006960931

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC Logic

INFOID:000000006960932

INFOID:000000006960933

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
U0155	IPC CONTROL MODULE	When CAN communication signal with combination meter is not continuously received for 2 seconds or more.	 CAN communication line Electric parking brake control module

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

(D) With CONSULT

- Turn the power switch OFF to ON.
- 2. Perform self-diagnosis for "EHS/PKB".

Is DTC "U0155" detected?

- YES >> Proceed to <u>PB-68, "Diagnosis Procedure"</u>.
- NO >> INSPECTION END

Diagnosis Procedure

1.PERFORM SELF-DIAGNOSIS

With CONSULT

Perform self-diagnosis for "METER M&A". Refer to MWI-46, "CONSULT Function".

Is DTC "U1000" detected?

- YES >> Proceed to LAN-15, "Trouble Diagnosis Flow Chart".
- NO >> GO TO 2.
- 2.CHECK CAN COMMUNICATION LINE

Check "EHS/PKB BRANCH LINE CIRCUIT". Refer to LAN-59, "Diagnosis Procedure".

Is the inspection result normal?

- YES >> Replace the electric parking brake control module. Refer to PB-83, "Removal and Installation".
- NO >> Repair or replace error- detected parts. Refer to LAN-25, "Precautions for Harness Repair".

U0401 VCM SIGNAL

< DTC/CIF	RCUIT DIAGNOSIS >		
U0401	VCM SIGNAL		
DTC Log	gic		INF01D:00000006960935
	-		
DICDEI	ECTION LOGIC		
DTC	Display Item	Malfunction detected condition	Possible causes
U0401	VCM	When a VCM error is detected.	VCM
DTC CON	IFIRMATION PROCEDUR	RE	
1. PRECC	NDITIONING		
		E" has been previously conducted, always turn	power switch OFF and
wait at leas	st 10 seconds before conduc	ting the next test.	
>:	> GO TO 2.		_
2.снеск	COTC DETECTION		
() With CC	NSULT		
	ne power switch OFF to ON. m self-diagnosis for "EHS/PI	(P)"	
	0401" detected?		
YES >	> Proceed to PB-69, "Diagno	osis Procedure".	
	> INSPECTION END		
Diagnos	is Procedure		INFOID:000000006960936
1. CHECK	C DATA MONITOR		
() With CC	NSULT		
	"EHS/PKB", "DATA MONITO	DR" according to this order. and "SHIFT RANGE", and check that data more	nitor displays Refer to
	, "Reference Value".	and Shin I KANGE, and theth that data more	illoi displays. Relei lo
	ection result normal?		
	> INSPECTION END > Check the VCM. Refer to E	EVC-51, "CONSULT Function".	

U0418 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

U0418 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SIGNAL

DTC Logic

INFOID:00000006960938

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
U0418	BRAKE SYSTEM CONTROL MODULE	When an ABS actuator and electric unit (control unit) error is detected.	ABS actuator and elec- tric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

CHECK DTC DETECTION

() With CONSULT

- 1. Turn the power switch OFF to ON.
- Perform self-diagnosis for "EHS/PKB". 2.

Is DTC "U0418" detected?

- YFS >> Proceed to PB-70, "Diagnosis Procedure". >> INSPECTION END
- NO

Diagnosis Procedure

INFOID:000000006960939

1.CHECK DATA MONITOR

(P)With CONSULT

- Select "EHS/PKB", "DATA MONITOR" according to this order. 1.
- Select "WHEEL SENSOR REAR RH", "WHEEL SENSOR REAR LH", "DECEL G SENSOR" and "VEHI-2. CLE SPEED", and check that data monitor displays. Refer to PB-26, "Reference Value".

Is the inspection result normal?

YES >> INSPECTION END

>> Check the ABS actuator and electric unit (control unit). Refer to BRC-38, "CONSULT Function". NO

