

TM
SECTION
TRANSAXLE & TRANSMISSION

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TM

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CVT: RE0F09B

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PRECAUTION

PRECAUTIONS

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

INFOID:000000009650050

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

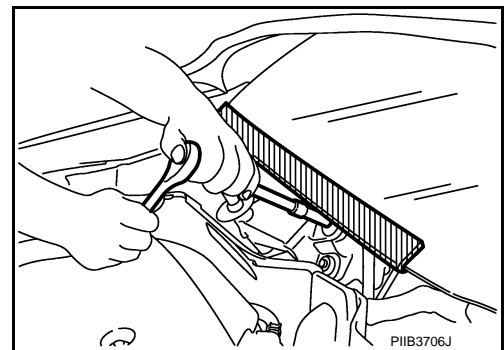
Always observe the following items for preventing accidental activation.

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

Precaution for Procedure without Cowl Top Cover

INFOID:000000009650051

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



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PRECAUTIONS

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[CVT: RE0F09B]

Precautions for Removing Battery Terminal

INFOID:000000009975004

- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.

NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

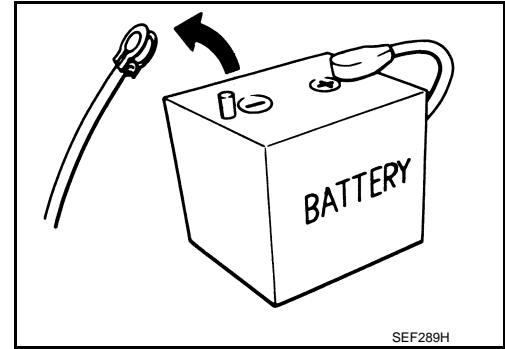
NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

NOTE:

The removal of 12V battery may cause a DTC detection error.



Precaution for On Board Diagnosis (OBD) System of CVT and Engine

INFOID:000000009650052

The ECM has an on board diagnostic system. It will illuminate the malfunction indicator lamp (MIL) to warn the driver of a malfunction causing emission deterioration.

CAUTION:

- Always to turn the ignition switch OFF and disconnect the negative battery cable before any repair or inspection work. The open/short circuit of related switches, sensors, solenoid valves, etc. will cause the MIL to illuminate.
- Always to connect and lock the connectors securely after work. A loose (unlocked) connector will cause the MIL to illuminate due to the open circuit. (Be sure the connector is free from water, grease, dirt, bent terminals, etc.)
- Always route and secure the harnesses properly after work. The interference of the harness with a bracket, etc. may cause the MIL to illuminate due to the short circuit.
- Always to connect rubber tubes properly after work. A misconnected or disconnected rubber tube may cause the MIL to illuminate due to the malfunction of the EVAP system or fuel injection system, etc.
- Always to erase the unnecessary malfunction information (repairs completed) from the TCM and ECM before returning the vehicle to the customer.

Precaution for TCM and Transaxle Assembly Replacement

INFOID:000000009650053

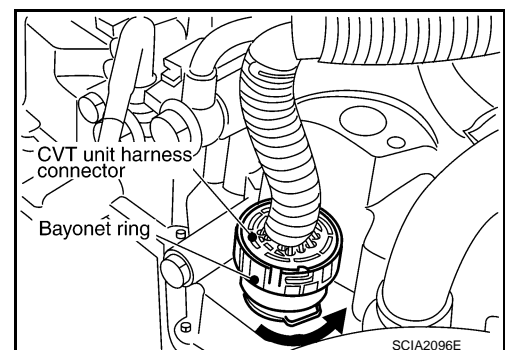
- When replaced the TCM, refer to [TM-61. "Description"](#).
- When replaced the transaxle assembly, refer to [TM-62. "Description"](#).

Removal and Installation Procedure for CVT Unit Connector

INFOID:000000009650054

REMOVAL

Rotate bayonet ring counterclockwise. Pull out CVT unit harness connector upward and remove it.



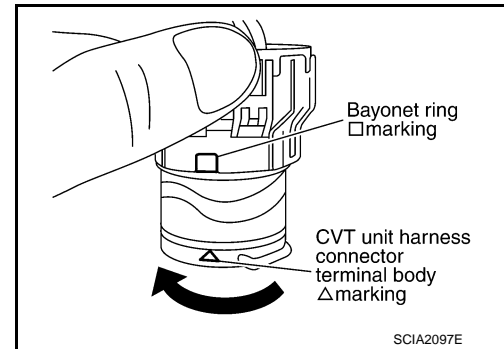
INSTALLATION

PRECAUTIONS

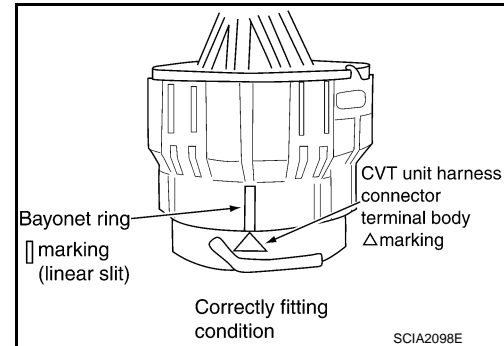
[CVT: RE0F09B]

< PRECAUTION >

1. Align Δ marking on CVT unit harness connector terminal body with \square marking on bayonet ring. Insert CVT unit harness connector. Then rotate bayonet ring clockwise.

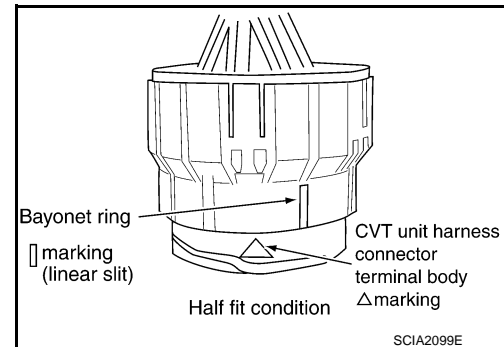


2. Rotate bayonet ring clockwise until Δ marking on CVT unit harness connector terminal body is aligned with the slit on bayonet ring as shown in the figure (correctly fitting condition). Install CVT unit harness connector to CVT unit harness connector terminal body.



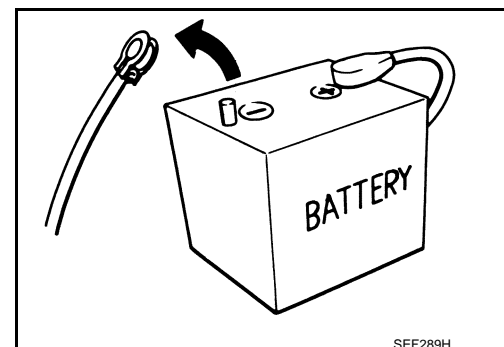
CAUTION:

- Securely align Δ marking on CVT unit harness connector terminal body with bayonet ring slit. Then, be careful not to make a half fit condition as shown in the figure.
- Never mistake the slit of bayonet ring for other dent portion.



Precaution

- Turn ignition switch OFF and disconnect negative battery cable before connecting or disconnecting the TCM harness connector. Because battery voltage is applied to TCM even if ignition switch is turned OFF.



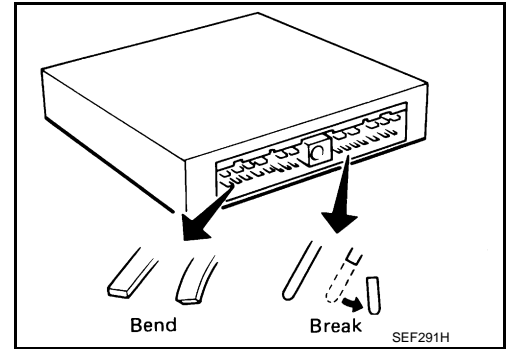
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PRECAUTIONS

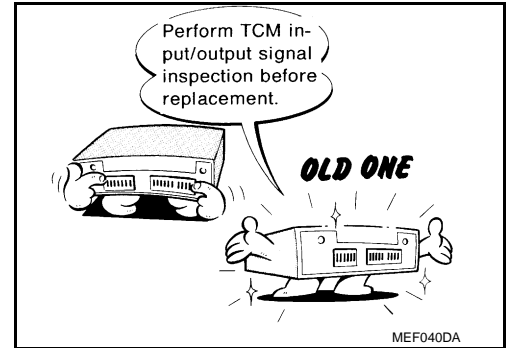
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< PRECAUTION >

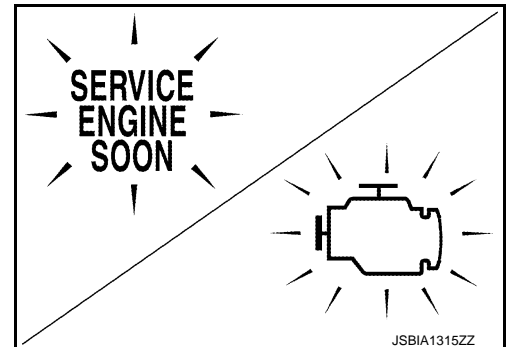
- When connecting or disconnecting pin connectors into or from TCM, do not damage pin terminals (bend or break). Check that there are not any bends or breaks on TCM pin terminal, when connecting pin connectors.



- Perform TCM input/output signal inspection and check whether TCM functions normally or not before replacing TCM. [TM-40, "Reference Value"](#).



- Perform "DTC Confirmation Procedure" after performing each TROUBLE DIAGNOSIS. If the repair is completed the DTC should not be displayed in the "DTC Confirmation Procedure".
- Always use the specified brand of CVT fluid. Refer to [MA-10, "Fluids and Lubricants"](#).
- Use lint-free paper, not cloth rags, during work.
- Dispose of the waste oil using the methods prescribed by law, ordinance, etc. after replacing the CVT fluid.



Service Notice or Precaution

INFOID:000000009650056

OBD-II SELF-DIAGNOSIS

- CVT self-diagnosis is performed by the TCM in combination with the ECM. The results can be read through the blinking pattern of the Malfunction Indicator Lamp (MIL). Refer to the table on [TM-35, "CONSULT Function"](#) for the indicator used to display each self diagnostic result.
- The self diagnostic results indicated by the MIL are automatically stored in both the ECM and TCM memories.

Always perform the procedure on [TM-34, "Diagnosis Description"](#) to complete the repair and avoid unnecessary blinking of the MIL.

For details of OBD-II, refer to [EC-58, "Diagnosis Description"](#).

- Certain systems and components, especially those related to OBD, may use the new style slide-locking type harness connector. For description and how to disconnect, refer to [PG-5, "Harness Connector"](#).

PREPARATION

< PREPARATION >

[CVT: RE0F09B]

PREPARATION

PREPARATION

Special Service Tools

INFOID:000000009650057

The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
— (OTC3492) Oil pressure gauge set	Measuring line pressure
ST33400001 (J-26082) Drift a: 60 mm (2.36 in) dia. b: 47 mm (1.85 in) dia.	Installing differential side oil seal
KV40100621 (J-25405) Drift a: 76 mm (2.99 in) dia. b: 69 mm (2.72 in) dia.	Installing side oil seal (transfer joint)

Commercial Service Tools

INFOID:000000009650058

Tool number Tool name	Description
Power tool	Loosening nuts and bolts
31197CA000 Drive plate location guide a: 14 mm (0.55 in) dia.	Installing transaxle assembly

COMPONENT PARTS

< SYSTEM DESCRIPTION >

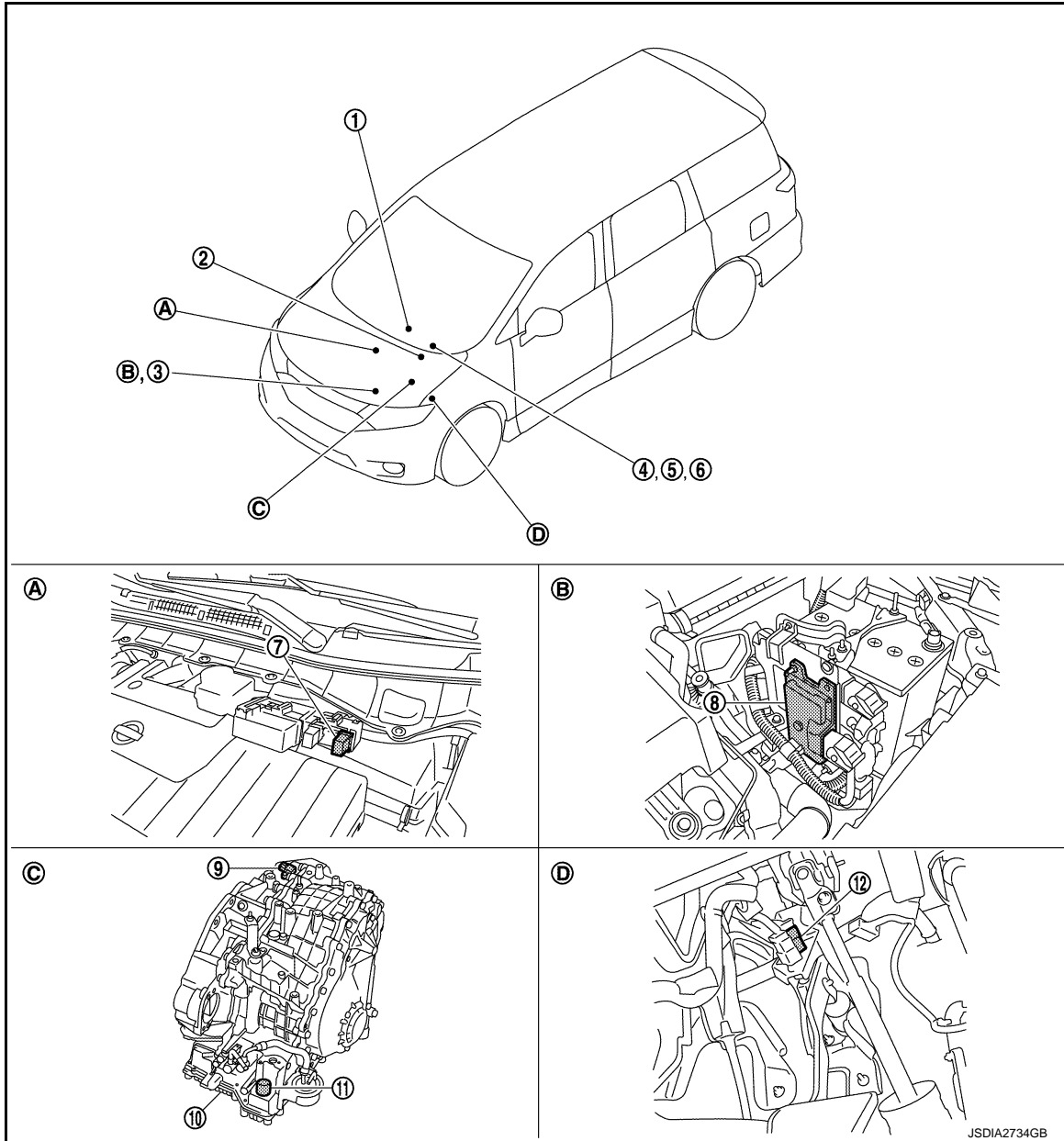
[CVT: RE0F09B]

SYSTEM DESCRIPTION

COMPONENT PARTS CVT CONTROL SYSTEM

CVT CONTROL SYSTEM : Component Parts Location

INFOID:000000009650059



A. Engine room

B. Engine room, left side

C. Transaxle assembly

D. Brake pedal, upper

COMPONENT DESCRIPTION

No.	Component	Function
1	Overdrive control switch	TM-15, "CVT CONTROL SYSTEM : Overdrive Control Switch"
2	BCM	<ul style="list-style-type: none"> The TCM receives the following signal via CAN communications from the BCM for judging the vehicle driving conditions. - Stop lamp switch signal

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

No.	Component	Function	
3	ECM	<ul style="list-style-type: none"> For purposes including improving the feeling when shifting speeds and preventing drops in engine speed, control signals are exchanged between the ECM and TCM, and real-time cooperative control is performed according to the vehicle driving conditions. (Engine and CVT integrated control) Engine and CVT integrated control signal <p>NOTE: General term for the communication (torque-down permission, torque down request, etc.) exchanged between the ECM and TCM.</p> <ul style="list-style-type: none"> The TCM receives the following signal via CAN communications from the ECM for judging the vehicle driving conditions. Engine speed signal Accelerator pedal position signal 	
4	Combination meter	<ul style="list-style-type: none"> The TCM receives the following signal via CAN communications from the combination meter for judging the driving request from the driver. Overdrive control switch signal 	
5	Shift position indicator	TM-15, "CVT CONTROL SYSTEM : Shift Position Indicator"	
6	O/D OFF indicator lamp	TM-15, "CVT CONTROL SYSTEM : O/D OFF Indicator Lamp"	
7	Stop lamp relay	TM-15, "CVT CONTROL SYSTEM : Stop Lamp Relay"	
8	TCM	TM-11, "CVT CONTROL SYSTEM : TCM"	
9	Secondary speed sensor	TM-12, "CVT CONTROL SYSTEM : Secondary Speed Sensor"	
10	Control valve	Transmission range switch*	TM-11, "CVT CONTROL SYSTEM : Transmission Range Switch"
		CVT fluid temperature sensor*	TM-12, "CVT CONTROL SYSTEM : CVT Fluid Temperature Sensor"
		Secondary pressure sensor*	TM-13, "CVT CONTROL SYSTEM : Secondary Pressure Sensor"
		Primary pressure sensor*	TM-13, "CVT CONTROL SYSTEM : Primary Pressure Sensor"
		Primary speed sensor*	TM-12, "CVT CONTROL SYSTEM : Primary Speed Sensor"
		Line pressure solenoid valve*	TM-14, "CVT CONTROL SYSTEM : Line Pressure Solenoid Valve"
		Secondary pressure solenoid valve*	TM-14, "CVT CONTROL SYSTEM : Secondary Pressure Solenoid Valve"
		Torque converter clutch solenoid valve*	TM-14, "CVT CONTROL SYSTEM : Torque Converter Clutch Solenoid Valve"
		Lock-up select solenoid valve*	TM-14, "CVT CONTROL SYSTEM : Lock-up Select Solenoid Valve"
		Step motor*	TM-15, "CVT CONTROL SYSTEM : Step Motor"
ROM assembly*	TM-15, "CVT CONTROL SYSTEM : ROM Assembly"		
11	CVT unit connector	—	
12	Stop lamp switch	BRC-11, "Stop Lamp Switch"	

*: These components are installed in control valve assembly.

