SECTION TM
TRANSAXLE & TRANSMISSION

CONTENTS

PRECAUTION

PRECAUTIONS

Precaution for Technicians Using Medical Electric

INFOID:0000000010639495

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 PDM (Power Delivery Module) at normal charge operation may affect medical electric devices, a technician using a medical electric device such as implantable cardiac pacemaker or an implantable cardioverter defibrillator must not approach motor room [PDM (Power Delivery Module)] at the hood-opened condition during normal charge operation.**

PRECAUTION AT TELEMATICS SYSTEM OPERATION

WARNING:

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

PRECAUTION AT INTELLIGENT KEY SYSTEM OPERATION

WARNING:

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

Point to Be Checked Before Starting Maintenance Work

INFOID:0000000010639496

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

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

INFOID:0000000010639497

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

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

WARNING:

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, 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 the SR section.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

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

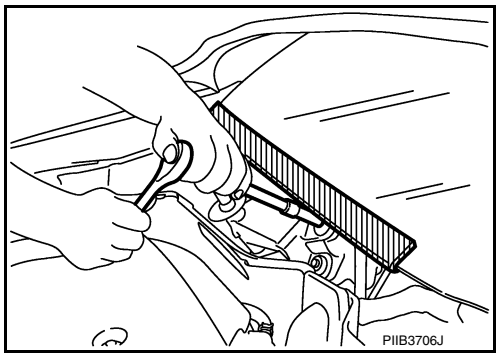
WARNING:

- **When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.**

Precaution for Procedure without Cowl Top Cover

INFOID:0000000010639498

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



High Voltage Precautions

INFOID:0000000010639499

DANGER:

Since hybrid vehicles and electric vehicles contain a high voltage battery, there is the risk of electric shock, electric leakage, or similar accidents if the high voltage component and vehicle are handled incorrectly. Be sure to follow the correct work procedures when performing inspection and maintenance.

WARNING:

- **Be sure to remove the service plug in order to disconnect the high voltage circuits before performing inspection or maintenance of high voltage system harnesses and parts.**
- **The removed service plug must always be carried in a pocket of the responsible worker or placed in the tool box during the procedure to prevent the plug from being connected by mistake.**
- **Be sure to wear insulated protective equipment before beginning work on the high voltage system.**
- **Do not allow workers other than the responsible person to touch the vehicle containing high voltage parts. To keep others from touching the high voltage parts, these parts must be covered with an insulating sheet except when using them.**

CAUTION:

Do not bring the vehicle into the READY status with the service plug removed unless otherwise instructed in the Service Manual. A malfunction may occur if this is not observed.

HIGH VOLTAGE HARNESS AND EQUIPMENT IDENTIFICATION

All the high voltage harnesses and connectors are orange. The Li-ion battery and other high voltage devices include an orange high voltage label. Never touch these harnesses and high voltage parts.

HANDLING OF HIGH VOLTAGE HARNESS AND TERMINALS

Immediately insulate disconnected high voltage connectors and terminals with insulating tape.

REGULATIONS ON WORKERS WITH MEDICAL ELECTRONICS

WARNING:

The vehicle contains parts that contain powerful magnets. If a person who is wearing a heart pacemaker or other medical device is close to these parts, the medical device may be affected by the magnets. Such persons must not perform work on the vehicle.

PROHIBITED ITEMS TO CARRY DURING THE WORK

Hybrid vehicles and electric vehicles contain parts with high voltage and intense magnetic force. Never carry metal products and magnetic recording media (e.g. cash card, prepaid card) to repair/inspect high voltage parts. If this is not observed, the metal products may create a risk of short circuit and the magnetic recording media may lose their magnetic recording.

POSTING A SIGN OF “DANGER! HIGH VOLTAGE AREA. KEEP OUT”

Indicate "HIGH VOLTAGE. DO NOT TOUCH" on the vehicle under repair/inspection to call attention to other workers.

Person in charge:_____

DANGER:
HIGH VOLTAGE
REPAIR IN PROGRESS.
DO NOT TOUCH!

DANGER:
HIGH VOLTAGE
REPAIR IN PROGRESS.
DO NOT TOUCH!

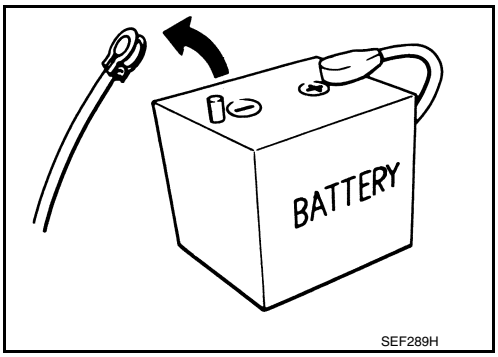
Person in charge:_____

Copy this page and put it after folding on the roof of the vehicle in service.

JSAIA1600GB

Precautions for Removing Battery Terminal

INFOID:0000000010639500



- When removing the 12V battery terminal, turn OFF the power switch and wait at least 5 minutes.
  NOTE:
  ECU may be active for several minutes after the power switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.
- Always disconnect the battery terminal within 60 minutes after turning OFF the power switch. Even when the power switch is OFF, the 12V battery automatic charge control may automatically start after a lapse of 60 minutes from power switch OFF.
- Disconnect 12V battery terminal according to the following steps.

WORK PROCEDURE

1. Check that EVSE is not connected.
   NOTE:
   If EVSE is connected, the air conditioning system may be automatically activated by the timer A/C function.
2. Turn the power switch OFF → ON → OFF. Get out of the vehicle. Close all doors (including back door).
3. Check that the charge status indicator lamp does not blink and wait for 5 minutes or more.
   NOTE:
   If the battery is removed within 5 minutes after the power switch is turned OFF, plural DTCs may be detected.
4. Remove 12V battery terminal within 60 minutes after turning the power switch OFF → ON → OFF.
   CAUTION:
   - **After all doors (including back door) are closed, if a door (including back door) is opened before battery terminals are disconnected, start over from Step 1.**
   - **After turning the power switch OFF, if "Remote A/C" is activated by user operation, stop the air conditioner and start over from Step 1.**

   NOTE:
   Once the power switch is turned ON → OFF, the 12V battery automatic charge control does not start for approximately 1 hour.

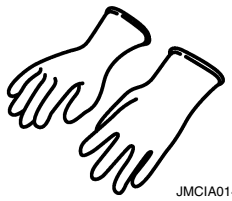
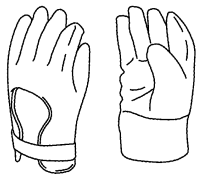
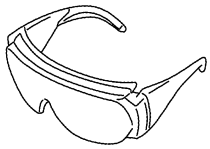
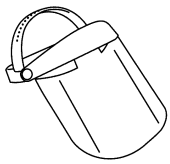
- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the power switch.
  NOTE:
  If the power switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  NOTE:
  The removal of 12V battery may cause a DTC detection error.

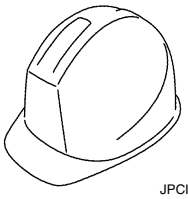
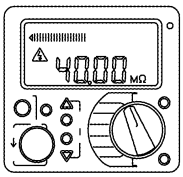
PREPARATION

PREPARATION

Commercial Service Tools

INFOID:0000000010639501

Tool name	Description
Insulated gloves  JMCIA0149ZZ	Removing and installing high voltage components [Guaranteed insulation performance for 1000V/300A]
Leather gloves  JPCIA0066ZZ	• Removing and installing high voltage components • Protect insulated gloves [Use leather gloves that can fasten the wrist tight]
Insulated safety shoes  JPCIA0011ZZ	Removing and installing high voltage components
Safety glasses  JPCIA0012ZZ	• Removing and installing high voltage components • To protect eye from the spatter on the work to electric line [ANSI Z87.1]
Face shield  JPCIA0167ZZ	• Removing and installing high voltage components • To protect face from the spatter on the work to electric line

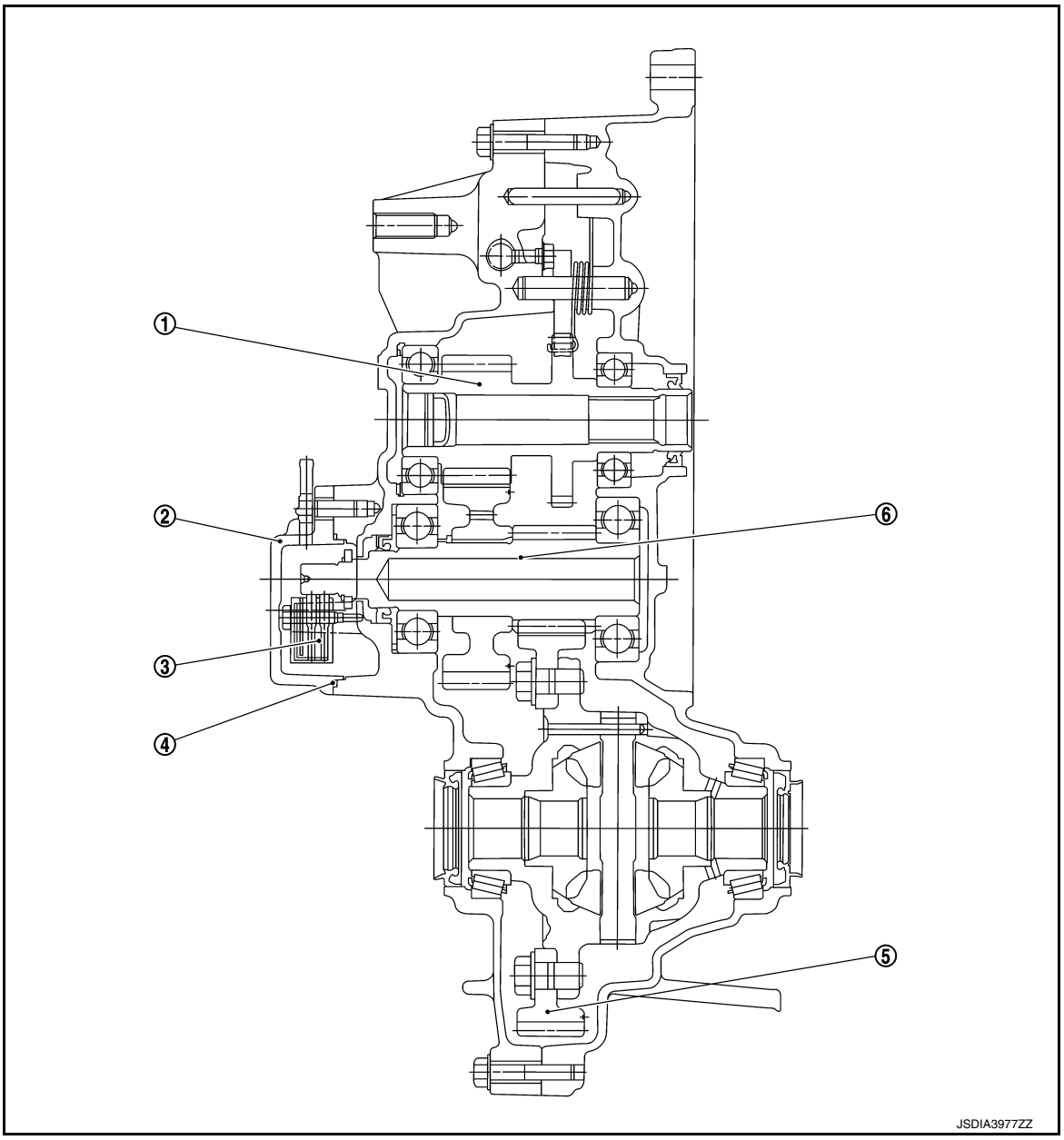
Tool name	Description
Insulated helmet  JPCIA0013ZZ	Removing and installing high voltage components
Insulation resistance tester (Multi tester)  JPCIA0014ZZ	Measuring insulation resistance, voltage, and resistance

SYSTEM DESCRIPTION

STRUCTURE AND OPERATION

Sectional View

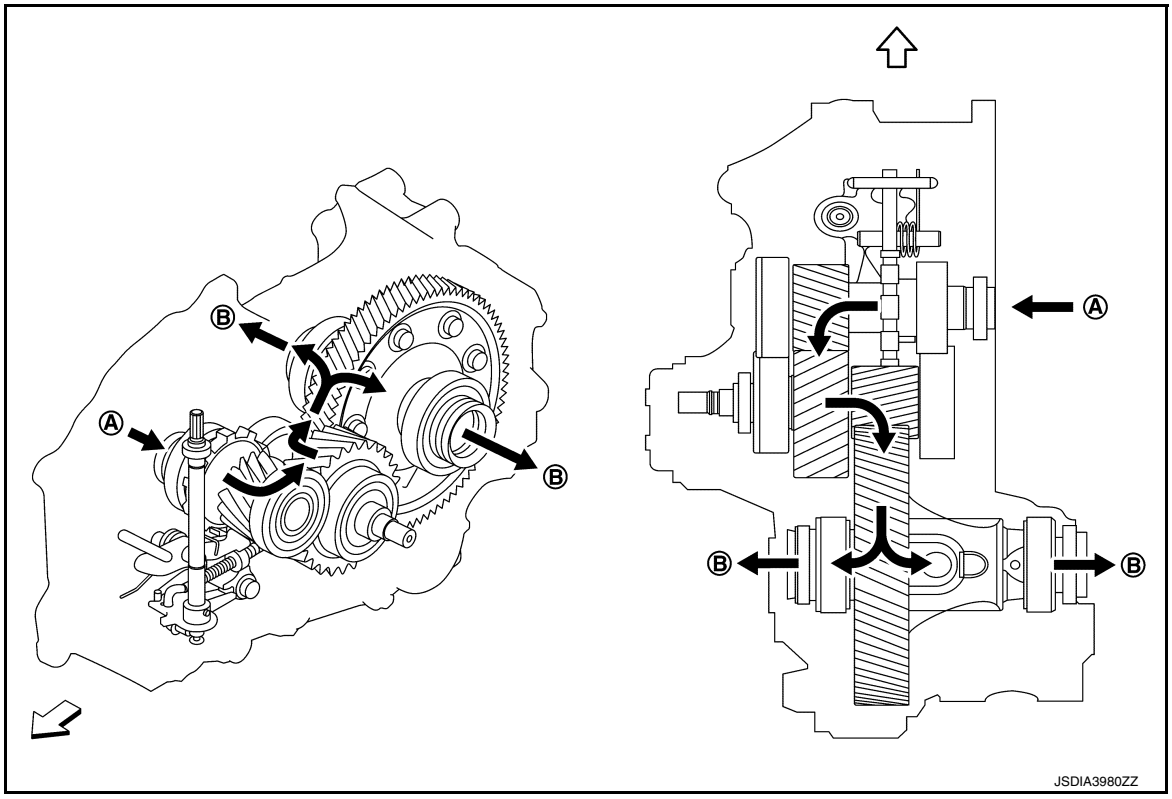
INFOID:0000000010639502



① Input gear
② Brush cover
③ Earth brush
④ O-ring
⑤ Final gear
⑥ Main shaft

Power Transfer Diagram

INFOID:0000000010639503



Ⓐ From traction motor

Ⓑ To drive shaft

⇦ : Vehicle front

⬅ : Power flow

PERIODIC MAINTENANCE

REDUCTION GEAR OIL

Inspection

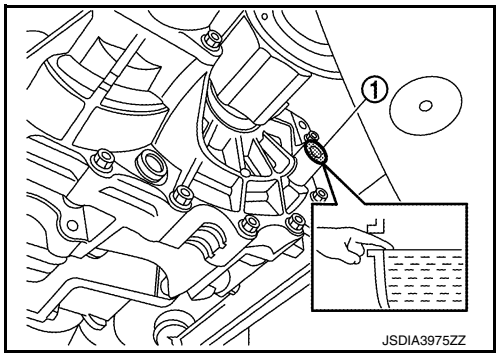
INFOID:0000000010639504

OIL LEAKAGE

Check reduction gear surrounding area (oil seal, drain plug, and filler plug etc.) for oil leakage.

OIL LEVEL

- Remove filler plug ① and gasket. Then check that oil is filled up from mounting hole for the filler plug.
  CAUTION:
  Turn the power switch OFF while checking oil level.
- Set a gasket on filler plug and install it on reduction gear and tighten to the specified torque. Refer to TM-21, "Exploded View".
  CAUTION:
  - **Never reuse gasket.**
  - **If foreign matter, such as gear abrasion powder, is on the magnet of the filler plug, wipe it free of adherents before installation.**

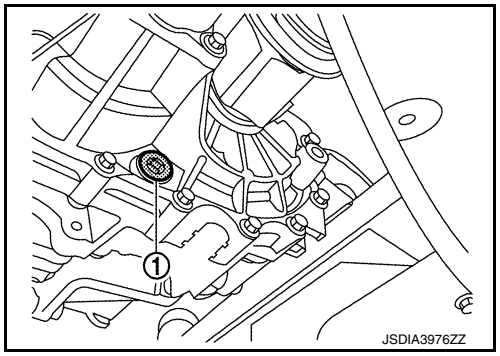


Draining and Refilling

INFOID:0000000010639505

DRAINING

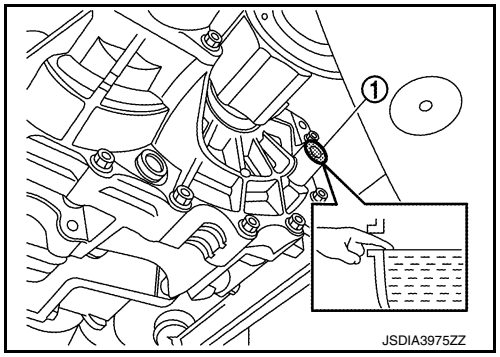
1. Turn the power switch OFF.
2. Remove filler plug.
3. Remove drain plug ① and drain gear oil.
4. Set a gasket on drain plug and install it to reduction gear and tighten to the specified torque. Refer to TM-21, "Exploded View".
   CAUTION:
   - **Do not reuse gasket.**
   - **If foreign matter, such as gear abrasion powder, is on the magnet of the drain plug, wipe it free of adherents before installation.**



REFILLING

1. Remove filler plug ①. Fill with new gear oil until oil level reaches the specified level near filler plug mounting hole.

Oil grade	**: Refer to MA-17, "FOR USA AND CANADA : Fluids and Lubricants" (USA and Canada) and MA-18, "FOR MEXICO : Fluids and Lubricants" (Mexico).**
Oil capacity	**: Refer to TM-27, "General Specifications".**



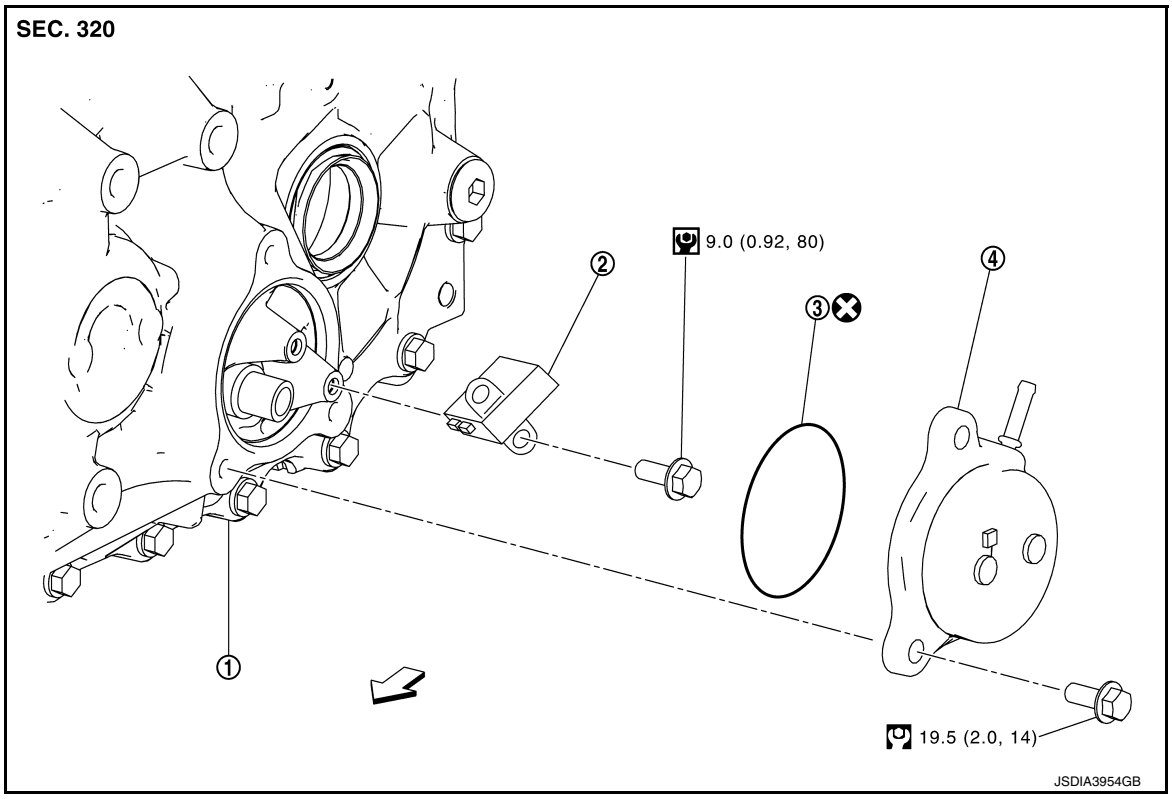
2. After refilling oil, check oil level. Set a gasket on filler plug, then install it to reduction gear. Refer to TM-21, "Exploded View".
   CAUTION:
   - **Do not reuse gasket.**
   - **If foreign matter, such as gear abrasion powder, is on the magnet of the filler plug, wipe it free of adherents before installation.**

REMOVAL AND INSTALLATION

EARTH BRUSH

Exploded View

INFOID:0000000010639506



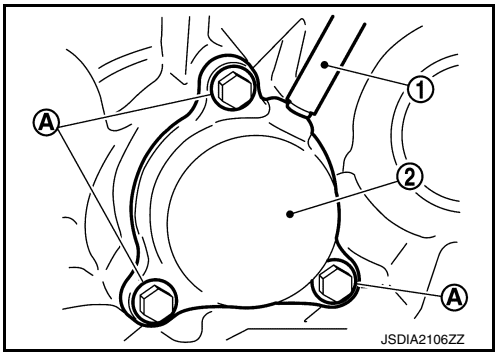
① Reduction gear ② Earth brush ③ O-ring
④ Brush cover
⇦ : Vehicle front
: Always replace after every disassembly.
: N·m (kg-m, in-lb)
: N·m (kg-m, ft-lb)

Removal and Installation

INFOID:0000000010639507

REMOVAL

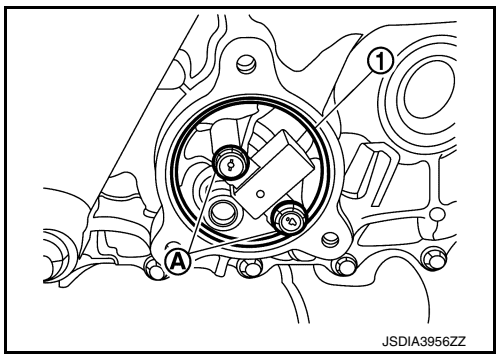
1. Remove front under cover. Refer to EXT-23, "FRONT UNDER COVER : Removal and Installation".
2. Disconnect breather hose ① from brush cover ②, then remove the brush cover bolts Ⓐ and remove brush cover.



3. Remove O-ring ①. Remove brush fixing bolts Ⓐ, then remove earth brush.

CAUTION:

- **Carefully remove earth brush, because the spring in the earth brush pushes out the brush.**
- **Do not touch brush area.**

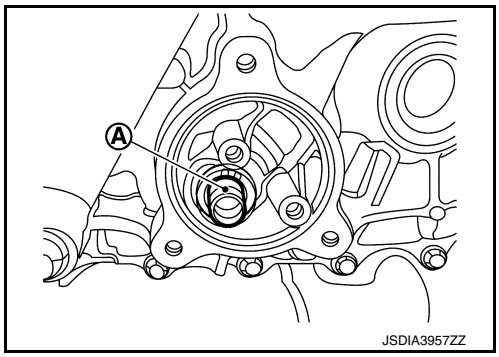


INSTALLATION

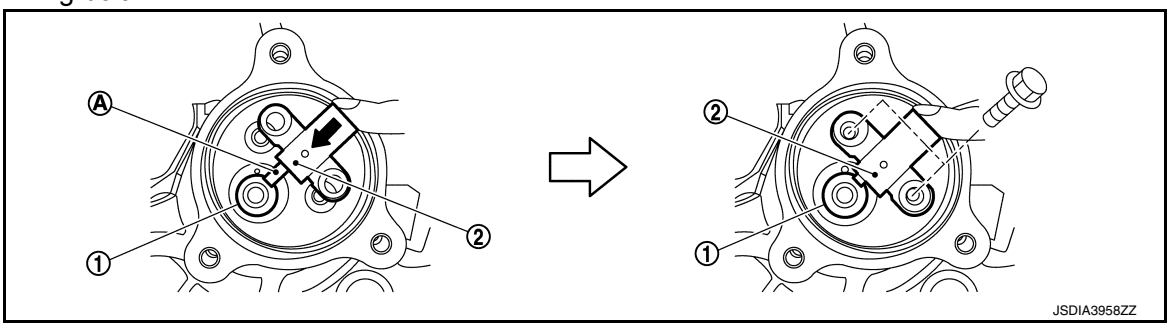
Note the following, and install in the reverse order of removal.

CAUTION:

- **Degrease shaft surface (brush contact surface) Ⓐ, and verify that there is no dust or other substance on it, then install the earth brush.**
- **Degrease brush surface, and verify that there is no dust or other substance on it, then install the earth brush.**
- **Do not reuse O-ring.**
- **Do not apply oil to O-ring. Verify that there is no oil on it, then install O-ring.**
- **Do not touch brush area.**

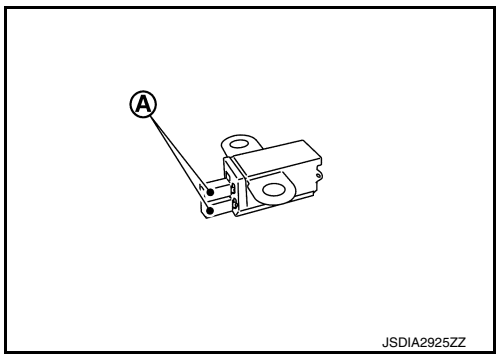


- When assembling earth brush, do not touch brush area Ⓐ, press earth brush ② onto shaft ① and fasten with brush fixing bolt.