U0422 BCM SIGNAL

		UU422 DOW SIGNAL			
< DTC/CII	RCUIT DIAGNOSIS >				
U0422	BCM SIGNAL				
DTC Logic					
DTC DET	ECTION LOGIC				
DTC	Display Item	Malfunction detected condition	Possible causes		
U0422	BCM	When a BCM error is detected.	BCM		
DTC CON	FIRMATION PROCEDUR	E			
1.PRECO	ONDITIONING				
	ONFIRMATION PROCEDUR st 10 seconds before conduc	E" has been previously conducted, always turn ting the next test.	power switch OFF and		
-	> GO TO 2.		-		
2.CHECK	C DTC DETECTION		Р		
1. Turn t					
	0422" detected?				
	> Proceed to <u>PB-71, "Diagno</u>	sis Procedure".			
	> INSPECTION END				
Diagnos	is Procedure		INFOID:00000006960942		
1. CHECK	K DATA MONITOR				
	t "EHS/PKB", "DATA MONITO	DR" according to this order. CM", and check that data monitor displays. Refe	or to PR 26 "Poforonco		
Z. Select Value		Sin , and theth that data monitor displays. New	i to <u>i b-20, i telefence</u>		
	ection result normal?				
	> INSPECTION END > Check the BCM. Refer to <u>ITEM)</u> .	BCS-13, "COMMON ITEM : CONSULT Funct			
			l		
			(

Ρ

< DTC/CIRCUIT DIAGNOSIS >

U1000 CAN COMM CIRCUIT

Description

INFOID:000000006960943

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC Logic

INFOID:000000006960944

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
U1000	CAN COMM CIRCUIT	When CAN communication signal is not continuously transmitted or received for 2 seconds or more.	CAN communication system malfunction

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

(B) With CONSULT

- 1. Turn the power switch OFF to ON.
- 2. Perform self-diagnosis for "EHS/PKB".

Is DTC "C1000" detected?

- YES >> Proceed to PB-72, "Diagnosis Procedure".
- NO >> INSPECTION END

Diagnosis Procedure

Proceed to LAN-15, "Trouble Diagnosis Flow Chart".

INFOID:000000006960945

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:000000006960946

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1. CHECK ELECTRIC PARKING BRAKE CONTROL MODULE POWER SWITCH ON POWER SUPPLY

1. Turn the power switch OFF.

- 2. Disconnect electric parking brake control module harness connector.
- 3. Check voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module Connector Terminal			Voltage	
		—	vollage	
	B21	5	Ground	Approx. 0 V

4. Turn the power switch ON CAUTION:

Never set the vehicle to READY.

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

				_	
Electric parking b	rake control module		Voltage		
Connector	Terminal		vollage		G
B21	5	Ground	11 – 14 V	_	
Is the inspection result	normal?			-	
YES >> GO TO 3.					Н
NO >> GO TO 2.					
2. CHECK ELECTRIC	PARKING BRAKE CO	NTROL MODULE POW	/ER SWITCH ON POV	VER SUPPLY CIR-	
CUIT					1
1. Turn the power sw					
 Check 10A fuse (# 3. Check continuity a 	 t3). and short circuit between 	n alaatria parking braka	control modulo harnos	a connector termi	J
nal (5) and 10A fu		n electric parking brake			
Is the inspection result	()				
	ouble diagnosis for pov	ver switch ON power su	upply. Refer to PG-59,	"Wiring Diagram -	Κ
ON POWE	<u>ER SUPPLY -"</u>				
~ '	replace error-detected p	parts.			
3.CHECK MOTOR P	OWER SUPPLY				
1. Turn the power sw					
Check voltage bet	ween electric parking b	rake control module ha	rness connector and g	round.	M
				-	
	rake control module	_	Voltage		
Connector	Terminal		5	_	Ν
B22	22	Ground	11 – 14 V	_	
3. Turn the power sw	vitch ON				0
CAUTION: Never set the veh	vicio to PEADV				0
	ween electric parking b	rake control module ha	rness connector and a	round.	
	· · · · · · · · · · · · · · · · · · ·			-	Ρ
Electric parking b	rake control module			-	
Connector	Terminal	-	Voltage		

Electric parking brake control module			Voltage
Connector	Terminal		Vollage
B22	22	Ground	11 – 14 V

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

4.CHECK MOTOR POWER SUPPLY CIRCUIT

- 1. Turn the power switch OFF.
- 2. Check 30A fuse (#36).
- Check continuity and short circuit between electric parking brake control module harness connector terminal (22) and 30A fuse (#36).

Is the inspection result normal?

- YES >> Perform trouble diagnosis for 12V battery power supply. Refer to <u>PG-15, "Wiring Diagram BAT-</u> <u>TERY POWER SUPPLY -"</u>.
- NO >> Repair or replace error-detected parts.

5. Check electric parking brake control module 12V battery power supply

- 1. Turn the power switch OFF.
- 2. Check voltage between electric parking brake control module harness connector and ground.

Electric parking brake control module		Voltage	
Connector	Terminal	—	Vollage
B21	7	Ground	11 – 14 V

3. Turn the power switch ON CAUTION:

Never set the vehicle to READY.