CVT CONTROL SYSTEM : TCM

INFOID:000000009650060

Judges driving condition according to signals from each sensor, and optimally controls variable speed mechanism.

CVT CONTROL SYSTEM : Transmission Range Switch

INFOID:000000009650061

- The transmission range switch is included in the control valve assembly.
- The transmission range switch includes 4 transmission position switches.
- TCM judges the selector lever position by the transmission range switch signal.

Shift position	Transmission range switch 1	Transmission range switch 2	Transmission range switch 3	Transmission range switch 4	Transmission range switch 3 (monitor)
P	OFF	OFF	OFF	OFF	OFF
R	ON	OFF	OFF	ON	OFF
N	ON	ON	OFF	OFF	OFF

COMPONENT PARTS

< SYSTEM DESCRIPTION >

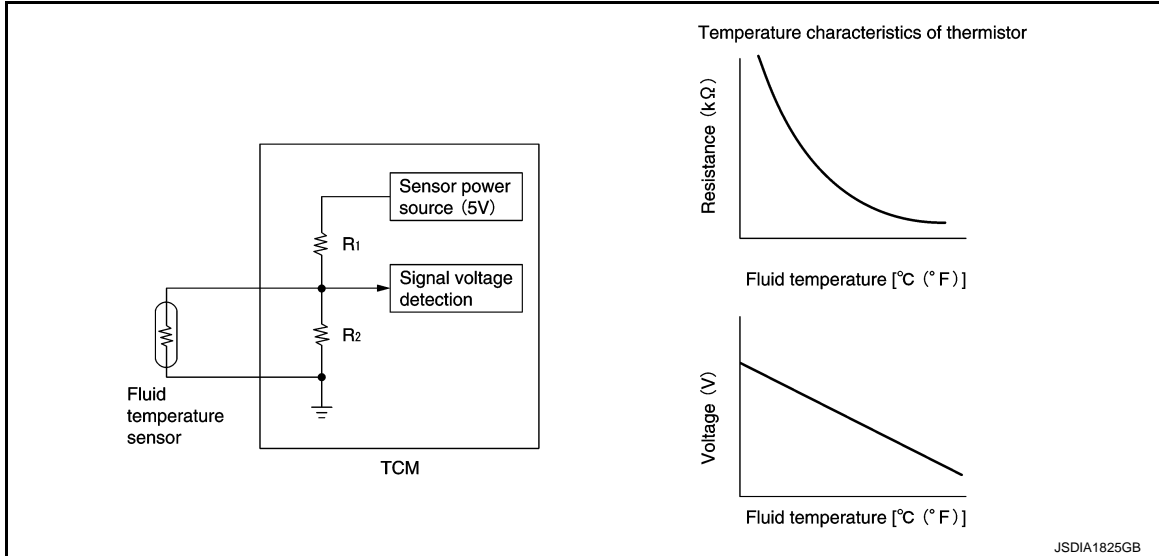
[CVT: RE0F09B]

Shift position	Transmission range switch 1	Transmission range switch 2	Transmission range switch 3	Transmission range switch 4	Transmission range switch 3 (monitor)
D	ON	ON	ON	ON	ON
L	OFF	ON	ON	OFF	ON

CVT CONTROL SYSTEM : CVT Fluid Temperature Sensor

INFOID:000000009650062

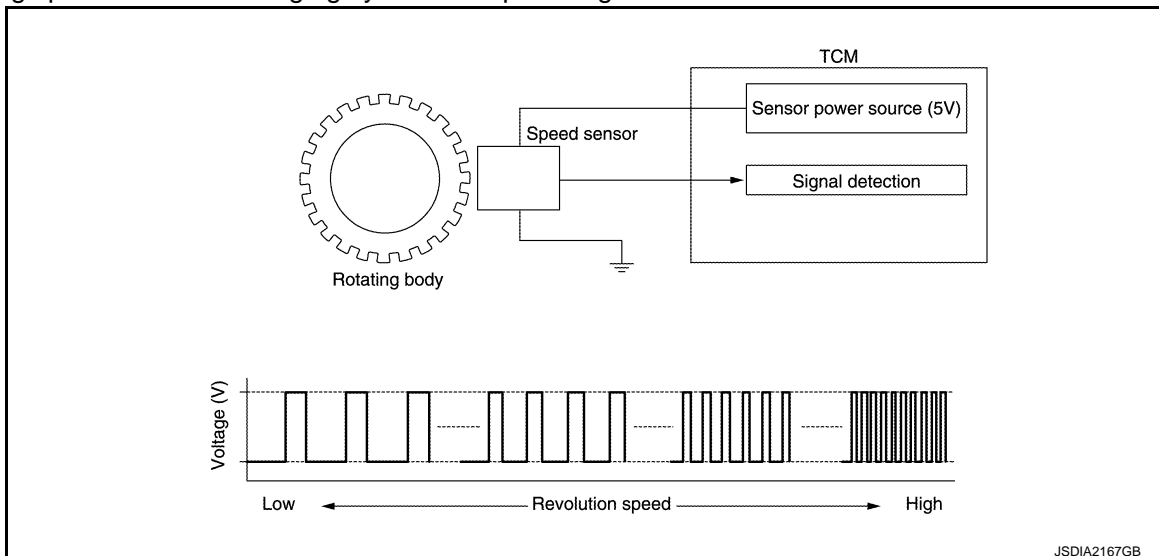
- The CVT fluid temperature sensor is included in the control valve assembly.
- The CVT fluid temperature sensor detects the CVT fluid temperature and sends a signal to the TCM.
- The fluid temperature sensor uses a thermistor, and changes the signal voltage by converting changes in the CVT fluid temperature to a resistance value. TCM evaluates the CVT fluid temperature from the signal voltage value.



CVT CONTROL SYSTEM : Primary Speed Sensor

INFOID:000000009650063

- The primary speed sensor is included in the control valve assembly.
- The primary speed sensor detects the primary pulley revolution speed and sends a signal to the TCM.
- The primary speed sensor generates the ON-OFF pulse (short waveform) in proportion to the rotating body speed which is "The higher the rotating body speed is, the faster the change cycle is". The TCM judges the rotating speed from the changing cycle of this pulse signal.



CVT CONTROL SYSTEM : Secondary Speed Sensor

INFOID:000000009650064

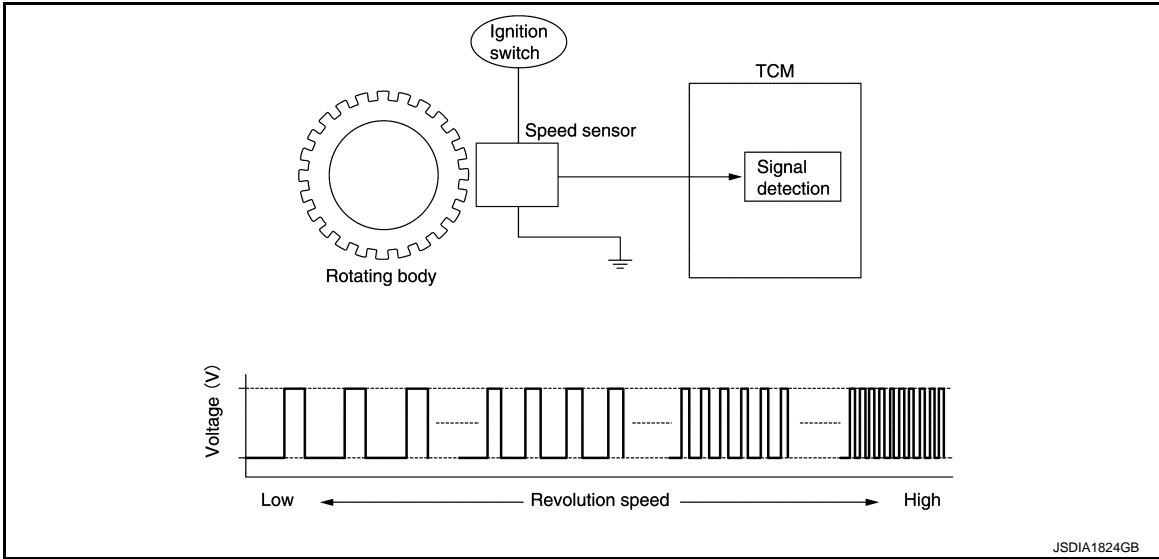
- The secondary speed sensor is installed in the rear of transaxle assembly.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

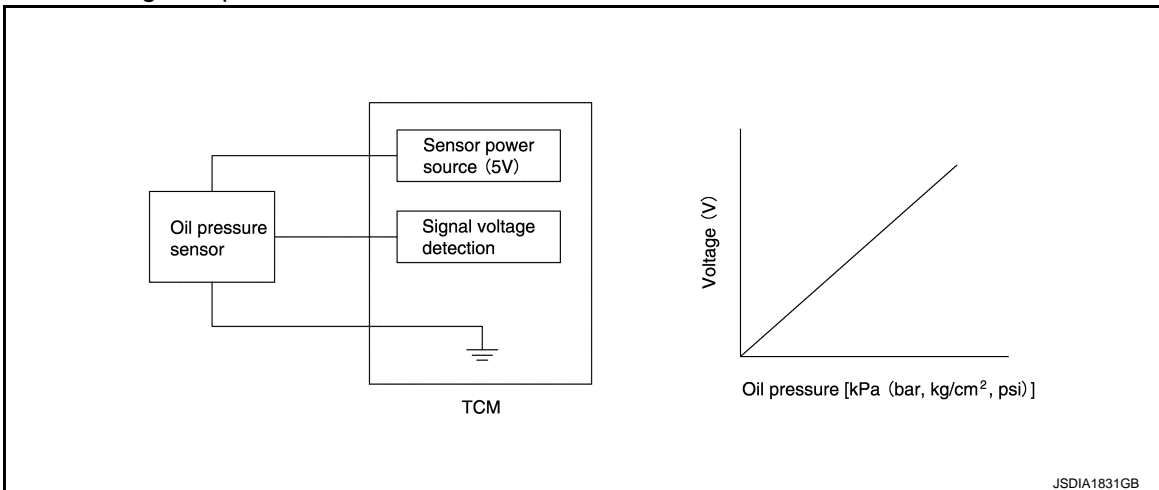
- The secondary speed sensor detects the secondary pulley revolution speed and sends a signal to the TCM.
- The secondary speed sensor generates the ON-OFF pulse (short waveform) in proportion to the rotating body speed which is “The higher the rotating body speed is, the faster the change cycle is”. The TCM judges the rotating speed from the changing cycle of this pulse signal.



CVT CONTROL SYSTEM : Primary Pressure Sensor

INFOID:000000009650065

- The primary pressure sensor is included in the transaxle assembly.
- The primary pressure sensor detects primary pressure of CVT and sends a signal to the TCM.
- When pressure is applied to the ceramic device in the primary pressure sensor, the ceramic device is deformed, resulting in voltage change. TCM evaluates the primary pressure from its voltage change. Voltage is increased along with pressure increase.



CVT CONTROL SYSTEM : Secondary Pressure Sensor

INFOID:000000009650066

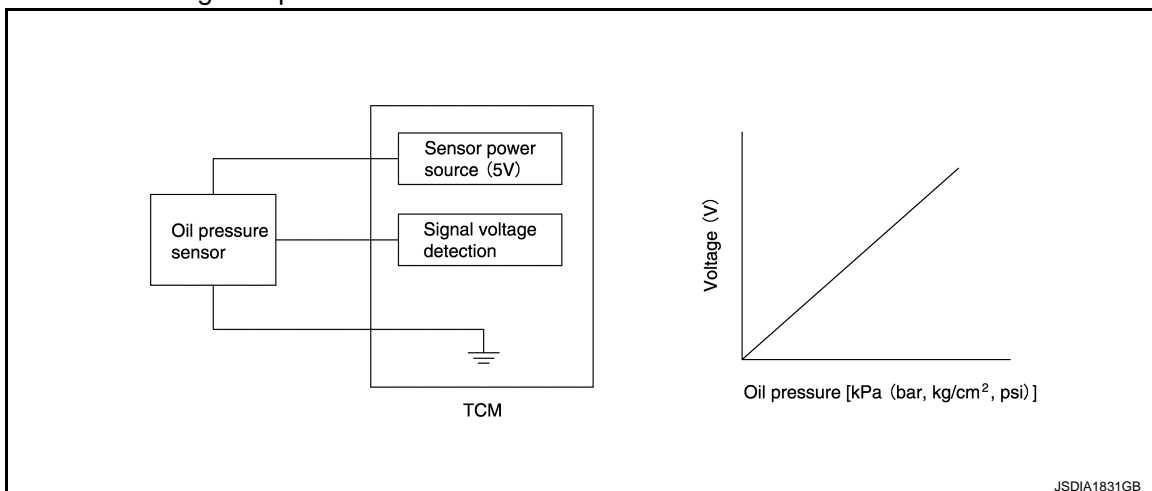
- The secondary pressure sensor is included in the control valve assembly.
- The secondary pressure sensor detects secondary pressure of CVT and sends a signal to the TCM.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

- When pressure is applied to the ceramic device in the secondary pressure sensor, the ceramic device is deformed, resulting in voltage change. TCM evaluates the secondary pressure from its voltage change. Voltage is increased along with pressure increase.



CVT CONTROL SYSTEM : Secondary Pressure Solenoid Valve

INFOID:000000009650067

- The secondary pressure solenoid valve is included in the control valve assembly.
- The secondary pressure solenoid valve controls secondary valve. For detailed secondary valve, refer to [TM-21, "TRANSAXLE : Component Description"](#).
- The secondary pressure solenoid valve contains a linear solenoid valve [N/H (Normal High) type].

NOTE:

- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/H (Normal High) produces hydraulic control when the coil is not energized.

CVT CONTROL SYSTEM : Line Pressure Solenoid Valve

INFOID:000000009650068

- The line pressure solenoid valve is included in the control valve assembly.
- Line pressure solenoid valve controls pressure regulator valve. For detailed pressure regulator valve, refer to [TM-21, "TRANSAXLE : Component Description"](#).
- The line pressure solenoid valve contains a linear solenoid valve [N/H (Normal High) type].

NOTE:

- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/H (Normal High) produces hydraulic control when the coil is not energized.

CVT CONTROL SYSTEM : Torque Converter Clutch Solenoid Valve

INFOID:000000009650069

- The torque converter clutch solenoid valve is included in the control valve assembly.
- The torque converter clutch solenoid valve controls TCC control valve. For detailed TCC control valve, refer to [TM-21, "TRANSAXLE : Component Description"](#).
- The torque converter clutch solenoid valve contains a linear solenoid valve [N/L (Normal Low) type].

NOTE:

- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/L (Normal Low) type does not produce hydraulic control when the coil is not energized.

CVT CONTROL SYSTEM : Lock-up Select Solenoid Valve

INFOID:000000009650070

- The lock-up select solenoid valve is included in the control valve assembly.
- The lock-up select solenoid valve controls the select switch valve. For detailed secondary valve, refer to [TM-21, "TRANSAXLE : Component Description"](#).
- The lock-up select solenoid valve contains an ON/OFF solenoid valve.

NOTE:

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

- The only operations of the valve spool installed inside the coil are pressing or not pressing the ball which seals the hydraulic supply section into the seat. This A/T uses N/L (Normal Low) type.
- When voltage is not applied to the coil, the force of the pilot pressure presses the ball against the seat, stopping the pilot pressure at that point.
- When voltage is applied to the coil, the valve is pulled in the direction of the coil, disengaging the hydraulic seal which the ball creates. This supplies pilot pressure to the operating locations.

CVT CONTROL SYSTEM : Step Motor

INFOID:000000009650071

The step motor changes the step by turning 4 coils ON/OFF according to the signal from TCM. As a result, the flow of line pressure to primary pulley is changed and pulley ratio is controlled.

CVT CONTROL SYSTEM : ROM Assembly

INFOID:000000009650072

The ROM assembly stores the calibration data (characteristic value) of each solenoid valve. TCM enables accurate hydraulic control by obtaining the calibration data.

CVT CONTROL SYSTEM : Shift Position Indicator

INFOID:000000009650073

- The shift position indicator is located in the combination meter.
- TCM transmits shift position signal to combination meter via CAN communication. The actual shift position is displayed on combination meter according to the signal.

CVT CONTROL SYSTEM : Overdrive Control Switch

INFOID:000000009650074

- The overdrive control switch is installed on the selector lever knob.
- If the overdrive control switch is pressed when the O/D OFF indicator lamp on the combination meter is not lit, the status changes to overdrive OFF and the O/D OFF indicator lamp illuminates.
- If the overdrive control switch is pressed when the O/D OFF indicator lamp on the combination meter is lit, the overdrive OFF status is canceled and the O/D OFF indicator lamp turns off.

CVT CONTROL SYSTEM : O/D OFF Indicator Lamp

INFOID:000000009650075

- The O/D OFF indicator lamp is located in the combination meter.
- The O/D OFF indicator lamp illuminates when the overdrive function is deactivated (O/D OFF).
- For checking the bulb, this lamp turns on for a certain period of time when the ignition switch turns ON, and then turns off.

Condition (status)	O/D OFF indicator lamp
Ignition switch OFF.	OFF
Ignition switch ON.	ON (Approx. 2 seconds)
Overdrive control switch is pressed when the selector lever is in the "D" position and the O/D OFF indicator lamp is OFF (when system is normal).	ON
Overdrive control switch is pressed when the selector lever is in the "D" position and the O/D OFF indicator lamp is ON.	OFF
Selector lever is shifted from the "D" position to another position when the O/D OFF indicator lamp is ON.	OFF

CVT CONTROL SYSTEM : Stop Lamp Relay

INFOID:000000009650076

The stop lamp relay is turned ON by the stop lamp switch operation.