CAUTION:

Do not touch brush area Ⓐ.



When Replacing With New Part

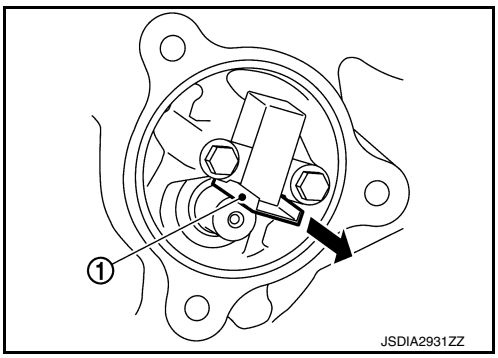
NOTE:

A new earth brush includes a stopper for preventing brush pop-out. Install with stopper attached.

When installing a new earth brush, pull out stopper ① after installation, allowing brush to contact shaft.

CAUTION:

Before installation, degrease the stopper surface (shaft side) and check that the surface is free of foreign matter.



Inspection

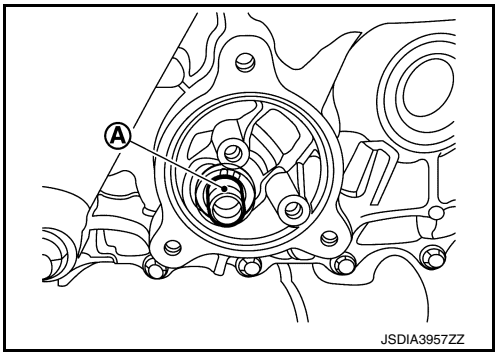
INFOID:0000000010639508

INSPECTION OF REDUCTION GEAR MAIN SHAFT

Check that there is no substance such as oil and dust on main shaft surface Ⓐ, and that no corrosion has occurred.

CAUTION:

- **When substances such as oil and dust are adherent to the shaft surface (brush contact surface), remove them and degrease the shaft surface to install brush.**
- **When there is corrosion on shaft surface, remove corrosion to install brush.**



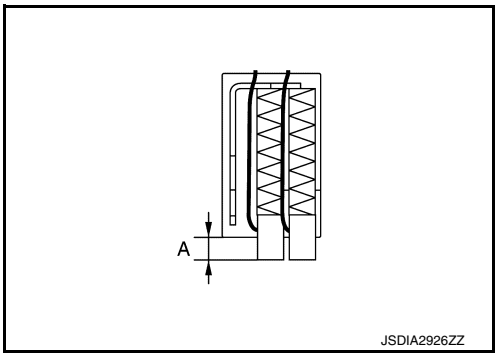
INSPECTION FOR BRUSH WEAR

Remove earth brush and measure amount of protrusion (A). If it is at or below limit value, replace earth brush.

Brush wear limit : TM-27, "Earth Brush"

CAUTION:

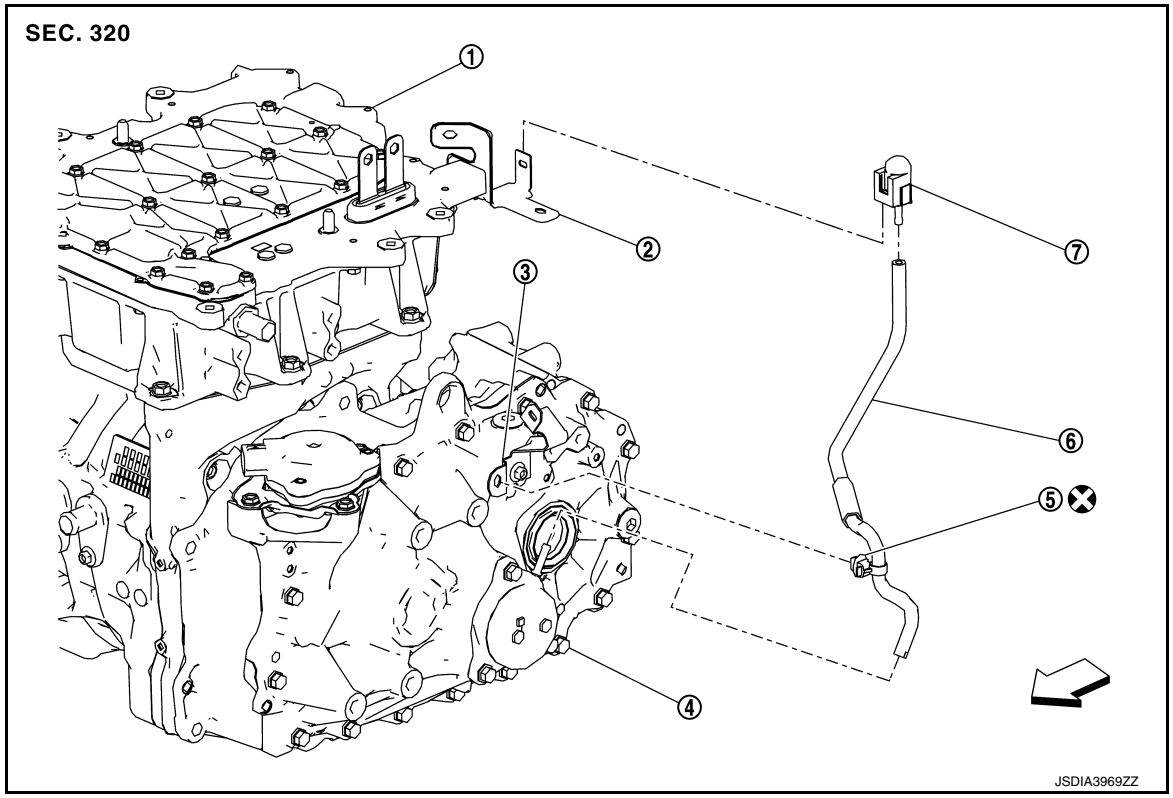
When reusing with original parts, never allow oil to contact brush area. Refer to TM-14, "Removal and Installation".



BREATHER HOSE

Exploded View

INFOID:0000000010639509



① Inverter
② Harness bracket
③ Harness bracket
④ Reduction gear
⑤ Clip
⑥ Breather hose
⑦ Breather
⇦ : Vehicle front
⊗ : Always replace after every disassembly.

Removal and Installation

INFOID:0000000010639510

DANGER:

Since hybrid vehicles and electric vehicles contain a high voltage battery, there is the risk of electric shock, electric leakage, or similar accidents if the high voltage component and vehicle are handled incorrectly. Be sure to follow the correct work procedures when performing inspection and maintenance.

WARNING:

- **Be sure to remove the service plug in order to disconnect the high voltage circuits before performing inspection or maintenance of high voltage system harnesses and parts.**
- **The removed service plug must always be carried in a pocket of the responsible worker or placed in the tool box during the procedure to prevent the plug from being connected by mistake.**
- **Be sure to wear insulating protective equipment consisting of glove, shoes, face shield and glasses before beginning work on the high voltage system.**
- **Do not allow workers other than the responsible person to touch the vehicle containing high voltage parts. To keep others from touching the high voltage parts, these parts must be covered with an insulating sheet except when using them.**
- **Refer to TM-5, "High Voltage Precautions".**

CAUTION:

Do not bring the vehicle into the READY status with the service plug removed unless otherwise instructed in the Service Manual. A malfunction may occur if this is not observed.

REMOVAL

WARNING:

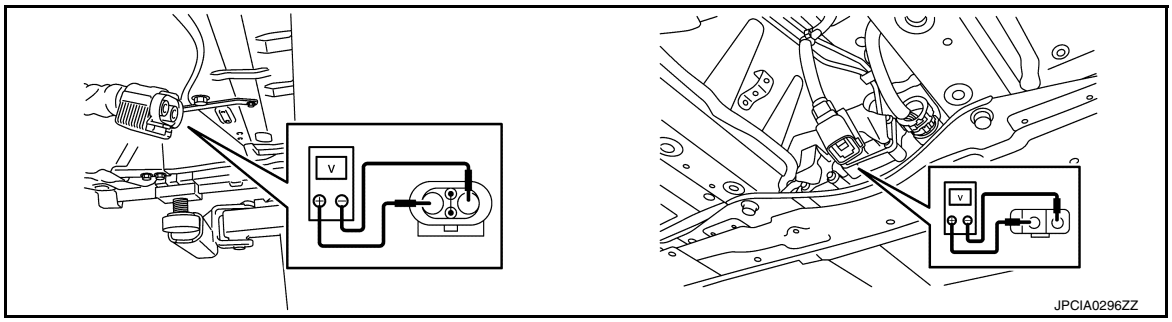
Disconnect the high voltage. Refer to GI-33, "How to Disconnect High Voltage"

1. Check voltage in high voltage circuit. (Check that condenser are discharged.)

a. Lift up the vehicle and remove the Li-ion battery under covers. Refer to EVB-181, "Exploded View".

b. Disconnect high voltage harness connector and PTC heater harness connector from front side of Li-ion battery. Refer to EVB-181, "Removal and Installation".

c. Measure voltage between high voltage harness connector terminals and PTC heater harness connector terminals.



DANGER:

Touching high voltage components without using the appropriate protective equipment will cause electrocution.

Standard : 5 V or less

CAUTION:

For voltage measurements, use a tester which can measure to 500 V or higher.

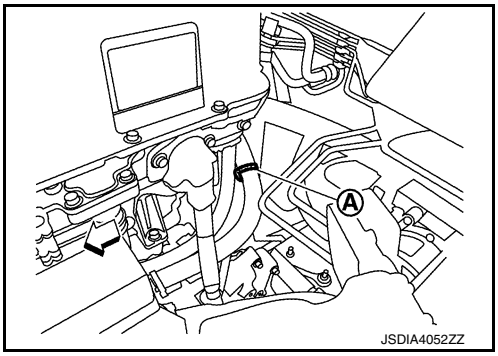
2. Remove front under cover. Refer to EXT-23, "FRONT UNDER COVER : Removal and Installation".

3. Remove clip Ⓐ of normal charge port from harness bracket.

⇦ : Vehicle front

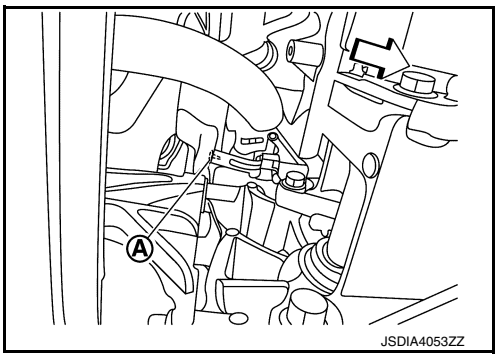
WARNING:

To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.

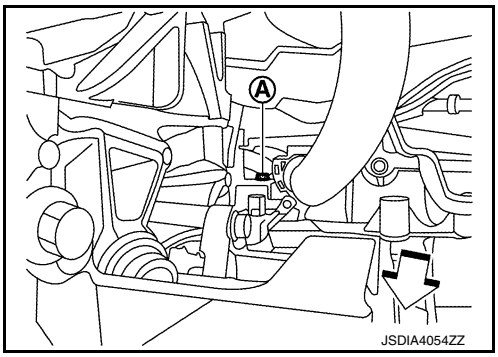


4. Remove acoustic insulator mounting screw Ⓐ.

⇦ : Vehicle front



5. Remove harness bracket mounting bolt Ⓐ.

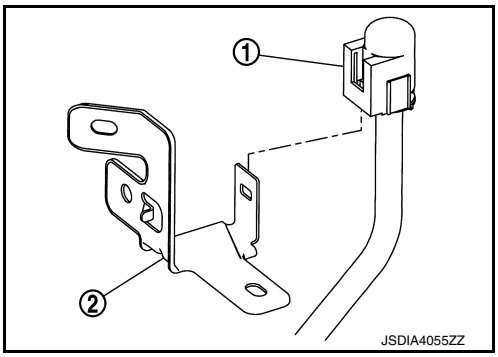


⇦ : Vehicle front

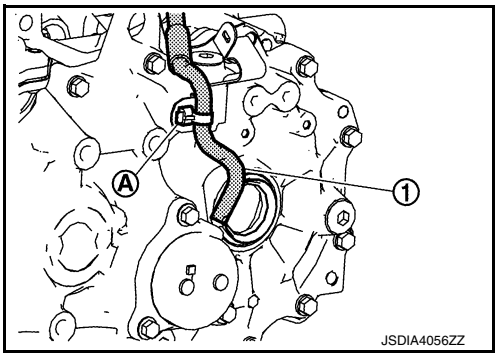
WARNING:
To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.

6. Remove breather ① from harness bracket ②.

WARNING:
To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.



7. Remove clip Ⓐ of breather hose from harness bracket and pull out breather hose ① from brush cover tube of reduction gear.



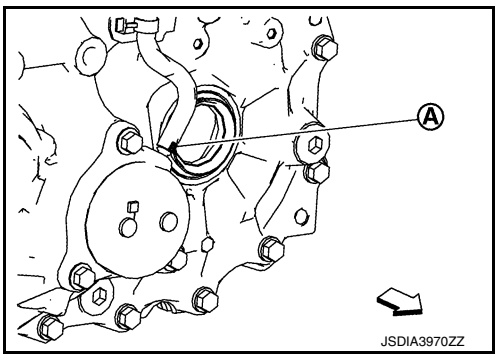
INSTALLATION

WARNING:
To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.

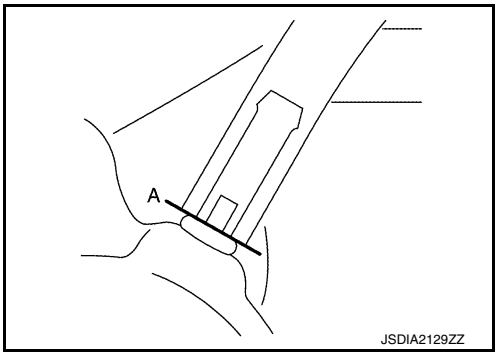
CAUTION:
- **Do not reuse resin clip (hose clip).**
- **Be careful not to be crushed or blocked by folding or bending the hose when installing the breather hose.**
- **Ensure the breather is securely installed to the bracket.**
- **Ensure the clips are securely installed to the brackets.**

- **Install breather hose so that the paint mark Ⓐ is facing leftward.**

⇦ : Vehicle left



- **As shown in figure, fit breather hose onto brush cover tube part all the way to its base (A).**

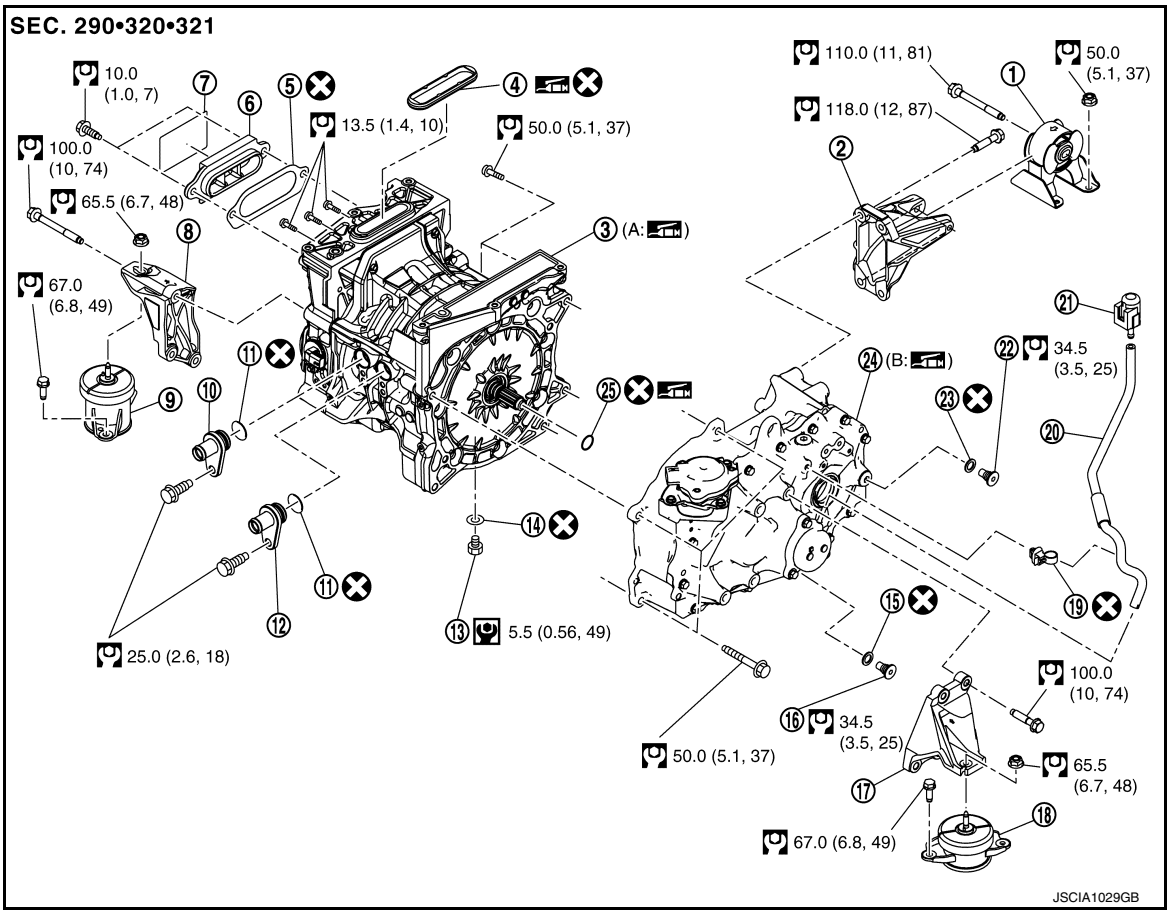


UNIT REMOVAL AND INSTALLATION

REDUCTION GEAR

Exploded View

INFOID:0000000010639511



①	Motor mounting rear	②	Motor mounting rear bracket	③	Traction motor
④	Seal	⑤	Gasket	⑥	3-phase bus bar cover
⑦	High voltage warning label	⑧	Motor mounting RH bracket	⑨	Motor mounting RH
⑩	Water inlet	⑪	O-ring	⑫	Water outlet
⑬	Drain plug	⑭	Copper washer	⑮	Gasket
⑯	Drain plug	⑰	Motor mounting LH bracket	⑱	Motor mounting LH
⑲	Clip	⑳	Breather hose	㉑	Breather box
㉒	Filler plug	㉓	Gasket	㉔	Reduction gear
㉕	O-ring				
A.	Shaft spline	B.	Inside of input shaft (inside of spline)		

: N·m (kg-m, in-lb)

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

: Apply lithium-based grease including molybdenum disulphide.

Removal and Installation

INFOID:0000000010639512

DANGER:

Since hybrid vehicles and electric vehicles contain a high voltage battery, there is the risk of electric shock, electric leakage, or similar accidents if the high voltage component and vehicle are handled incorrectly. Be sure to follow the correct work procedures when performing inspection and maintenance.

WARNING:

- **Be sure to remove the service plug in order to disconnect the high voltage circuits before performing inspection or maintenance of high voltage system harnesses and parts.**
- **The removed service plug must always be carried in a pocket of the responsible worker or placed in the tool box during the procedure to prevent the plug from being connected by mistake.**
- **Be sure to wear insulating protective equipment consisting of glove, shoes, face shield and glasses before beginning work on the high voltage system.**
- **Do not allow workers other than the responsible person to touch the vehicle containing high voltage parts. To keep others from touching the high voltage parts, these parts must be covered with an insulating sheet except when using them.**
- **Refer to TM-5, "High Voltage Precautions".**

CAUTION:

Do not bring the vehicle into the READY status with the service plug removed unless otherwise instructed in the Service Manual. A malfunction may occur if this is not observed.

REMOVAL

WARNING:

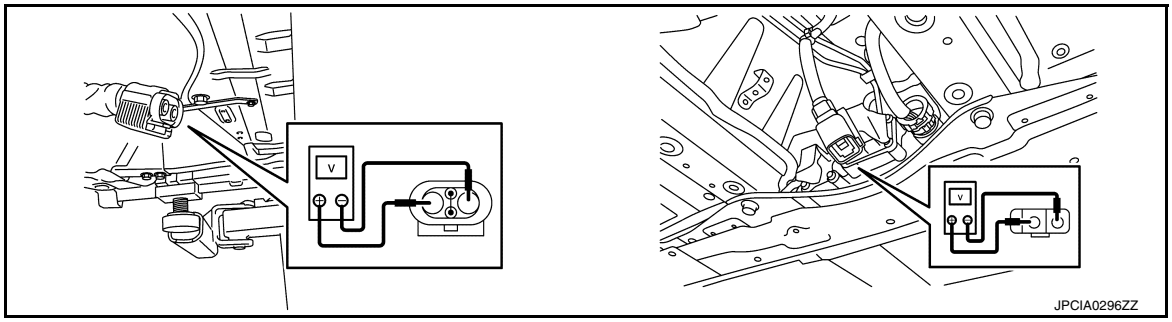
Disconnect the high voltage. Refer to GI-33, "How to Disconnect High Voltage".

1. Check voltage in high voltage circuit. (Check that condenser are discharged.)

a. Lift up the vehicle and remove the Li-ion battery under covers. Refer to EVB-181, "Exploded View".

b. Disconnect high voltage harness connector and PTC heater harness connector from front side of Li-ion battery. Refer to EVB-181, "Removal and Installation".

c. Measure voltage between high voltage harness connector terminals and PTC heater harness connector terminals.



DANGER:

Touching high voltage components without using the appropriate protective equipment will cause electrocution.

Standard : 5 V or less

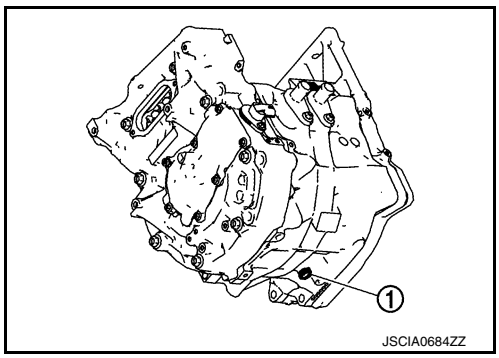
CAUTION:

For voltage measurements, use a tester which can measure to 500 V or higher.

2. Remove front under cover. Refer to EXT-23, "FRONT UNDER COVER : Removal and Installation".

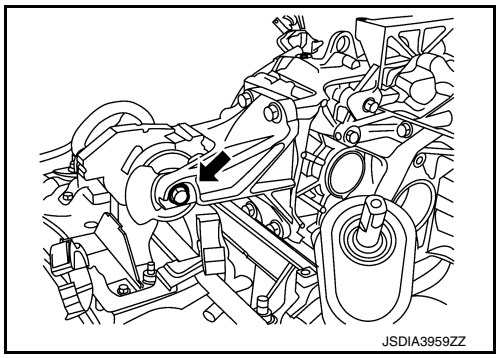
3. Remove drain bolt ① of traction motor to drain coolant.

WARNING:
To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.



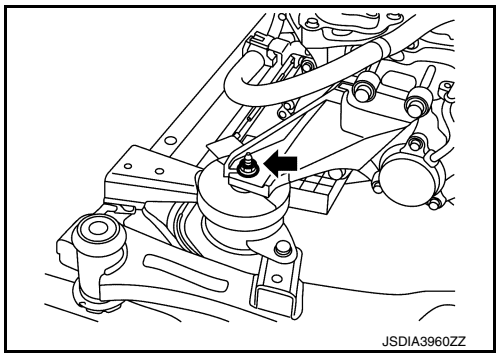
4. Drain reduction gear oil. Refer to TM-13, "Draining and Refilling".
5. Remove electric power train and reduction gear from vehicle together as suspension member assembly. Refer to FSU-21, "Removal and Installation".
6. Remove PDM (Power Delivery Module). Refer to VC-111, "Removal and Installation".
7. Remove traction motor inverter. Refer to TMS-103, "Removal and Installation".
8. Remove joint bolt (⬅) of motor mounting rear bracket and motor mounting rear.

WARNING:
To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.



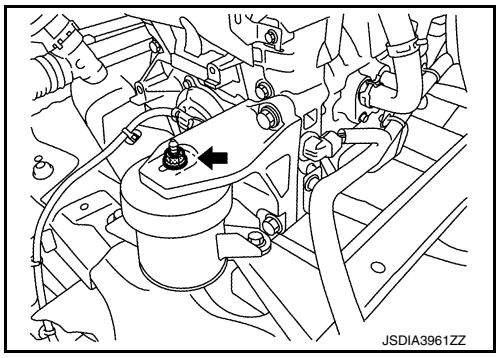
9. Remove joint bolt (⬅) of motor mounting LH bracket and motor mounting LH.

WARNING:
To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.



10. Remove joint bolt (⬅) of motor mounting RH bracket and motor mounting RH.

WARNING:
To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.



11. Hook the sling belt to each motor mounting bracket and prepare to disconnect the traction motor and reduction gear from the front suspension member assembly.
12. Hoist the traction motor and reduction gear and disconnect them from the front suspension member assembly.

WARNING:
To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.

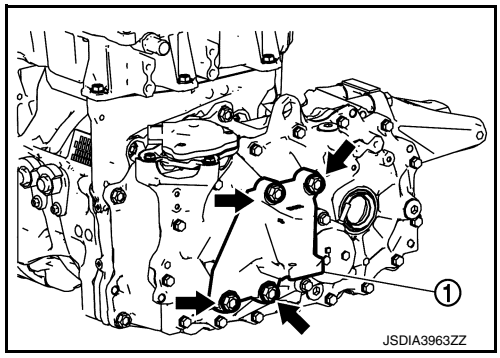
CAUTION:
When hoisting the traction motor and reduction gear, insert a long bolt into the motor mounting bracket to prevent the sling belt from slipping out. At that time, be sure to install a nut.

13. Remove support bearing bracket of drive shaft (right side). Refer to FAX-19, "RIGHT SIDE : Removal and Installation".

WARNING:
To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.