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

Electric parking brake control module			Voltage
Connector	Terminal	—	vollage
B21	7	Ground	11 – 14 V

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 6.

6.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE 12V BATTERY POWER SUPPLY CIRCUIT

- 1. Turn the power switch OFF.
- 2. Check 10A fuse (#18).
- 3. Check continuity and short circuit between electric parking brake control module harness connector terminal (7) and 10A fuse (#18).

Is the inspection result normal?

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

NO >> Repair or replace error-detected parts.

7.CHECK ELECTRIC PARKING BRAKE CONTROL MODULE GROUND CIRCUIT

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

Electric parking brake control module			Continuity
Connector Terminal		Continuity	
B22	24	Ground	Existed

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace error-detected parts.

8.CHECK TERMINAL

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

Is the inspection result normal?

POWER SUPPLY AND GROUND CIRCUIT	
< DTC/CIRCUIT DIAGNOSIS >	
YES >> INSPECTION END NO >> Repair or replace error-detected parts.	A
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ELECTRIC PARKING BRAKE INDICATION LAMP

< DTC/CIRCUIT DIAGNOSIS >

ELECTRIC PARKING BRAKE INDICATION LAMP

Component Function Check

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-76, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:000000006960948

INFOID:00000006960947

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 <u>PB-73</u>, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace error-detected parts.

2. PERFORM THE SELF-DIAGNOSIS

(I) With CONSULT

1. Perform self-diagnosis for "EHS/PKB".

Is any DTC detected?

YES >> Check the DTC. Refer to <u>PB-29, "DTC Index"</u>.

NO >> GO TO 3.

3.CHECK COMBINATION METER

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

Is the inspection result normal?

YES >> Replace electric parking brake control module. Refer to PB-83, "Removal and Installation".

NO >> Repair or replace combination meter. Refer to <u>MWI-89, "Removal and Installation"</u>.

< SYMPTOM DIAGNOSIS > SYMPTOM DIAGNOSIS PARKING BRAKE DOES NOT RELEASE Description

When the parking brake cannot be released by the parking brake switch.

when the parking brake cannot be released by the parking brake switch.		
Diagnosis Procedure	DID:000000006960950	С
1. PERFORM THE SELF-DIAGNOSIS		
With CONSULT Perform self-diagnosis for "EHS/PKB".		D
<u>Is any DTC detected?</u> YES >> Check the DTC. Refer to <u>PB-29, "DTC Index"</u> . NO >> GO TO 2.		Е
2.CHECK THE CABLE		PB
Check each cable to see if it is stuck.		
<u>Is the inspection result normal?</u> YES >> GO TO 3. NO >> Repair or replace error-detected parts.		G
3. CHECK PARKING BRAKE DRAG		
Check if the parking brake is dragging. <u>PB-82, "Adjustment"</u> . Is the parking brake dragging?		Η
YES >> GO TO 4. NO >> Replace the parking brake actuator. Refer to <u>PB-85, "Removal and Installation"</u> .		Ι
4.CHECK PARKING BRAKE SHOE INSTALLATION STATUS		
Check the parking brake shoe installation status.		J
Is the inspection result normal?		
 YES >> Replace the parking brake actuator. Refer to <u>PB-85, "Removal and Installation"</u>. NO >> Repair or replace error-detected parts. 		Κ

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PARKING BRAKE DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

PARKING BRAKE DOES NOT OPERATE

Description

The parking brake is not applied even when the parking brake switch is pulled.

Diagnosis Procedure

1.PERFORM THE SELF-DIAGNOSIS

With CONSULT
 Perform self-diagnosis for "EHS/PKB".

Is any DTC detected?

YES >> Check the DTC. Refer to <u>PB-29, "DTC Index"</u>.

NO >> GO TO 2.

2. CHECK THE CABLE

Check each cable to see if it is broken or installed incorrectly.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace error-detected parts.

3.CHECK PARKING BRAKE SHOE INSTALLATION STATUS

Check installation and wear conditions of parking brake shoe.

Is the inspection result normal?

- YES >> Replace the parking brake actuator. Refer to PB-85, "Removal and Installation".
- NO >> Repair or replace error-detected parts.