SHIFT LOCK SYSTEM

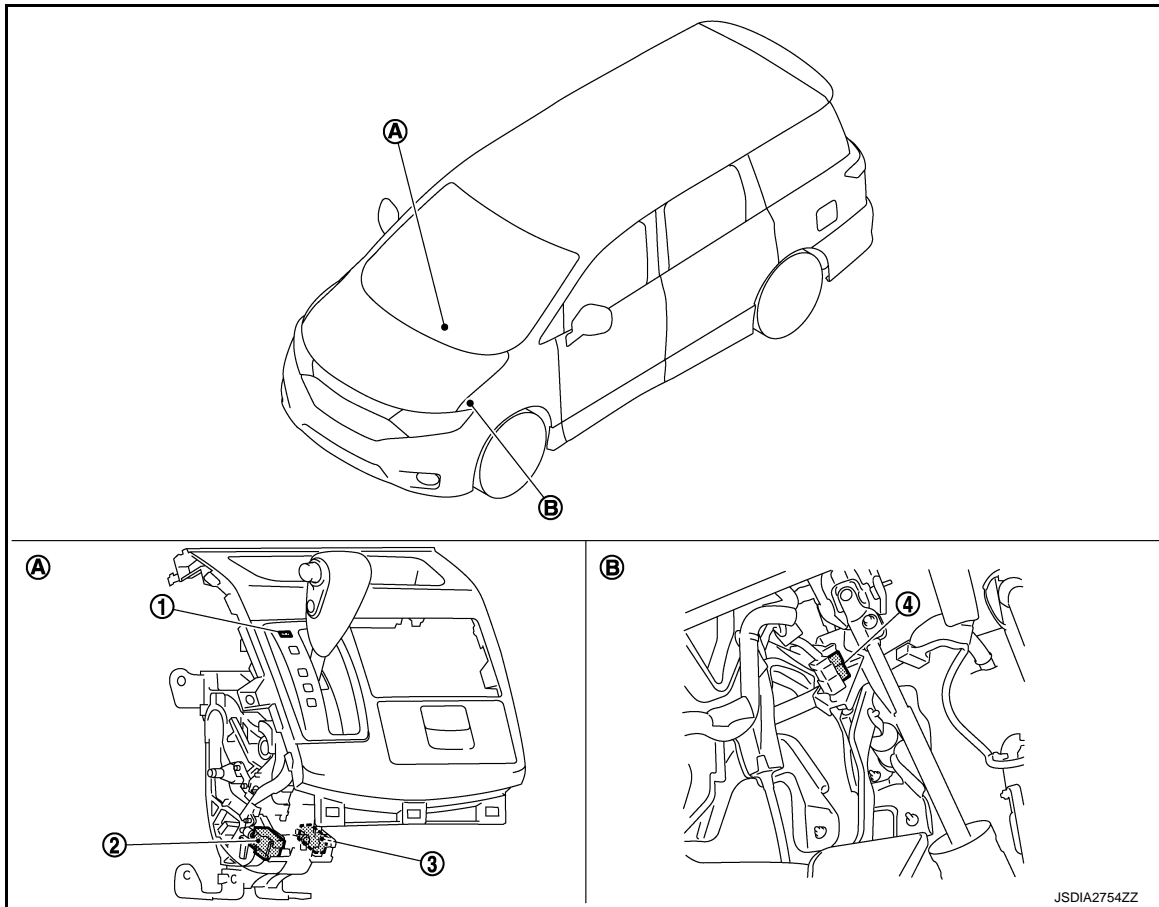
COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

SHIFT LOCK SYSTEM : Component Parts Location

INFOID:000000009650077



A. CVT shift selector assembly

B. Brake pedal, upper

COMPONENT DESCRIPTION

No.	Component	Function
1	Shift lock release button	Forcibly releases the shift lock when pressed.
2	Shift lock solenoid	It operates according to the signal from the stop lamp switch and moves the lock lever.
3	Park position switch	It detects that the selector lever is in "P" position.
4	Stop lamp switch	<ul style="list-style-type: none"> The stop lamp switch turns ON when the brake pedal is depressed. When the stop lamp switch turns ON, the shift lock solenoid is energized.

STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

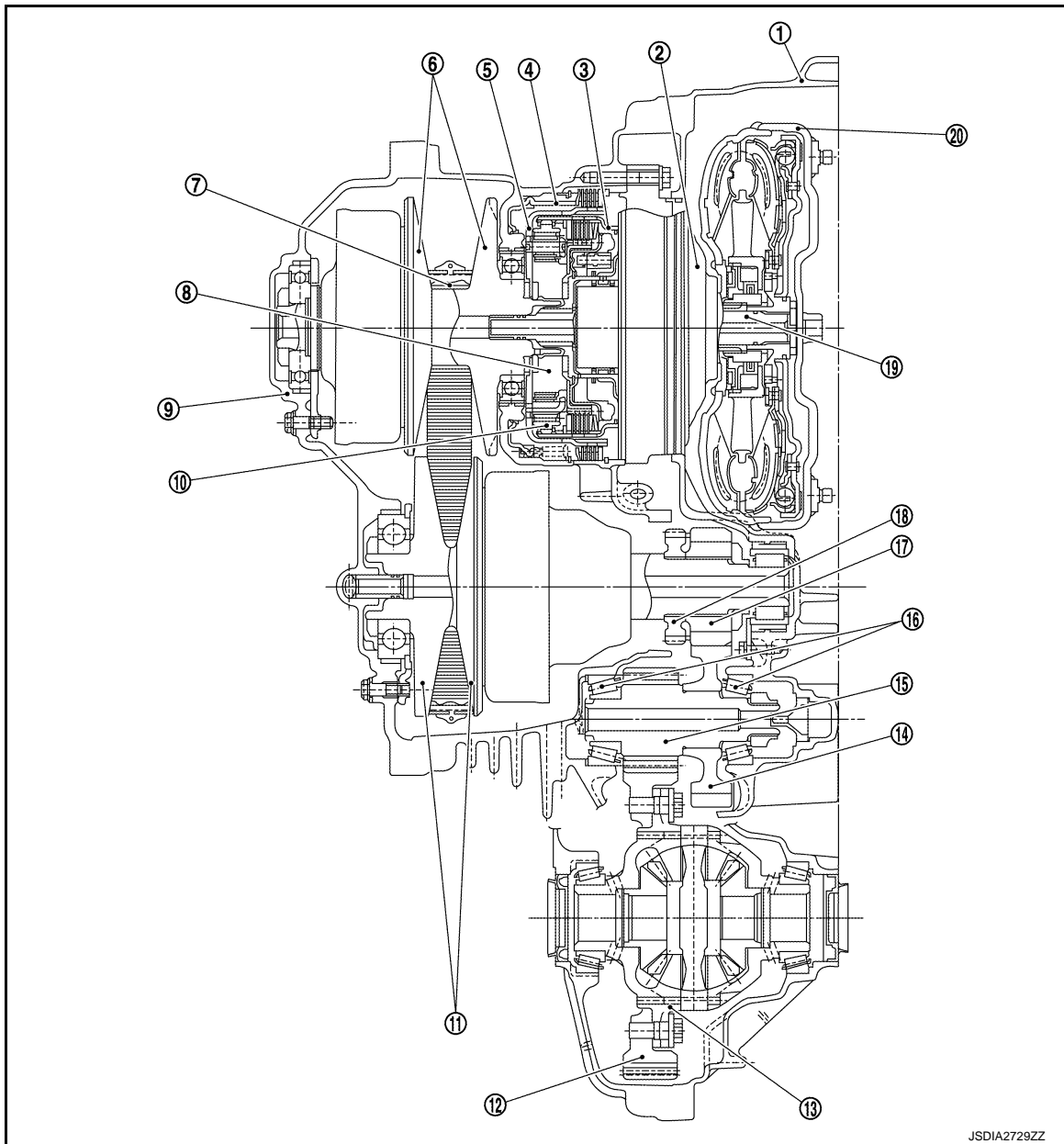
[CVT: RE0F09B]

STRUCTURE AND OPERATION

TRANSAXLE

TRANSAXLE : Exploded View

INFOID:000000009650078



- | | | |
|--------------------------|----------------------|--------------------|
| 1. Converter housing | 2. Oil pump | 3. Forward clutch |
| 4. Reverse brake | 5. Planetary carrier | 6. Primary pulley |
| 7. Steel belt | 8. Sun gear | 9. Side cover |
| 10. Internal gear | 11. Secondary pulley | 12. Final gear |
| 13. Differential case | 14. Idler gear | 15. Reduction gear |
| 16. Taper roller bearing | 17. Output gear | 18. Parking gear |
| 19. Input shaft | 20. Torque converter | |

TRANSAXLE : Planetary Gear

INFOID:000000009650079

- A planetary gear type of forward/reverse selector mechanism is installed between the torque converter and primary pulley.

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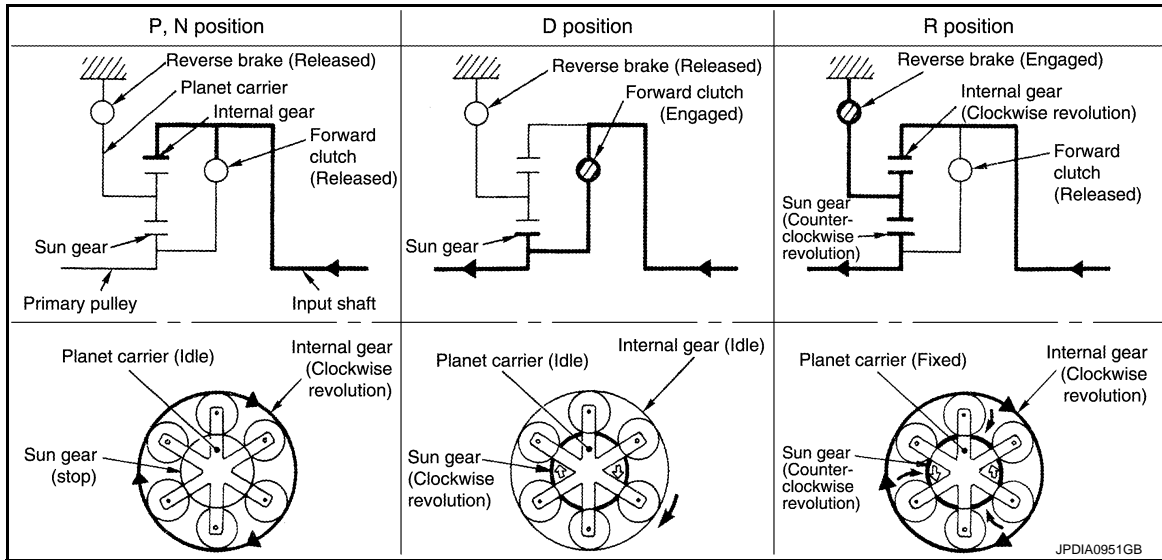
STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

- The power from the torque converter is input via the input shaft, operating a wet multi-plate clutch by means of hydraulic pressure to switch between forward and reverse driving.

PLANETARY GEAR OPERATION



TRANSAXLE : Belt & Pulley

INFOID:000000009650080

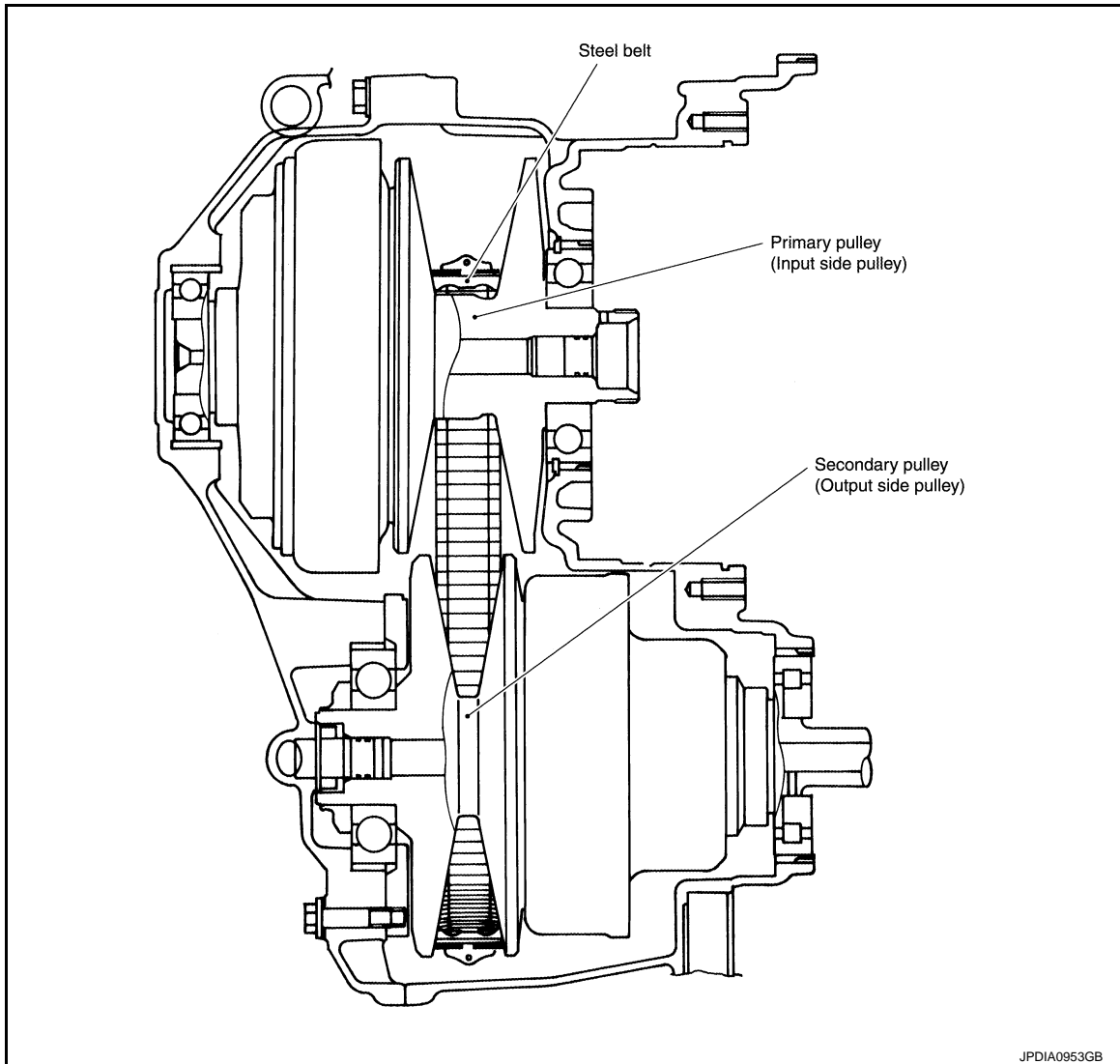
It is composed of a pair of pulleys (the groove width is changed freely in the axial direction) and the steel belt (the steel plates are placed continuously and the belt is guided with the multilayer steel rings on both sides).

STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

The groove width changes according to wrapping radius of steel belt and pulley from low status to overdrive status continuously with non-step. It is controlled with the oil pressures of primary pulley and secondary pulley.



STEEL BELT

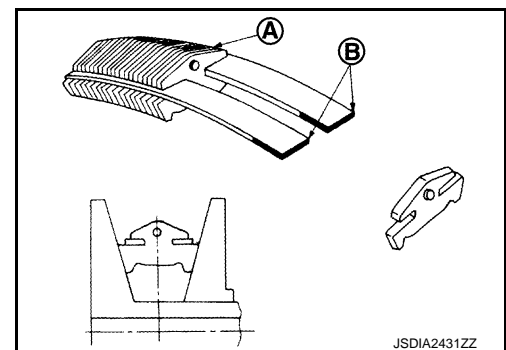
It is composed of multiple steel plates (A) and two steel rings (B) stacked to a several number. The feature of this steel belt transmits power with compression of the steel plate in contrast with transmission of power in pulling with a rubber belt. Friction force is required with the pulley slope to transmit power from the steel plate. The force is generated with the following mechanism:

Oil pressure applies to the secondary pulley to nip the plate. ⇒ The plate is pushed and extended outward. ⇒ The steel ring shows with-stands. ⇒ Pulling force is generated on the steel ring. ⇒ The plate of the primary pulley is nipped between the pulley. ⇒ Friction force is generated between the steel belt and the pulley.

Therefore, responsibilities are divided by the steel plate that transmits the power with compression and the steel ring that maintains necessary friction force. In this way, the tension of the steel ring is distributed on the entire surface and stress variation is limited, resulting in good durability.

PULLEY

The primary pulley (input shaft side) and the secondary pulley (output shaft side) have the shaft with slope (fixed cone surface), movable sheave (movable cone surface that can move in the axial direction) and oil pressure chamber at the back of the movable sheave.