14. Remove motor mounting LH bracket ①.

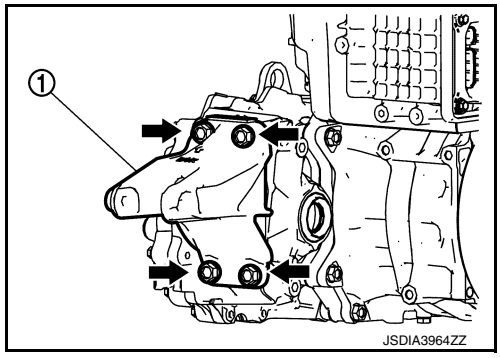
WARNING:
To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.



⬅ : Bolt

15. Remove motor mounting rear bracket ①.

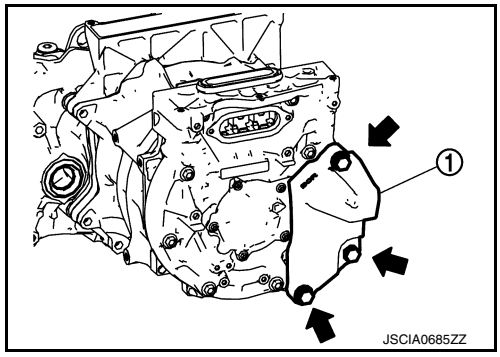
WARNING:
To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.



⬅ : Bolt

16. Remove motor mounting RH bracket ①.

WARNING:
To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.



⬅ : Bolt

17. Remove joint bolts traction motor and reduction gear.

WARNING:
To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.

18. Separate traction motor from reduction gear.

WARNING:

To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.

INSTALLATION

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

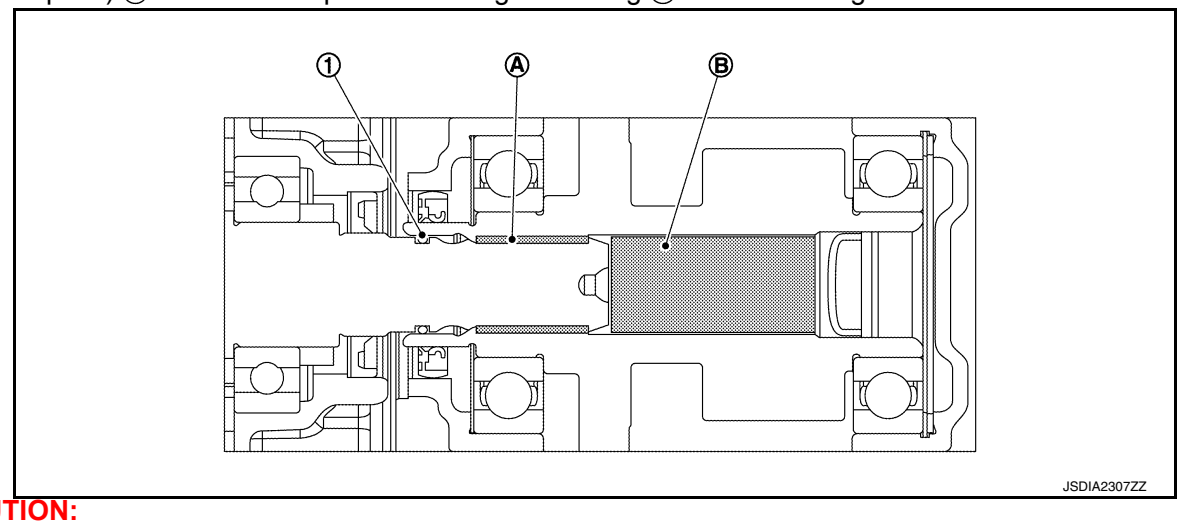
WARNING:

To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.

CAUTION:

When assembling the reduction gear and traction motor, clean the mating surface and be sure that no dust, dirt, or foreign material is between the surfaces.

- Before installing reduction gear and traction motor, apply grease to full periphery of shaft spline Ⓐ, and also inject grease [minimum 10 g (0.4 oz), maximum less than 20 g (0.7 oz)] into reduction gear input shaft (inside spline) Ⓑ. Take care to prevent damage to O-ring ① when installing.



CAUTION:

- **Before applying grease, clean old grease and wear particles, that are adhered to the grease applying parts.**
- **When installing O-ring, clean the O-ring installation groove completely, and then install.**

- When all parts are installed, be sure to check equipotential of traction motor, PDM (Power Delivery Module), and traction motor inverter.

- Traction motor: Refer to TM-25, "Inspection and Adjustment".
- PDM (Power Delivery Module): Refer to VC-125, "Inspection".
- Traction motor inverter: Refer to TMS-107, "Inspection and Adjustment".

Inspection and Adjustment

INFOID:0000000010639513

INSPECTION AFTER INSTALLATION

After installing traction motor, measure resistance below.

- Between traction motor (aluminum part) and body (ground bolt).
- Between traction motor (aluminum part) and other high voltage system.

WARNING:

To prevent electric shock hazards, be sure to put on insulating protective gear before beginning work on the high voltage system.

Standard : Less than 0.1 Ω

If result deviates from standard values, check that no paint, oil, dirt, or other substance is adhering to bolts or conductive mounting parts. If any such substance is adhering, clean the surrounding area and remove the substance.

ADJUSTMENT AFTER INSTALLATION

It is necessary to perform writing of the traction motor resolver offset to the traction motor inverter after the traction motor is replaced. Refer to TMS-39, "Work Procedure".

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specifications

INFOID:0000000010639514

Reduction gear model		RE1F61B
Gear ratio		8.193
Number of teeth	Input gear	17
	Main gear (IN / OUT)	32 / 17
	Final gear	74
Oil capacity (Approx.)	ℓ (US pt, Imp pt)	1.41 (3, 2-1/2)

Earth Brush

INFOID:0000000010639515

Unit: mm (in)

Item	Limit
Brush wear amount	4.0 (0.157)

PRECAUTION

PRECAUTIONS

Precaution for Technicians Using Medical Electric

INFOID:0000000010639516

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 PDM (Power Delivery Module) at normal charge operation may affect medical electric devices, a technician using a medical electric device such as implantable cardiac pacemaker or an implantable cardioverter defibrillator must not approach motor room [PDM (Power Delivery Module)] at the hood-opened condition during normal charge operation.**

PRECAUTION AT TELEMATICS SYSTEM OPERATION

WARNING:

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

PRECAUTION AT INTELLIGENT KEY SYSTEM OPERATION

WARNING:

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

Point to Be Checked Before Starting Maintenance Work

INFOID:0000000010639517

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

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

INFOID:0000000010639518

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

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

WARNING:

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, 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 the SR section.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

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

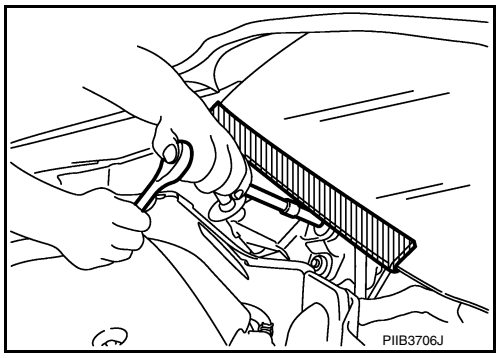
WARNING:

- **When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.**

Precaution for Procedure without Cowl Top Cover

INFOID:0000000010639519

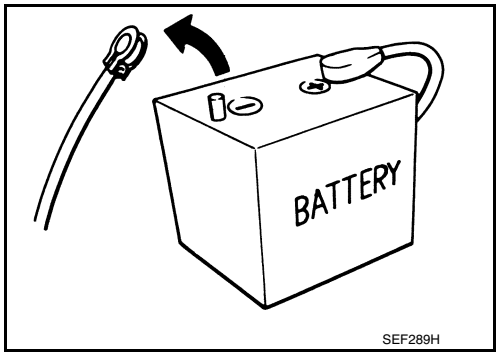
When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



Precautions for Removing Battery Terminal

INFOID:0000000010639520

- When removing the 12V battery terminal, turn OFF the power switch and wait at least 5 minutes.
  NOTE:
  ECU may be active for several minutes after the power switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.
- Always disconnect the battery terminal within 60 minutes after turning OFF the power switch. Even when the power switch is OFF, the 12V battery automatic charge control may automatically start after a lapse of 60 minutes from power switch OFF.
- Disconnect 12V battery terminal according to the following steps.



WORK PROCEDURE

1. Check that EVSE is not connected.
   NOTE:
   If EVSE is connected, the air conditioning system may be automatically activated by the timer A/C function.
2. Turn the power switch OFF → ON → OFF. Get out of the vehicle. Close all doors (including back door).
3. Check that the charge status indicator lamp does not blink and wait for 5 minutes or more.
   NOTE:

If the battery is removed within 5 minutes after the power switch is turned OFF, plural DTCs may be detected.

4. Remove 12V battery terminal within 60 minutes after turning the power switch OFF → ON → OFF.
   CAUTION:
   - **After all doors (including back door) are closed, if a door (including back door) is opened before battery terminals are disconnected, start over from Step 1.**
   - **After turning the power switch OFF, if "Remote A/C" is activated by user operation, stop the air conditioner and start over from Step 1.**

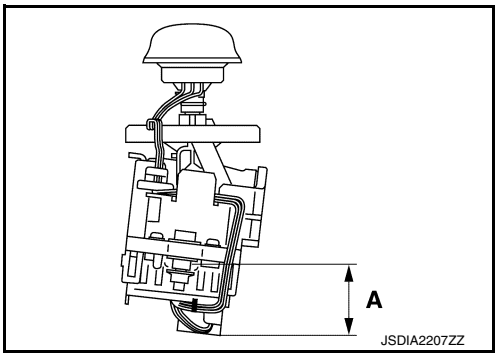
   NOTE:
   Once the power switch is turned ON → OFF, the 12V battery automatic charge control does not start for approximately 1 hour.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the power switch.
  NOTE:
  If the power switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  NOTE:
  The removal of 12V battery may cause a DTC detection error.

General Precautions

INFOID:0000000010639521

- Never turn the power switch ON while the selector lever is in the D or R position. Otherwise, the vehicle may start abruptly resulting in an accident.
- Never shift the selector lever to the R position while the vehicle is moving forward, or to the D position while moving backward, or press the P position switch while the vehicle is in motion. Otherwise, excessive force may be applied to the drive system causing damage.
- Never allow the vehicle to coast backward while the selector lever is in the D position or forward while the selector lever is in the R position.
- Part A shown in the figure contains a strong magnet. Persons with an electro-medical apparatus should keep away from this area. Otherwise, the magnet may cause the electro-medical apparatus to malfunction.
- Keep magnetic objects, such as magnetic cards, and metal products (e.g. watches) away from the area surrounding the magnet.



SYSTEM DESCRIPTION

DESCRIPTION

Description

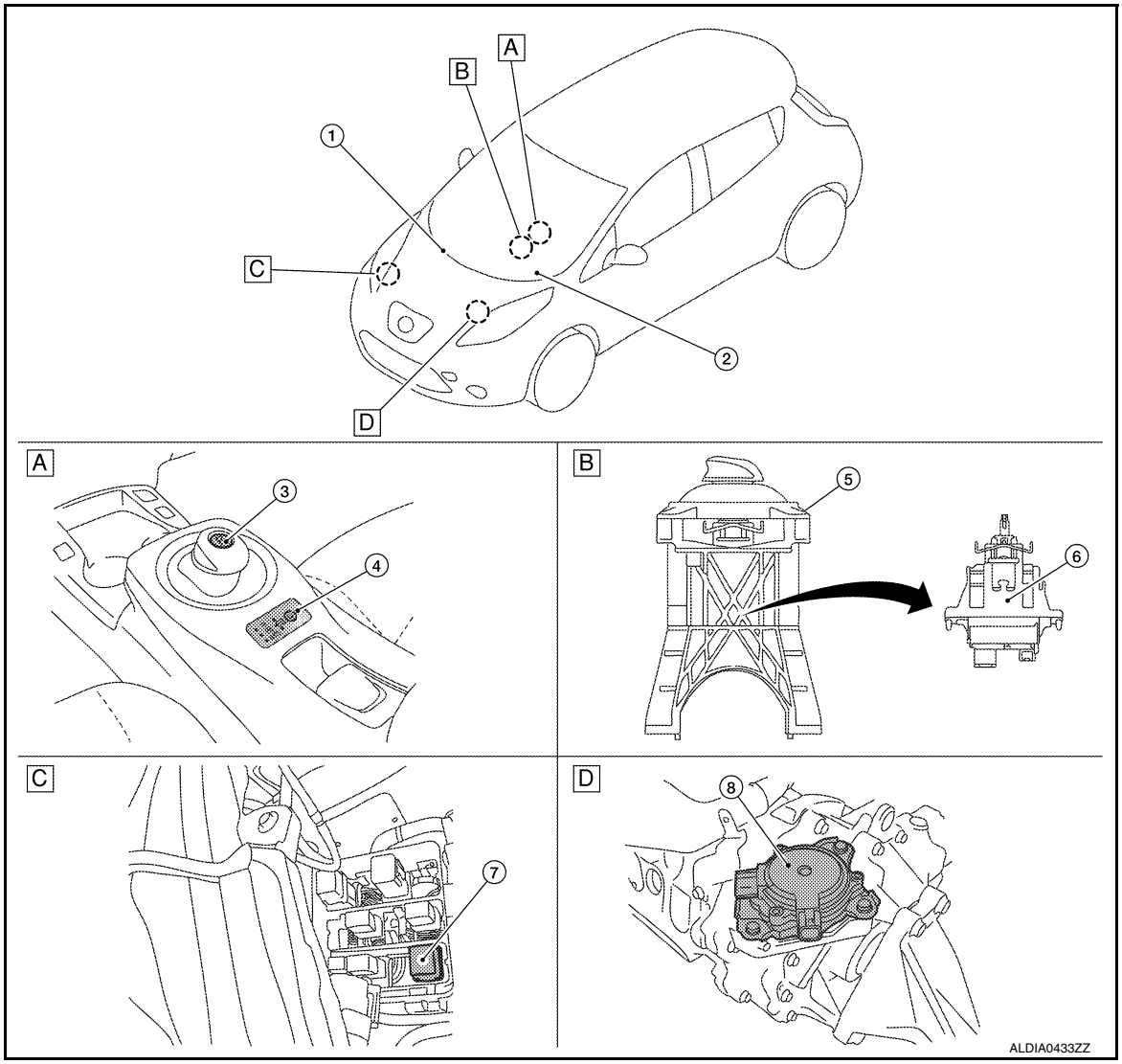
INFOID:0000000010639522

- Instead of the conventional mechanical shift mechanism, the electric shift system is adopted which electrically detects shifting operation and locks/unlocks the parking mechanism by operating the parking actuator.
- The electric shift control module is build into the VCM.
  NOTE:
  In this section, the electric shift control module built in VCM is referred to as “Electric shift control module” for describing its functions.
- The momentary-type selector lever is adopted for mouse-like fine shift operability.
- The automatic P position function, which automatically shifts the gear to the P position if the power switch is turned OFF in the each position, is adopted.
- For improved functionality and operability, the P position switch, which allows direct switching to the P position at the touch of the switch, is provided on the top of the selector lever.

COMPONENT PARTS

Component Parts Location

INFOID:0000000010639523



A Finisher
B Electric shift selector
C Motor room, RH
D Reduction gear, upper

No.	Name	Function
①	VCM	• Refer to EVC-18, "VCM" for details. • Refer to EVC-15, "Component Parts Location" for detailed installation location.
	Electric shift control module	TM-33, "Electric Shift Control Module"
②	Combination meter (Electric shift warning lamp, electric shift warning message, shift position indicator)	• Refer to MWI-6, "METER SYSTEM : Component Parts Location" for detailed installation location. • Refer to TM-35, "Electric Shift Warning Lamp" for details of electric shift warning lamp. • Refer to TM-36, "Electric Shift Warning Message" for details of electric shift warning message. • Refer to TM-38, "Shift Position Indicator" for details of shift position indicator.
③	P position switch	TM-35, "P Position Switch"

No.	Name	Function
④	Selector indicator	TM-35, "Selector Indicator"
⑤	Electric shift selector	TM-34, "Electric Shift Selector"
⑥	Electric shift sensor	TM-35, "Electric Shift Sensor"
⑦	Parking actuator relay A	TM-34, "Parking Actuator Relay A"
⑧	Parking actuator	TM-33, "Parking Actuator"

Electric Shift Control Module

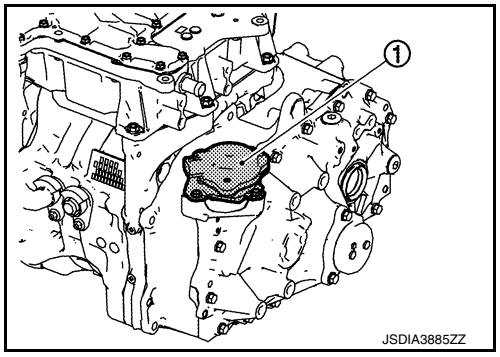
INFOID:0000000010639524

- The electric shift control module is build into the VCM.
  NOTE:
  In this section, the electric shift control module built in VCM is referred to as “Electric shift control module” for describing its functions.
- The electric shift control module is started by the power switch signal and wake-up signal transmitted from BCM.
- The electric shift control module determines the shift position based on the shift position data (ON/OFF signal) from the electric shift sensor, and transmits the shift position data to VCM and traction motor inverter via EV system CAN.
- The electric shift control module operates the parking actuator based on the signal from the P position switch.

Parking Actuator

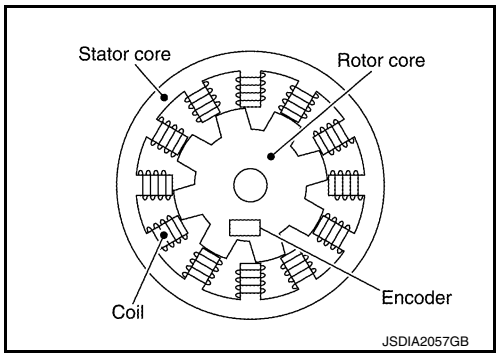
INFOID:0000000010639525

- The parking actuator ① is installed above the reduction gear.
- The parking actuator is operated by the signal from the electric shift control module and locks/unlocks the parking mechanism in the reducer.
- The parking actuator consists of the motor, encoder, and actuator reduction gear.



MOTOR

- A 3-phase SR motor is used.
- Coil is placed on the stator core around the motor and the current that passes through the coil in sequence generates the rotating force for the inner rotor core.



ENCODER

- The Hall IC type rotation angle sensor is used for higher accuracy in the detection of the rotor rotation angle.
- It detects the rotor rotation angle and outputs pulse signals to the electric shift control module.
- The electric shift control module controls the timing of the current feed to the coils optimally based on the signal from the encoder.

ACTUATOR REDUCTION GEAR

The actuator reduction gear consists of a cycloidal gear and includes a motor with its torque amplified for secure operation under high torque-requiring conditions.

Parking Actuator Relay A

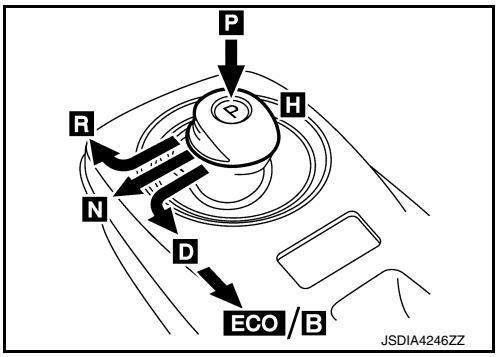
INFOID:0000000010639526

Parking actuator relay A is turned ON by the electric shift control module when the power switch is turned ON and supplies power to motor coil A located in the parking actuator.

Electric Shift Selector

INFOID:0000000010639527

The electric shift selector consists of the selector lever, electric shift sensor, P position switch and others.

Shift position	Operation/Function	
H (Home position)	The selector lever automatically moves back to the home position after it is operated.	
P (P position switch)	Completely stop the vehicle and push the P position switch on the top of the selector lever while depressing the brake pedal.	
R	While depressing the brake pedal, slide the selector lever forward along the gate.	
N	While depressing the brake pedal, slide the selector lever to the left and hold it for approx. 1 second.	
D/ECO or B	• While depressing the brake pedal, slide the selector lever backward along the gate. • If the selector lever is slid backward again while driving in the D position, the vehicle switches to ECO mode or B position. • To switch from ECO mode or B position to the D position driving, slide the selector lever backward again. • Refer to EVC-51, "ECO MODE/B MODE SYSTEM : System Description" for ECO mode and B position details.	

OPERATIONAL CONDITIONS FOR SHIFT

■: Hold ●: Current shift position ○: Be able to shift here

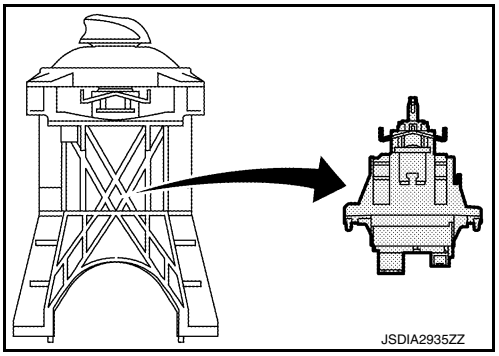
POWER SW	Operation	Vehicle speed	Stop lamp switch	Shift position					Remarks
				P	R	N	D	ECO/B	
OFF/ACC	Selector lever	—	—	■	—				—
	P position SW	—	—	■	—				—
ON (Not driving)	Selector lever	—	ON	●	—	○	—	—	• Shifted to N position even when shifted to R or D position • Shift position warning buzzer: Two short beeps
		—	OFF	■	—				Shift position warning buzzer: Two short beeps
	P position SW	—	—	○	—	●	—	—	—
READY	Selector lever	—	ON	●	○	○	○	○*	—
		—	OFF	■	—				Shift position warning buzzer: Two short beeps
	P position SW	5 km/h (3 MPH) or less	—	○	●	●	●	●	—
		5 km/h (3 MPH) or more	—	—	■	■	■	■	Shift position warning buzzer: Two short beeps

*: Direct shifting to the ECO mode or B position from the P position is not possible.

Electric Shift Sensor

INFOID:0000000010639528

- The electric shift sensor integrates 6 non-contact sensors (Hall IC) and transmits ON/OFF signals to the electric shift control module.



- The electric shift control module determines the shift position from the combination of the ON/OFF signals.

Electric shift control module recognition position	Selector lever position	P position SW	Electric shift sensor						P position SW	
			No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 1	No. 2
H	H	No push	OFF	OFF	ON	OFF	OFF	ON	OFF	ON
P	H	Push	OFF	OFF	ON	OFF	OFF	ON	ON	OFF
R	R	No push	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
N	N	No push	OFF	ON	ON	ON	OFF	OFF	OFF	ON
D	D	No push	OFF	OFF	OFF	ON	ON	OFF	OFF	ON

P Position Switch

INFOID:0000000010639529

- The P position switch allows direct one-touch switching to the P position from any position while the vehicle is stopped.
- The P position switch does not have a function to cancel the P position.
- The P position switch transmits the ON/OFF signals of 2 contact switches to the electric shift control module.

Electric shift control module recognition position	Selector lever position	P position SW	Electric shift sensor						P position SW	
			No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 1	No. 2
H	H	No push	OFF	OFF	ON	OFF	OFF	ON	OFF	ON
P	H	Push	OFF	OFF	ON	OFF	OFF	ON	ON	OFF
R	R	No push	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
N	N	No push	OFF	ON	ON	ON	OFF	OFF	OFF	ON
D	D	No push	OFF	OFF	OFF	ON	ON	OFF	OFF	ON

Selector Indicator

INFOID:0000000010639530

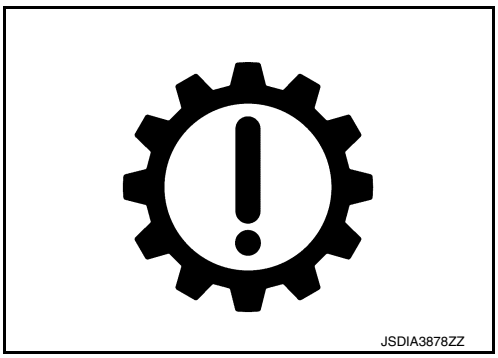
The selector indicator is located in the finisher area and the lamp for the currently selected shift position illuminates.

Electric Shift Warning Lamp

INFOID:0000000010639531

DESIGN/PURPOSE

The electric shift warning lamp warns the driver of a malfunction in the electric shift system.



BULB CHECK

For 2 seconds after the ignition switch is turned ON.

SYNCHRONIZATION WITH MASTER WARNING LAMP

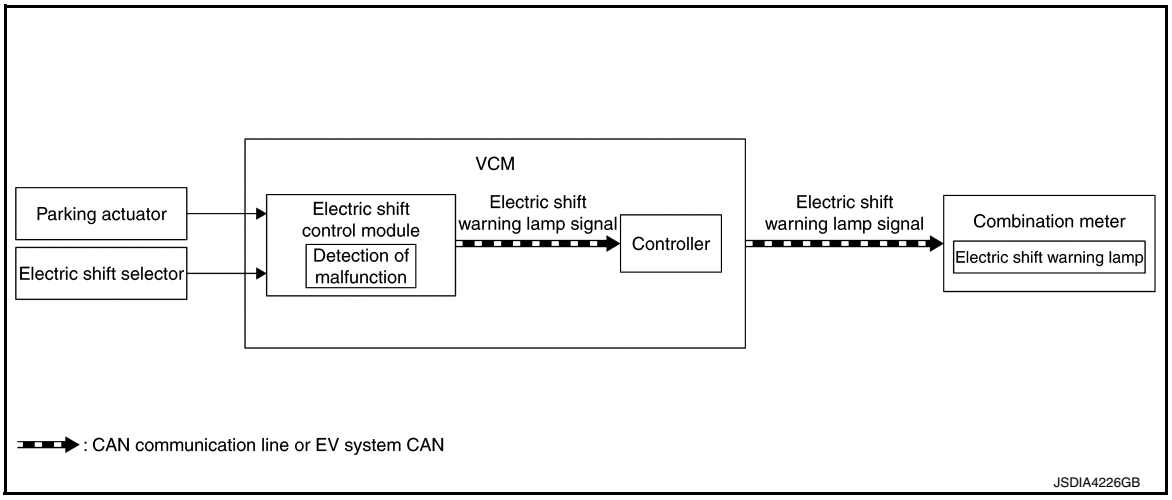
Applicable

Refer to MWI-31, "MASTER WARNING LAMP : System Description" for details of master warning lamp.