INFOID:000000006960951

INFOID:000000006960952

THE BRAKING FORCE OF PARKING BRAKE IS LOW

THE BRAKING FORCE OF PARKING BRAKE IS LOV < SYMPTOM DIAGNOSIS >	N
THE BRAKING FORCE OF PARKING BRAKE IS LOW	
Description	INFOID:000000006960953
The parking brake braking force is low and the vehicle moves backward when parked on	an incline.
Diagnosis Procedure	INFOID:000000006960954
1. REAPPLY THE PARKING BRAKE (1)	
Pull the parking brake switch again.	
Is the vehicle moving backward?	
YES >> GO TO 2. NO >> NORMAL	
2.PERFORM THE SELF-DIAGNOSIS	
(P)With CONSULT	
Perform self-diagnosis for "EHS/PKB".	
Is any DTC detected?	
YES >> Check the DTC. Refer to <u>PB-29, "DTC Index"</u> . NO >> GO TO 3.	
3. CHECK PARKING BRAKE SHOE INSTALLATION STATUS	
Check installation and wear conditions of parking brake shoe.	
Is the inspection result normal?	
YES >> GO TO 4. NO >> Repair or replace error-detected parts.	
4. REPLACE PARKING BRAKE ACTUATOR	
 Replace the parking brake actuator. Refer to <u>PB-85</u>, "Removal and Installation". 	
 Apply the parking brake. 	
Is the vehicle moving backward?	
YES >> GO TO 5. NO >> NORMAL	
5.REAPPLY THE PARKING BRAKE (2)	
Pull the parking brake switch again.	
Is the vehicle moving backward?	
YES >> Replace electric parking brake control module. Refer to <u>PB-83</u> , "Removal and	d Installation".
NO >> NORMAL	

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THE BRAKING FORCE OF PARKING BRAKE IS HIGH

< SYMPTOM DIAGNOSIS >

THE BRAKING FORCE OF PARKING BRAKE IS HIGH

Description

The parking brake breaking force is too high.

Diagnosis Procedure

1.PERFORM THE SELF-DIAGNOSIS

With CONSULT
 Perform self-diagnosis for "EHS/PKB".

Is any DTC detected?

YES >> Check the DTC. Refer to <u>PB-29, "DTC Index"</u>.

NO >> GO TO 2.

2. CHECK THE CABLE

Check each cable to see if it is stuck.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace error-detected parts.

3.CHECK PARKING BRAKE DRAG

Check if the parking brake is dragging. PB-82, "Adjustment".

Is the parking brake dragging?

YES >> GO TO 4.

NO >> Replace the parking brake actuator. Refer to <u>PB-85, "Removal and Installation"</u>.

4.CHECK PARKING BRAKE SHOE INSTALLATION STATUS

Check the parking brake shoe installation status.

Is the inspection result normal?

YES >> Replace the parking brake actuator. Refer to <u>PB-85, "Removal and Installation"</u>.

NO >> Repair or replace error-detected parts.

INFOID:000000006960955

INFOID:000000006960956

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE А PARKING BRAKE SYSTEM Inspection and Adjustment INFOID:000000006960957 В **INSPECTION** Inspect Components Check each component for installation condition such as looseness. • Check the cables and parking brake actuator for wear, damage and cracks. Replace if necessary. D ADJUSTMENT 1. Adjust the adjust nut. Refer to PB-87, "Removal and Installation". 2. Remove rear tires with power tool. Е Fix the disc rotor using wheel nut. 4. Remove the adjusting hole plug from the disc rotor. Turn the adjuster (1) in the direction (A) as shown in the figure using a PΒ suitable tool until the disc rotor is locked. Turn back the adjuster 7 notches from the locked position. 5. 6. Rotate the disc rotor to check that there is no drag. Install the adjuster hole plug. Refer to PB-93, "Inspection and Adjustment". Perform parking brake actuator 0 point learning. Refer to <u>PB-38</u>. "Work Procedure". Н JPFIB0088ZZ

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< PERIODIC MAINTENANCE >

PARKING BRAKE SHOE

Adjustment

INFOID:000000006960958

- 1. Set the vehicle to READY.
- 2. Drive the vehicle at approx. 40 km/h (25 MPH).
- 3. Pull the parking brake switch, and stop the vehicle
- 4. Release the parking brake switch.
- 5. Release the parking brake.
- 6. Repeat step 2 to 5 two times.
- 7. Check the braking force.
- 8. Release the parking brake. CAUTION:
 - The parking brake cannot be released unless the brake pedal is depressed and the parking brake switch is pressed.
 - There is a danger the tire locks when using the brake tester, so perform release operation quickly.