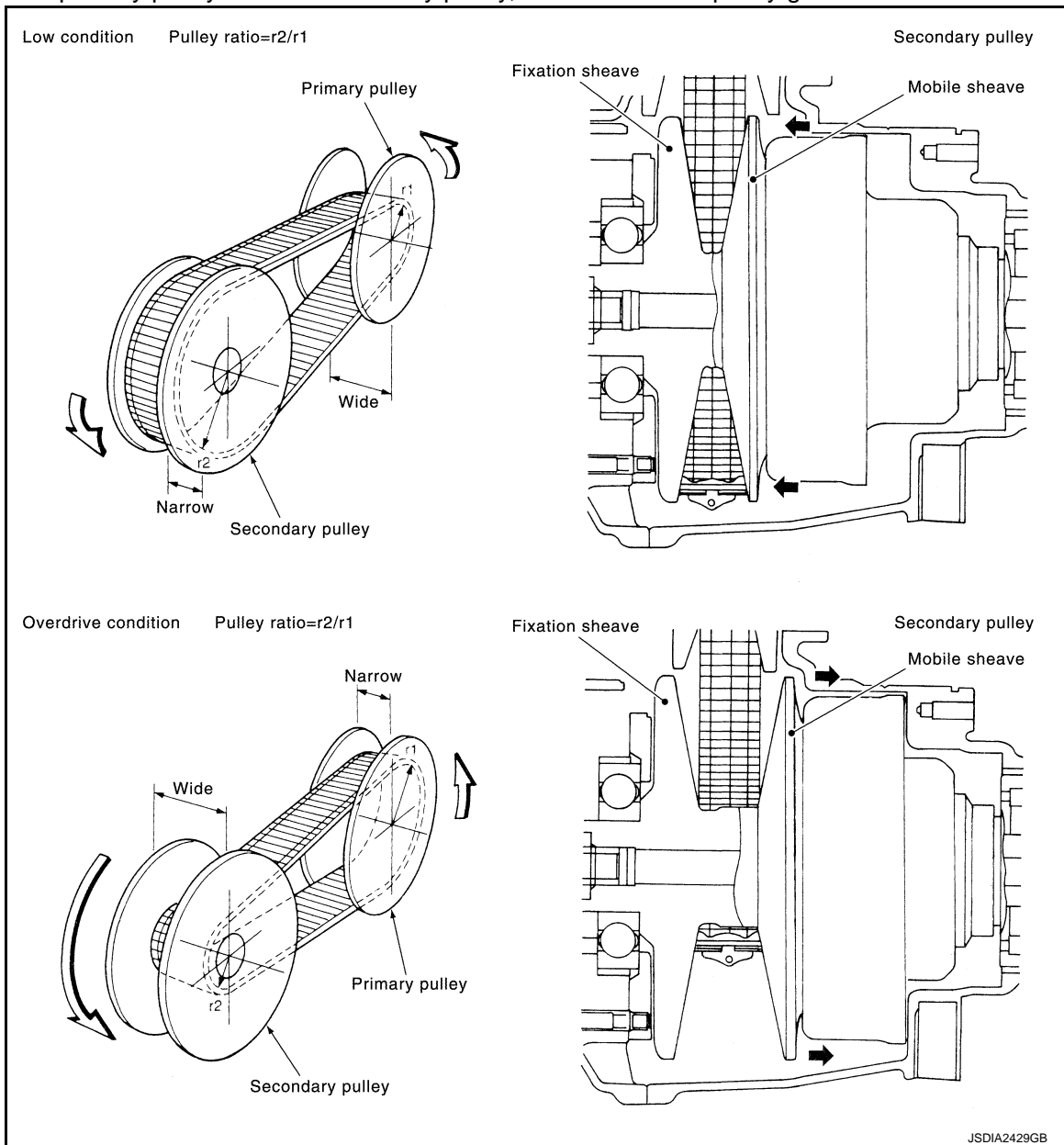


STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

The movable sheave slides on the shaft to change the groove width of the pulley. Input signals of engine load (accelerator pedal opening), primary pulley speed and secondary pulley speed change the operation pressures of the primary pulley and the secondary pulley, and controls the pulley groove width.



TRANSAXLE : Final Drive & Differential

INFOID:000000009650081

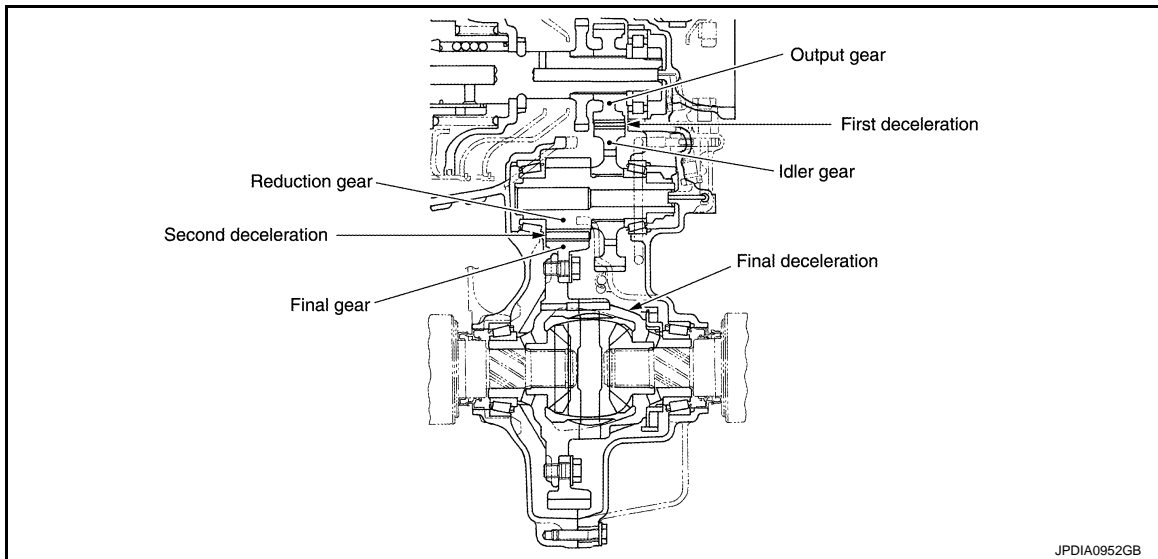
- The deceleration gears are composed of 2 stages: primary deceleration (output gear, idler gear pair) and secondary deceleration (reduction gear, final gear pair). All of these gears are helical gears.

STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

- The lubrication oil is the same as the fluid which lubricates the entire transaxle.



TRANSAXLE : Component Description

INFOID:000000009650082

Part name	Function
Torque converter	<ul style="list-style-type: none"> • Increases engine torque and transmits it to the transaxle. • In the same way as a conventional A/T, the torque converter is a system that increases the engine torque and transmits the torque to the transaxle. A symmetrical 3-element, 1-stage, 2-phase type is used here.
Oil pump	The adoption of a trochoidal oil pump with a flow control valve actuated directly by the engine enables the sufficient discharge from an oil pump in the low-rpm range and the adequate discharge adjustments in the high-rpm range.
Forward clutch	The forward clutch is wet and multiple plate type clutch that consists of clutch drum, piston, drive plate, and driven plate. It is a clutch to move the vehicle forward by activating piston hydraulically, engaging plates, and directly connecting sun gear and input shaft.
Reverse brake	The reverse brake is a wet multiple-plate type brake that consists of transaxle case, piston, drive plate, and driven plate. It is a brake to move the vehicle in reverse by activating piston hydraulically, engaging plates, and fixing planetary gear.
Internal gear	The internal gear is directly connected to forward clutch drum. It is a gear that moves the outer edge of pinion planet of planet carrier. It transmits power to move the vehicle in reverse when the planet carrier is fixed.
Planet carrier	Composed of a carrier, pinion planet, and pinion shaft. This gear fixes and releases the planet carrier in order to switch between forward and reverse driving.
Sun gear	Sun gear is a set part with planet carrier and internal gear. It transmits transmitted force to primary fixed sheave. It rotates in forward or reverse direction according to activation of either forward clutch or reverse brake.
Input shaft	The input shaft is directly connected to forward clutch drum and transmits traction force from torque converter. In shaft center, there are holes for hydraulic distribution to primary pulley and hydraulic distribution for lockup ON/OFF.
Primary pulley	It is composed of a pair of pulleys (the groove width is changed freely in the axial direction) and the steel belt (the steel plates are placed continuously and the belt is guided with the multilayer steel rings on both sides). The groove width changes according to wrapping radius of steel belt and pulley from low status to overdrive status continuously with non-step. It is controlled with the oil pressures of primary pulley and secondary pulley.
Secondary pulley	
Steel belt	
Manual shaft	When the manual shaft is in the P position, the parking rod that is linked to the manual shaft rotates the parking pole. When the parking pole rotates, it engages with the parking gear, fixing the parking gear. As a result, the output shaft that is integrated with the parking gear is fixed.
Parking rod	
Parking pawl	
Parking gear	

STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

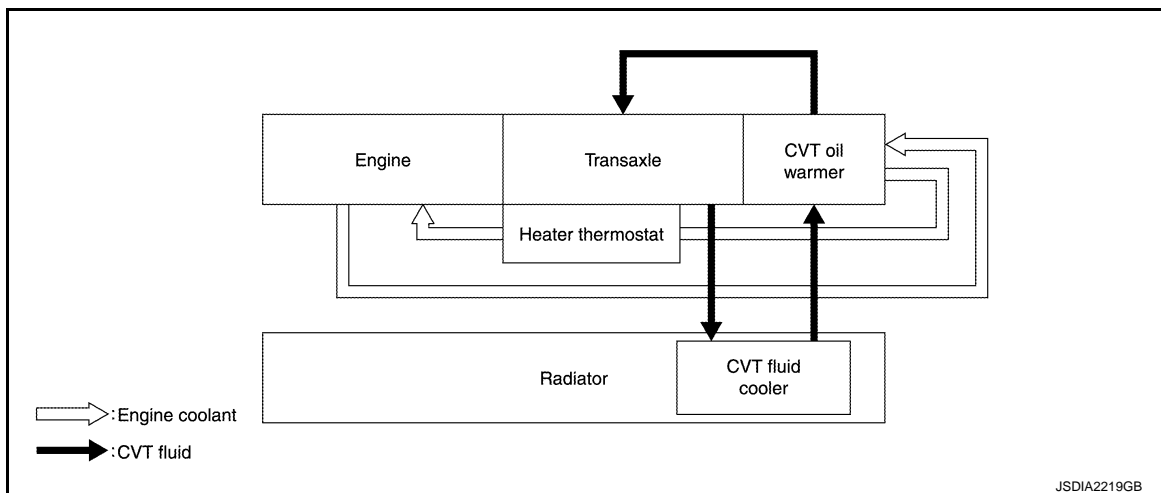
Part name	Function
Output gear	The deceleration gears are composed of 2 stages: primary deceleration (output gear, idler gear pair) and secondary deceleration (reduction gear, final gear pair). All of these gears are helical gears.
Idler gear	
Reduction gear	
Final gear	
Differential	
Torque converter regulator valve	Adjusts the feed pressure to the torque converter to the optimum pressure corresponding to the driving condition.
Pressure regulator valve	Adjusts the discharge pressure from the oil pump to the optimum pressure (line pressure) corresponding to the driving condition.
Torque converter clutch control valve	Adjusts the torque converter engage and disengage pressures.
Shift control valve	Controls the line pressure that is applied to the primary pulley according to the stroke difference between the step motor and primary pulley.
Secondary valve	Reduces the line pressure and adjusts the secondary pressure.
Clutch regulator valve	Adjusts the clutch operating pressure according to the driving conditions.
Manual valve	Distributes the clutch operation pressure to each circuit according to the selector lever position.
Select control valve	Engages when selected. Adjusts the forward clutch pressure and reverse brake pressure.
Select switch valve	Performs switching control of the torque converter clutch solenoid valve control pressure when lock up is engaged/disengaged, and when the forward/reverse clutches (forward clutch and reverse brake) are engaged/disengaged.

FLUID COOLER & FLUID WARMER SYSTEM

FLUID COOLER & FLUID WARMER SYSTEM : System Description

INFOID:000000009650083

CVT FLUID COOLER SCHEMATIC



COMPONENT DESCRIPTION

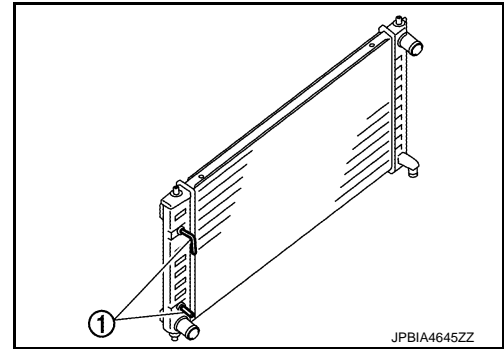
CVT Fluid Cooler

STRUCTURE AND OPERATION

[CVT: RE0F09B]

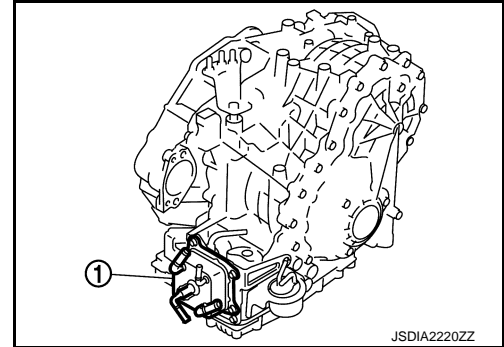
< SYSTEM DESCRIPTION >

- The CVT fluid cooler (1) is installed in the radiator side tank (left side).
- When engine is started while engine and CVT are cold, engine coolant temperature rises more quickly than CVT fluid temperature. CVT oil warmer is provided with two circuits for CVT and engine coolant respectively so that warmed engine coolant warms CVT quickly. This helps shorten CVT warming up time, improving fuel economy.
- A cooling effect is obtained when A/T fluid temperature is high.



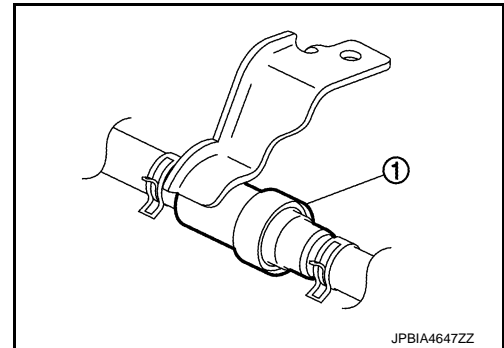
CVT Oil Warmer

- The CVT oil warmer (1) is installed on the front part of transaxle assembly.
- When engine is started while engine and CVT are cold, engine coolant temperature rises more quickly than CVT fluid temperature. CVT oil warmer is provided with two circuits for CVT and engine coolant respectively so that warmed engine coolant warms CVT quickly. This helps shorten CVT warming up time, improving fuel economy.
- A cooling effect is obtained when A/T fluid temperature is high.



Heater Thermostat

- The heater thermostat (1) is installed on the front part of transaxle assembly.
- The heater thermostat open and close with set temperature.



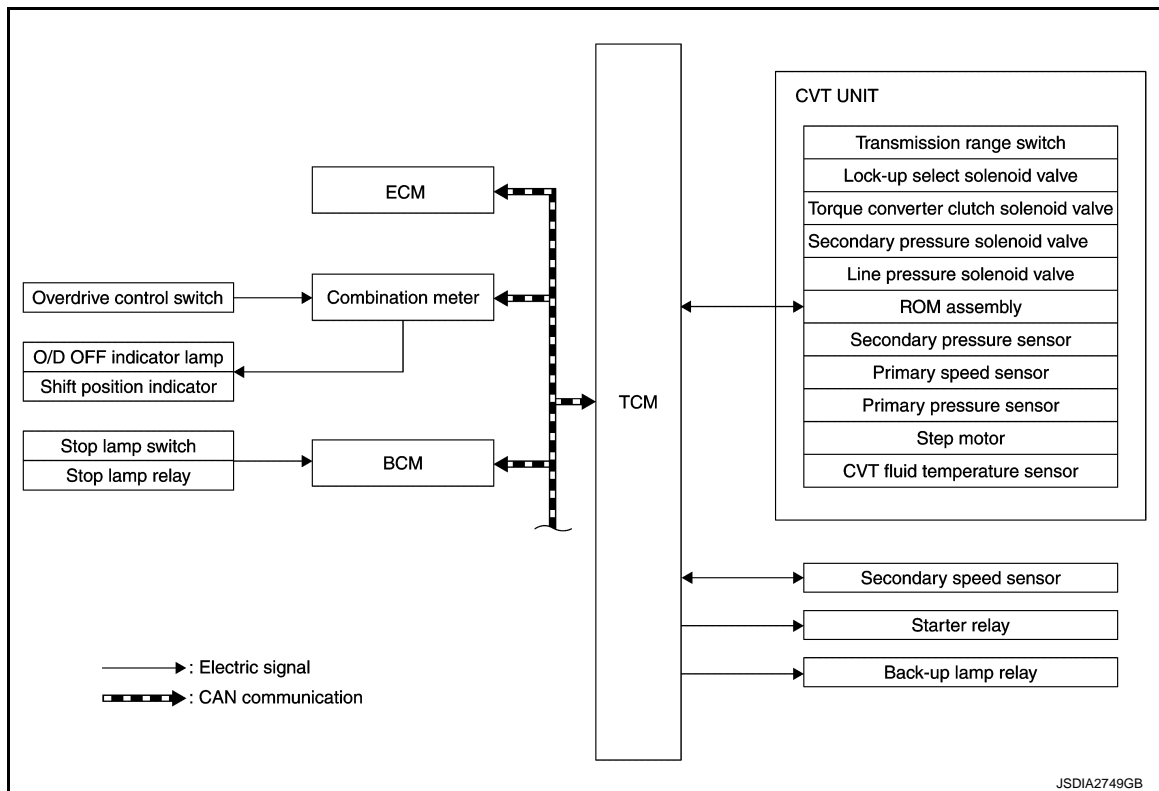
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SYSTEM

CVT CONTROL SYSTEM

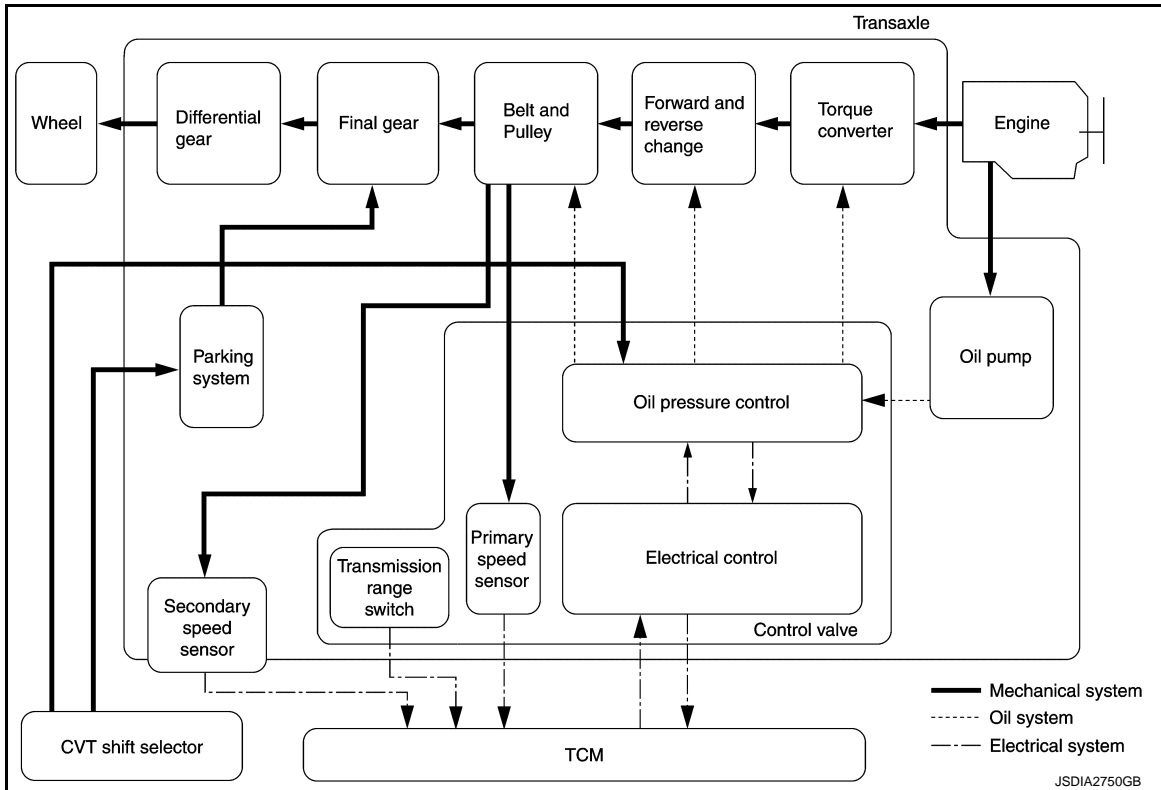
CVT CONTROL SYSTEM : System Diagram

INFOID:000000009650084



CVT CONTROL SYSTEM : System Description

INFOID:000000009650085



DESCRIPTION

- The TCM senses vehicle operating conditions through various sensors or signals. It always controls the optimum shift position and reduces shifting and lock-up shocks.
- Receive input signals transmitted from various switches and sensors.
- Determine required line pressure, shifting point, lock-up operation, etc.
- If malfunction is detected, the system enters fail-safe mode. Refer to [TM-45, "Fail-safe"](#).