OPERATION AT COMBNATION METER CNA COMMUNICATION CUT-OFF OR UNUSUAL SIGNAL

For actions on CAN communications blackout in the combination meter, refer to MWI-64, "Fail-Safe".

SYSTEM DIAGRAM



SIGNAL PATH

- The electric shift control module transmits an electric shift warning lamp signal to the controller of VCM when detecting a malfunction in the electric shift system.
- VCM transmits that signal to combination meter.
- The combination meter turns ON the electric shift warning lamp when receiving an electric shift warning lamp signal.

LIGHTING CONDITION

- A malfunction is detected in the electric shift system.
- For the relationship between warning lamp and DTC, refer to TM-50, "DTC Index".

SHUTOFF CONDITION

Erase DTC

Electric Shift Warning Message

INFOID:0000000010639532

DESIGN/PURPOSE

Electric Shift Warning A

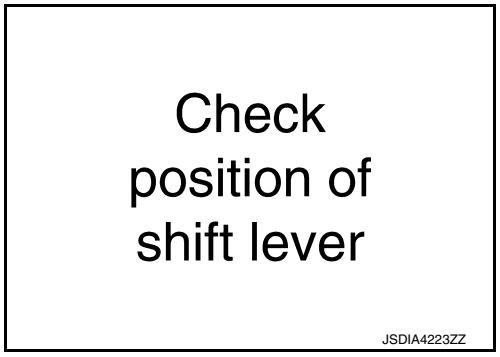
This message warns the driver that electric shift system is not normal.

Electric Shift Warning B

This message warns the driver that electric shift system is not normal.

Shift Position Warning

This message informs the driver that the selector lever is in between positions.



SYNCHRONIZATION WITH MASTER WARNING LAMP

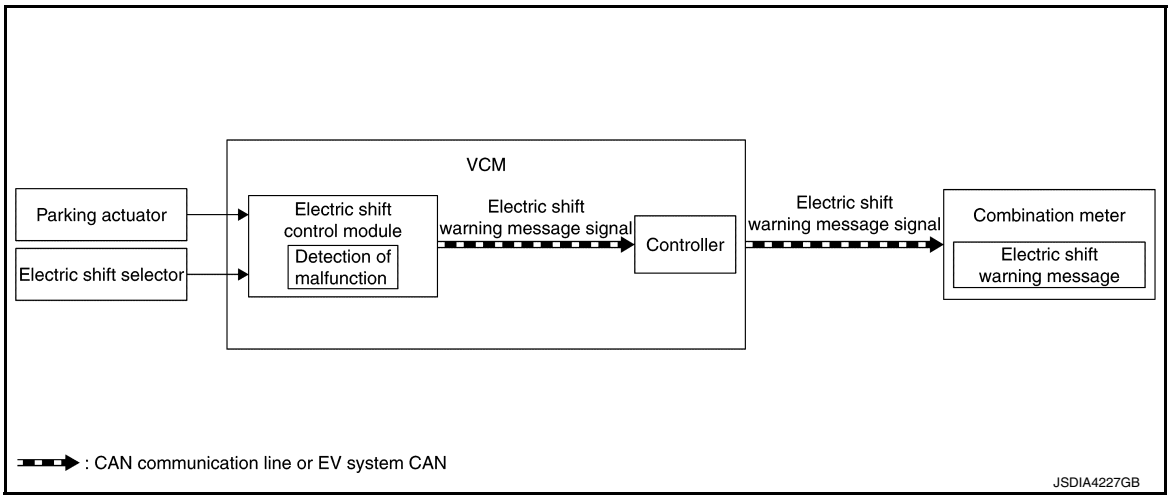
Applicable

Refer to MWI-31, "MASTER WARNING LAMP : System Description" for details of master warning lamp.

OPERATION AT COMBNATION METER CNA COMMUNICATION CUT-OFF OR UNUSUAL SIGNAL

For actions on CAN communications blackout in the combination meter, refer to MWI-64, "Fail-Safe".

SYSTEM DIAGRAM



SIGNAL PATH

- The electric shift control module transmits an electric shift warning lamp signal to the controller of VCM when detecting a malfunction in the electric shift system.
- VCM transmits that signal to combination meter.
- The combination meter indicates the each message when receiving an electric shift warning message signal.

WARNING/INDICATOR OPERATIONG CONDITION

Electric Shift Warning A
When the electric shift system detects DTC of master warning lamp (red).

Electric Shift Warning B
When the electric shift system detects DTC of master warning lamp (yellow).

Shift Position Warning
When selector lever is in between positions for 1 second.

WARNING/INDICATOR CANCEL CONDITION

Electric Shift Warning A
When any of the following conditions are satisfied.
- Erase DTC
- After operating the parking brake with the power switch ON, turn OFF the power switch.

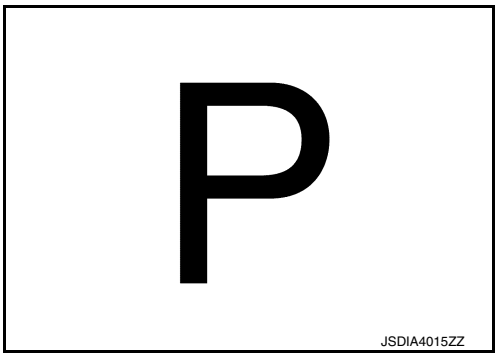
Electric Shift Warning B
Erase DTC

Shift Position Warning
Optimizing selector lever position

Shift Position Indicator

INFOID:0000000010639533

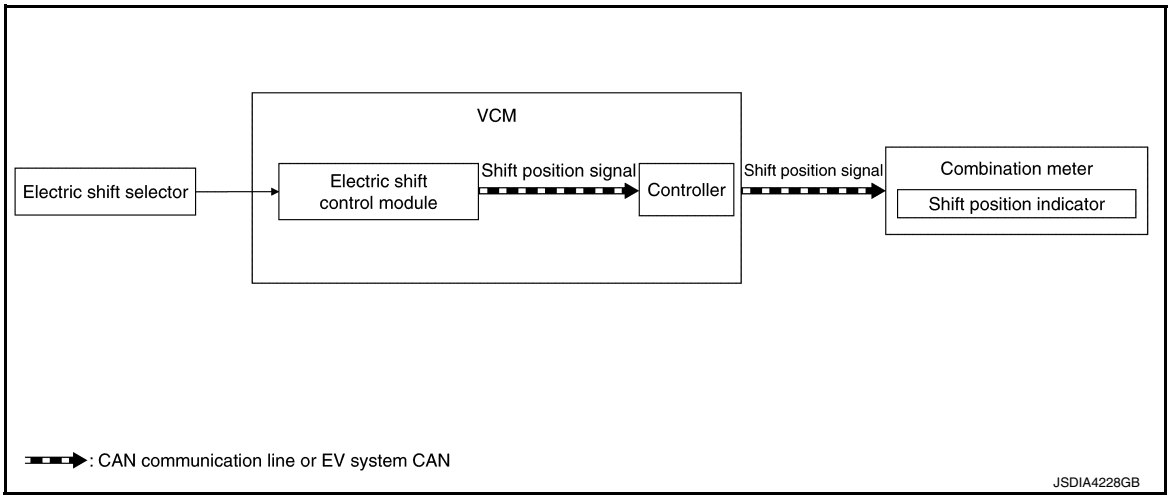
DESIGN/PURPOSE
The shift position indicator displays the shift position of transmission.



SYNCHRONIZATION WITH MASTER WARNING LAMP
Not applicable

OPERATION AT COMBNATION METER CNA COMMUNICATION CUT-OFF OR UNUSUAL SIGNAL
For actions on CAN communications blackout in the combination meter, refer to MWI-64, "Fail-Safe".

SYSTEM DIAGRAM



SIGNAL PATH

- The electric shift control module judges the shift position by the information from electric shift selector. Then electric shift control module transmits shift position signal to VCM.
- VCM transmits that signal to combination meter.
- The combination meter indicates the current shift position when receiving shift position signal.

WARNING/INDICATOR OPERATIONG CONDITION

Power switch: ON

WARNING/INDICATOR CANCEL CONDITION

Power switch: OFF

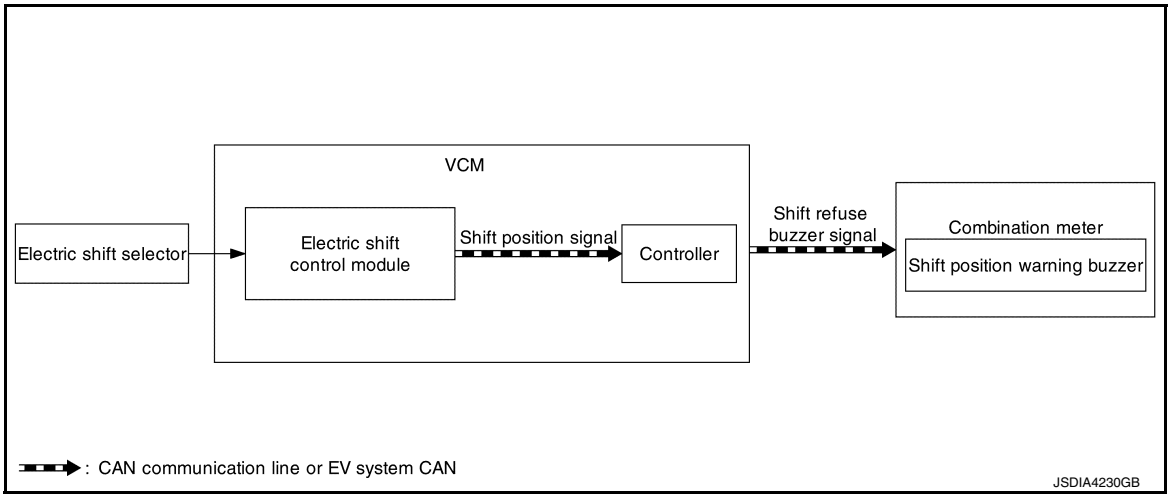
Shift Position Warning Buzzer

INFOID:0000000010639534

PURPOSE

The shift position warning buzzer warns the driver that the sift position does not change to the selected position.

SYSTEM DIAGRAM



SIGNAL PATH

- Electric shift control module and VCM judge that the shift position can be switched according to a signal transmitted from the electric control shift selector.
- When electric shift control module and VCM judge that the shift position cannot be switched, electric shift control module transmits a shift refuse buzzer signal to the combination meter.
- When receiving a shift refuse buzzer signal, the combination meter activates the shift position warning buzzer.

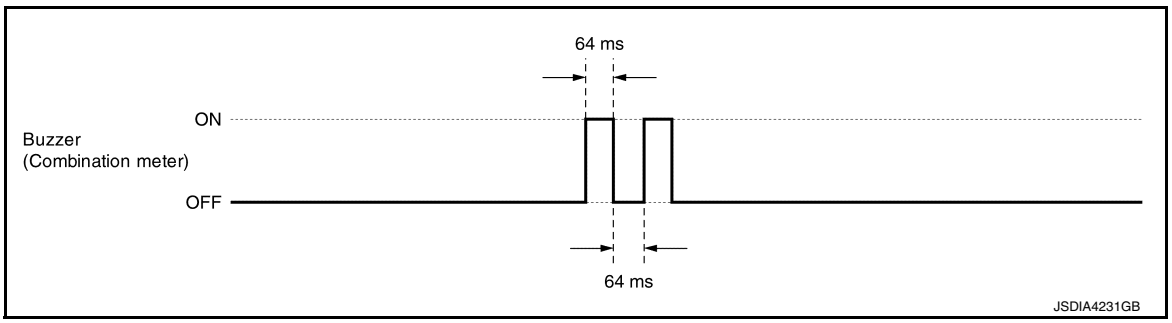
WARNING OPERATING CONDITION

When any of the following conditions are satisfied.
- When shifted from P position to other position while the power switch is ON.
- When shifted from P position to other position without depressing the brake pedal while the power switch is in READY.
- When operating the P position switch while driving at 5 km/h (4 MPH) or more.
- When shifted to R position while driving with the lever in D position.
- When shifted to D position while driving with the lever in R position.

WARNING CANCEL CONDITION

When falling outside the warning operating conditions.

SOUND SPECIFICATION



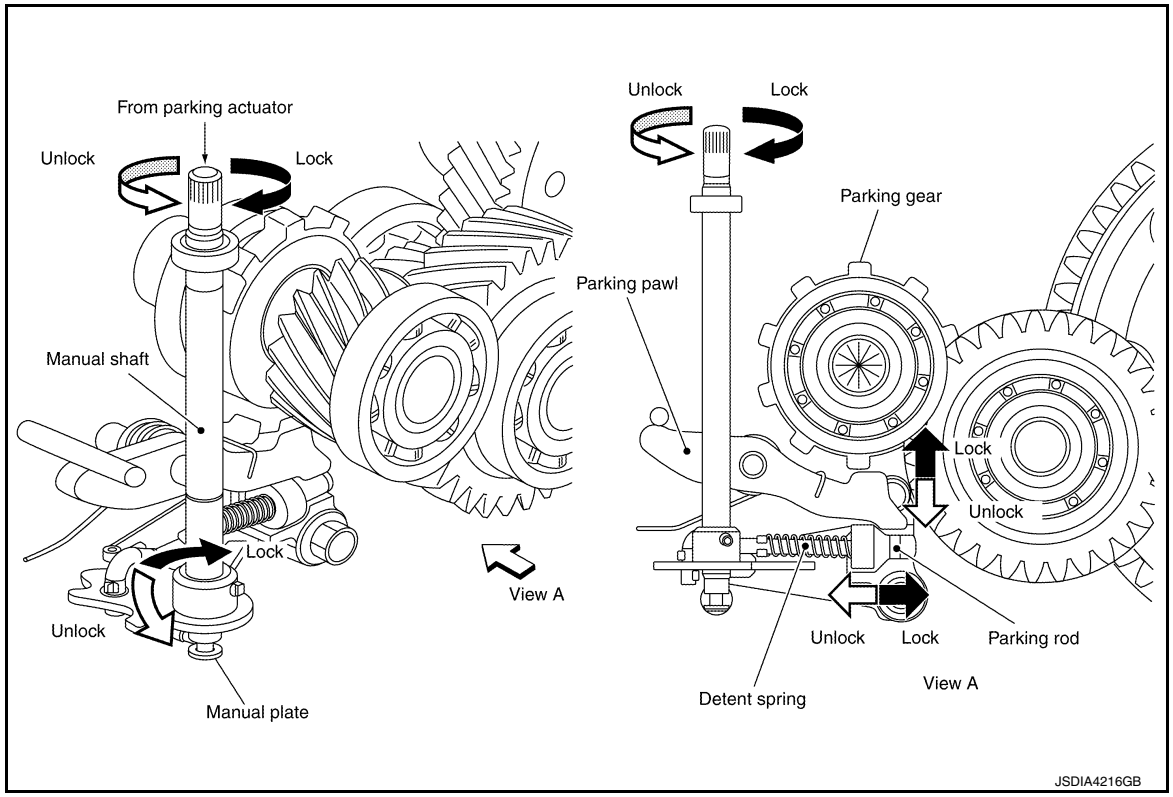
STRUCTURE AND OPERATION

Operating Principle

INFOID:0000000010639535

PARKING MECHANISM

- The parking mechanism consists of the manual shaft, manual plate, detent spring, parking rod, parking pawl and parking gear, and it is locked/unlocked by the operation of the parking actuator.
- If the parking actuator is operated by the signal from the electric shift control module, the manual shaft and manual plate that is mechanically connected to the parking actuator rotates sliding the parking rod. The sliding parking rod pushes up the parking pawl, which engages with the parking gear locking the parking mechanism.

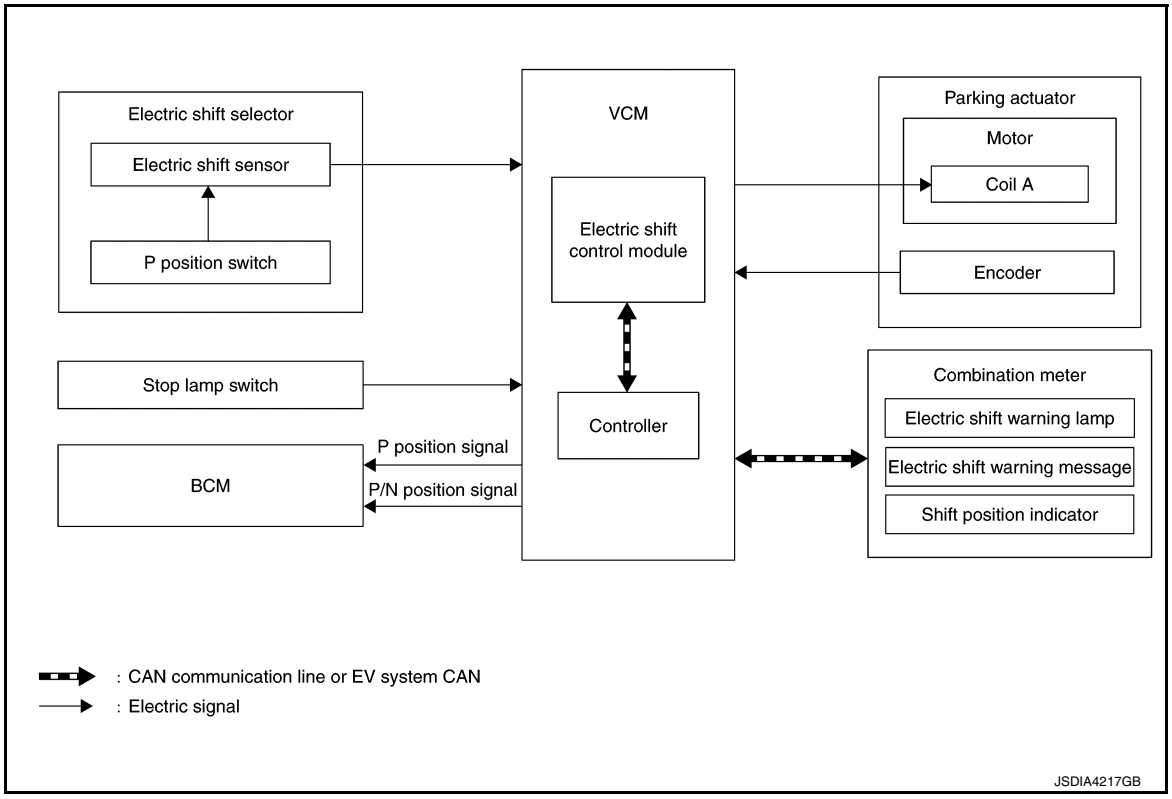


SYSTEM
ELECTRIC SHIFT SYSTEM
ELECTRIC SHIFT SYSTEM : System Description

INFOID:0000000010639536

- The electric shift system detects each shift position electrically. In addition, in P position, the electric shift system activates the parking actuator, according to electrical signals received from the P position switch and brings the vehicle into the parking state.
- In the event of a malfunction in the electric shift system, the shift position indicator (in the combination meter) turns OFF and only the selector indicator (in the electric shift selector area) indicates the shift position.
- In the event of a malfunction in the electric shift system, the system enters fail-safe mode. Refer to TM-49, "Fail-Safe".

SYSTEM DIAGRAM



ELECTRIC SHIFT SYSTEM : Fail-Safe

INFOID:0000000010639537

DTC	Vehicle behavior	
P0571	No impact to vehicle behavior	
P0705	When shifting to the R position and the D position, the reaction becomes slower and it takes approximately 1 second to complete shifting	
P0706	Shifting to the R position, N position and D position is prohibited	
P0780	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P1722	No impact to vehicle behavior	
P1802	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P1803	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited

DTC	Vehicle behavior	
P1804	No impact to vehicle behavior	
P1811	Automatic P position system is disabled	
P1895	No impact to vehicle behavior	
P1896	When shifting to the R position and the D position, the reaction becomes slower and it takes approximately 1 second to complete shifting	
P1897	No impact to vehicle behavior	
P1899	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P189A	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P189D	No impact to vehicle behavior	
P18A3	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P18A4	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P18A7	Shifting operation is prohibited	
P18A8	Pushing the P position switch does not switch the to the P position	
P18A9	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P18AB	Automatic P position system may be disabled	
P18AC	No impact to vehicle behavior	
P18AE	No impact to vehicle behavior	
P18AF	No impact to vehicle behavior	
P18B0	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P18B1	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P18B2	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
U1000	EV system CAN with VCM blocked	Shifting to the R position and the D position is prohibited
	Other than the above	No impact to vehicle behavior
U1010	Shifting to the R position and the D position is prohibited	
U1086	No impact to vehicle behavior	

ELECTRIC SHIFT SYSTEM : Protection Control

INFOID:0000000010639538

If shifting from the P position to another position and shifting from another position to the P position are repeated within a short period of time, it may become impossible to shift for system protection. In this case, the system automatically returns to the normal state allowing shifting after approximately 10 seconds.

WARNING/INDICATOR/CHIME LIST

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

INFOID:0000000010639539

Name	Design	Arrangement/Function
Electric shift warning lamp		Regarding the arrangement. Refer to MWI-6, "METER SYSTEM : Combination Meter".
		Regarding the function. Refer to TM-35, "Electric Shift Warning Lamp".

Name	Design	Arrangement/Function
Master warning lamp		Regarding the arrangement. Refer to MWI-6, "METER SYSTEM : Combination Meter". Regarding the function. Refer to MWI-31, "MASTER WARNING LAMP : System Description".

WARNING/INDICATOR/CHIME LIST : Warning/Indicator (On Information Display)

INFOID:0000000010639540

Name	Function
Shift position indicator	Refer to TM-38, "Shift Position Indicator".
Electric shift warning message	Refer to TM-36, "Electric Shift Warning Message".

WARNING/INDICATOR/CHIME LIST : Warning Chime

INFOID:0000000010639541

Name	Function
Shift position warning buzzer	Refer to TM-39, "Shift Position Warning Buzzer".

DIAGNOSIS SYSTEM (ELECTRIC SHIFT)

DIAGNOSIS DESCRIPTION

DIAGNOSIS DESCRIPTION : System Description

INFOID:0000000010639542

This is an on-board trouble diagnosis system which automatically detects malfunction. Detected malfunction is memorized in ECU as DTC. Diagnosis information can be confirmed using CONSULT.

DIAGNOSIS DESCRIPTION : DTC

INFOID:0000000010639543

- DTC (P0571, P0705, P0780, etc.) is specified by SAE J2012/ISO 15031-6.
- Electric shift control module memorizes DTC when malfunction is detected. It can memorize plural DTCs.

DIAGNOSIS DESCRIPTION : Counter System

INFOID:0000000010639544

Counter system counts up at every operation of power switch from OFF to ON under condition that the same malfunction is not detected. On the other hand, if the same DTC as memorized one is detected again, the count is reset and the counter system counts up again from “0”.

CONSULT Function

INFOID:0000000010639545

APPLICABLE ITEMS

Mode	Function description
All DTC Reading	Display all DTCs or diagnostic items that all ECUs are recording and judging
Self Diagnostic Results	Retrieve DTC from ECU and display diagnostic items.
Data Monitor	Monitor the input/output signal of the control unit in real time.
CAN Diagnosis	This mode displays a network diagnosis result about CAN by diagram.
CAN Diagnosis Support Monitor	It monitors the status of CAN communication.
ECU Identification	Display the ECU identification number (part number etc.) of the selected system.

SELF DIAGNOSTIC RESULTS

Display Item List
Refer to TM-50, "DTC Index".

How to Read DTC
DTC is displayed on “Self Diagnostic results” of CONSULT.
When DTC is currently detected, “CRNT” is displayed. If “PAST” is displayed, it shows a malfunction occurred in the past.The trip number of drive without malfunction of concerned DTC can be confirmed with “IGN counter” inside “FFD”.

How to Erase DTC
NOTE:
If the power switch is kept ON after repair operation, operate the power switch to OFF. Operate the power switch to ON again after waiting at least 10 seconds.
1. Touch “SHIFT” of CONSULT.
2. Touch “Self Diagnostic Result”.
3. Touch “Erase”. (DTC memorized in electric shift control module is erased.)

IGN Counter
IGN counter is displayed in “FFD”. It displays the number of operations of power switch from OFF to ON after DTC recovery to normal.
- If malfunction (DTC) is currently detected, “0” is displayed.
- The displayed number counts up at each operation of power switch from OFF to ON after recovery to normal, such as 1 → 2 → 3...38 → 39.
- If the number of operation exceeds 39, the displayed number will be fixed at “39” until the self diagnosis result is erased.