ELECTRIC PARKING BRAKE CONTROL MODULE

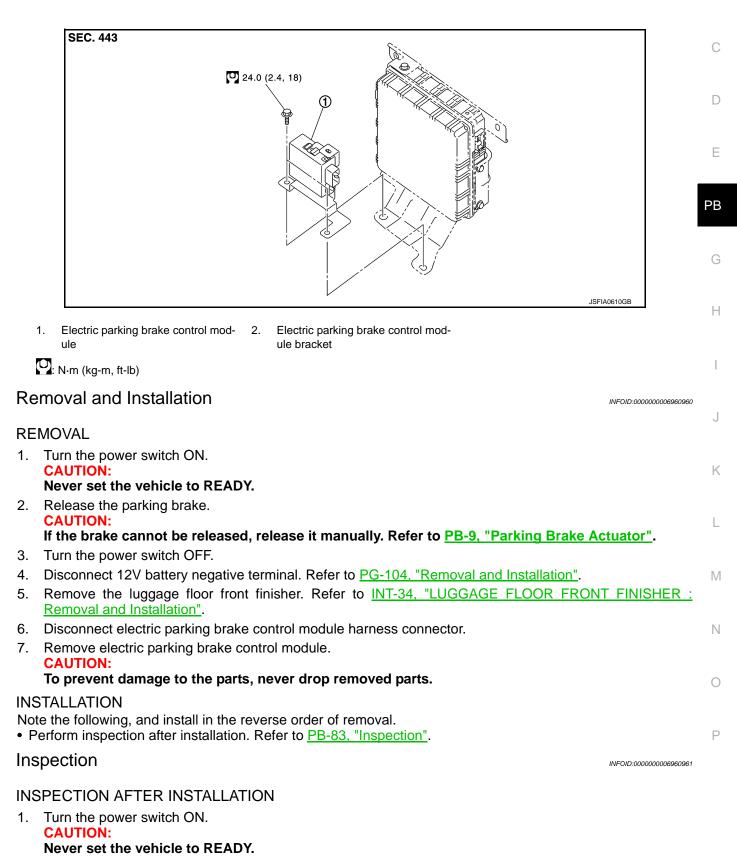
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION ELECTRIC PARKING BRAKE CONTROL MODULE

Exploded View

INFOID:000000006960959

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ELECTRIC PARKING BRAKE CONTROL MODULE

< REMOVAL AND INSTALLATION >

- 2. Pull the parking brake switch.
- 3. Confirm that the electric parking brake indicator in combination meter turns ON.
- 4. Push parking brake switch to release electric parking brake.
- 5. Confirm that the electric parking brake indicator in combination meter turns OFF.

PARKING BRAKE ACTUATOR

< REMOVAL AND INSTALLATION >

PARKING BRAKE ACTUATOR

Exploded View

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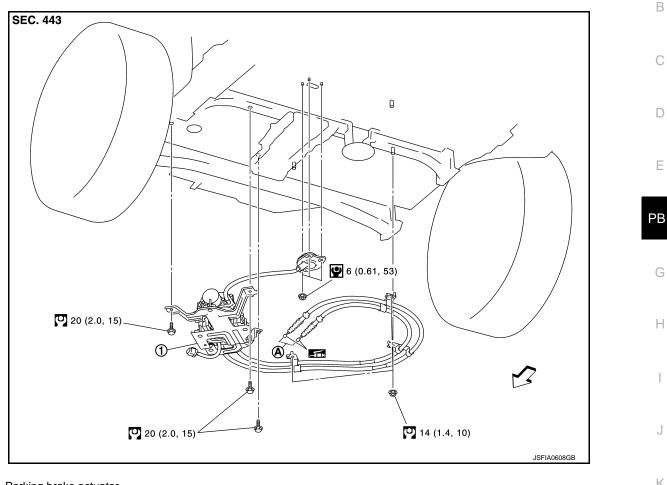
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INFOID:000000006960963



- 1. Parking brake actuator
- To rear cable Α.
- C: Vehicle front

Apply multi-purpose grease.

N·m (kg-m, ft-lb)

L N·m (kg-m, in-lb)

Removal and Installation

REMOVAL

- Turn the power switch ON. 1. CAUTION: Never set the vehicle to READY.
- Release the parking brake. **CAUTION:** If the brake cannot be released, release it manually. Refer to PB-9, "Parking Brake Actuator".
- 3. Turn the power switch OFF.
- 4. Disconnect 12V battery negative terminal. Refer to PG-104, "Removal and Installation".
- 5. Remove rear diffuser. Refer to EXT-22, "REAR DIFFUSER : Removal and Installation".
- Disconnect parking brake actuator harness connector. 6.
- 7. Remove cable of parking brake actuator mounting nut from vehicle.