Sensor (or signal)	TCM	Actuator
<ul style="list-style-type: none"> • Transmission range switch • CVT fluid temperature sensor • Secondary pressure sensor • Primary pressure sensor • Secondary speed sensor • Primary speed sensor • Engine speed signal • Accelerator pedal position signal • Closed throttle position signal • Stop lamp switch signal • Vehicle speed signal • Overdrive control switch 	<ul style="list-style-type: none"> • Shift control (TM-31) • Oil pressure control (TM-29) • Lock-up and select control (TM-30) • Fail-safe (TM-45) • Self-diagnosis (TM-35) • CONSULT communication line (TM-35) • CAN communication line (TM-72) 	<ul style="list-style-type: none"> • Line pressure solenoid valve • Secondary pressure solenoid valve • Torque converter clutch solenoid valve • Lock-up select solenoid valve • Step motor • Shift position indicator • O/D OFF indicator lamp

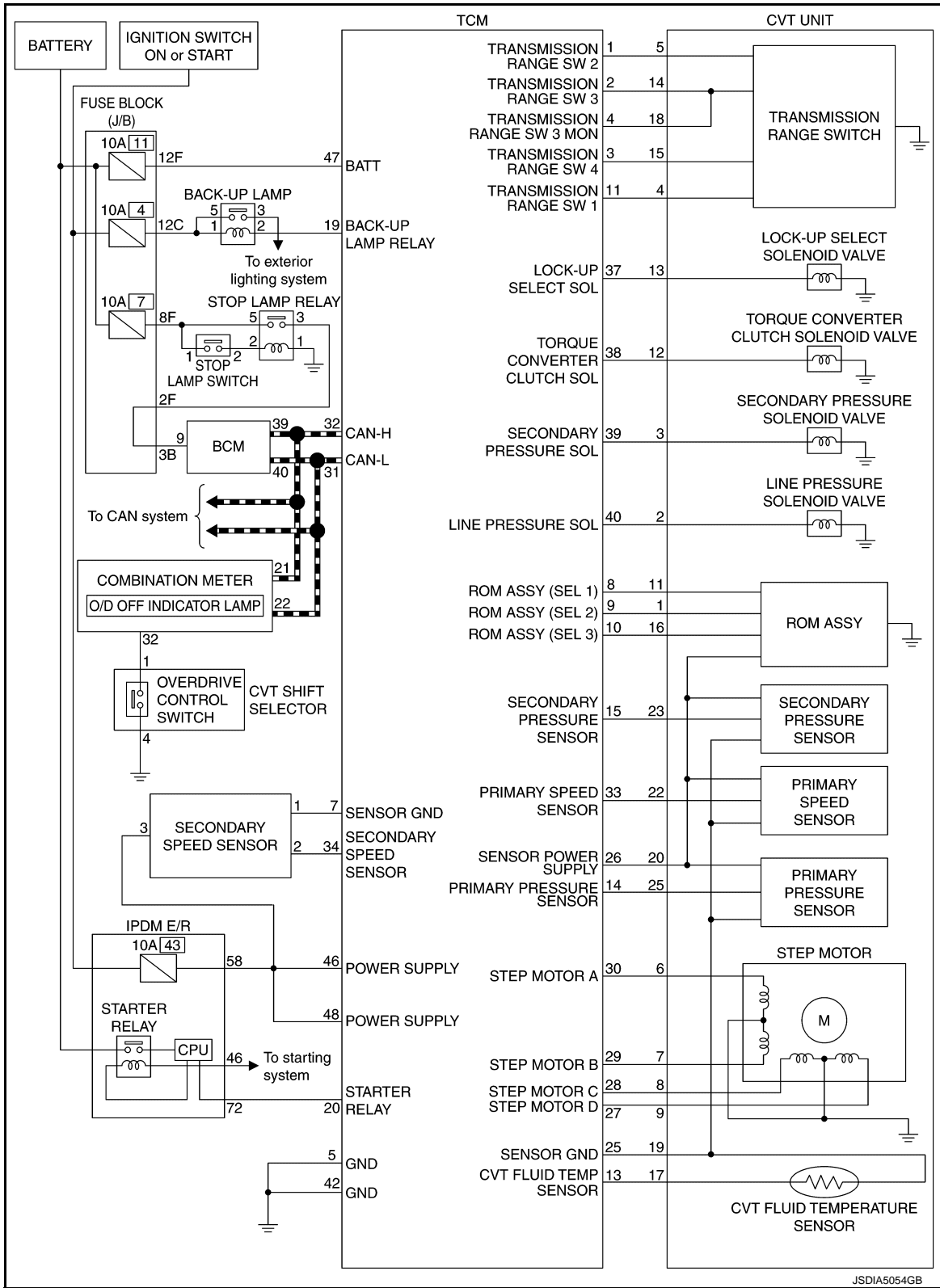
SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

CVT CONTROL SYSTEM : Circuit Diagram

INFOID:000000009650086



CVT CONTROL SYSTEM : Fail-safe

INFOID:000000009650087

DESCRIPTION

TCM has a fail-safe mode. The mode functions so that operation can be continued even if the signal circuit of the main electronically controlled input/output parts is damaged.

SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

DTC	Conditions of vehicle	Vehicle behavior	A
P0615	—	Does not start the engine	A
P0703	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow 	B
P0705	—	<ul style="list-style-type: none"> • Selector shock is large • Start is slow • Acceleration is slow • "L" position cannot be recognized • Lock-up is not performed • Shift position indicator on combination meter is not displayed 	C
P0710	Engine coolant temperature when engine starts is 10°C (50°F) or more.	Acceleration is slow	TM
	Engine coolant temperature when engine starts is less than 10°C (50°F).	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow • Vehicle speed is not increased 	E
	Engine coolant temperature when engine starts is less than -35°C (-31°F).	Vehicle speed is not increased	F
P0715	—	<ul style="list-style-type: none"> • Acceleration is slow • Restart is slow after stopping with strong deceleration • "L" position cannot be recognized • Lock-up is not performed 	G
P0720	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow • Restart is slow after stopping with strong deceleration • "L" position cannot be recognized • Lock-up is not performed 	H
P0725	—	Lock-up is not performed	I
P0740	—	<ul style="list-style-type: none"> • Selector shock is large • Lock-up is not performed 	J
P0744	—	Lock-up is not performed	J
P0745	—	—	K
P0746	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow • Lock-up is not performed 	K
	Function deterioration is remarkable after detection of malfunction	<ul style="list-style-type: none"> • Start is difficulty • Driving is difficulty • Lock-up is not performed 	L
P0776	—	—	M
P0778	—	Vehicle speed is not increased	M
P0840	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow 	N
P0841	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow 	N
P0845	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow 	O
P0868	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow 	O
P1701	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow 	P
P1705	—	<ul style="list-style-type: none"> • Acceleration is slow • Lock-up is not performed 	P
P1709	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow • Shift position indicator (P, N) is not displayed, or is displayed with delay 	P

SYSTEM

< SYSTEM DESCRIPTION >

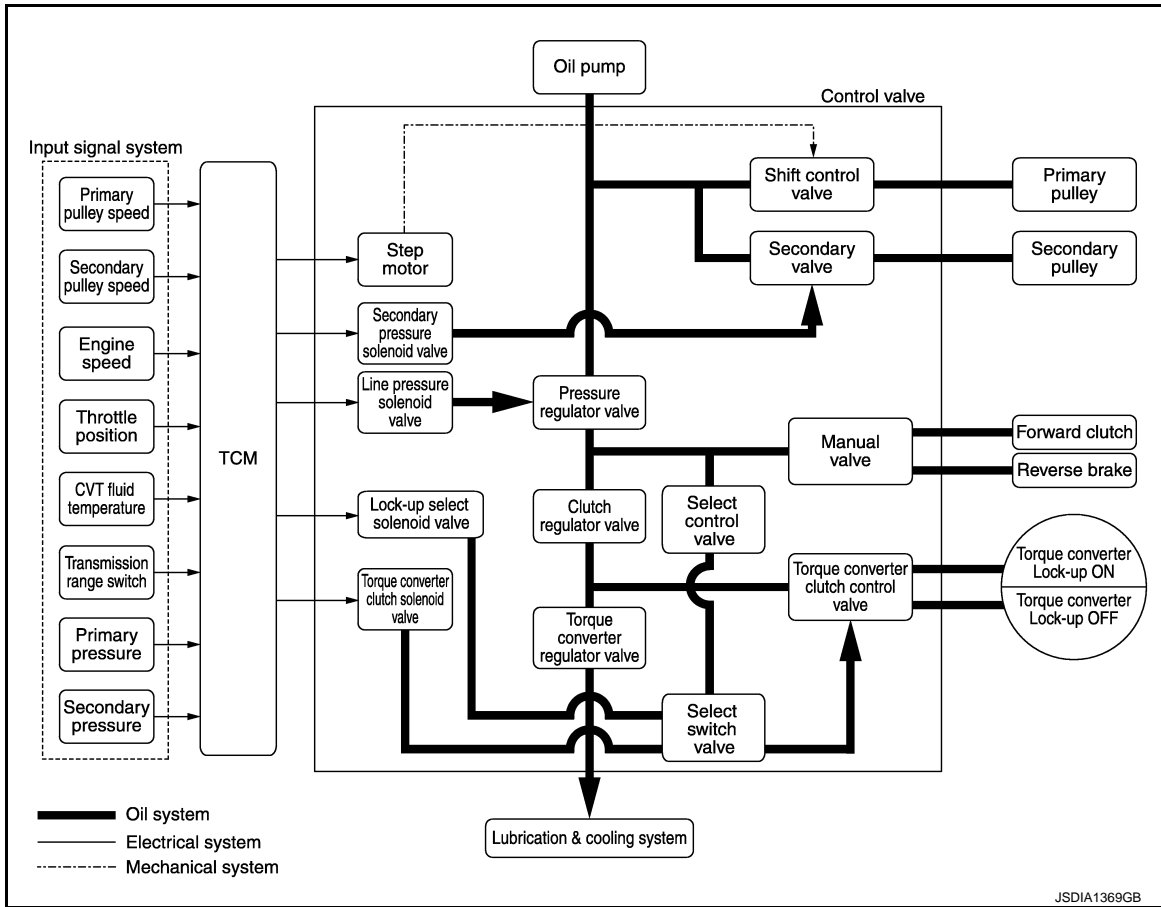
[CVT: RE0F09B]

DTC	Conditions of vehicle	Vehicle behavior
P1722	—	Lock-up is not performed in coast condition
P1723	When detected malfunction of primary speed sensor	<ul style="list-style-type: none"> • Acceleration is slow • Restart is slow after stopping with strong deceleration • “L” position cannot be recognized • Lock-up is not performed
	When detected malfunction of secondary speed sensor	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow • Restart is slow after stopping with strong deceleration • “L” position cannot be recognized • Lock-up is not performed
P1726	—	Acceleration is slow
P1740	—	<ul style="list-style-type: none"> • Selector shock is large • Lock-up is not performed
P1777	When detected malfunction of low side (stop the vehicle)	<ul style="list-style-type: none"> • Vehicle speed is not increased • Lock-up is not performed
	When detected malfunction of high side (driving the vehicle)	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow • Lock-up is not performed
U0100	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow • Vehicle speed is not increased
U1000	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow • Vehicle speed is not increased
U1010	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow • Vehicle speed is not increased

OIL PRESSURE CONTROL SYSTEM

OIL PRESSURE CONTROL SYSTEM : System Diagram

INFOID:000000009650088



JSDIA1369GB

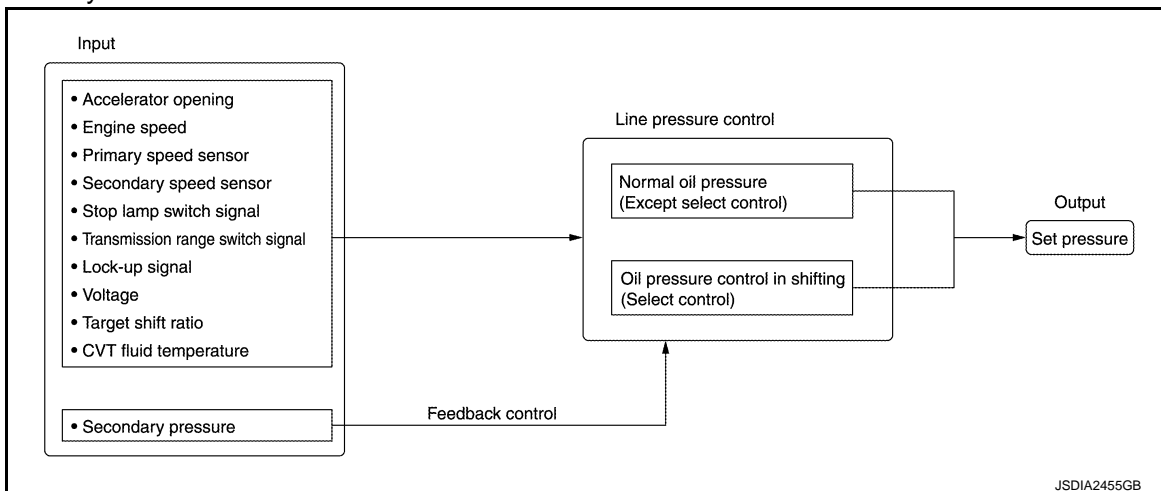
OIL PRESSURE CONTROL SYSTEM : System Description

INFOID:000000009650089

The hydraulic control mechanism consists of the oil pump directly driven by the engine, the hydraulic control valve that controls line pressure and transmission, and the input signal line.

LINE PRESSURE AND SECONDARY PRESSURE CONTROL

- When an input torque signal equivalent to the engine driving force is transmitted from the ECM to the TCM, the TCM controls the line pressure solenoid valve and secondary pressure solenoid valve.
- Highly accurate line pressure control and secondary pressure control reduces friction for improvement of fuel economy.



JSDIA2455GB

Normal Oil Pressure Control

SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

Appropriate line pressure and secondary pressure suitable for driving condition are determined based on the accelerator pedal position, engine speed, primary pulley (input) speed, secondary pulley (output) speed, input torque, stop lamp switch signal, transmission range switch signal, lock-up signal, power voltage, target shift ratio, oil temperature and oil pressure.

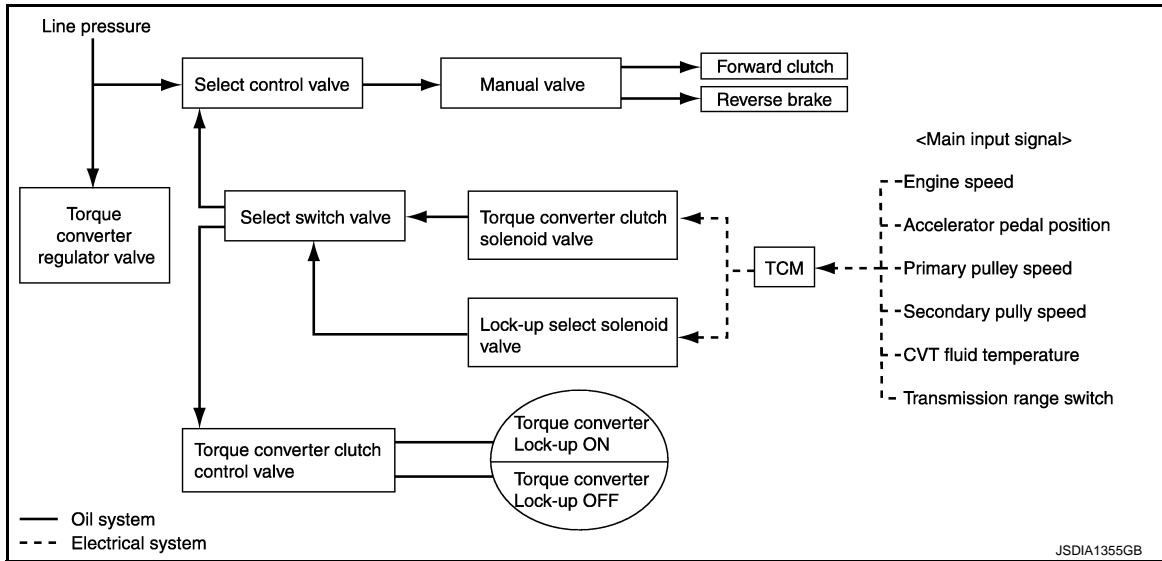
Secondary Pressure Feedback Control

In normal oil pressure control and oil pressure control in shifting, highly accurate secondary pressure is determined by detecting the secondary pressure using an oil pressure sensor and by feedback control.