DATA MONITOR

Monitored item (Unit)	Remarks
SHIFT SENSOR 1	Displays the signal value of electric shift sensor No. 1
SHIFT SENSOR 2	Displays the signal value of electric shift sensor No. 2
SHIFT SENSOR 3	Displays the signal value of electric shift sensor No. 3
SHIFT SENSOR 4	Displays the signal value of electric shift sensor No. 4
SHIFT SENSOR 5	Displays the signal value of electric shift sensor No. 5
SHIFT SENSOR 6	Displays the signal value of electric shift sensor No. 6
P POSITION SWITCH 1	Displays the signal value of P position switch No. 1
P POSITION SWITCH 2	Displays the signal value of P position switch No. 2
BRAKE SWITCH	Displays the signal value of the stop lamp switch.
PARKING ACTUATOR RELAY A	Displays the command value from the electric shift control module to parking actuator relay A
P/N POSITION CONDITION	Displays the P position and N position status recognized by the electric shift control module
NOT P POSITION CONDITION	Displays a status other than the P position recognized by the electric shift control module
IGNITION SWITCH	Displays the input status of the power switch
BRAKE SWITCH (CAN)	Displays the signal value of the stop lamp switch received from VCM
MAIN POWER VOLTAGE (V)	Monitors the voltage value of the main power supply for the electric shift control module and displays the monitored value
MOTOR A U VOLTAGE (V)	Displays the motor A U-phase terminal voltage A/D converted value
MOTOR A V VOLTAGE (V)	Displays the motor A V-phase terminal voltage A/D converted value
MOTOR A W VOLTAGE (V)	Displays the motor A W-phase terminal voltage A/D converted value
RANGE POSITION	Displays the position recognized by the electric shift control module
SHIFT POSITION JUDGMENT	Displays the shift input position recognized by the electric shift control module
TARGET SHIFT POSITION	Displays the target shift position recognized by the electric shift control module
ECO MODE REQUEST	Displays the ECO mode status recognized by the electric shift control module
ACTUAL P POSITION	Displays the P position status recognized by the electric shift control module
VEHICLE SPEED (VDC) (km/h or mph)	Displays the signal value of the vehicle speed received from ABS actuator control unit
VEHICLE SPEED (VCM) (km/h or mph)	Displays the vehicle speed signal value received from VCM
E-SHIFT WARNING LAMP	Displays the electric shift warning lamp signal status transmitted from the electric shift control module
E-SHIFT WARNING MSG	Displays the master warning message status transmitted from the electric shift control module
ECU POWER 1 (V)	Monitors the power supply of electric shift control module and displays the monitored value
ECU POWER 2 (V)	Monitors the power supply of electric shift control module and displays the monitored value
SHIFT SENSOR 1 VOLTAGE (V)	Displays the voltage value of electric shift sensor No. 1
SHIFT SENSOR 2 VOLTAGE (V)	Displays the voltage value of electric shift sensor No. 2
SHIFT SENSOR 3 VOLTAGE (V)	Displays the voltage value of electric shift sensor No. 3
SHIFT SENSOR 4 VOLTAGE (V)	Displays the voltage value of electric shift sensor No. 4
SHIFT SENSOR 5 VOLTAGE (V)	Displays the voltage value of electric shift sensor No. 5
SHIFT SENSOR 6 VOLTAGE (V)	Displays the voltage value of electric shift sensor No. 6
P POSITION SW 1 VOLTAGE (V)	Displays the voltage value of P position switch No. 1
P POSITION SW 2 VOLTAGE (V)	Displays the voltage value of P position switch No. 2

ECU DIAGNOSIS INFORMATION

ELECTRIC SHIFT CONTROL MODULE

Reference Value

INFOID:0000000010639546

CONSULT DATA MONITOR STANDARD VALUE

Monitor item	Condition	Value / Status (Approx.)
SHIFT SENSOR 1	Selector lever is held in R position	ON
	Other than the above	OFF
SHIFT SENSOR 2	Selector lever is held in R and N positions	ON
	Other than the above	OFF
SHIFT SENSOR 3	Selector lever is held in H (Home) and N positions	ON
	Other than the above	OFF
SHIFT SENSOR 4	Selector lever is held in N and D positions	ON
	Other than the above	OFF
SHIFT SENSOR 5	Selector lever is held in D position	ON
	Other than the above	OFF
SHIFT SENSOR 6	Selector lever in H (Home) position	ON
	Other than the above	OFF
P POSITION SWITCH 1	P position switch is pushed	ON
	Other than the above	OFF
P POSITION SWITCH 2	P position switch is pushed	OFF
	Other than the above	ON
BRAKE SWITCH	Brake pedal is depressed	ON
	Brake pedal is released	OFF
PARKING ACTUATOR RELAY A	Power switch is ON	ON
P/N POSITION CONDITION	Selector lever in P and N positions	ON
	Other than the above	OFF
NOT P POSITION CONDITION	Selector lever in P position	OFF
	Other than the above	ON
IGNITION SWITCH	Power switch is ON	ON
BRAKE SWITCH (CAN)	Brake pedal is depressed	ON
	Brake pedal is released	OFF
MAIN POWER VOLTAGE	Power switch is ON	9 – 16 V
MOTOR A U VOLTAGE	No shifting	9 – 16 V
MOTOR A V VOLTAGE	No shifting	9 – 16 V
MOTOR A W VOLTAGE	No shifting	9 – 16 V
RANGE POSITION	Selector lever in P position	P
	Selector lever in R position	R
	Selector lever in N position	N
	Selector lever in D position	D
SHIFT POSITION JUDGMENT	Selector lever in P position	P
	Selector lever in R position	R
	Selector lever in N position	N
	Selector lever in D position	D

Monitor item	Condition	Value / Status (Approx.)
TARGET SHIFT POSITION	Selector lever in P position	P
	Selector lever in R position	R
	Selector lever in N position	N
	Selector lever in D position	D
ECO MODE REQUEST	During ECO mode driving	ECO
	Other than the above	NORML
ACTUAL P POSITION	Selector lever in P position	P
	Other than the above	NOT P
VEHICLE SPEED (VDC)	During driving	Almost same as the speedometer display
VEHICLE SPEED (VCM)	During driving	Almost same as the speedometer display
E-SHIFT WARNING LAMP	Electric shift warning lamp: ON	ON
	Electric shift warning lamp: OFF	OFF
E-SHIFT WARNING MSG	Warning message is not displayed	—
	Warning message: “When Parked Apply Parking Brake”	MSG1
	Warning message: “T/M system malfunction visit dealer”	MSG2
	Warning message: “Check position of shift lever”	MSG3
ECU POWER 1	Power switch is ON	9 – 16 V
ECU POWER 2	Power switch is ON	9 – 16 V
SHIFT SENSOR 1 VOLTAGE	Selector lever is held in R and N positions	9 – 16 V
	Other than the above	0 V
SHIFT SENSOR 2 VOLTAGE	Selector lever is held in H (Home) and N positions	9 – 16 V
	Other than the above	0 V
SHIFT SENSOR 3 VOLTAGE	Selector lever is held in N and D positions	9 – 16 V
	Other than the above	0 V
SHIFT SENSOR 4 VOLTAGE	Selector lever is held in D position	9 – 16 V
	Other than the above	0 V
SHIFT SENSOR 5 VOLTAGE	Selector lever in H (Home) position	9 – 16 V
	Other than the above	0 V
SHIFT SENSOR 6 VOLTAGE	Selector lever is held in R and N positions	9 – 16 V
	Other than the above	0 V
P POSITION SW 1 VOLTAGE	P position switch is pushed	9 – 16 V
	Other than the above	0 V
P POSITION SW 2 VOLTAGE	P position switch is pushed	0 V
	Other than the above	9 – 16 V

TERMINAL LAYOUT

Refer to EVC-85, "Reference Value".

PHYSICAL VALUES

Refer to EVC-85, "Reference Value".

Fail-Safe

INFOID:0000000010639547

DTC	Vehicle behavior	
P0571	No impact to vehicle behavior	
P0705	When shifting to the R position and the D position, the reaction becomes slower and it takes approximately 1 second to complete shifting	
P0706	Shifting to the R position, N position and D position is prohibited	
P0780	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P1722	No impact to vehicle behavior	
P1802	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P1803	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P1804	No impact to vehicle behavior	
P1811	Automatic P position system is disabled	
P1895	No impact to vehicle behavior	
P1896	When shifting to the R position and the D position, the reaction becomes slower and it takes approximately 1 second to complete shifting	
P1897	No impact to vehicle behavior	
P1899	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P189A	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P189D	No impact to vehicle behavior	
P18A3	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P18A4	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P18A7	Shifting operation is prohibited	
P18A8	Pushing the P position switch does not switch the to the P position	
P18A9	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P18AB	Automatic P position system may be disabled	
P18AC	No impact to vehicle behavior	
P18AE	No impact to vehicle behavior	
P18AF	No impact to vehicle behavior	
P18B0	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P18B1	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
P18B2	Malfunction in P position	Shifting from the P position to another position is prohibited
	Malfunction in position other than P	Shifting to the P position is prohibited
U1000	EV system CAN with VCM blocked	Shifting to the R position and the D position is prohibited
	Other than the above	No impact to vehicle behavior

DTC	Vehicle behavior
U1010	Shifting to the R position and the D position is prohibited
U1086	No impact to vehicle behavior

Protection Control

INFOID:0000000010639548

If shifting from the P position to another position and shifting from another position to the P position are repeated within a short period of time, it may become impossible to shift for system protection. In this case, the system automatically returns to the normal state allowing shifting after approximately 10 seconds.

DTC Inspection Priority Chart

INFOID:0000000010639549

If some DTCs are displayed at the same time, perform inspections one by one based on the priority as per the following list.

Priority	Detected items (DTC)	Reference
1	P0706 TRANSMISSION RANGE SENSOR A	TM-71
	P0780 SHIFT ERROR	TM-74
	P1802 CONTROL MODULE	TM-77
	P1803 CONTROL MODULE	TM-78
	P1897 ENCODER ERROR	TM-86
	P18A3 CONTROL MODULE	TM-95
	P18A4 CONTROL MODULE	TM-96
	P18A7 SHIFT SIGNAL OFF	TM-97
	P18A8 P POSITION SWITCH	TM-101
	P18A9 PARKING ACTUATOR FUNCTION	TM-103
	P18AB IGNITION SWITCH	TM-104
2	P0571 BRAKE SWITCH A	TM-66
	P0705 TRANSMISSION RANGE SENSOR A	TM-68
	P1722 VEHICLE SPEED	TM-75
	P1804 CONTROL MODULE	TM-79
	P1811 ELECTRIC SHIFT POWER SUPPLY RELAY	TM-80
	P1895 MOTOR SPEED	TM-81
	P1896 SHIFT POWER SUPPLY	TM-82
	P1899 MOTOR A	TM-88
	P189A MOTOR A	TM-90
	P189D BACK UP VOLTAGE	TM-93
	P18AC PARKING ACTUATOR RELAY A	TM-106
	P18AE STUCK IN SHIFT	TM-108
	P18AF CONTROL MODULE	TM-109
	P18B0 CONTROL MODULE	TM-110
	P18B1 CONTROL MODULE	TM-111
	P18B2 CONTROL MODULE	TM-112
	U1000 CAN COMM CIRCUIT	TM-113
	U1010 CONTROL UNIT (CAN)	TM-114
	U1086 CAN ERROR	TM-115

DTC Index

INFOID:0000000010639550

NOTE:

If some DTCs are displayed at the same time, perform inspections one by one based on the priority as per the following list. Refer to TM-50, "DTC Inspection Priority Chart".

○: ON

DTC*1 CONSULT	Item name (CONSULT screen terms)	Electric shift warning lamp*2	Master warning lamp*3 Yellow	Master warning lamp*3 Red	Electric shift warning message*4 type	Reference
P0571	BRAKE SWITCH A	—	○	—	B	TM-66
P0705	TRANSMISSION RANGE SENSOR A	—	○	—	B	TM-68
P0706	TRANSMISSION RANGE SENSOR A	○ (Vehicle stopped)	○ (During driving)	○ (After stop)	During driving: B After stop: A	TM-71
P0780	SHIFT ERROR	○	—	○	A	TM-74
P1722	VEHICLE SPEED	—	○	—	B	TM-75
P1802	CONTROL MODULE	○	—	○	A	TM-77
P1803	CONTROL MODULE	○	—	○	A	TM-78
P1804	CONTROL MODULE	○	—	○	A	TM-79
P1811	ELECTRIC SHIFT POWER SUPPLY RELAY	○ (Vehicle stopped)	○ (During driving)	○ (After stop)	During driving: B After stop: A	TM-80
P1895	MOTOR SPEED	—	○	—	B	TM-81
P1896	SHIFT POWER SUPPLY	—	○	—	B	TM-82
P1897	ENCODER ERROR	○ (Vehicle stopped)	○ (During driving)	○ (After stop)	During ready: B Other than ready: A	TM-86
P1899	MOTOR A	○	—	○	A	TM-88
P189A	MOTOR A	○ (Vehicle stopped)	○ (During driving)	○ (After stop)	During driving: B After stop: A	TM-90
P189D	BACK UP VOLTAGE	—	○	—	B	TM-93
P18A3	CONTROL MODULE	○	—	○	A	TM-95
P18A4	CONTROL MODULE	○	—	○	A	TM-96
P18A7	SHIFT SIGNAL OFF	○ (Vehicle stopped)	○ (During driving)	○ (After stop)	During driving: B After stop: A	TM-97
P18A8	P POSITION SWITCH	○ (Vehicle stopped)	○ (During driving)	○ (After stop)	During driving: B After stop: A	TM-101
P18A9	PARKING ACTUATOR FUNCTION	○	—	○	A	TM-103
P18AB	IGNITION SWITCH	○ (Vehicle stopped)	○ (During driving)	○ (After stop)	During driving: B After stop: A	TM-104
P18AC	PARKING ACTUATOR RELAY A	—	○	—	B	TM-106
P18AE	STUCK IN SHIFT	—	○	—	B	TM-108
P18AF	CONTROL MODULE	—	○	—	B	TM-109
P18B0	CONTROL MODULE	○ (Vehicle stopped)	○ (During driving)	○ (After stop)	During driving: B After stop: A	TM-110

DTC*1	Item name (CONSULT screen terms)	Electric shift warning lamp*2	Master warning lamp*3		Electric shift warning message*4 type	Reference
CONSULT			Yellow	Red		
P18B1	CONTROL MODULE	○	—	○	A	TM-111
P18B2	CONTROL MODULE	○	—	○	A	TM-112
U1000	CAN COMM CIRCUIT	—	○	—	B	TM-113
U1010	CONTROL UNIT (CAN)	—	○	—	B	TM-114
U1086	CAN ERROR	—	○	—	B	TM-115

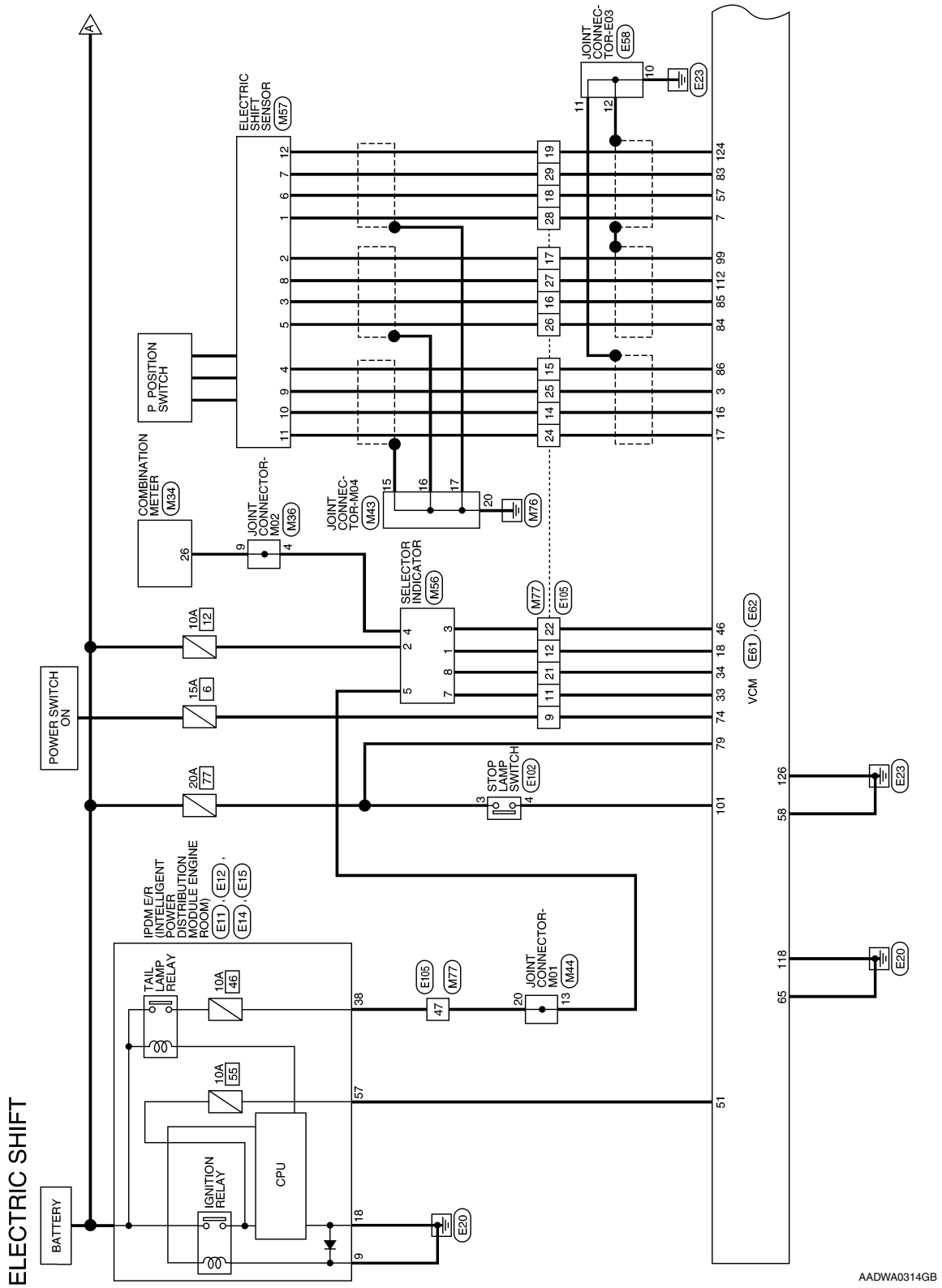
*1: These numbers are prescribed by SAE J2012/ISO 15031-6.
*2: Refer to TM-35, "Electric Shift Warning Lamp".
*3: Refer to MWI-31, "MASTER WARNING LAMP : System Description".
*4: Refer to TM-36, "Electric Shift Warning Message".

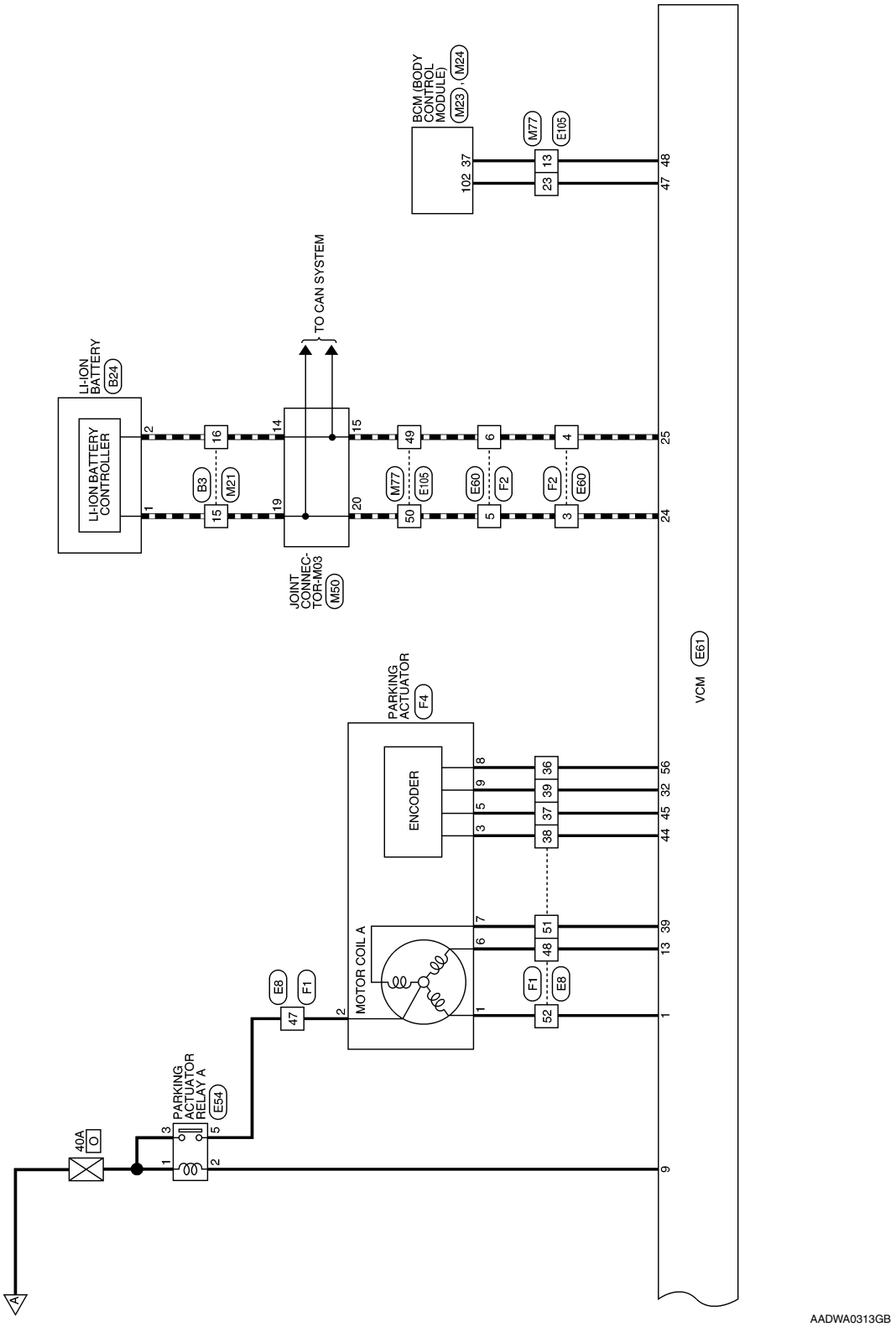
WIRING DIAGRAM

ELECTRIC SHIFT SYSTEM

Wiring Diagram

INFOID:0000000010639551





AADWA0313GB

ELECTRIC SHIFT SYSTEM CONNECTORS

Connector No.	M21
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
15	L	–
16	G	–

Connector No.	M23
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE

H.S.

71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110

Terminal No.	Color of Wire	Signal Name
102	BG	–

Connector No.	M24
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
37	V	–

Connector No.	M34
Connector Name	COMBINATION METER
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
26	B	–

Connector No.	M36
Connector Name	JOINT CONNECTOR-M02
Connector Color	GRAY

H.S.

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

Terminal No.	Color of Wire	Signal Name
4	B	–
9	B	–

Connector No.	M43
Connector Name	JOINT CONNECTOR-M04
Connector Color	GRAY

H.S.

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

Terminal No.	Color of Wire	Signal Name
15	B	–
16	B	–
17	B	–
20	B	–

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Connector No.	M44
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY

H.S.

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

Terminal No.	Color of Wire	Signal Name
13	W	–
20	W	–

Connector No.	M50
Connector Name	JOINT CONNECTOR-M03
Connector Color	PINK

H.S.

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

Terminal No.	Color of Wire	Signal Name
14	G	–
15	G	–
19	L	–
20	L	–

Connector No.	M56
Connector Name	SELECTOR INDICATOR
Connector Color	WHITE

H.S.

1	2	3	4
5	6	7	8

Terminal No.	Color of Wire	Signal Name
1	Y	–
2	R	–
3	B	–
4	B	–
5	W	–
7	L	–
8	P	–

Connector No.	M57
Connector Name	ELECTRONIC SHIFT SENSOR
Connector Color	WHITE

H.S.

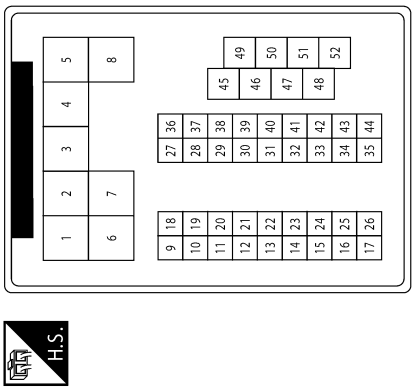
1	2	3	4	5	6
7	8	9	10	11	12

Terminal No.	Color of Wire	Signal Name
1	B	–
2	R	–
3	W	–
4	G	

Terminal No.	Color of Wire	Signal Name
5	G	–
6	G	–
7	R	–
8	B	–
9	W	–
10	R	–
11	B	–
12	W	–

AADIA0660GB

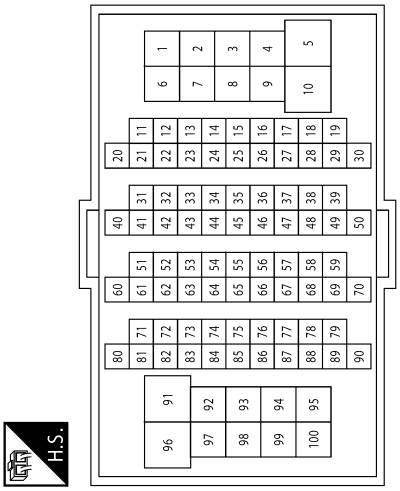
Connector No.	E8
Connector Name	WIRE TO WIRE
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
36	G	–
37	V	–
38	P	–
39	B	–
47	G	–
48	SB	–
51	R	–
52	B	–

Terminal No.	Color of Wire	Signal Name
18	G	–
19	W	–
21	P	–
22	B	–
23	BG	–
24	B	–
25	W	–
26	G	–
27	B	–
28	B	–
29	R	–
47	W	–
49	G	–
50	L	–

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
9	G	–
11	L	–
12	Y	–
13	V	–
14	R	–
15	G	–
16	W	–
17	R	–

AADIA0661GB

Connector No.	E11
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

H.S.

11	10	9
14	13	12

Terminal No.	Color of Wire	Signal Name
9	B	POWER GROUND

Connector No.	E12
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

H.S.

17	16	15
22	21	20	19	18

Terminal No.	Color of Wire	Signal Name
18	B	SGND

Connector No.	E14
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

H.S.

39	38	37	36	35
46	45	44	43	42	41	40

Terminal No.	Color of Wire	Signal Name
38	R	TAIL 1 (WITH SOLAR CELL)
38	LG	TAIL 1 (WITHOUT SOLAR CELL)

Connector No.	E15
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.

53	52	51	50	49	48	47
62	61	60	59	58	57	56	55	54

Terminal No.	Color of Wire	Signal Name
57	R	A/T ECU IGN

Connector No.	E54
Connector Name	PARKING ACTUATOR RELAY A
Connector Color	BLUE

H.S.

3	
1	2
5	

Terminal No.	Color of Wire	Signal Name
1	L	–
2	SB	–
3	L	–
5	G	–

Connector No.	E58
Connector Name	JOINT CONNECTOR-E03
Connector Color	BLACK

H.S.