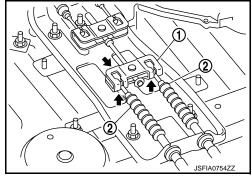
PB-85

LEAF

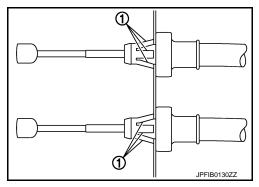
PARKING BRAKE ACTUATOR

< REMOVAL AND INSTALLATION >

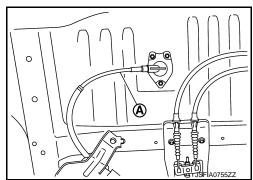
- 8. Loosen adjust nut. Refer to PB-87, "Removal and Installation".
- 9. Remove cable of parking brake actuator with the following procedure.
- a. Pull equalizer (1) in rearward direction.
- b. Pull cable (2) of parking brake actuator downward to remove cable of parking brake actuator from equalizer.



c. Press the paw (1) to remove cable of parking brake actuator from bracket.



- 10. Remove emergency release cable (A) of parking brake actuator from vehicle.
- Remove parking brake actuator from vehicle.
 CAUTION:
 To prevent damage to the parts, never drop remove parts.



INSTALLATION

Note the following, and install in the reverse order of removal.

- Perform parking brake actuator 0 point learning when electric parking brake control module is removed and installed, or replaced. Refer to <u>PB-38. "Work Procedure"</u>.
- Perform adjustment after installation. Refer to <u>PB-86, "Inspection"</u>.

Inspection

INFOID:000000006960964

ADJUSTMENT AFTER INSTALLATION

- 1. Pull the parking brake switch 2 times and check that the electric parking brake indicator in combination meter turns ON.
- 2. Turn the power switch OFF and wait 20 minutes.
- 3. Turn the power switch ON. CAUTION:

Never set the vehicle to READY.

- 4. Check that the electric parking brake indicator in combination meter turns ON.
- 5. Push parking brake switch to release electric parking brake.
- 6. Check that the electric parking brake indicator in combination meter turns OFF.

PB-86

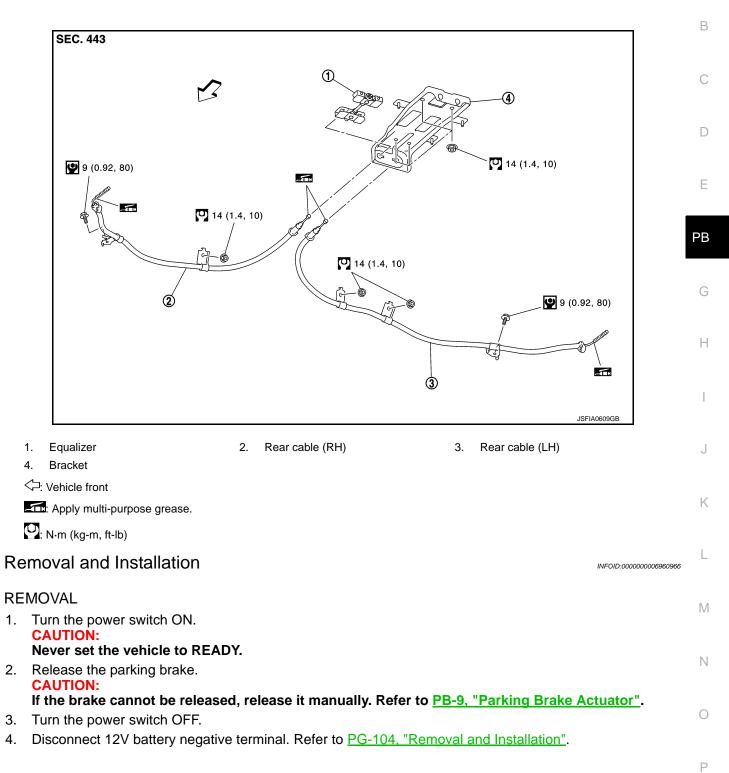
< REMOVAL AND INSTALLATION >

PARKING BRAKE REAR CABLE

Exploded View

INFOID:000000006960965

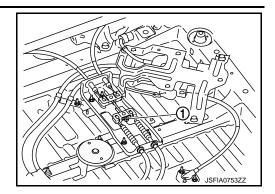
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PARKING BRAKE REAR CABLE

< REMOVAL AND INSTALLATION >

5. Loosen adjust nut (1).

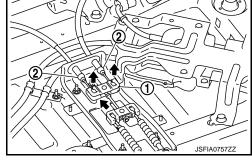


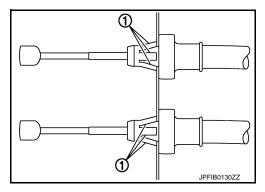
- 6. Remove rear cable with the following procedure.
- a. Pull equalizer (1) in forward direction.
- b. Pull rear cable (2) downward to remove rear cable from equalizer.



d. Remove bracket from vehicle.