LOCK-UP AND SELECT CONTROL SYSTEM

LOCK-UP AND SELECT CONTROL SYSTEM : System Diagram

INFOID:000000009650090

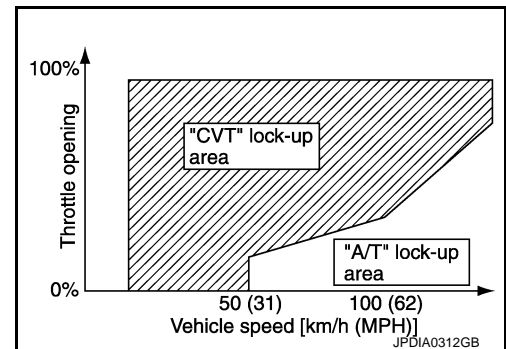


JSDIA1355GB

LOCK-UP AND SELECT CONTROL SYSTEM : System Description

INFOID:000000009650091

- The torque converter clutch piston in the torque converter is engaged to eliminate torque converter slip to increase power transmission efficiency.
- The torque converter clutch control valve operation is controlled by the torque converter clutch solenoid valve, which is controlled by a signal from TCM. The torque converter clutch control valve engages or releases the torque converter clutch piston.
- When shifting between "N" ("P") ⇒ "D" ("R"), torque converter clutch solenoid valve controls engagement power of forward clutch and reverse brake.
- The lock-up applied gear range was expanded by locking up the torque converter at a lower vehicle speed than conventional A/T models.
- If the CVT fluid temperature is low or the vehicle is in fail-safe mode due to malfunction, lock-up control is prohibited.



JPDIA0312GB

Lock-up Released

In the lock-up released state, the torque converter clutch control valve is set into the unlocked state by the torque converter clutch solenoid valve and the lock-up apply pressure is drained.

In this way, the torque converter clutch piston is not coupled.

Lock-up Applied

In the lock-up applied state, the torque converter clutch control valve is set into the locked state by the torque converter clutch solenoid valve and lock-up apply pressure is generated.

In this way, the torque converter clutch piston is pressed and coupled.

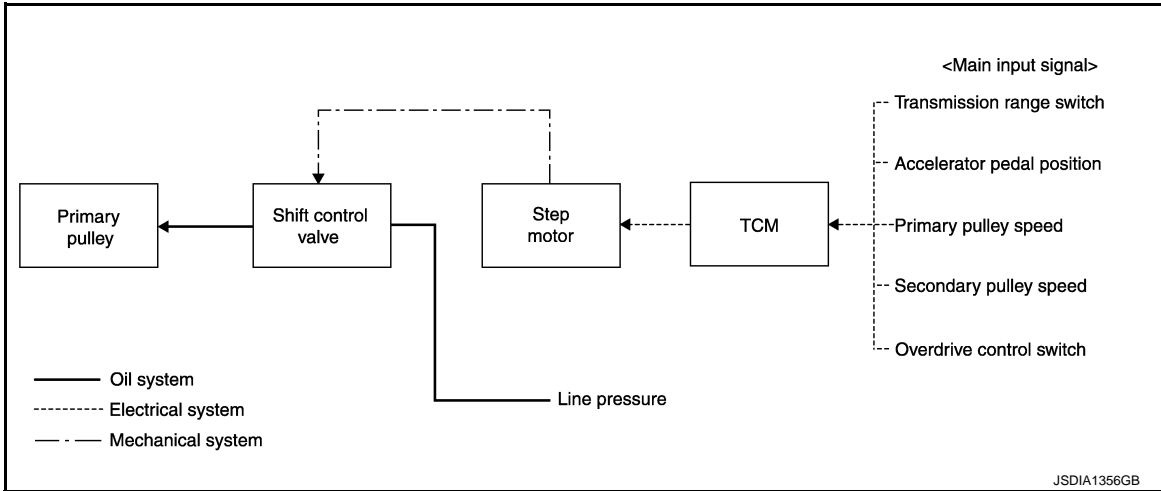
Select Control

When shifting between “N” (“P”) ⇒ “D” (“R”), optimize the operating pressure on the basis of the throttle position, the engine speed, and the secondary pulley (output) revolution speed to lessen the shift shock.

SHIFT CONTROL SYSTEM

SHIFT CONTROL SYSTEM : System Diagram

INFOID:000000009650092



NOTE:

The gear ratio is set for each position separately.

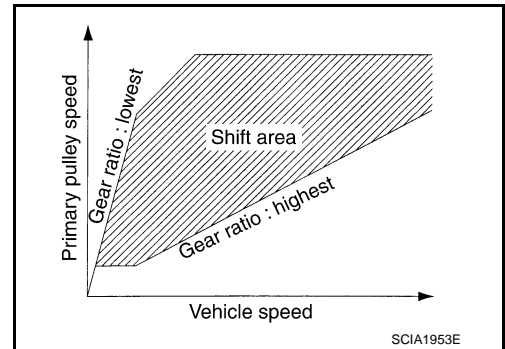
SHIFT CONTROL SYSTEM : System Description

INFOID:000000009650093

In order to select the gear ratio that can obtain the driving force in accordance with driver's intention and the vehicle condition, TCM monitors the driving conditions, such as the vehicle speed and the throttle position, selects the optimum gear ratio, and determines the gear change steps to the gear ratio. Then TCM sends the command to the step motor, controls the inflow/outflow of line pressure from the primary pulley to determine the position of the moving-pulley and controls the gear ratio.

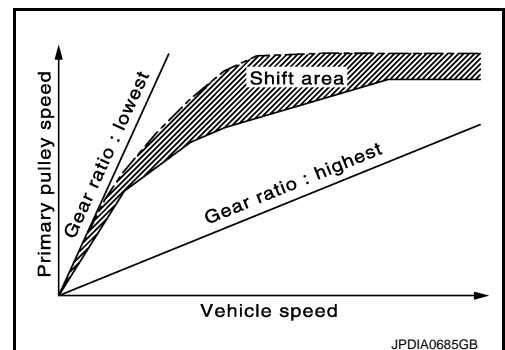
“D” POSITION

Shifting over all the ranges of gear ratios from the lowest to the highest.



OVERDRIVE OFF CONDITION

Use this position for improved engine braking.



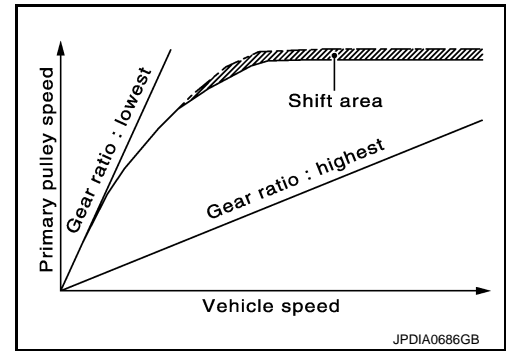
“L” POSITION

SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

By limiting the gear range to the lowest position, the strong driving force and the engine brake can be secured.



DOWNHILL ENGINE BRAKE CONTROL (AUTO ENGINE BRAKE CONTROL)

When a downhill slope is detected with the accelerator pedal released, the engine brake will be strengthened up by downshifting so as not to accelerate the vehicle more than necessary.

ACCELERATION CONTROL

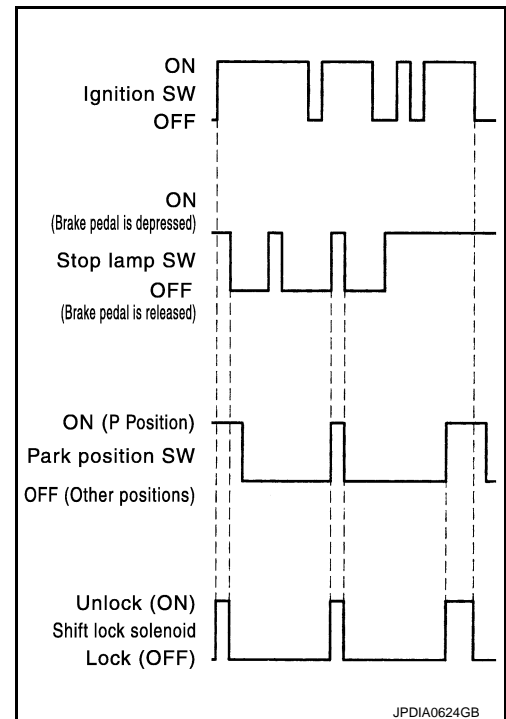
According to vehicle speed and a change of accelerator pedal angle, driver's request for acceleration and driving scene are judged. This function assists improvement in the acceleration feeling by making the engine speed proportionate to the vehicle speed. And a shift map that can gain a larger driving force is available for compatibility of mileage with driveability.

SHIFT LOCK SYSTEM

SHIFT LOCK SYSTEM : System Description

INFOID:000000009650094

The selector lever cannot be shifted from the "P" position unless the brake pedal is depressed while the ignition is set to ON. The shift lock is unlocked by turning the shift lock solenoid ON when the ignition switch is set to ON, the park position switch is turned ON (selector lever is in "P" position), and the stop lamp switch is turned ON (brake pedal is depressed) as shown in the operation chart in the figure. Therefore, the shift lock solenoid receives no ON signal and the shift lock remains locked if all of the above conditions are not fulfilled. (However, selector operation is allowed if the shift lock release button is pressed.)



SHIFT LOCK OPERATION AT "P" POSITION

When Brake Pedal Is Not Depressed (No Selector Operation Allowed)

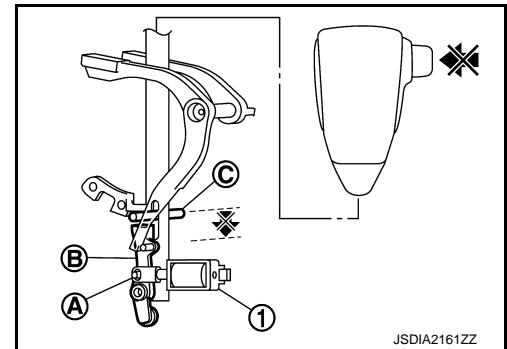
SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

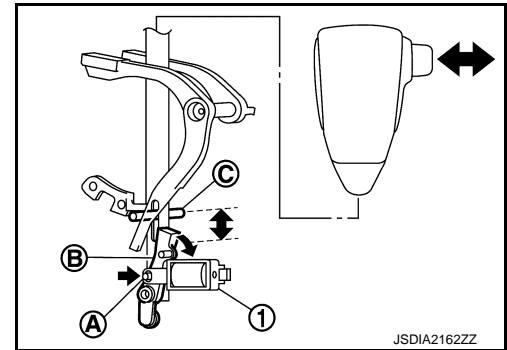
The shift lock solenoid (1) is turned OFF (not energized) and the solenoid rod (A) is extended with the spring when the brake pedal is not depressed (no selector operation allowed) with the ignition switch ON.

The connecting lock lever (B) is located at the position shown in the figure when the solenoid rod is extended. It prevents the movement of the detent rod (C). For these reasons, the selector lever cannot be shifted from the "P" position.



When Brake Pedal Is Depressed (Shift Operation Allowed)

The shift lock solenoid (1) is turned ON (energized) when the brake pedal is depressed with the ignition switch ON. The solenoid rod (A) is compressed by the electromagnetic force. The connecting lock lever (B) rotates when the solenoid is activated. Therefore, the detent rod (C) can be moved. For these reasons, the selector lever can be shifted to other positions.

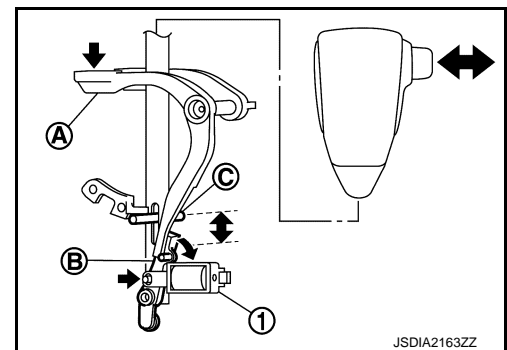


"P" POSITION HOLD MECHANISM (IGNITION SWITCH LOCK)

The shift lock solenoid (1) is not energized when the ignition switch is in any position other than ON. In this condition, the shift mechanism is locked and "P" position is held. The operation cannot be performed from "P" position if the brake pedal is depressed with the ignition switch ON when the operation system of shift lock solenoid is malfunctioning. However, the lock lever (B) is forcibly rotated and the shift lock is released when the shift lock release button (A) is pressed from above. Then the selector operation from "P" position can be performed.

CAUTION:

Use the shift lock release button only when the selector lever cannot be operated even if the brake pedal is depressed with the ignition switch ON.



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ON BOARD DIAGNOSTIC (OBD) SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

ON BOARD DIAGNOSTIC (OBD) SYSTEM

Diagnosis Description

INFOID:000000009650095

This system is an on board diagnostic system that records exhaust emission-related diagnostic information and detects a sensors/actuator-related malfunction. A malfunction is indicated by the malfunction indicator lamp (MIL) and stored in ECU memory as a DTC. The diagnostic information can be obtained with the diagnostic tool (GST: Generic Scan Tool).

GST (Generic Scan Tool)

INFOID:000000009650096

When GST is connected with a data link connector equipped on the vehicle side, it will communicate with the control unit equipped in the vehicle and then enable various kinds of diagnostic tests. Refer to [GI-50. "Description"](#).

NOTE:

Service \$0A is not applied for regions where it is not mandated.

DIAGNOSIS SYSTEM (TCM)

DIAGNOSIS DESCRIPTION

DIAGNOSIS DESCRIPTION : System Description

INFOID:000000009650097

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

DIAGNOSIS DESCRIPTION : DTC

INFOID:000000009650098

- DTC (P0703, P0710, P0840, etc.) is specified by SAE J2012/ISO 15031-6.
- TCM memorizes DTC when malfunction is detected. It can memorize plural DTCs.

DIAGNOSIS DESCRIPTION : Malfunction Indicator Lamp (MIL)

INFOID:000000009650099

- TCM not only detects DTC, but also sends the CVT self-diagnosis signal to ECM through CAN communication. ECM sends the malfunctioning indicator lamp signal to the combination meter through CAN communication according to the signal, and illuminates MIL.
- For malfunction indicator lamp (MIL) description, refer to [EC-66, "DIAGNOSIS DESCRIPTION : Malfunction Indicator Lamp \(MIL\)"](#).

CONSULT Function

INFOID:000000009650100

APPLICATION ITEMS

Mode	Function
All DTC Reading	Display all DTCs or diagnostic items that all ECUs are recording and judging.
Work Support	This mode enables a technician to adjust some devices faster and more accurately.
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.
CALIB DATA	The calibration data status of TCM can be checked.

SELF DIAGNOSTIC RESULTS

Refer to [TM-48, "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 battery terminal is disconnected, the TCM memory is erased. (The disconnection time varies from several seconds to several hours.)
 - If the ignition switch is left ON after repair, turn OFF the ignition switch and wait for 10 seconds or more. Then, turn the ignition ON again. (Engine stop)
1. Touch "TRANSMISSION" of CONSULT.
 2. Touch "Self Diagnostic Result".
 3. Touch "Erase". (DTC memorized in TCM is erased.)

IGN Counter

IGN counter is displayed in "FFD". It displays the number of operations of ignition 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 ignition switch from OFF to ON after recovery to normal, such as 1 → 2 → 3...38 → 39.

DIAGNOSIS SYSTEM (TCM)

[CVT: RE0F09B]

< SYSTEM DESCRIPTION >

- If the number of operation exceeds 39, the displayed number will be fixed at “39” until the self diagnosis result is erased.