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

Terminal No.	Color of Wire	Signal Name
10	B/R	–
11	SHIELD	–
12	SHIELD	–

AADIA0662GB

Terminal No.	Color of Wire	Signal Name
44	P	ENCODER SIGNAL B
45	V	ENCODER SIGNAL A
46	B	P POSITION OUTPUT (SELECT INDICATOR)
47	LG	P/N POSITION SIGNAL
48	W	P POSITION SIGNAL
51	R	POWER ON POWER SUPPLY
56	G	ENCODER GROUND
57	O	ELECTRIC SHIFT SENSOR GND 1
58	B/R	VCM GROUND
65	B	VCM GROUND

Connector No.	E61
Connector Name	VCM
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	MOTOR COIL A U-PHASE
3	W	ELECTRIC SHIFT SENSOR NO. 5
7	O/L	ELECTRIC SHIFT SENSOR POWER SUPPLY 1
9	S B	PARKING ACTUATOR RELAY A
13	S B	MOTOR COIL A V-PHASE
16	R	ELECTRIC SHIFT SENSOR NO. 3
17	B	ELECTRIC SHIFT SENSOR NO. 1
18	Y	R POSITION OUTPUT (SELECT INDICATOR)
24	L	EV SYSTEM CAN-H
25	G	EV SYSTEM CAN-L
32	B	VENC
33	L	N POSITION OUTPUT (SELECT INDICATOR)
34	R	D POSITION OUTPUT (SELECT INDICATOR)
39	R	MOTOR COIL A W-PHASE

Connector No.	E60
Connector Name	WIRE TO WIRE
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
3	L	–
4	G	–
5	L	–
6	G	–

AADIA0663GB

Connector No.	E62
Connector Name	VCM
Connector Color	BROWN

H.S.

Terminal No.	Color of Wire	Signal Name
74	G	POWER ON POWER SUPPLY
79	R	12V BATTERY POWER SUPPLY
83	W	ELECTRIC SHIFT SENSOR POWER SUPPLY 2
84	W	ELECTRIC SHIFT SENSOR NO. 2
85	G	ELECTRIC SHIFT SENSOR NO. 4
86	G	ELECTRIC SHIFT SENSOR NO. 6
99	R	P POSITION SW NO. 1
101	P	STOP LAMP SWITCH
112	B	P POSITION SW NO. 2
118	B	VCM GROUND
124	W/L	ELECTRIC SHIFT SENSOR GND 2
126	B/R	VCM GROUND

Connector No.	E102
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE

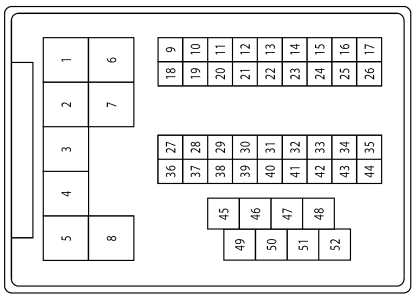
H.S.

Terminal No.	Color of Wire	Signal Name
3	R	–
4	P	–

AADIA0719GB

Connector No.	F1
Connector Name	WIRE TO WIRE
Connector Color	BLACK

H.S.

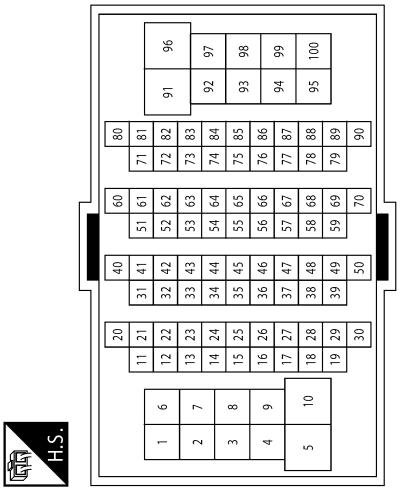


Terminal No.	Color of Wire	Signal Name
36	G	–
37	O	–
38	W	–
39	R	–
47	G	–
48	SB	–
51	R	–
52	B	–

Terminal No.	Color of Wire	Signal Name
18	O	–
19	W/L	–
21	R	–
22	B	–
23	LG	–
24	B	–
25	W	–
26	W	–
27	B	–
28	O/L	–
29	W	–
47	LG	–
49	L	–
50	G	–

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
9	G	–
11	L	–
12	Y	–
13	W	–
14	R	–
15	G	–
16	G	–
17	R	–

AADIA0753GB

Terminal No.	Color of Wire	Signal Name
4	–	–
5	O	–
6	SB	–
7	LG	–
8	G	–
9	–	–
10	–	–

Connector No.	F4
Connector Name	PARKING ACTUATOR
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	–
2	G	–
3	W	–

Connector No.	B24
Connector Name	LI-ION BATTERY
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	–
2	G	–

Connector No.	F2
Connector Name	WIRE TO WIRE
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
3	L	–
4	G	–
5	L	–
6	G	–

Connector No.	B3
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
15	L	–
16	G	–

AADIA0754GB

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Diagnosis Flow

INFOID:0000000010639552

1.OBTAIN INFORMATION ABOUT SYMPTOM

Refer to TM-64, "Question sheet" and interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred) as much as possible when the customer brings in the vehicle.

>> GO TO 2.

2.CHECK DTC IN VCM

1. Check DTC in VCM.
2. Check related service bulletins for information.

Are any DTCs detected?

YES >> Check the DTC. Refer to EVC-103, "DTC Index".
NO >> GO TO 3.

3.CHECK DTC IN ELECTRIC SHIFT

1. Before checking the malfunction, check whether any DTC exists.
2. If DTC exists, perform the following operations.

- Record the DTC and freeze frame data. (Print out the data using CONSULT and affix them to the Work Order Sheet.)
- Erase DTCs.
- Check the relationship between the cause that is clarified with DTC and the malfunction information described by the customer.

3. Check the information of related service bulletins and others also.

Do malfunction information and DTC exist?

Malfunction information and DTC exists. >>GO TO 4.
Malfunction information exists, but no DTC. >>GO TO 5.
No malfunction information, but DTC exists. >>GO TO 6.

4.REPRODUCE MALFUNCTION SYMPTOM

Check any malfunction described by a customer, except those with DTC on the vehicle.
Also investigate whether the symptom is a fail-safe or normal operation. Refer to TM-49, "Fail-Safe".
When a malfunction symptom is reproduced, the question sheet is effective. Refer to TM-64, "Question sheet".
Verify the relationship between the symptom and the conditions in which the malfunction described by the customer occurs.

>> GO TO 6.

5.REPRODUCE MALFUNCTION SYMPTOM

Check the malfunction described by the customer on the vehicle.
Also investigate whether the symptom is a fail-safe or normal operation. Refer to TM-49, "Fail-Safe".
When a malfunction symptom is reproduced, the question sheet is effective. Refer to TM-64, "Question sheet".
Verify the relationship between the symptom and the conditions in which the malfunction described by the customer occurs.

>> GO TO 8.

6.PERFORM “DTC CONFIRMATION PROCEDURE”

Perform “DTC CONFIRMATION PROCEDURE” of the appropriate DTC to check if DTC is detected again.
Refer to TM-50, "DTC Inspection Priority Chart" when multiple DTCs are detected, and then determine the order for performing the diagnosis.

NOTE:
If no DTC is detected, refer to the freeze frame data.

Is any DTC detected?

YES >> GO TO 7.
NO >> Check according to GI-53, "Intermittent Incident".

7. REPAIR OR REPLACE THE MALFUNCTIONING PARTS

Repair or replace the detected malfunctioning parts.
Reconnect parts or connector after repairing or replacing, and then erase DTC if necessary.

>> GO TO 8.

8. FINAL CHECK

Perform “DTC CONFIRMATION PROCEDURE” again to make sure that the repair is correctly performed.
Check that malfunctions are not reproduced when obtaining the malfunction information from the customer, referring to the symptom inspection result in step 4 or 5.

Is DTC or malfunction symptom reproduced?

YES >> GO TO 2.
NO >> Before delivering the vehicle to the customer, make sure that DTC is erased.

Question sheet

INFOID:0000000010639553

DESCRIPTION

By understanding those conditions properly, a quick and exact diagnosis can be achieved.
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 the concerns carefully. In order to systemize all the information for the diagnosis, prepare the question sheet referring to the question points.

KEY POINTS

WHAT ..... Vehicle & engine model
WHEN ..... Date, Frequencies
WHERE..... Road conditions
HOW ..... Operating conditions, Weather conditions, Symptoms

SEF907L

WORKSHEET SAMPLE

Question Sheet

Customer name MR/MS		Motor No.		Manuf. Date		
		Incident Date		VIN		
		Model & Year		In Service Date		
		Mileage	km / Mile			
Symptoms		☐ Vehicle does not move (☐ Any position ☐ Particular position)				
		☐ Does not shift P position				
		☐ Does not shift R, N and D positions				
		☐ Others				
Frequency		☐ All the time	☐ Under certain conditions	☐ Sometimes (times a day)		
Weather conditions		☐ Not affected				
	Weather	☐ Fine	☐ Clouding	☐ Raining	☐ Snowing	☐ Other ( )
	Temp.	☐ Hot	☐ Warm	☐ Cool	☐ Cold	☐ Temp. [Approx. °C (°F)]
	Humidity	☐ High	☐ Middle	☐ Low		
Road conditions		☐ Not affected				
		☐ In town	☐ In suburbs	☐ Freeway	☐ Off road (Up / Down)	

Question Sheet	
Driving conditions	☐ Not affected
	☐ At starting ☐ While idling ☐ While engine racing ☐ At racing ☐ While cruising
	☐ While accelerating ☐ While decelerating ☐ While turning (Right / Left)
	☐ Vehicle speed [km/h (MPH)]
Other conditions	

DTC/CIRCUIT DIAGNOSIS

P0571 BRAKE SWITCH A

DTC Logic

INFOID:0000000010639554

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P0571	BRAKE SWITCH A (Brake Switch “A” Circuit)	It is detected that the stop lamp switch cannot be switched to ON/OFF.	• Stop lamp switch (ON stuck or OFF stuck) • Electric shift control module • Harness or connectors (Each circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Set the vehicle to READY.
2. Accelerate the vehicle up to 50 km/h (31 MPH) and then depress the brake pedal to decelerate and stop the vehicle.
3. Repeat step 2 five more times.
4. Check DTC.

Is “P0571” detected?

YES >> Go to TM-66, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639555

1. CHECK STOP LAMP SWITCH SIGNAL

With CONSULT
1. Set the vehicle to READY.
2. Select “Data Monitor” in “SHIFT”.
3. Select “BRAKE SWITCH” and “BRAKE SWITCH (CAN)”.
4. Identify an abnormal signal value.

Condition	Item	
	BRAKE SWITCH	BRAKE SWITCH (CAN)
Brake pedal is depressed	ON	ON
Brake pedal is released	OFF	OFF

Which signal value is abnormal?

BRAKE SWITCH>>GO TO 2.
BRAKE SWITCH (CAN)>>GO TO 5.

2. CHECK STOP LAMP SWITCH POWER SUPPLY CIRCUIT

1. Power switch OFF.

2. Disconnect the stop lamp switch connector.
3. Check the voltage between stop lamp switch vehicle side harness connector terminal and ground.

Stop lamp switch		Ground	Voltage
Connector	Terminal		
E102	3	Ground	9 – 16 V

Is the inspection result normal?

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

3. DETECTION OF MALFUNCTION ITEMS

Check the following items:
- Harness open circuit or short circuit between the stop lamp switch vehicle side harness connector and 12V battery.
- 12V battery
- 20A fuse (#77) (Refer to PG-80, "Fuse".)

Is the inspection result normal?

>> Repair or replace the malfunctioning parts.

4. CHECK STOP LAMP SWITCH SIGNAL INPUT CIRCUIT

1. Disconnect the VCM connector.
2. Check the continuity between VCM vehicle side harness connector terminal and stop lamp switch vehicle side harness connector terminal.

VCM		Stop lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
E62	101	E102	4	Existed

3. Check the continuity between VCM vehicle side harness connector terminal and ground.

VCM		Ground	Continuity
Connector	Terminal		
E62	101	Ground	Not existed

Is the inspection result normal?

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

5. CHECK STOP LAMP SWITCH

Check the stop lamp switch. Refer to BRC-100, "Component Inspection".

Is the inspection result normal?

YES >> Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".
NO >> Replace the stop lamp switch. Refer to BRC-10, "Component Parts Location".

P0705 TRANSMISSION RANGE SENSOR A

DTC Logic

INFOID:0000000010639556

DTC DETECTION LOGIC

DTC	CONSULT screen terms [Trouble diagnosis content]	DTC detection condition	Possible cause
P0705	TRANSMISSION RANGE SENSOR A [Transmission Range Sensor “A” Circuit (PRNDL Input)]	One of the electric shift sensors No. 1 to No. 6 is stuck at ON or OFF.	• Electric shift sensor • Harness or connectors (Each circuit is open or shorted.)

Position Pattern Table

Electric shift control module recognition position	Selector lever position	Electric shift sensor					
		No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
H	H	OFF	OFF	ON	OFF	OFF	ON
P	H	OFF	OFF	ON	OFF	OFF	ON
R	R	ON	ON	OFF	OFF	OFF	OFF
N	N	OFF	ON	ON	ON	OFF	OFF
D	D	OFF	OFF	OFF	ON	ON	OFF

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Set the vehicle to READY.
2. Select “Data Monitor” in “SHIFT”.
3. Select “RANGE POSITION”.
4. Shift the selector lever as follows. (Hold the selector lever at each position for 2 seconds or more.)
- H → N → R → N → D → N → H
5. Repeat step 4 five more times.
6. Check DTC.

Is “P0705” detected?

YES >> Go to TM-68, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639557

1.CHECK ELECTRIC SHIFT SENSOR INPUT SIGNAL

With CONSULT
1. Set the vehicle to READY.
2. Select “Data Monitor” in “SHIFT”.
3. Select “SHIFT SENSOR 1”, “SHIFT SENSOR 2”, “SHIFT SENSOR 3”, “SHIFT SENSOR 4”, “SHIFT SENSOR 5”, and “SHIFT SENSOR 6”.
4. Operate the selector lever to identify a electric shift sensor of which value does not change.

Monitor item	Condition	Value / Status
SHIFT SENSOR 1	Selector lever is held in R position	ON
	Other than the above	OFF

Monitor item	Condition	Value / Status
SHIFT SENSOR 2	Selector lever is held in R and N positions	ON
	Other than the above	OFF
SHIFT SENSOR 3	Selector lever is held in H (Home) and N positions	ON
	Other than the above	OFF
SHIFT SENSOR 4	Selector lever is held in N and D positions	ON
	Other than the above	OFF
SHIFT SENSOR 5	Selector lever is held in D position	ON
	Other than the above	OFF
SHIFT SENSOR 6	Selector lever in H (Home) position	ON
	Other than the above	OFF

Without CONSULT
1. Set the vehicle to READY.
2. Operate the selector lever.
3. Check the voltage between VCM vehicle side harness connector terminal and ground.

Electric shift sensor	VCM		Ground	Condition	Voltage (Approx.)
	Connector	terminal			
1	E61	17	Ground	Selector lever is held in R position	0 V
				Other than the above	5 V
3		16		Selector lever is held in H (Home) and N positions	0 V
				Other than the above	5 V
5		3		Selector lever is held in D position	0 V
				Other than the above	5 V
2	E62	84		Selector lever is held in R and N positions	0 V
				Other than the above	5 V
4		85		Selector lever is held in N and D position	0 V
				Other than the above	5 V
6		86		Selector lever in H (Home) position	0 V
				Other than the above	5 V

>> GO TO 2.

2. CHECK HARNESS BETWEEN VCM AND ELECTRIC SHIFT SENSOR

1. Power switch OFF.
2. Disconnect the VCM connector.
3. Disconnect the electric shift sensor connector.
4. Check the continuity between the malfunctioning electric shift sensor identified at Step 1 and the harness connector terminal located on the vehicle side of the VCM.

Electric shift sensor	VCM		Electric shift sensor		Continuity
	Connector	terminal	Connector	terminal	
1	E61	17	M57	11	Existed
3		16		10	
5		3		9	
2	E62	84		5	
4		85		3	
6		86		4	

5. Check the continuity VCM vehicle side harness connector terminal and ground.

Electric shift sensor	VCM		Ground	Continuity
	Connector	terminal		
1	E61	17	Ground	Not existed
3		16		
5		3		
2	E62	84		
4		85		
6		86		

Is the inspection result normal?

YES >> Replace the electric shift sensor. Refer to TM-121, "Exploded View".
NO >> Repair or replace damaged parts.

P0706 TRANSMISSION RANGE SENSOR A

DTC Logic

INFOID:0000000010639558

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P0706	TRANSMISSION RANGE SENSOR A (Transmission range sensor “A” Circuit Range/Performance)	Two or more sensors out of electric shift sensors No. 1 to No. 6 are stuck at ON or OFF.	• Electric shift sensor • Harness or connectors (Each circuit is open or shorted.)

Position Pattern Table

Electric shift control module recognition position	Selector lever position	Electric shift sensor					
		No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
H	H	OFF	OFF	ON	OFF	OFF	ON
P	H	OFF	OFF	ON	OFF	OFF	ON
R	R	ON	ON	OFF	OFF	OFF	OFF
N	N	OFF	ON	ON	ON	OFF	OFF
D	D	OFF	OFF	OFF	ON	ON	OFF

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Set the vehicle to READY.
2. Select “Data Monitor” in “SHIFT”.
3. Select “RANGE POSITION”.
4. Shift the selector lever as follows. (Hold the selector lever at each position for 2 seconds or more.)

- H → N → R → N → D → N → H

5. Repeat step 4 five more times.
6. Check DTC.

Is “P0706” detected?

YES >> Go to TM-71, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639559

1.CHECK ELECTRIC SHIFT SENSOR INPUT SIGNAL

With CONSULT
1. Set the vehicle to READY.
2. Select “Data Monitor” in “SHIFT”.
3. Select “SHIFT SENSOR 1”, “SHIFT SENSOR 2”, “SHIFT SENSOR 3”, “SHIFT SENSOR 4”, “SHIFT SENSOR 5”, and “SHIFT SENSOR 6”.
4. Operate the selector lever to identify a electric shift sensor of which value does not change.

Monitor item	Condition	Value / Status
SHIFT SENSOR 1	Selector lever is held in R position	ON
	Other than the above	OFF

Monitor item	Condition	Value / Status
SHIFT SENSOR 2	Selector lever is held in R and N positions	ON
	Other than the above	OFF
SHIFT SENSOR 3	Selector lever is held in H (Home) and N positions	ON
	Other than the above	OFF
SHIFT SENSOR 4	Selector lever is held in N and D positions	ON
	Other than the above	OFF
SHIFT SENSOR 5	Selector lever is held in D position	ON
	Other than the above	OFF
SHIFT SENSOR 6	Selector lever in H (Home) position	ON
	Other than the above	OFF

⊗Without CONSULT
1. Set the vehicle to READY.
2. Operate the selector lever.
3. Check the voltage between VCM vehicle side harness connector terminal and ground.

Electric shift sensor	VCM		Ground	Condition	Voltage (Approx.)
	Connector	terminal			
1	E61	17	Ground	Selector lever is held in R position	0 V
				Other than the above	5 V
3		16		Selector lever is held in H (Home) and N positions	0 V
				Other than the above	5 V
5		3		Selector lever is held in D position	0 V
				Other than the above	5 V
2	E62	84		Selector lever is held in R and N positions	0 V
				Other than the above	5 V
4		85		Selector lever is held in N and D position	0 V
				Other than the above	5 V
6		86		Selector lever in H (Home) position	0 V
				Other than the above	5 V

>> GO TO 2.

2.CHECK HARNESS BETWEEN VCM AND ELECTRIC SHIFT SENSOR

1. Power switch OFF.
2. Disconnect the VCM connector.
3. Disconnect the electric shift sensor connector.
4. Check the continuity between the malfunctioning electric shift sensor identified at Step 1 and the harness connector terminal located on the vehicle side of the VCM.

Electric shift sensor	VCM		Electric shift sensor		Continuity
	Connector	terminal	Connector	terminal	
1	E61	17	M57	11	Existed
3		16		10	
5		3		9	
2	E62	84		5	
4		85		3	
6		86		4	

5. Check the continuity VCM vehicle side harness connector terminal and ground.

Electric shift sensor	VCM		Ground	Continuity
	Connector	terminal		
1	E61	17	Ground	Not existed
3		16		
5		3		
2	E62	84		
4		85		
6		86		

Is the inspection result normal?

YES >> Replace the electric shift sensor. Refer to TM-121, "Exploded View".
NO >> Repair or replace damaged parts.

P0780 SHIFT ERROR

DTC Logic

INFOID:0000000010639560

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P0780	SHIFT ERROR (Shift Error)	In spite of the command from the electric shift control module, the parking actuator does not complete the switching to the designated position (P position or another position).	Parking actuator

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Set the vehicle to READY.
2. Shift the selector lever to N position and wait for 10 seconds or more.
3. Press the P position switch to shift to P position and wait for 10 seconds or more.
4. Check DTC.

Is “P0780” detected?

YES >> Go to TM-74, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639561

1.REPLACE REDUCTION GEAR

Replace the reduction gear due to malfunction in the parking actuator. Refer to TM-21, "Removal and Installation".

>> END

P1722 VEHICLE SPEED

DTC Logic

INFOID:0000000010639562

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P1722	VEHICLE SPEED (Vehicle Speed Signal Circuit)	• The electric shift control module detects a malfunction in the CAN communication signal with the ABS actuator and electric unit (control unit). • The ABS actuator and electric unit (control unit) detects a malfunction with the wheel sensor.	• ABS actuator and electric unit (control unit) • VCM • Electric shift control module • Harness or connectors (Each circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Set the vehicle to READY.
2. Drive the vehicle at 30 km/h (19 MPH) or more for 60 seconds.
3. Stop the vehicle.
4. Check DTC.

Is “P1722” detected?

YES >> Go to TM-75, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639563

1. CHECK DTC OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

With CONSULT
1. Power switch ON.
2. Perform “Self Diagnostic Results” in “ABS”.

Is any DTC detected?

YES >> Check DTC detected item. Refer to BRC-56, "DTC Index".
NO >> GO TO 2.

2. CHECK DTC OF VCM

With CONSULT
1. Power switch ON.
2. Perform “Self Diagnostic Results” in “EV/HEV”.

Is any DTC detected?

YES >> Check DTC detected item. Refer to EVC-103, "DTC Index".
NO >> GO TO 3.

3. CHECK INTERMITTENT INCIDENT

Refer to GI-53, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".

NO >> Repair or replace damaged parts.

P1802 CONTROL MODULE

DTC Logic

INFOID:0000000010639564

DTC DETECTION LOGIC

DTC	CONSULT screen terms [Trouble diagnosis content]	DTC detection condition	Possible cause
P1802	CONTROL MODULE [Control Module (RAM)]	A malfunction is detected in the electric shift control module.	Electric shift control module

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch OFF to ON and wait for 2 seconds or more.
2. Check DTC.

Is “P1802” detected?

YES >> Go to TM-77, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639565

1.REPLACE VCM

Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".

>> END

P1803 CONTROL MODULE

DTC Logic

INFOID:0000000010639566

DTC DETECTION LOGIC

DTC	CONSULT screen terms [Trouble diagnosis content]	DTC detection condition	Possible cause
P1803	CONTROL MODULE [Control Module (ROM)]	A malfunction is detected in the electric shift control module.	Electric shift control module

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch OFF to ON and wait for 2 seconds or more.
2. Check DTC.

Is “P1803” detected?

YES >> Go to TM-78, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639567

1.REPLACE VCM

Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".

>> END

P1804 CONTROL MODULE

DTC Logic

INFOID:0000000010639568

DTC DETECTION LOGIC

DTC	CONSULT screen terms [Trouble diagnosis content]	DTC detection condition	Possible cause
P1804	CONTROL MODULE [Control Module (EEPROM)]	A malfunction is detected in the electric shift control module.	Electric shift control module

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch OFF to ON and wait for 2 seconds or more.
2. Check DTC.

Is “P1804” detected?

YES >> Go to TM-79, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639569

1.REPLACE VCM

Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".

>> END

P1811 ELECTRIC SHIFT POWER SUPPLY RELAY

DTC Logic

INFOID:0000000010639570

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P1811	ELECTRIC SHIFT POWER SUPPLY RELAY (Electric Shift Power Supply Relay Circuit)	A malfunction is detected in the electric shift control module.	Electric shift control module

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch OFF to ON and wait for 2 seconds or more.
2. Power switch OFF and wait for 60 seconds or more.
3. Power switch ON and wait for 2 seconds or more.
4. Check DTC.

Is “P1811” detected?

YES >> Go to TM-80, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639571

1.REPLACE VCM

Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".

>> END

P1895 MOTOR SPEED

DTC Logic

INFOID:0000000010639572

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P1895	MOTOR SPEED (Motor Speed Signal)	The motor speed signal from the traction motor inverter is not normal.	• Traction motor • Traction motor inverter • Electric shift control module • Harness or connectors (CAN communication line is open or shorted.)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn the power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Set the vehicle to READY.
2. Drive the vehicle at 30 km/h (19 MPH) or more for 60 seconds.
3. Stop the vehicle.
4. Check DTC.

Is “P1895” detected?

YES >> Go to TM-81, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639573

1. CHECK DTC OF TRACTION MOTOR INVERTER

With CONSULT
1. Power switch ON.
2. Perform “Self Diagnostic Results” in “MOTOR CONTROL”.

Is any DTC detected?

YES >> Check DTC detected item. Refer to TMS-28, "DTC Index".
NO >> GO TO 2.

2. CHECK INTERMITTENT INCIDENT

Refer to GI-53, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".
NO >> Repair or replace damaged parts.

P1896 SHIFT POWER SUPPLY

DTC Logic

INFOID:0000000010639574

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P1896	SHIFT POWER SUPPLY (Electric Shift Sensor Power Supply)	It is detected that electric shift sensors No. 1, 3, and 5 are stuck at OFF.	• Electric shift sensor • Electric shift control module • Harness or connectors (Each circuit is open or shorted.)
		It is detected that electric shift sensors No. 2, 4, and 6 are stuck at OFF.	

Position Pattern Table

Electric shift control module recognition position	Selector lever position	Electric shift sensor					
		No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
H	H	OFF	OFF	ON	OFF	OFF	ON
P	H	OFF	OFF	ON	OFF	OFF	ON
R	R	ON	ON	OFF	OFF	OFF	OFF
N	N	OFF	ON	ON	ON	OFF	OFF
D	D	OFF	OFF	OFF	ON	ON	OFF

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Set the vehicle to READY.
2. Select “Data Monitor” in “SHIFT”.
3. Select “RANGE POSITION”.
4. Shift the selector lever as follows. (Hold the selector lever at each position for 2 seconds or more.)