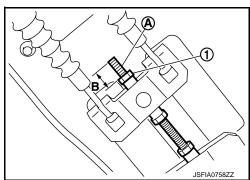
INSTALLATION

Note the following, and install in the reverse order of removal.

• Tighten the adjust nut (1) so that the bolt (A) is within dimension B.

B : 13 – 15 mm (0.51 – 0.59 in)

- Perform parking brake actuator 0 point learning when parking brake actuator, parking brake rear cables and parking brake shoe are removed and installed, or replaced. Refer to <u>PB-38</u>, "Work Procedure".
- Perform adjustment after installation. Refer to PB-88, "Inspection".



Inspection

ADJUSTMENT AFTER INSTALLATION

- 1. Pull the parking brake switch 2 times and confirm the electric parking brake indicator in combination meter turns ON.
- 2. Turn the power switch OFF and wait 20 minutes.
- 3. Turn the power switch ON.

PB-88

INFOID:000000006960967

PARKING BRAKE REAR CABLE

< F	REMOVAL AND INSTALLATION >	
	CAUTION: Never set the vehicle to READY.	A
4.	Check that the electric parking brake indicator in combination meter turns ON.	
5.	Push parking brake switch to release electric parking brake.	
6.	Check that the electric parking brake indicator in combination meter turns OFF.	В
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< REMOVAL AND INSTALLATION >

PARKING BRAKE SWITCH

Removal and Installation

INFOID:000000006960968

REMOVAL

- 1. Remove the console finisher assembly. Refer to IP-23. "Removal and Installation".
- 2. Remove parking brake switch.

INSTALLATION

Install in the reverse order of removal.

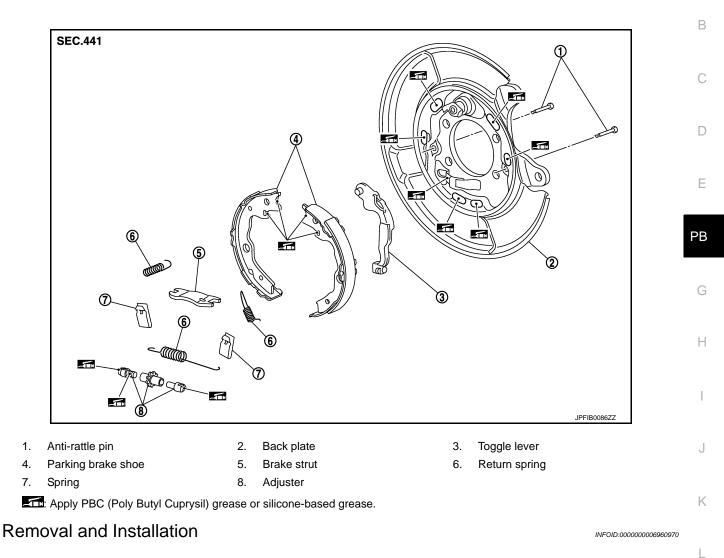
< REMOVAL AND INSTALLATION >

PARKING BRAKE SHOE

Exploded View

INFOID:000000006960969

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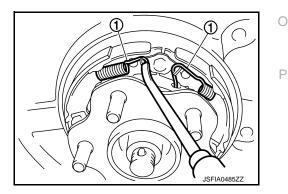


REMOVAL

WARNING:

Since dust covering the parking brake shoes has an affect on human body, the dust must be removed M with a dust collector. Never splatter the dust with an air blow gun.

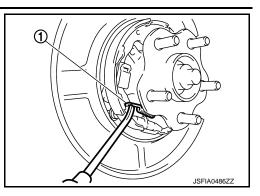
- 1. Remove rear tires with power tool.
- Remove disc rotor. Refer to <u>RAX-6, "Removal and Installation"</u>. CAUTION:
 - Parking brake completely in the released position.
- 3. Remove return spring (1) of the upper side.



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< REMOVAL AND INSTALLATION >

4. Remove return spring (1) of the lower side.



5. Remove spring (1) and anti-rattle pin. **CAUTION:**

To prevent damage to the parts, never drop the removed parts.