DATA MONITOR

NOTE:

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

Monitored item (Unit)		Remarks
VSP SENSOR	(km/h or mph)	Displays the vehicle speed calculated from the CVT output shaft speed.
ESTM VSP SIG	(km/h or mph)	Displays the vehicle speed signal received through CAN communication.
PRI SPEED SEN	(rpm)	Displays the primary pulley speed calculated from the pulse signal of the primary speed sensor.
ENG SPEED SIG	(rpm)	Displays the engine speed received through CAN communication.
SEC HYDR SEN	(V)	Displays the signal voltage of the secondary pressure sensor.
PRI HYDR SEN	(V)	Displays the signal voltage of the primary pressure sensor.
ATF TEMP SEN	(V)	Displays the signal voltage of the CVT fluid temperature sensor.
VIGN SEN	(V)	Displays the battery voltage applied to TCM.
VEHICLE SPEED	(km/h or mph)	Displays the vehicle speed recognized by TCM.
PRI SPEED	(rpm)	Displays the primary pulley speed recognized by TCM.
SEC SPEED	(rpm)	Displays the secondary pulley speed recognized by TCM.
ENG SPEED	(rpm)	Displays the engine speed recognized by TCM.
SLIP REV	(rpm)	Displays the speed difference between the input shaft speed of CVT and the engine speed.
GEAR RATIO		Displays the pulley gear ratio calculated from primary pulley speed/secondary pulley speed.
G SPEED	(G)	Displays the acceleration and deceleration speed of the vehicle calculated from vehicle speed change.
ACCEL POSI SEN 1	(0.0/8)	Displays the estimated throttle position received through CAN communication.
TRQ RTO		Display the torque ratio of torque converter.
SEC PRESS	(MPa)	Displays the secondary pressure calculated from the signal voltage of the secondary pressure sensor.
PRI PRESS	(MPa)	Displays the primary pressure calculated from the signal voltage of the primary pressure sensor.
ATFTEMP COUNT		Means CVT fluid temperature. Actual oil temperature °C (°F) cannot be checked unless a numeric value is converted. Refer to TM-39, "ATFTEMP COUNT Conversion Table" .
DSR REV	(rpm)	Displays the target primary pulley speed calculated from processing of gear shift control.
DGEAR RATIO		Displays the target gear ratio.
DSTM STEP	(step)	Displays the target number of steps of the step motor, calculated from processing of gear shift control.
STM STEP	(step)	Displays the actual number of steps of the step motor, calculated from processing of gear shift control.
LU PRS	(MPa)	Displays the target oil pressure of the torque converter clutch solenoid valve calculated from oil pressure processing of gear shift control.
LINE PRS	(MPa)	Displays the target oil pressure of the line pressure solenoid valve calculated from oil pressure processing of gear shift control.
TGT SEC PRESS	(MPa)	Displays the target oil pressure of the secondary pressure solenoid valve calculated from oil pressure processing of gear shift control.
ISOLT1	(A)	Displays the command current from TCM to the torque converter clutch solenoid valve.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

Monitored item (Unit)	Remarks
ISOLT2 (A)	Displays the command current from TCM to the line pressure solenoid valve.
ISOLT3 (A)	Display the command current from TCM to the secondary pressure solenoid valve.
SOLMON1 (A)	Monitors the command current from TCM to the torque converter clutch solenoid valve and displays the monitored value.
SOLMON2 (A)	Monitors the command current from TCM to the line pressure solenoid valve and displays the monitored value.
SOLMON3 (A)	Monitors the command current from TCM to the secondary pressure solenoid valve and displays the monitored value.
BRAKESW	Displays the reception status of the stop lamp switch signal received through CAN communication.
FULL SW	<ul style="list-style-type: none"> • Displays the reception status of the wide open throttle position signal received through CAN communication. • It is displayed although not equipped.
IDLE SW	Displays the reception status of the closed throttle position signal received through CAN communication.
SPORT MODE SW	Displays the reception status of the overdrive control switch signal received through CAN communication.
STRDWSW	<ul style="list-style-type: none"> • Displays the operation status of the paddle shifter (down switch). • It is displayed although not equipped.
STRUPSW	<ul style="list-style-type: none"> • Displays the operation status of the paddle shifter (up switch). • It is displayed although not equipped.
DOWNLVR	<ul style="list-style-type: none"> • Displays the operation status of the selector lever (down switch). • It is displayed although not equipped.
UPLVR	<ul style="list-style-type: none"> • Displays the operation status of the selector lever (up switch). • It is displayed although not equipped.
NONMMODE	<ul style="list-style-type: none"> • Displays if the selector lever position is not at the manual shift gate. • It is displayed although not equipped.
MMODE	<ul style="list-style-type: none"> • Displays if the selector lever position is at the manual shift gate. • It is displayed although not equipped.
INDLRNG	Displays the transmission status of the shift position ("L" position) signal transmitted through CAN communication.
INDDRNG	Displays the transmission status of the shift position ("D" position) signal transmitted through CAN communication.
INDNRNG	Displays the transmission status of the shift position ("N" position) signal transmitted through CAN communication.
INDRRNG	Displays the transmission status of the shift position ("R" position) signal transmitted through CAN communication.
INDPRNG	Displays the transmission status of the shift position ("P" position) signal transmitted through CAN communication.
CVT LAMP	<ul style="list-style-type: none"> • Displays the transmission status of the CVT indicator signal transmitted through CAN communication. • It is displayed although not equipped.
SPORT MODE IND	Displays the transmission status of the O/D OFF indicator signal transmitted through CAN communication.
MMODE IND	<ul style="list-style-type: none"> • Displays the transmission status of the manual mode signal transmitted through CAN communication. • It is displayed although not equipped.
SMCOIL D	Displays the energizing status of step motor coil "D".
SMCOIL C	Displays the energizing status of step motor coil "C".
SMCOIL B	Displays the energizing status of step motor coil "B".
SMCOIL A	Displays the energizing status of step motor coil "A".

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DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

Monitored item (Unit)	Remarks
LUSEL SOL OUT	Displays the command value from TCM to the lock-up select solenoid valve.
LUSEL SOL MON	Monitors the command value from TCM to the lock-up select solenoid valve and displays the monitored value.
VDC ON	Displays the reception status of the VDC operation signal received through CAN communication.
TCS ON	Displays the reception status of the TCS operation signal received through CAN communication.
ABS ON	Displays the reception status of the ABS operation signal received through CAN communication.
ACC ON	It is displayed although not equipped.
RANGE	Displays the gear position recognized by TCM.
M GEAR POS	<ul style="list-style-type: none"> • Display the target gear of manual mode • It is displayed although not equipped.
RANGE SW 3M	Displays the operation status of the transmission range switch ("D" and "L" positions).
RANGE SW 4	Displays the operation status of the transmission range switch ("R" and "D" positions).
RANGE SW 3	Displays the operation status of the transmission range switch ("D" and "L" positions).
RANGE SW 2	Displays the operation status of the transmission range switch ("N", "D", and "L" positions).
RANGE SW 1	Displays the operation status of the transmission range switch ("R", "N", and "D" positions).
REV LAMP	Displays the command condition from TCM to the back-up lamp relay.
STRTR RLY OUT	Displays the command condition from TCM to the stater motor relay.
STRTR RLY MON	Monitors the command condition from TCM to the stater motor relay and displays the monitored value.
CVT-A	<ul style="list-style-type: none"> • Displays CVT fluid temperature count. • This monitor item does not use.
CVT-B	<ul style="list-style-type: none"> • Displays CVT fluid temperature count. • This monitor item does not use.

WORK SUPPORT

Item name	Description
ENGINE BRAKE ADJ.	The engine brake level setting can be canceled.
CONFORM CVTF DETERIORTN	The CVT fluid deterioration level can be checked.

Engine Brake Adjustment

ENGINE BRAKE LEVEL

- 0 : Initial set value (Engine brake level control is activated)
- OFF : Engine brake level control is deactivated.

CAUTION:

Mode of "+1", "0", "-1", "-2", "OFF" can be selected by pressing the "UP", "DOWN" on CONSULT screen. However, do not select mode other than "0" and "OFF". If the "+1" or "-1" or "-2" is selected, that might cause the irregular driveability.

Check CVT Fluid Deterioration Date

CVTF DETERIORATION DATE

- 210,000 or more : It is necessary to change CVT fluid.
- Less than 210,000 : It is not necessary to change CVT fluid.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

CAUTION:

Touch "CLEAR" after changing CVT fluid, and then erase "CVTF DETERIORATION DATE".

ATFTEMP COUNT Conversion Table

INFOID:000000009650101

ATFTEMP COUNT	Temperature °C (°F)	ATFTEMP COUNT	Temperature °C (°F)
4	-30 (-22)	177	90 (194)
8	-20 (-4)	183	95 (203)
13	-10 (14)	190	100 (212)
17	-5 (23)	196	105 (221)
21	0 (32)	201	110 (230)
27	5 (41)	206	115 (239)
32	10 (50)	210	120 (248)
39	15 (59)	214	125 (257)
47	20 (68)	218	130 (266)
55	25 (77)	221	135 (275)
64	30 (86)	224	140 (284)
73	35 (95)	227	145 (293)
83	40 (104)	229	150 (302)
93	45 (113)	231	155 (311)
104	50 (122)	233	160 (320)
114	55 (131)	235	165 (329)
124	60 (140)	236	170 (338)
134	65 (149)	238	175 (347)
143	70 (158)	239	180 (356)
152	75 (167)	241	190 (374)
161	80 (176)	243	200 (392)
169	85 (185)	—	—

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ECU DIAGNOSIS INFORMATION

TCM

Reference Value

INFOID:000000009650102

CONSULT DATA MONITOR STANDARD VALUE

NOTE:

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

Item name	Condition	Display value (Approx.)
VSP SENSOR	During driving	Approximately matches the speedometer reading.
ESTM VSP SIG	During driving	Approximately matches the speedometer reading.
PRI SPEED SEN	During driving (lock-up ON)	Approximately matches the engine speed.
ENG SPEED SIG	Engine running	Closely matches the tachometer reading.
SEC HYDR SEN	"N" position idle	0.8 V
PRI HYDR SEN	"N" position idle	0.7 – 1.2 V
ATF TEMP SEN	CVT fluid: Approx. 20°C (68°F)	2.01 – 2.05 V
	CVT fluid: Approx. 50°C (122°F)	1.45 – 1.50 V
	CVT fluid: Approx. 80°C (176°F)	0.90 – 0.94 V
VIGN SEN	Ignition switch: ON	10 – 16 V
VEHICLE SPEED	During driving	Approximately matches the speedometer reading.
PRI SPEED	During driving (lock-up ON)	Approximately matches the engine speed.
SEC SPEED	During driving (lock-up ON)	38 X Approximately matches the speedometer reading.
ENG SPEED	Engine running	Closely matches the tachometer reading.
SLIP REV	During driving	Engine speed – Primary speed
GEAR RATIO	During driving	2.371 – 0.439
G SPEED	Vehicle stopped	0.00 G
	During acceleration	The value changes to the positive side along with acceleration.
	During deceleration	The value changes to the positive side along with deceleration.
ACCEL POSI SEN 1	Released accelerator pedal - Fully depressed accelerator pedal	0.0/8 – 8.0/8
TRQ RTO	During driving	The value changes along with acceleration/ deceleration.
SEC PRESS	"N" position idle	0.5 – 0.9 MPa
PRI PRESS	"N" position idle	0.3 – 0.9 MPa
ATFTEMP COUNT*1	CVT fluid: Approx. 20°C (68°F)	47
	CVT fluid: Approx. 50°C (122°F)	104
	CVT fluid: Approx. 80°C (176°F)	161
DSR REV	During driving	The value changes to the positive side along with deceleration.
DGEAR RATIO	During driving	The value changes to the positive side along with deceleration.
DSTM STEP	During driving	0 step – 180 step

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F09B]

Item name	Condition	Display value (Approx.)	
STM STEP	During driving	0 step – 180 step	A
LU PRS	<ul style="list-style-type: none"> • Engine started • Vehicle is stopped 	-0.500 MPa	B
	<ul style="list-style-type: none"> • Selector lever: "D" position • Accelerator pedal position: 1/8 or less • Vehicle speed: 20 km/h (12 MPH) or more 	0.450 MPa	C
LINE PRS	<ul style="list-style-type: none"> • After engine warm up • Selector lever: "N" position • At idle 	0.800 MPa	
	<ul style="list-style-type: none"> • After engine warm up • Selector lever: "N" position • Depress the accelerator pedal fully 	4.930 – 5.430 MPa	TM
TGT SEC PRESS	<ul style="list-style-type: none"> • After engine warm up • Selector lever: "N" position • At idle 	0.700 MPa	E
ISOLT1	Lock-up OFF	0.0 A	F
	Lock-up ON	0.7 A	
ISOLT2	Release the accelerator pedal	0.8 A	
	Press the accelerator pedal all the way down	0.0 A	G
ISOLT3	Secondary pressure low - Secondary pressure high	0.8 – 0.0 A	
SOLMON1	Lock-up OFF	0.0 A	H
	Lock-up ON	0.6 – 0.7 A	
SOLMON2	"N" position idle	0.8 A	I
	When stalled	0.3 – 0.6 A	
SOLMON3	"N" position idle	0.6 – 0.7 A	J
	When stalled	0.4 – 0.6 A	
BRAKE SW	Depressed brake pedal	On	
	Released brake pedal	Off	K
FULL SW	Always	Off	
IDLE SW	Released accelerator pedal	On	
	Fully depressed accelerator pedal	Off	L
SPORT MODE SW	While pushing overdrive control switch	On	
	Other conditions	Off	M
STRDWNSW	Always	Off	
STRUPSW	Always	Off	
DOWNLVR	Always	Off	N
UPLVR	Always	Off	
NONMMODE	Always	Off	
MMODE	Always	Off	O
INDLRNG	Selector lever in "L" position	On	
	Selector lever in other positions	Off	P
INDDRNG	Selector lever in "D" position	On	
	Selector lever in other positions	Off	
INDNRNG	Selector lever in "N" position	On	
	Selector lever in other positions	Off	
INDRRNG	Selector lever in "R" position	On	
	Selector lever in other positions	Off	

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F09B]

Item name	Condition	Display value (Approx.)
INDPRNG	Selector lever in "P" position	On
	Selector lever in other positions	Off
CVT LAMP	Always	Off
SPORT MODE IND	When overdrive OFF condition	On
	Other conditions	Off
MMODE IND	Always	Off
SMCOIL D	During driving	Changes ON ⇔ OFF
SMCOIL C	During driving	Changes ON ⇔ OFF
SMCOIL B	During driving	Changes ON ⇔ OFF
SMCOIL A	During driving	Changes ON ⇔ OFF
LUSEL SOL OUT	Selector lever in "P" and "N" positions	On
	Wait at least for 5 seconds with the selector lever in "R", "D", and "L" positions	Off
LUSEL SOL MON	Selector lever in "P" and "N" positions	On
	Wait at least for 5 seconds with the selector lever in "R", "D", and "L" positions	Off
VDC ON	VDC operate	On
	Other conditions	Off
TCS ON	TCS operate	On
	Other conditions	Off
ABS ON	ABS operate	On
	Other conditions	Off
ACC ON	Always	Off
RANGE	Selector lever in "N" and "P" positions	N·P
	Selector lever in "R" position	R
	Selector lever in "D" position	D
	Selector lever in "L" position	L
M GEAR POS	Always	Off
RANGE SW3M	Selector lever in "D" and "L" positions	On
	Selector lever in "P", "R", and "N" positions	Off
RANGE SW4	Selector lever in "R" and "D" positions	On
	Selector lever in "P", "N", and "L" positions	Off
RANGE SW3	Selector lever in "D" and "L" positions	On
	Selector lever in "P", "R", and "N" positions	Off
RANGE SW2	Selector lever in "N", "D", and "L" positions	On
	Selector lever in "P" and "R" positions	Off
RANGE SW1	Selector lever in "R", "N", and "D" positions	On
	Selector lever in "P" and "L" positions	Off
REV LAMP	Selector lever in "R" position	On
	Selector lever in other positions	Off
STRTR RLY OUT	Selector lever in "P" and "N" positions	On
	Selector lever in other positions	Off
STRTR RLY MON	Selector lever in "P" and "N" positions	On
	Selector lever in other positions	Off

TCM

< ECU DIAGNOSIS INFORMATION >

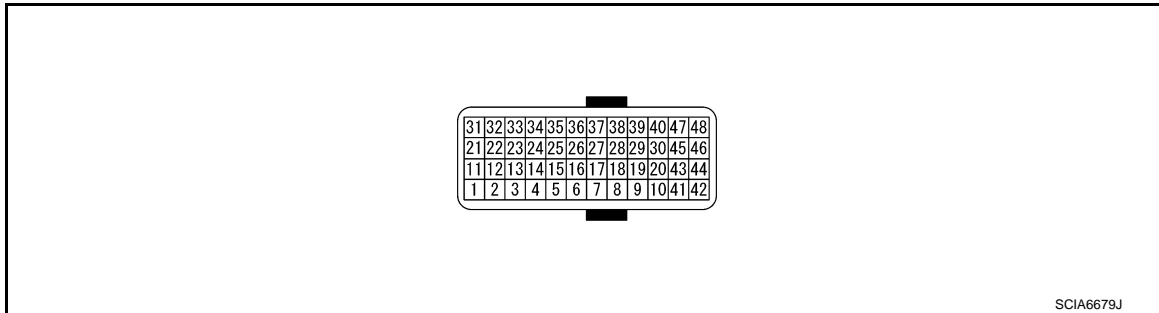
[CVT: RE0F09B]

Item name	Condition	Display value (Approx.)
CVT-A*2	—	—
CVT-B*2	—	—

*1: Means CVT fluid temperature. Actual oil temperature °C (°F) cannot be checked unless a numeric value is converted. Refer to [TM-39, "ATFTEMP COUNT Conversion Table"](#).

*2: These monitor items do not use.