- H → N → R → N → D → N → H

5. Repeat step 4 five times.
6. Check DTC.

Is “P1896” detected?

YES >> Go to TM-82, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639575

1.CHECK ELECTRIC SHIFT SENSOR INPUT SIGNAL

With CONSULT
1. Set the vehicle to READY.
2. Select “Data Monitor” in “SHIFT”.
3. Select “SHIFT SENSOR 1”, “SHIFT SENSOR 2”, “SHIFT SENSOR 3”, “SHIFT SENSOR 4”, “SHIFT SENSOR 5”, and “SHIFT SENSOR 6”.
4. Operate the selector lever to identify a electric shift sensor of which value does not change.

Monitor item	Condition	Value / Status
SHIFT SENSOR 1	Selector lever is held in R position	ON
	Other than the above	OFF
SHIFT SENSOR 2	Selector lever is held in R and N positions	ON
	Other than the above	OFF
SHIFT SENSOR 3	Selector lever is held in H (Home) and N positions	ON
	Other than the above	OFF
SHIFT SENSOR 4	Selector lever is held in N and D positions	ON
	Other than the above	OFF
SHIFT SENSOR 5	Selector lever is held in D position	ON
	Other than the above	OFF
SHIFT SENSOR 6	Selector lever in H (Home) position	ON
	Other than the above	OFF

⊗Without CONSULT
1. Set the vehicle to READY.
2. Operate the selector lever.
3. Check the voltage between VCM vehicle side harness connector terminal and ground.

Electric shift sensor	VCM		Ground	Condition	Voltage (Approx.)
	Connector	terminal			
1	E61	17	Ground	Selector lever is held in R position	0 V
				Other than the above	5 V
3		16		Selector lever is held in H (Home) and N positions	0 V
				Other than the above	5 V
5		3		Selector lever is held in D position	0 V
				Other than the above	5 V
2	E62	84		Selector lever is held in R and N positions	0 V
				Other than the above	5 V
4		85		Selector lever is held in N and D position	0 V
				Other than the above	5 V
6		86		Selector lever in H (Home) position	0 V
				Other than the above	5 V

>> GO TO 2.

2.CHECK ELECTRIC SHIFT SENSOR POWER SUPPLY CIRCUIT

1. Power switch OFF.
2. Disconnect the electric shift sensor connector.
3. Power switch ON.
4. Check the power circuit of the malfunctioning electric shift sensor identified at Step 1.
5. Check the voltage between electric shift sensor vehicle side harness connector terminal and ground.

Electric shift sensor	Electric shift sensor		Ground	Voltage (Approx.)
	Connector	Terminal		
1, 3, 5	M57	1	Ground	5 V
2, 4, 6		7		

Is the inspection result normal?

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

3. CHECK HARNESS BETWEEN VCM AND ELECTRIC SHIFT SENSOR

1. Power switch OFF.
2. Disconnect the VCM connector.
3. Check the continuity between VCM vehicle side harness connector terminal and electric shift sensor vehicle side harness connector terminal.

Electric shift sensor	VCM		Electric shift sensor		Continuity
	Connector	Terminal	Connector	Terminal	
1, 3, 5	E61	7	M57	1	Existed
2, 4, 6	E62	83		7	

4. Check the continuity between VCM vehicle side harness connector terminal and ground.

Electric shift sensor	VCM		Ground	Continuity
	Connector	Terminal		
1, 3, 5	E61	7	Ground	Not existed
2, 4, 6	E62	83		

Is the inspection result normal?

YES >> Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".
NO >> Repair or replace damaged parts.

4. CHECK ELECTRIC SHIFT SENSOR GROUND CIRCUIT

1. Power switch OFF.
2. Disconnect the VCM connector.
3. Check the continuity between VCM vehicle side harness connector terminal and electric shift sensor vehicle side harness connector terminal.

Electric shift sensor	VCM		Electric shift sensor		Continuity
	Connector	Terminal	Connector	Terminal	
1, 3, 5	E61	57	M57	6	Existed
2, 4, 6	E62	124		12	

4. Check the continuity between VCM vehicle side harness connector terminal and ground.

Electric shift sensor	VCM		Ground	Continuity
	Connector	Terminal		
1, 3, 5	E61	57	Ground	Not existed
2, 4, 6	E62	124		

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace damaged parts.

5. CHECK HARNESS BETWEEN VCM AND ELECTRIC SHIFT SENSOR

1. Check the continuity between VCM vehicle side harness connector terminal and electric shift sensor vehicle side harness connector terminal.

Electric shift sensor	VCM		Electric shift sensor		Continuity
	Connector	terminal	Connector	terminal	
1	E61	17	M57	11	Existed
3		16		10	
5		3		9	
2	E62	84		5	
4		85		3	
6		86		4	

2. Check the continuity between VCM vehicle side harness connector terminals and ground.

Electric shift sensor	VCM		Ground	Continuity
	Connector	terminal		
1	E61	17	Ground	Not existed
3		16		
5		3		
2	E62	84		
4		85		
6		86		

Is the inspection result normal?

YES >> Replace the electric shift sensor. Refer to TM-122, "Disassembly and Assembly".
NO >> Repair or replace damaged parts.

P1897 ENCODER ERROR

DTC Logic

INFOID:0000000010639576

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P1897	ENCODER ERROR (Encoder Error)	Encoder signals are not transmitted despite the actuation of parking actuator by the electric shift control module.	• Encoder (Parking actuator) • Harness or connectors (Each circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Set the vehicle to READY.
2. Shift the selector lever to N position and wait for 10 seconds or more.
3. Press the P position switch to shift to P position and wait for 10 seconds or more.
4. Check DTC.

Is “P1897” detected?

YES >> Go to TM-86, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639577

1.CHECK ENCODER POWER SUPPLY CIRCUIT

1. Power switch OFF.
2. Disconnect the parking actuator connector.
3. Check the voltage between parking actuator vehicle side harness connector terminal and ground.

Parking actuator		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
F4	9	Ground	Power switch ON	5 V

Is the inspection result normal?

YES >> GO TO 2.
NO >> GO TO 4.

2.CHECK HARNESS BETWEEN VCM AND ENCODER

1. Power switch OFF.
2. Disconnect the VCM connector.
3. Check the continuity between VCM vehicle side harness connector terminals and parking actuator vehicle side harness connector terminals.

VCM		Parking actuator		Continuity
Connector	Terminal	Connector	Terminal	
E61	44	F4	3	Existed
	45		5	
	56		8	

4. Check the continuity between VCM vehicle side harness connector terminals and ground.

VCM		Ground	Continuity
Connector	Terminal		
E61	44	Ground	Not existed
	45		
	56		

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace damaged parts.

3. CHECK INTERMITTENT INCIDENT

Refer to GI-53, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace the reduction gear due to malfunction in the encoder (parking actuator). Refer to TM-21, "Removal and Installation".
NO >> Repair or replace damaged parts.

4. CHECK HARNESS BETWEEN VCM AND ENCODER

1. Power switch OFF.
2. Disconnect the VCM connector.
3. Check the continuity between VCM vehicle side harness connector terminal and parking actuator vehicle side harness connector terminal.

VCM		Parking actuator		Continuity
Connector	Terminal	Connector	Terminal	
E61	32	F4	9	Existed

4. Check the continuity between VCM vehicle side harness connector terminals and ground.

VCM		Ground	Continuity
Connector	Terminal		
E61	32	Ground	Not existed

Is the inspection result normal?

YES >> Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".
NO >> Repair or replace damaged parts.

P1899 MOTOR A

DTC Logic

INFOID:0000000010639578

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P1899	MOTOR A (Motor “A” Circuit High)	When the power switch is ON, either of two energized phases is in the non-energized state. **NOTE:** Energized: Approx. 0 V, Non-energized: 9 – 16 V	• Electric shift control module • Motor coil A (Parking actuator) • Harness (12V battery short)

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch ON and wait for 2 seconds or more.
2. Check DTC.

Is “P1899” detected?

YES >> Go to TM-88, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639579

1.CHECK HARNESS BETWEEN VCM AND MOTOR COIL A

1. Power switch OFF.
2. Disconnect the VCM connector.
3. Disconnect the parking actuator connector.
4. Check the voltage VCM vehicle side harness connector terminals and ground.

VCM		Ground	Voltage (Approx.)
Connector	Terminal		
E61	1	Ground	0 V
	13		
	39		

5. Check the continuity VCM vehicle side harness connector terminals and parking actuator vehicle side harness connector terminals.

VCM		Parking actuator		Continuity
Connector	Terminal	Connector	Terminal	
E61	1	F4	1	Existed
	13		6	
	39		7	

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace damaged parts.

2.CHECK MOTOR COIL A

Check the motor coil A. Refer to TM-89, "Component Inspection (Motor Coil A)".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the reduction gear due to malfunction in the motor coil A (parking actuator). Refer to TM-21, "Removal and Installation".

Component Inspection (Motor Coil A)

INFOID:0000000010639580

1.CHECK MOTOR COIL A

1. Disconnect the parking actuator connector.
2. Check the resistance between parking actuator connector terminals.

Parking actuator connector		Resistance
Terminal		
2	1	2.3 – 2.8 Ω
	6	
	7	

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the reduction gear due to malfunction in the motor coil A (parking actuator). Refer to TM-21, "Removal and Installation".

P189A MOTOR A

DTC Logic

INFOID:0000000010639581

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P189A	MOTOR A (Motor “A” Circuit Low)	When the power switch is ON, one of the phases is in the energized state even though motor coil A all phases are not energized. **NOTE:** Energized: Approx. 0 V, Non-energized: 9 – 16 V	• Parking actuator relay A (OFF stuck) • Motor coil A (Parking actuator) • Electric shift control module • Harness or connectors (Each circuit is open or ground shorted.)

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, key switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch ON and wait for 2 seconds or more.
2. Check DTC.

Is “P189A” detected?

YES >> Go to TM-90, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639582

1.CHECK HARNESS BETWEEN VCM AND MOTOR COIL A

1. Power switch OFF.
2. Disconnect the VCM connector.
3. Disconnect the parking actuator connector.
4. Check the continuity VCM vehicle side harness connector terminals and parking actuator vehicle side harness connector terminals.

VCM		Parking actuator		Continuity
Connector	Terminal	Connector	Terminal	
E61	1	F4	1	Existed
	13		6	
	39		7	

5. Check the continuity VCM vehicle side harness connector terminals and ground.

VCM		Ground	Continuity
Connector	Terminal		
E61	1	Ground	Not existed
	13		
	39		

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

2.CHECK PARKING ACTUATOR RELAY A

Check the parking actuator relay A. Refer to TM-92, "Component Inspection (Parking Actuator Relay A)".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the parking actuator relay A. Refer to TM-32, "Component Parts Location".

3.CHECK HARNESS BETWEEN PARKING ACTUATOR RELAY A AND 12V BATTERY

Check the voltage parking actuator relay A vehicle side harness connector terminal and ground.

Parking actuator relay A		Ground	Voltage
Connector	Terminal		
E54	1	Ground	9 – 16 V
	3		

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4.DETECT MALFUNCTIONING ITEM

Check the following.
- Harness for short or open between parking actuator relay A and 12V battery
- 12V battery
- 40A fuse (#O) (Refer to PG-80, "Fuse".)

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair or replace damaged parts.

5.CHECK HARNESS BETWEEN PARKING ACTUATOR AND PARKING ACTUATOR RELAY A

Check the continuity parking actuator vehicle side harness connector terminal and parking actuator relay A vehicle side harness connector terminal.

Parking actuator		Parking actuator relay A		Continuity
Connector	Terminal	Connector	Terminal	
F4	2	E54	5	Existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace damaged parts.

6.CHECK HARNESS BETWEEN VCM AND PARKING ACTUATOR RELAY A

1. Check the continuity VCM vehicle side harness connector terminal and parking actuator relay A vehicle side harness connector terminal.

VCM		Parking actuator relay A		Continuity
Connector	Terminal	Connector	Terminal	
E61	9	E54	2	Existed

2. Check the continuity VCM vehicle side harness connector terminal and ground.

VCM		Ground	Continuity
Connector	Terminal		
E61	9	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 7.
NO >> Repair or replace damaged parts.

7.CHECK MOTOR COIL A

Check the motor coil A (parking actuator). Refer to TM-92, "Component Inspection (Motor Coil A)".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the reduction gear due to malfunction in the motor coil A (parking actuator). Refer to TM-21, "Removal and Installation".

Component Inspection (Parking Actuator Relay A)

INFOID:0000000010639583

1.CHECK PARKING ACTUATOR RELAY A

1. Disconnect the parking actuator relay A. Refer to TM-32, "Component Parts Location".
2. Apply 12 V direct current between parking actuator relay A terminals 1 and 2.
   CAUTION:
   - **Never make the terminals short.**
   - **Connect the fuse between the terminals when applying the voltage.**
3. Check the continuity between parking actuator relay A terminals 3 and 5.

Parking actuator relay A		Condition	Continuity
Terminal			
3	5	Apply 12 V direct current between terminals 1 and 2.	Existed
		Does not apply 12 V direct current between terminals 1 and 2.	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the parking actuator relay A.

Component Inspection (Motor Coil A)

INFOID:0000000010639584

1.CHECK MOTOR COIL A

1. Disconnect the parking actuator connector.
2. Check the resistance between parking actuator connector terminals.

Parking actuator connector		Resistance
Terminal		
2	1	2.3 – 2.8 Ω
	6	
	7	

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the reduction gear due to malfunction in the motor coil A (parking actuator). Refer to TM-21, "Removal and Installation".

P189D BACK UP VOLTAGE

DTC Logic

INFOID:0000000010639585

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P189D	BACK UP VOLTAGE (Memory Back Up Power Supply)	It is detected that the memory backup power supply voltage is specified value or less.	• Electric shift control module • Harness, fuse, or connectors (Each circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch ON and wait for 5 seconds or more.
2. Check DTC.

Is “P189D” detected?

YES >> Go to TM-93, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639586

1.CHECK MEMORY BACK UP POWER SUPPLY CIRCUIT

1. Power switch OFF.
2. Disconnect the VCM connector.
3. Check the voltage between VCM vehicle side harness connector terminal and ground.

VCM		Ground	Voltage (Approx.)
Connector	Terminal		
E62	79	Ground	9 – 16 V

Is the inspection result normal?

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

2.CHECK GROUND CIRCUIT

Check the continuity between VCM vehicle side harness connector terminals and ground.

VCM		Ground	Continuity
Connector	Terminal		
E61	58	Ground	Existed
	65		
E62	118		
	126		

Is the inspection result normal?

YES >> Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".

NO >> Repair or replace damaged parts.

3. DETECT MALFUNCTIONING ITEM

Check the following.
- Harness for short or open between VCM vehicle side harness connector and 12V battery.
- 12V battery
- 20A fuse (#77) (Refer to PG-80, "Fuse".)

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair or replace damaged parts.

P18A3 CONTROL MODULE

DTC Logic

INFOID:0000000010639587

DTC DETECTION LOGIC

DTC	CONSULT screen terms [Trouble diagnosis content]	DTC detection condition	Possible cause
P18A3	CONTROL MODULE [Control Module (Program Manipulation) Error]	A malfunction is detected in the electric shift control module.	Electric shift control module

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch OFF to ON and wait for 2 seconds or more.
2. Check DTC.

Is “P18A3” detected?

YES >> Go to TM-95, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639588

1.REPLACE VCM

Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".

>> END

P18A4 CONTROL MODULE

DTC Logic

INFOID:0000000010639589

DTC DETECTION LOGIC

DTC	CONSULT screen terms [Trouble diagnosis content]	DTC detection condition	Possible cause
P18A4	CONTROL MODULE [Control Module (CPU) Error]	A malfunction is detected in the electric shift control module.	Electric shift control module

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch OFF to ON and wait for 2 seconds or more.
2. Check DTC.

Is “P18A4” detected?

YES >> Go to TM-96, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639590

1.REPLACE VCM

Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".

>> END

P18A7 SHIFT SIGNAL OFF

DTC Logic

INFOID:0000000010639591

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P18A7	SHIFT SIGNAL OFF (Electric Shift Sensor Circuit)	It is detected that the states of all electric shift sensors No. 1 to No. 6 are OFF.	• Electric shift sensor • Electric shift control module • Harness or connectors (Each circuit is open or shorted.)

Position Pattern Table

Electric shift control module recognition position	Selector lever position	Electric shift sensor					
		No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
H	H	OFF	OFF	ON	OFF	OFF	ON
P	H	OFF	OFF	ON	OFF	OFF	ON
R	R	ON	ON	OFF	OFF	OFF	OFF
N	N	OFF	ON	ON	ON	OFF	OFF
D	D	OFF	OFF	OFF	ON	ON	OFF

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Set the vehicle to READY and wait for 5 seconds or more.
2. Check DTC.

Is “P18A7” detected?

YES >> Go to TM-97, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639592

1.CHECK ELECTRIC SHIFT SENSOR INPUT SIGNAL

With CONSULT
1. Set the vehicle to READY.
2. Select “Data Monitor” in “SHIFT”.
3. Select “SHIFT SENSOR 1”, “SHIFT SENSOR 2”, “SHIFT SENSOR 3”, “SHIFT SENSOR 4”, “SHIFT SENSOR 5”, and “SHIFT SENSOR 6”.
4. Operate the selector lever to identify a electric shift sensor of which value does not change.

Monitor item	Condition	Value / Status
SHIFT SENSOR 1	Selector lever is held in R position	ON
	Other than the above	OFF
SHIFT SENSOR 2	Selector lever is held in R and N positions	ON
	Other than the above	OFF

Monitor item	Condition	Value / Status
SHIFT SENSOR 3	Selector lever is held in H (Home) and N positions	ON
	Other than the above	OFF
SHIFT SENSOR 4	Selector lever is held in N and D positions	ON
	Other than the above	OFF
SHIFT SENSOR 5	Selector lever is held in D position	ON
	Other than the above	OFF
SHIFT SENSOR 6	Selector lever in H (Home) position	ON
	Other than the above	OFF

Without CONSULT
1. Set the vehicle to READY.
2. Operate the selector lever.
3. Check the voltage between VCM vehicle side harness connector terminal and ground.

Electric shift sensor	VCM		Ground	Condition	Voltage (Approx.)
	Connector	terminal			
1	E61	17	Ground	Selector lever is held in R position	0 V
				Other than the above	5 V
3		16		Selector lever is held in H (Home) and N positions	0 V
				Other than the above	5 V
5		3		Selector lever is held in D position	0 V
				Other than the above	5 V
2	E62	84		Selector lever is held in R and N positions	0 V
				Other than the above	5 V
4		85		Selector lever is held in N and D position	0 V
				Other than the above	5 V
6		86		Selector lever in H (Home) position	0 V
				Other than the above	5 V

>> GO TO 2.

2.CHECK ELECTRIC SHIFT SENSOR POWER SUPPLY CIRCUIT

1. Power switch OFF.
2. Disconnect the electric shift sensor connector.
3. Power switch ON.
4. Check the power circuit of the malfunctioning electric shift sensor identified at Step 1.
5. Check the voltage between electric shift sensor vehicle side harness connector terminal and ground.

Electric shift sensor	Electric shift sensor		Ground	Voltage (Approx.)
	Connector	Terminal		
1, 3, 5	M57	1	Ground	5 V
2, 4, 6		7		

Is the inspection result normal?

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

3.CHECK HARNESS BETWEEN VCM AND ELECTRIC SHIFT SENSOR

1. Power switch OFF.
2. Disconnect the VCM connector.

3. Check the continuity between VCM vehicle side harness connector terminal and electric shift sensor vehicle side harness connector terminal.

Electric shift sensor	VCM		Electric shift sensor		Continuity
	Connector	Terminal	Connector	Terminal	
1, 3, 5	E61	7	M57	1	Existed
2, 4, 6	E62	83		7	

4. Check the continuity between VCM vehicle side harness connector terminal and ground.

Electric shift sensor	VCM		Ground	Continuity
	Connector	Terminal		
1, 3, 5	E61	7	Ground	Not existed
2, 4, 6	E62	83		

Is the inspection result normal?

YES >> Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".

NO >> Repair or replace damaged parts.

4. CHECK ELECTRIC SHIFT SENSOR GROUND CIRCUIT

1. Power switch OFF.
2. Disconnect the VCM connector.
3. Check the continuity between VCM vehicle side harness connector terminal and electric shift sensor vehicle side harness connector terminal.

Electric shift sensor	VCM		Electric shift sensor		Continuity
	Connector	Terminal	Connector	Terminal	
1, 3, 5	E61	57	M57	6	Existed
2, 4, 6	E62	124		12	

4. Check the continuity between VCM vehicle side harness connector terminal and ground.

Electric shift sensor	VCM		Ground	Continuity
	Connector	Terminal		
1, 3, 5	E61	57	Ground	Not existed
2, 4, 6	E62	124		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5. CHECK HARNESS BETWEEN VCM AND ELECTRIC SHIFT SENSOR

1. Check the continuity between VCM vehicle side harness connector terminal and electric shift sensor vehicle side harness connector terminal.

Electric shift sensor	VCM		Electric shift sensor		Continuity
	Connector	terminal	Connector	terminal	
1	E61	17	M57	11	Existed
3		16		10	
5		3		9	
2	E62	84		5	
4		85		3	
6		86		4	

2. Check the continuity between VCM vehicle side harness connector terminals and ground.

Electric shift sensor	VCM		Ground	Continuity
	Connector	terminal		
1	E61	17	Ground	Not existed
3		16		
5		3		
2	E62	84		
4		85		
6		86		

Is the inspection result normal?

YES >> Replace the electric shift sensor. Refer to TM-122, "Disassembly and Assembly".
NO >> Repair or replace damaged parts.

P18A8 P POSITION SWITCH

DTC Logic

INFOID:0000000010639593

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P18A8	P POSITION SWITCH (P Position Switch Error)	P position switches No. 1 and No. 2 are stuck at OFF.	• P position switch • Harness (Each circuit is open or shorted.)
		P position switch No. 1 is stuck at ON and P position switch No. 2 is stuck at OFF.	

P Position Switch Pattern Table

Electric shift control module recognition position	Selector lever position	P position SW	Electric shift sensor						P position SW	
			No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 1	No. 2
H	H	No push	OFF	OFF	ON	OFF	OFF	ON	OFF	ON
P	H	Push	OFF	OFF	ON	OFF	OFF	ON	ON	OFF
R	R	No push	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
N	N	No push	OFF	ON	ON	ON	OFF	OFF	OFF	ON
D	D	No push	OFF	OFF	OFF	ON	ON	OFF	OFF	ON

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Set the vehicle to READY.
2. Press the P position switch to shift to P position and wait for 5 seconds or more. (Be sure to press the P position switch for 1 second or more.)
3. Shift the selector lever to N position and wait for 5 minutes or more.
4. Check DTC.

Is “P18A8” detected?

YES >> Go to TM-101, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639594

1.CHECK HARNESS BETWEEN VCM AND ELECTRIC SHIFT SENSOR

1. Power switch OFF.
2. Disconnect the VCM connector.
3. Disconnect the electric shift sensor connector.
4. Check the continuity between VCM vehicle side harness connector terminals and electric shift sensor vehicle side harness connector terminals.

VCM		Electric shift sensor		Continuity
Connector	Terminal	Connector	Terminal	
E62	99	M57	2	Existed
	112		8	

5. Check the continuity between VCM vehicle side harness connector terminals and ground.

VCM		Ground	Continuity
Connector	Terminal		
E62	99	Ground	Not existed
	112		

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace damaged parts.

2.CHECK P POSITION SWITCH

Check the P position switch. Refer to TM-102, "Component Inspection (P Position Switch)".

Is the inspection result normal?

YES >> Replace the electric shift sensor. Refer to TM-121, "Exploded View".
NO >> Replace the selector lever knob due to malfunction in the P position switch. Refer to TM-121, "Removal and Installation".

Component Inspection (P Position Switch)

INFOID:0000000010639595

1.CHECK P POSITION SWITCH

1. Disconnect the P position switch connector.
2. Check the continuity between P position swiitch connector terminal.

P position switch connector		Condition	Continuity
Terminal			
1	3	When P position switch is depressed	Not existed
		When P position switch is released	Existed
2	3	When P position switch is depressed	Existed
		When P position switch is released	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the selector lever knob due to malfunction in the P position switch. Refer to TM-121, "Removal and Installation".

P18A9 PARKING ACTUATOR FUNCTION

DTC Logic

INFOID:0000000010639596

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P18A9	PARKING ACTUATOR FUNCTION (Parking Actuator Function)	It is detected that the output of the parking actuator does not stop.	Parking actuator

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Set the vehicle to READY.
2. Shift the selector lever to N position and wait for 10 seconds or more.
3. Press the P position switch to shift to P position and wait for 10 seconds or more.
4. Check DTC.

Is “P18A9” detected?

YES >> Go to TM-103, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639597

1.REPLACE REDUCTION GEAR

Replace the reduction gear due to malfunction in the parking actuator. Refer to TM-21, "Removal and Installation".

>> END

P18AB IGNITION SWITCH

DTC Logic

INFOID:0000000010639598

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P18AB	IGNITION SWITCH (IGN switch Circuit)	It is detected that the power switch input terminal values from the 2 lines do not match each other.	• Power switch • Harness, fuse, or connectors (Each circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch ON and wait for 5 seconds or more.
2. Check DTC.

Is “P18AB” detected?

YES >> Go to TM-104, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639599

1.CHECK VCM POWER SUPPLY CIRCUIT

1. Power switch OFF.
2. Disconnect the VCM connector.
3. Check the voltage between VCM vehicle side harness connector terminals and ground.

VCM		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
E61	51	Ground	Power switch ON	9 – 16 V
			Power switch OFF	0 V
E62	74		Power switch ON	9 – 16 V
			Power switch OFF	0 V

Which terminal value is abnormal?

YES >> INSPECTION END
NO >> GO TO 2.

2.DETECT MALFUNCTION ITEMS

Check the following items.
- Harness for short or open between IPDM E/R vehicle side harness connector terminal 57 and VCM vehicle side harness connector terminal 51.
- IPDM E/R
- 12V battery
- Ignition relay
- 10A fuse (#55, IPDM E/R) (Refer to PG-80, "Fuse".)
- Harness for short or open between power switch and VCM vehicle side harness connector terminal 74.
- Power switch

• 15A fuse (#6) (Refer to PG-80, "Fuse".)