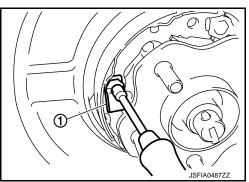
6. Remove parking brake shoes, adjuster, brake strut and toggle lever.

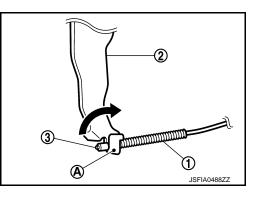
CAUTION:

- The parking brake shoes for the front wheels are made of different materials from those for the rear wheels. Never misidentify them when removing.
- To prevent damage to the parts, never drop the removed parts.
- Press the rear cable spring (1) against spring tension to remove rear cable (3) from the clamp (A) of toggle lever (2). CAUTION:

To prevent damage to the parts, never bend rear cable.

8. For the removal of back plate. Refer to <u>RAX-6, "Removal and</u> <u>Installation"</u>.





INSTALLATION

Note the following, install in the reverse order of removal.

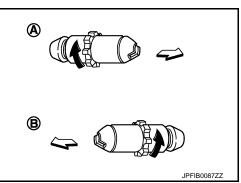
• Apply PBC (Poly Butyl Cuprysil) grease or silicone-based grease to the back plate and brake shoe. CAUTION:

The parking brake shoes for the front wheels are made of different materials from those for the rear wheels. Never misidentify them when removing and replacing.

- Assemble adjusters so that threaded part is expanded when rotating it in the direction shown by arrow.
 - A : For right side brake
 - B : For left side brake

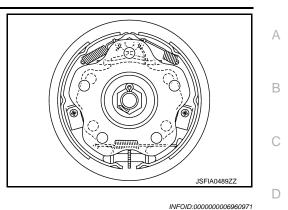
C: Vehicle front

- Adjuster expands
- Shorten adjuster by rotating it.
- When disassembling apply PBC (Poly Butyl Cuprysil) grease or silicone-based grease to threads.



< REMOVAL AND INSTALLATION >

- Check that the component parts of the parking brake shoe are properly installed.
- Check brake shoe sliding surface and drum inner surface for grease. Wipe it off if it adhere on the surfaces.



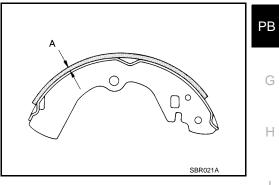
Inspection and Adjustment

INSPECTION AFTER REMOVAL

Lining Thickness Inspection

• Check thickness (A) of lining.

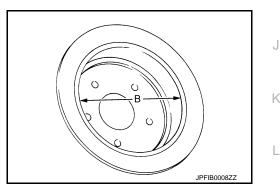
A : Refer to <u>PB-95, "Parking Drum Brake"</u>.



Drum Inner Diameter Inspection

• Check inner diameter (B) of drum.

B : Refer to <u>PB-95, "Parking Drum Brake"</u>.



Other Inspections

Check the following items, and replace the parts if necessary.

- Lining for excessive wear, damage, and peeling.
- Brake shoe sliding surface for excessive wear and damage.
- Anti-rattle pin for excessive wear, damage and rust.
- Return spring and spring for settling, excessive wear, damage, and rust.
- Adjuster for smoothness.
- Toggle lever and brake strut for excessive wear, damage and rust.
- Visually check inside of the drum for excessive wear, cracks, and damage with a pair of vernier calipers.

ADJUSTMENT AFTER INSTALLATION

- 1. Rotate the disc rotor to check that there is no drag. Install the plug. If any drag is found, follow the procedure described below.
- a. Adjust parking brake stroke again.
- b. Check rear disc brake. Refer to <u>BR-239</u>, "BRAKE CALIPER ASSEMBLY : Inspection".
- 2. Adjust the parking brake shoe. Refer to PB-82, "Adjustment".
- 3. Perform parking brake actuator 0 point learning. Refer to PB-38, "Work Procedure".

PB-93

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< REMOVAL AND INSTALLATION >

- 4. Pull the parking brake switch and confirm the electric parking brake indicator in combination meter turns ON.
- 5. Push parking brake switch to release electric parking brake.
- 6. Check that the electric parking brake indicator in combination meter turns OFF.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS) SERVICE DATA AND SPECIFICATIONS (SDS)

Parking Drum Brake

INFOID:00000006960972

Unit: mm (in.)

Item	Limit	C
Brake lining	1.5 (0.059)	C
Drum (disc of inner diameter)	173 (6.81)	
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