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair or replace damaged parts.

P18AC PARKING ACTUATOR RELAY A

DTC Logic

INFOID:0000000010639600

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P18AC	PARKING ACTUATOR RELAY A (Parking Actuator Relay A Circuit)	In spite of the parking actuator relay A OFF, voltage is detected from the U phase, V phase and W phase of motor coil A.	• Parking actuator relay A (ON stuck) • Electric shift control module • Harness (Ground short)

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch ON and wait for 2 seconds or more.
2. Check DTC.

Is “P18AC” detected?

YES >> Go to TM-106, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639601

1.CHECK HARNESS BETWEEN VCM AND PARKING ACTUATOR RELAY A

1. Disconnect the VCM connector.
2. Disconnect the parking actuator relay A.
3. Check the continuity between parking actuator relay A vehicle side harness connector terminal and ground.

Parking actuator relay A		Ground	Continuity
Connector	Terminal		
E54	2	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace damaged parts.

2.CHECK HARNESS BETWEEN PARKING ACTUATOR AND PARKING ACTUATOR RELAY A

1. Disconnect the parking actuator connector.
2. Check the voltage between parking actuator vehicle side harness connector terminal and ground.

Parking actuator		Ground	Voltage (Approx.)
Connector	Terminal		
F4	2	Ground	0 V

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace damaged parts.

3.CHECK HARNESS BETWEEN VCM AND PARKING ACTUATOR

Check the voltage between VCM vehicle side harness connector terminals and ground.

VCM		Ground	Voltage (Approx.)
Connector	Terminal		
E61	1	Ground	0 V
	13		
	39		

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace damaged parts.

4.CHECK PARKING ACTUATOR RELAY A

Check the parking actuator relay A. Refer to TM-107, "Component Inspection (Parking Actuator Relay A)".

Is the inspection result normal?

YES >> Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".
NO >> Replace the parking actuator relay A. Refer to TM-32, "Component Parts Location".

Component Inspection (Parking Actuator Relay A)

INFOID:0000000010639602

1.CHECK PARKING ACTUATOR RELAY A

1. Disconnect the parking actuator relay A. Refer to TM-32, "Component Parts Location".
2. Apply 12 V direct current between parking actuator relay A terminals 1 and 2.
   CAUTION:
   - **Never make the terminals short.**
   - **Connect the fuse between the terminals when applying the voltage.**
3. Check the continuity between parking actuator relay A terminals 3 and 5.

Parking actuator relay A		Condition	Continuity
Terminal			
3	5	Apply 12 V direct current between terminals 1 and 2.	Existed
		Does not apply 12 V direct current between terminals 1 and 2.	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the parking actuator relay A.

P18AE STUCK IN SHIFT

DTC Logic

INFOID:0000000010639603

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P18AE	STUCK IN SHIFT (Medium Stuck In Shift)	It is detected that the parking actuator does not move at the midpoint of the manual plate after the parking actuator stops the operation.	Parking actuator (Parking mechanism)

DTC CONFIRMATION PROCEDURE

CAUTION:

"TM-108, "Diagnosis Procedure"" must be performed before starting "DTC CONFIRMATION PROCEDURE" .

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Set the vehicle to READY.
2. Select "Data Monitor" in "SHIFT".
3. Select "RANGE POSITION".
4. Shift the selector lever as follows.

- P → N → P

5. Repeat step 4 five more times.
6. Check DTC.

Is "P18AE" detected?

YES >> Go to TM-108, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639604

1. REPLACE REDUCTION GEAR

Replace the reduction gear due to malfunction in the parking actuator. Refer to TM-21, "Removal and Installation".

>> END

P18AF CONTROL MODULE

DTC Logic

INFOID:0000000010639605

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P18AF	CONTROL MODULE (Control Module)	A malfunction is detected in the electric shift control module.	Electric shift control module

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch OFF to ON and wait for 2 seconds or more.
2. Check DTC.

Is “P18AF” detected?

YES >> Go to TM-109, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639606

1.REPLACE VCM

Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".

>> END

P18B0 CONTROL MODULE

DTC Logic

INFOID:0000000010639607

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P18B0	CONTROL MODULE (Control Module)	A malfunction is detected in the electric shift control module.	Electric shift control module

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch OFF to ON and wait for 2 seconds or more.
2. Check DTC.

Is “P18B0” detected?

YES >> Go to TM-110, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639608

1.REPLACE VCM

Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".

>> END

P18B1 CONTROL MODULE

DTC Logic

INFOID:0000000010639609

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P18B1	CONTROL MODULE (Control Module)	A malfunction is detected in the electric shift control module.	Electric shift control module

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch OFF to ON and wait for 2 seconds or more.
2. Check DTC.

Is “P18B1” detected?

YES >> Go to TM-111, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639610

1.REPLACE VCM

Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".

>> END

P18B2 CONTROL MODULE

DTC Logic

INFOID:0000000010639611

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
P18B2	CONTROL MODULE (Control Module)	A malfunction is detected in the electric shift control module.	Electric shift control module

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch OFF to ON and wait for 2 seconds or more.
2. Check DTC.

Is “P18B2” detected?

YES >> Go to TM-112, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639612

1.REPLACE VCM

Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".

>> END

U1000 CAN COMM CIRCUIT

DTC Logic

INFOID:0000000010639613

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U1000	CAN COMM CIRCUIT (CAN communication line)	Electric shift control module cannot transmit or receive CAN communication signals when the power switch is ON.	Harness or connectors (CAN communication line is open or shorted.)

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch ON and wait for 5 seconds or more.
2. Check DTC.

Is “U1000” detected?

YES >> Go to TM-113, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639614

Go to LAN-17, "Trouble Diagnosis Flow Chart".

U1010 CONTROL UNIT (CAN)

DTC Logic

INFOID:0000000010639615

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U1010	CONTROL UNIT (CAN) (Control Module Malfunction)	Malfunction is detected in the CAN communication initial diagnosis (control module malfunction).	Electric shift control module

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch OFF to ON and wait for 5 seconds or more.
2. Check DTC.

Is “U1010” detected?

YES >> Go to TM-114, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639616

1.REPLACE VCM

Replace the VCM due to malfunction in the electric shift control module built in VCM. Refer to EVC-425, "Removal and Installation".

>> END

U1086 CAN ERROR

DTC Logic

INFOID:0000000010639617

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U1086	CAN ERROR (CAN Error)	The inability to transmit or receive data is detected after the power switch is turned OFF.	Electric shift control module

DTC DETECTION LOGIC

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, power switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Power switch OFF to ON and wait for 5 seconds or more.
2. Check DTC.

Is “U1086” detected?

YES >> Go to TM-115, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-53, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010639618

Go to LAN-17, "Trouble Diagnosis Flow Chart".

SELECTOR INDICATOR CIRCUIT

Component Function Check

INFOID:0000000010639619

1.CHECK SELECTOR INDICATOR FUNCTION

1. Set the vehicle to READY.
2. Shift the selector lever.
3. Check that the illuminated position of the selector indicator in the finisher area corresponds to the selected shift position.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Go to TM-116, "Diagnosis Procedure".

2.CHECK SELECTOR INDICATOR ILLUMINATION FUNCTION

1. Turn ON the headlamp.
2. Check selector indicator illumination lights up.

Is the inspection result normal?

YES >> INSPECTION END
NO >> Go to TM-116, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000010639620

1.DETECT MALFUNCTION

Which is malfunctioning part?

Selector indicator illumination>>GO TO 2.
Selector indicator>>GO TO 7.

2.CHECK SELECTOR INDICATOR ILLUMINATION POWER SUPPLY-1

1. Turn OFF the headlamp.
2. Turn ignition switch OFF.
3. Disconnect selector indicator harness connector.
4. Turn ignition switch ON.
5. Turn ON the headlamp.
6. Check the voltage between selector indicator vehicle side harness connector terminals.

Selector indicator			Voltage
Connector	+	–	
	Terminal		
M56	5	4	9 – 16 V

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-53, "Intermittent Incident". If OK, replace selector indicator. Refer to TM-125, "Removal and Installation".
NO >> GO TO 3.

3.CHECK SELECTOR INDICATOR ILLUMINATION POWER SUPPLY-2

Check the voltage between selector indicator vehicle side harness connector and ground.

+		–	Voltage
Selector indicator			
Connector	Terminal		
M56	5	Ground	9 – 16 V

Is the inspection result normal?

YES >> GO TO 6.
NO >> GO TO 4.

4.CHECK FUSE

1. Turn OFF the headlamp.
2. Turn ignition switch OFF.
3. Pull out #46 fuse. Refer to PG-80, "Fuse".)
4. Check that the fuse is not fusing.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Replace the fuse after repair the applicable circuit.

5.CHECK CIRCUIT BETWEEN SELECTOR INDICATOR AND IPDM E/R

1. Disconnect IPDM E/R harness connector.
2. Check the continuity between IPDM E/R vehicle side harness connector and selector indicator vehicle side harness connector.

+		–		Continuity
IPDM E/R		Selector indicator		
Connector	Terminal	Connector	Terminal	
E14	38	M56	5	Existed

3. Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform IPDM E/R auto active test and check tail lamp relay operation. Refer to PCS-12, "Diagnosis Description".
NO >> Repair or replace damaged parts.

6.CHECK GROUND CIRCUIT

1. Turn OFF the headlamp.
2. Turn ignition switch OFF.
3. Disconnect combination meter harness connector.
4. Check the continuity between combination meter vehicle side harness connector and selector indicator vehicle side harness connector.

Combination meter		Selector indicator		Continuity
Connector	Terminal	Connector	Terminal	
M34	26	M56	4	Existed

Is the inspection result normal?

YES >> Check the combination meter. Refer to MWI-54, "Reference Value".
NO >> Repair or replace damaged parts.

7.CHECK SELECTOR INDICATOR POWER SUPPLY CIRCUIT

1. Disconnect the selector indicator connector.
2. Check the voltage between selector indicator vehicle side harness connector terminal and ground.

Selector indicator		Ground	Voltage
Connector	Terminal		
M56	2	Ground	9 – 16 V

Is the inspection result normal?

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

8.DETECT MALFUNCTION ITEMS

Check the following items.
- 10A fuse (#12) (Refer to PG-80, "Fuse".)
- 12V battery
- Harness for short or open between selector indicator vehicle side harness connector and 12V battery.

>> Repair or replace damaged parts.

9. CHECK HARNESS BETWEEN VCM AND SELECTOR INDICATOR

1. Disconnect the VCM connector.
2. Check the continuity between VCM vehicle side harness connector terminals and selector indicator vehicle side harness connector terminals.

VCM		Selector indicator		Continuity
Connector	Terminal	Connector	Terminal	
E61	18	M56	1	Existed
	33		7	
	34		8	
	46		3	

3. Check the continuity between VCM vehicle side harness connector terminals and ground.

VCM		Ground	Continuity
Connector	Terminal		
E61	18	Ground	Not existed
	33		
	34		
	46		

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair or replace damaged parts.

10. CHECK GROUND CIRCUIT

Check the continuity between VCM vehicle side harness connector terminals and ground.

VCM		Ground	Continuity
Connector	Terminal		
E61	58	Ground	Existed
	65		
E62	118		
	126		

Is the inspection result normal?

YES >> Replace the selector indicator. Refer to TM-125, "Removal and Installation".
NO >> Repair or replace damaged parts.

SHIFT POSITION INDICATOR CIRCUIT

Component Function Check

INFOID:0000000010639621

1.CHECK SHIFT POSITION INDICATOR

1. Set the vehicle to READY.
2. Shift the selector lever.
3. Check that the indication of the shift position indicator in the combination meter corresponds to the selected shift position.

Is the inspection result normal?

YES >> INSPECTION END
NO >> Go to TM-119, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000010639622

1.CHECK DTC OF ELECTRIC SHIFT CONTROL MODULE

With CONSULT
1. Power switch ON.
2. Perform “Self Diagnostic Results” in “SHIFT”.

Is any DTC detected?

YES >> Check DTC detected item. Refer to TM-50, "DTC Index".
NO >> GO TO 2.

2.CHECK DTC OF VCM

With CONSULT
1. Power switch ON.
2. Perform “Self Diagnostic Results” in “EV/HEV”.

Is any DTC detected?

YES >> Check DTC detected item. Refer to EVC-103, "DTC Index".
NO >> GO TO 3.

3.CHECK DTC OF COMBINATION METER

With CONSULT
1. Power switch ON.
2. Perform “Self Diagnostic Results” in “METER”.

Is any DTC detected?

YES >> Check DTC detected item. Refer to MWI-65, "DTC Index".
NO >> Check input/output signals of combination meter. Refer to MWI-54, "Reference Value".

ELECTRIC SHIFT WARNING LAMP

Component Function Check

INFOID:0000000010639623

1.CHECK ELECTRIC SHIFT WARNING LAMP

Check that electric shift warning lamp turns ON for approx. 2 seconds after power switch is ON.

Is the inspection result normal?

YES >> INSPECTION END
NO >> Go to TM-120, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000010639624

1.CHECK DTC OF ELECTRIC SHIFT CONTROL MODULE

With CONSULT
1. Power switch ON.
2. Perform “Self Diagnostic Results” in “SHIFT”.

Is any DTC detected?

YES >> Check DTC detected item. Refer to TM-50, "DTC Index".
NO >> GO TO 2.

2.CHECK DTC OF VCM

With CONSULT
1. Power switch ON.
2. Perform “Self Diagnostic Results” in “EV/HEV”.

Is any DTC detected?

YES >> Check DTC detected item. Refer to EVC-103, "DTC Index".
NO >> 1. Check input/output signals of VCM. Refer to EVC-85, "Reference Value".
2. If inspection result is OK, GO TO 3.

3.CHECK DTC OF COMBINATION METER

With CONSULT
1. Power switch ON.
2. Perform “Self Diagnostic Results” in “METER”.

Is any DTC detected?

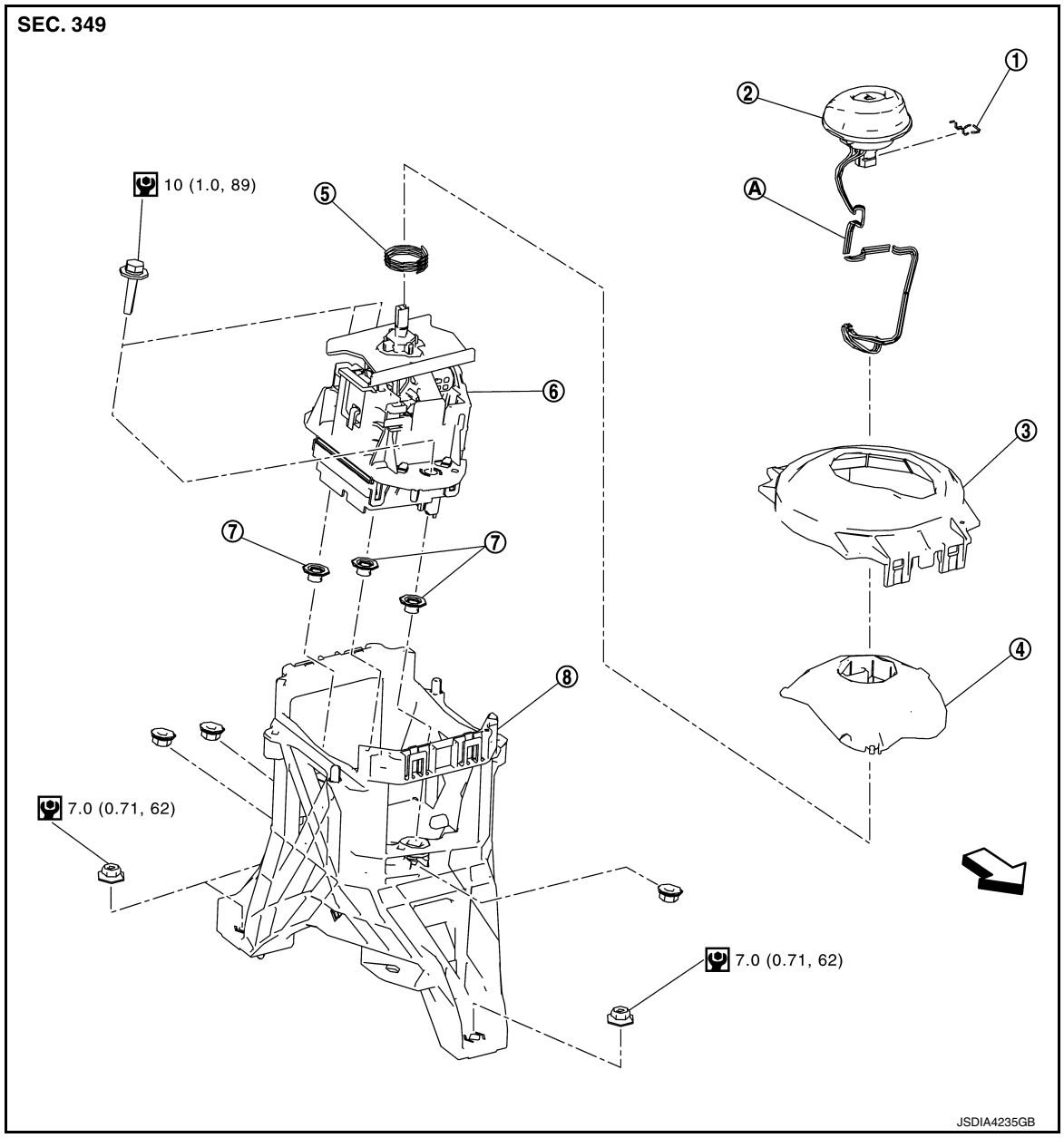
YES >> Check DTC detected item. Refer to MWI-65, "DTC Index".
NO >> Check input/output signals of combination meter. Refer to MWI-54, "Reference Value".

REMOVAL AND INSTALLATION

ELECTRIC SHIFT SELECTOR

Exploded View

INFOID:0000000010639625



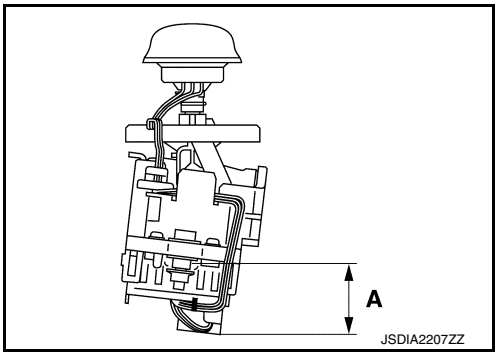
① Lock pin	② Selector lever knob	③ Shift gate
④ Slider plate	⑤ Spring	⑥ Electric shift sensor
⑦ Collar	⑧ Body bracket	
Ⓐ P position switch harness		
⇦ : Vehicle front		
: N·m (kg-m, in-lb)		

Removal and Installation

INFOID:0000000010639626

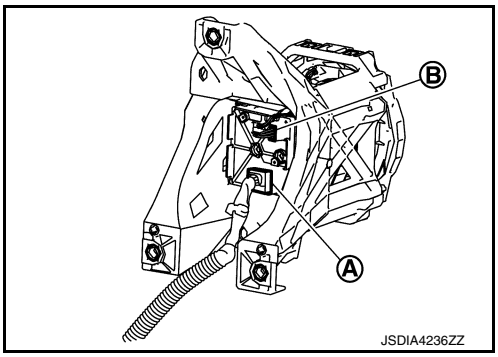
CAUTION:

- **As part A in the figure contains a strong magnet, persons with an electro-medical apparatus should keep it away from his/her body. Otherwise it may cause the electro-medical apparatus to malfunction.**
- **Keep it away from magnetic objects such as magnetic cards and metal products (e.g. watches).**
- **Never subject the electric shift selector to impact by dropping or hitting, water splash or high humidity.**



REMOVAL

1. Disconnect the negative cable from 12V battery. Refer to TM-29, "Precautions for Removing Battery Terminal".
2. Remove the console finisher assembly. Refer to IP-28, "Exploded View".
3. Disconnect the selector indicator connector.
4. Remove the console body assembly. Refer to IP-28, "Exploded View".
5. Remove body harness clip from electric shift selector.
6. Remove electric shift selector fix bolts.
7. Disconnect the electric shift sensor connector Ⓐ.
   CAUTION:
   Never disconnect the P position switch connector Ⓑ.
8. Remove the electric shift selector from the vehicle.



INSTALLATION

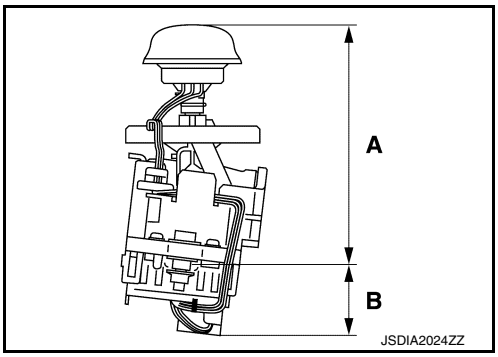
Note the following, and install in the reverse order of removal.

Disassembly and Assembly

INFOID:0000000010639627

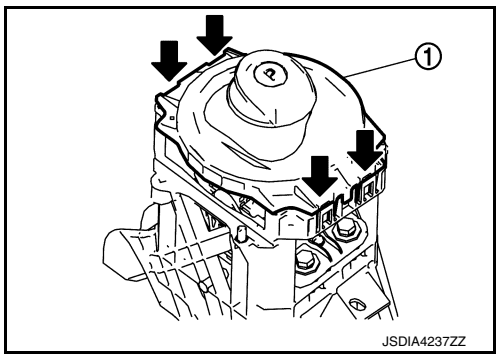
CAUTION:

- **As part B in the figure contains a strong magnet, persons with an electro-medical apparatus should keep it away from his/her body. Otherwise it may cause the electro-medical apparatus to malfunction.**
- **Keep it away from magnetic objects such as magnetic cards and metal products (e.g. watches).**
- **When holding the electric shift sensor, hold part A as shown.**
- **Do not disassemble parts A or B as shown.**
- **Do not subject the electric shift sensor to impact by dropping or hitting, water splash or high humidity.**

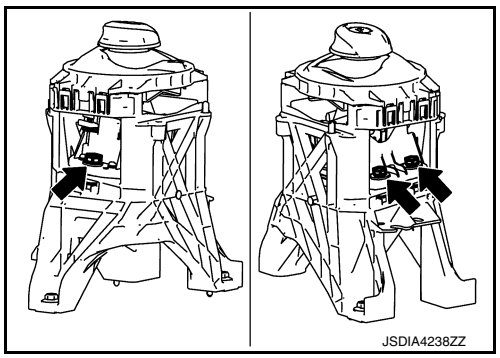


DISASSEMBLY

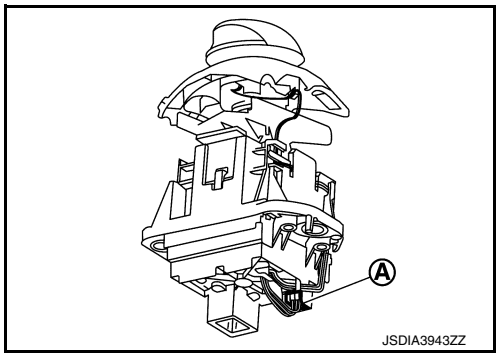
1. Remove the shift gate ① from body bracket.
CAUTION:
- **Be careful not to damage the joint (pawls shown by arrow).**
- **Lifting the shift gate with the selector lever in home position may cause interference between selector lever and shift gate and result in damage. To prevent this, tilt the selector lever slightly toward N position during the removal.**



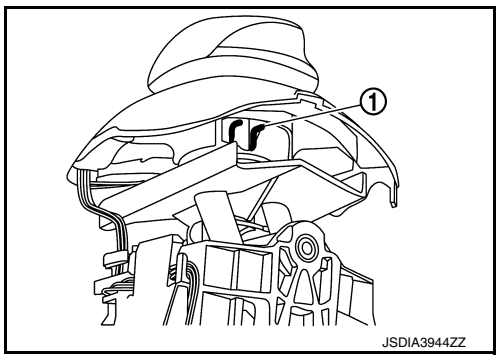
2. Remove electric shift sensor fix bolts (⬅).
3. Remove the electric shift sensor from body bracket.
4. Put a mark at the hook position of the P position switch harness.
CAUTION:
Memorize how the P position switch harness is routed.



5. Disconnect the P position switch connector Ⓐ.
6. Remove P position switch harness from hook.



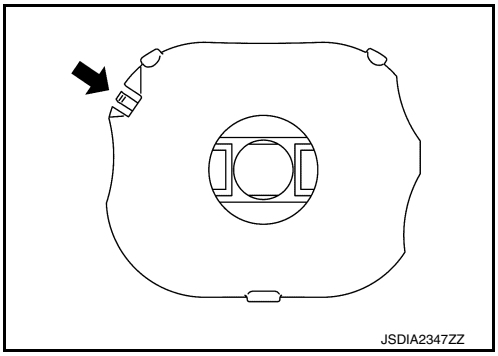
7. Pull the lock pin ① out of the selector lever using long-nose pliers.
CAUTION:
Be careful not to lose the lock pin.
8. Pull the selector lever knob upward out of the vehicle.
9. Remove the slider plate.
10. Remove the spring.



ASSEMBLY

Note the following, and install in the reverse order of removal.
- Install the lock pin to the selector knob before assembly.
- Check that lock pin is securely installed.

- To install slide plate, face the arrow (harness hook) as shown, toward the front of the vehicle.
- Hook the P position switch harness at the marked position.



Inspection

INFOID:0000000010639628

INSPECTION AFTER INSTALLATION

- Pull the selector lever knob upward to check that it does not come off.
- Shift the selector lever and check that the indication of the selector indicator (in the finisher area) and the shift position indicator (in the combination meter) correspond to the actual shift position.
- Check that the shift operation can be performed properly. Refer to TM-34, "Electric Shift Selector".

SELECTOR INDICATOR

Removal and Installation

INFOID:0000000010639629

REMOVAL

1. Remove the console finisher assembly. Refer to IP-28, "Exploded View".
2. Disconnect the selector indicator connector.
3. Remove the selector indicator from the console finisher assembly.

INSTALLATION

Installation is the reverse order of removal.

Inspection

INFOID:0000000010639630

INSPECTION AFTER INSTALLATION

Shift the selector lever and check that the light position of the selector indicator corresponds to the actual shift position.