TERMINAL LAYOUT



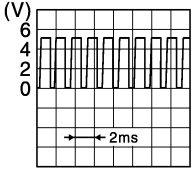
PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
1 (P/B)	Ground	Transmission range switch 2	Input	Selector lever in "N", "D", and "L" positions	0 V
				Selector lever in other positions	10 – 16 V
2 (P/L)	Ground	Transmission range switch 3	Input	Selector lever in "D" and "L" positions	0 V
				Selector lever in other positions	10 – 16 V
3 (G/O)	Ground	Transmission range switch 4	Input	Selector lever in "R" and "D" positions	0 V
				Selector lever in other positions	10 – 16 V
4 (GR)	Ground	Transmission range switch 3 (monitor)	Input	Selector lever in "D" and "L" positions	0 V
				Selector lever in other positions	10 – 16 V
5 (B)	Ground	Ground	Output	Always	0 V
7 (W)	Ground	Sensor ground	Output	Always	0 V
8 (G/W)	—	ROM ASSY (SEL2)	—	—	—
9 (L/R)	—	ROM ASSY (SEL1)	—	—	—
10 (BR/R)	—	ROM ASSY (SEL3)	—	—	—

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F09B]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
11 (BR/ W)	Ground	Transmission range switch 1	Input	Ignition switch ON	Selector lever in "R", "N", and "D" positions	0 V
					Selector lever in other po- sitions	10 – 16 V
13 (V)	Ground	CVT fluid temperature sensor	Input	Ignition switch ON	When CVT fluid tempera- ture is 20°C (68°F)	2.01 – 2.05 V
					When CVT fluid tempera- ture is 50°C (122°F)	1.45 – 1.50 V
					When CVT fluid tempera- ture is 80°C (176°F)	0.90 – 0.94 V
14 (R/W)	Ground	Primary pressure sensor	Input	"N" position idle		0.7 – 1.2 V
15 (V/W)	Ground	Secondary pressure sen- sor	Input			0.8 V
19 (G/B)	Ground	Back-up lamp relay	Output	Ignition switch ON	Selector lever in "R" posi- tion	0 V
					Selector lever in other po- sitions	10 – 16 V
20 (R/B)	Ground	Starter relay	Output	Ignition switch ON	Selector lever in "N" and "P" positions	10 – 16 V
					Selector lever in other po- sitions	0 V
25 (W/R)	Ground	Sensor ground	Output	Always		0 V
26 (L/O)	Ground	Sensor power	Output	Ignition switch ON		5.0 V
				Ignition switch OFF		0 V
27 (R/G)	Ground	Step motor D	Output	Within 2 seconds after ignition switch ON, the time measurement by using the pulse width measurement function (Hi level) of CONSULT.* CAUTION: Connect the diagnosis data link cable to the vehicle diagnosis connector.		10.0 msec
28 (R)	Ground	Step motor C	Output			30.0 msec
29 (O/B)	Ground	Step motor B	Output			10.0 msec
30 (G/R)	Ground	Step motor A	Output			30.0 msec
31 (P)	—	CAN-L	Input/ Output	—		—
32 (L)	—	CAN-H	Input/ Output	—		—
33 (LG)	Ground	Primary speed sensor	Input	When driving ["L" position, 20 km/h (12 MPH)]		<p style="text-align: center;">710 Hz</p>  <p style="text-align: right; font-size: small;">JPDIA0877ZZ</p>

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F09B]

Terminal No. (Wire color)		Description		Condition	Value (Approx.)	
+	-	Signal name	Input/ Output			
34 (LG/R)	Ground	Secondary speed sensor	Input	When driving ["D" position, 20 km/h (12 MPH)]	<div style="text-align: center;"> <p>380 Hz</p> <p>JPDAI0878ZZ</p> </div>	
37 (V/R)	Ground	Lock-up select solenoid valve	Output	Ignition switch ON	10 – 16 V	
				Wait at least for 5 seconds with the selector lever in "R", "D", and "L" positions	0 V	
38 (L/W)	Ground	Torque converter clutch solenoid valve	Output	When CVT performs lock-up	6.0 V	
				When CVT does not perform lock-up	1.0 V	
39 (W/B)	Ground	Secondary pressure solenoid valve	Output	Release the accelerator pedal when warmed up the engine	5.0 – 7.0 V	
				Depress the full acceleration when warmed up the engine	3.0 – 4.0 V	
40 (R/Y)	Ground	Line pressure solenoid valve	Output	"N" positions idle	Release the accelerator pedal when warmed up the engine	5.0 – 7.0 V
					Depress the full acceleration when warmed up the engine	1.0 – 3.0 V
42 (B)	Ground	Ground	Output	Always	0 V	
46 (Y)	Ground	Ignition Power supply	Output	Ignition switch ON	10 – 16 V	
				Ignition switch OFF	0 V	
47 (L/R)	Ground	Battery Power supply (memory back-up)	Input	Always	10 – 16 V	
48 (Y)	Ground	Ignition Power supply	Output	Ignition switch ON	10 – 16 V	
				Ignition switch OFF	0 V	

*: A circuit tester cannot be used to test this item.

Fail-safe

INFOID:000000009650103

DESCRIPTION

TCM has a fail-safe mode. The mode functions so that operation can be continued even if the signal circuit of the main electronically controlled input/output parts is damaged.

DTC	Conditions of vehicle	Vehicle behavior
P0615	—	Does not start the engine
P0703	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F09B]

DTC	Conditions of vehicle	Vehicle behavior
P0705	—	<ul style="list-style-type: none"> • Selector shock is large • Start is slow • Acceleration is slow • "L" position cannot be recognized • Lock-up is not performed • Shift position indicator on combination meter is not displayed
P0710	Engine coolant temperature when engine starts is 10°C (50°F) or more.	Acceleration is slow
	Engine coolant temperature when engine starts is less than 10°C (50°F).	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow • Vehicle speed is not increased
	Engine coolant temperature when engine starts is less than -35°C (-31°F).	Vehicle speed is not increased
P0715	—	<ul style="list-style-type: none"> • Acceleration is slow • Restart is slow after stopping with strong deceleration • "L" position cannot be recognized • Lock-up is not performed
P0720	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow • Restart is slow after stopping with strong deceleration • "L" position cannot be recognized • Lock-up is not performed
P0725	—	Lock-up is not performed
P0740	—	<ul style="list-style-type: none"> • Selector shock is large • Lock-up is not performed
P0744	—	Lock-up is not performed
P0745	—	—
P0746	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow • Lock-up is not performed
	Function deterioration is remarkable after detection of malfunction	<ul style="list-style-type: none"> • Start is difficulty • Driving is difficulty • Lock-up is not performed
P0776	—	—
P0778	—	Vehicle speed is not increased
P0840	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow
P0841	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow
P0845	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow
P0868	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow
P1701	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow
P1705	—	<ul style="list-style-type: none"> • Acceleration is slow • Lock-up is not performed
P1709	—	<ul style="list-style-type: none"> • Start is slow • Acceleration is slow • Shift position indicator (P, N) is not displayed, or is displayed with delay
P1722	—	Lock-up is not performed in coast condition

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F09B]

DTC	Conditions of vehicle	Vehicle behavior
P1723	When detected malfunction of primary speed sensor	<ul style="list-style-type: none"> Acceleration is slow Restart is slow after stopping with strong deceleration "L" position cannot be recognized Lock-up is not performed
	When detected malfunction of secondary speed sensor	<ul style="list-style-type: none"> Start is slow Acceleration is slow Restart is slow after stopping with strong deceleration "L" position cannot be recognized Lock-up is not performed
P1726	—	Acceleration is slow
P1740	—	<ul style="list-style-type: none"> Selector shock is large Lock-up is not performed
P1777	When detected malfunction of low side (stop the vehicle)	<ul style="list-style-type: none"> Vehicle speed is not increased Lock-up is not performed
	When detected malfunction of high side (driving the vehicle)	<ul style="list-style-type: none"> Start is slow Acceleration is slow Lock-up is not performed
U0100	—	<ul style="list-style-type: none"> Start is slow Acceleration is slow Vehicle speed is not increased
U1000	—	<ul style="list-style-type: none"> Start is slow Acceleration is slow Vehicle speed is not increased
U1010	—	<ul style="list-style-type: none"> Start is slow Acceleration is slow Vehicle speed is not increased

DTC Inspection Priority Chart

INFOID:000000009650104

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	P1709 INCOMPLETED DATA WRITING	TM-118
	U0100 CAN COMM (ECM A)	TM-71
	U1000 CAN COMM CIRC	TM-72
	U1010 CONTROL UNIT (CAN)	TM-73
2	P0725 ENGINE SPEED	TM-91
	P1705 TP SENSOR	TM-117
	P1726 THROTTLE CONTROL SIGNAL	TM-122

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F09B]

Priority	Detected items (DTC)	Reference
3	P0615 STARTER RELAY	TM-74
	P0703 BRAKE SWITCH B	TM-76
	P0705 T/M RANGE SENSOR A	TM-80
	P0710 FLUID TEMP SENSOR A	TM-83
	P0715 INPUT SPEED SENSOR A	TM-86
	P0720 OUTPUT SPEED SENSOR	TM-88
	P0740 TORQUE CONVERTER	TM-92
	P0745 PC SOLENOID A	TM-96
	P0778 PC SOLENOID B	TM-102
	P0840 FLUID PRESS SEN/SW A	TM-104
	P0845 FLUID PRESS SEN/SW B	TM-109
	P1701 TCM	TM-114
	P1722 VEHICLE SPEED	TM-120
	P1740 SLCT SOLENOID	TM-123
	P1777 STEP MOTOR	TM-125
4	P0744 TORQUE CONVERTER	TM-94
	P0746 PC SOLENOID A	TM-98
	P0776 PC SOLENOID B	TM-100
	P0841 FLUID PRESS SEN/SW A	TM-106
	P0868 FLUID PRESS LOW	TM-111
	P1723 SPEED SENSOR	TM-121
	P1778 STEP MOTOR	TM-128

DTC Index

INFOID:000000009650105

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-47. "DTC Inspection Priority Chart"](#).

DTC ^{*1}		Item name (CONSULT screen terms)	Reference
"TRANSMISSION" with CONSULT	MIL ^{*2} , "ENGINE" with CONSULT or GST		
P0615	—	STARTER RELAY	TM-74
P0703	—	BRAKE SWITCH B	TM-76
P0705	P0705	T/M RANGE SENSOR A	TM-80
P0710	P0710	FLUID TEMP SENSOR A	TM-83
P0715	P0715	INPUT SPEED SENSOR A	TM-86
P0720	P0720	OUTPUT SPEED SENSOR	TM-88
P0725	—	ENGINE SPEED	TM-91
P0740	P0740	TORQUE CONVERTER	TM-92
P0744	P0744	TORQUE CONVERTER	TM-94
P0745	P0745	PC SOLENOID A	TM-96
P0746	P0746	PC SOLENOID A	TM-98
P0776	P0776	PC SOLENOID B	TM-100
P0778	P0778	PC SOLENOID B	TM-102
P0840	P0840	FLUID PRESS SEN/SW A	TM-104

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F09B]

DTC*1		Item name (CONSULT screen terms)	Reference
"TRANSMISSION" with CONSULT	MIL*2, "ENGINE" with CONSULT or GST		
P0841	—	FLUID PRESS SEN/SW A	TM-106
P0845	P0845	FLUID PRESS SEN/SW B	TM-109
P0868	—	FLUID PRESS LOW	TM-111
P1701	—	TCM	TM-114
P1705	—	TP SENSOR	TM-117
P1709	—	INCOMPLETED DATA WRITING	TM-118
P1722	—	VEHICLE SPEED	TM-120
P1723	—	SPEED SENSOR	TM-121
P1726	—	THROTTLE CONTROL SIGNAL	TM-122
P1740	P1740	SLCT SOLENOID	TM-123
P1777	P1777	STEP MOTOR	TM-125
P1778	P1778	STEP MOTOR	TM-128
U0100	U0100	CAN COMM (ECM A)	TM-71
U1000	—	CAN COMM CIRCUIT	TM-72
U1010	—	CONTROL UNIT (CAN)	TM-73

*1: These numbers are prescribed by SAE J2012/ISO 15031-6.

*2: Refer to [TM-34](#). "Diagnosis Description".

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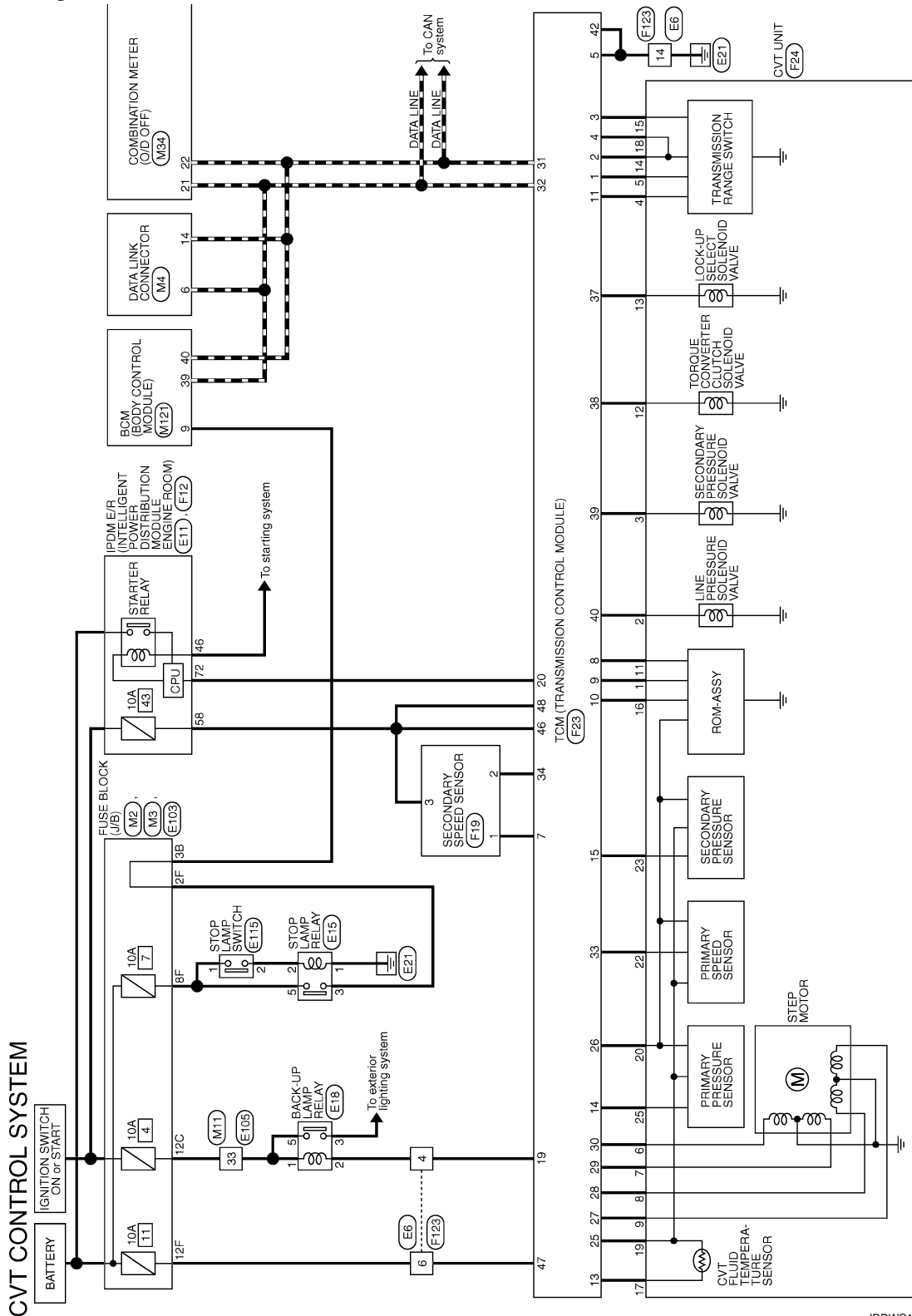
< WIRING DIAGRAM >

WIRING DIAGRAM

CVT CONTROL SYSTEM

Wiring Diagram

INFOID:000000009650106



2013/07/10

JRDWC1308GB

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F09B]

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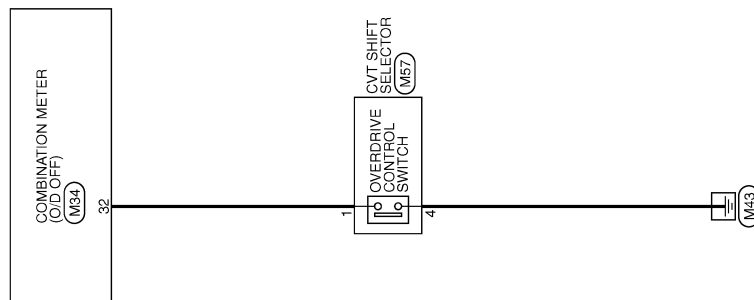
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JRDWC1309GB

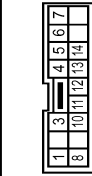
CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F09B]

CVT CONTROL SYSTEM

Connector No.	E10
Connector Name	WIRE TO WIRE
Connector Type	TK18MGY-TV



Terminal No.	Color Of Wire	Signal Name [Specification]
1	B	
2	LG	
3	R	
4	B	
5	V	
6	W	
7	L	
8	P	
9	G	
10	W	
11	G	
12	SB	
13	B	
14	B	

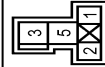
Connector No.	E11
Connector Name	ECM INTELLEGRY POWER DISTRIBUTION MODULE ENGINE ROOM
Connector Type	TH08FW-0H



Terminal No.	Color Of Wire	Signal Name [Specification]
39	P	
40	L	
41	B	
42	SB	
43	LG	
44	W	
45	Y	

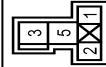
46	O	--
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Connector No.	E15
Connector Name	STOP LAMP RELAY
Connector Type	MS02FL-0M2-LC



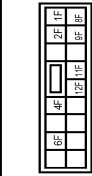
Terminal No.	Color Of Wire	Signal Name [Specification]
1	B/W	
2	LG	
3	R	
5	P	

Connector No.	E16
Connector Name	BACK-UP LAMP RELAY
Connector Type	MS02FL-0M2-LG



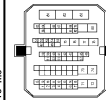
Terminal No.	Color Of Wire	Signal Name [Specification]
1	O	
2	LG	
3	R	
5	Y	

Connector No.	E103
Connector Name	FUSE BLOCK (J/B)
Connector Type	MS18FW-0S



Terminal No.	Color Of Wire	Signal Name [Specification]
1E	Y	
2F	R	
3E	L	
4E	LG	
5E	B	
1P	P	
2P	P	
3P	P	
4P	P	
5P	P	

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH10MM-SS1P-M3



Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	
2	W	
3	B	
4	R	
5	LG	
6	O	
7	Y	
8	GR	
9	SB	
10	BR	
11	Y	
12	O	

13	W	--
14	L	--
15	P	--
31	GR	--
32	R	--
33	W	--
37	BR	--
38	G	--
39	V	--
40	P	--
41	L	--
42	LG	--
43	O	--
45	GR	--
46	SB	--
47	Y	--
48	L	--
51	BR	--
52	G	--
53	B	--
54	O	--
55	Y	--
56	SHIELD	--
61	P	--
62	G	--
63	W/L	--
64	W/R	--
66	W	--
67	P	--
68	SB	--
70	LG	--
71	R	--
72	L	--
73	GR	--
74	Y	--
75	SB	--
76	Y	--
77	G	--
78	O	--
80	R	--
81	L	--
82	LG	--
83	R	--

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F09B]

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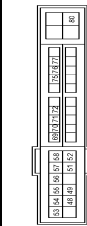
CVT CONTROL SYSTEM

Connector No.	F15
Connector Name	STOP LAMP SWITCH
Connector Type	M04FW-LC



Terminal No.	Color Of Wire	Signal Name [Specification]
1	P	-
2	G	-
3	G	-
4	W	-

Connector No.	F12
Connector Name	IPM F/R INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM
Connector Type	TH420FW-C512-AM



Terminal No.	Color Of Wire	Signal Name [Specification]
48	W	-
49	R/B	-
51	LG	-
52	Y/G	-
53	R/W	-
54	G/W	-
55	W/L	-
56	R/Y	-
57	Y	-
58	W/B	-
60	G	-
70	B	-
71	P	-
72	R/B	-
75	LG	-
76	GR	-

77	B	-
80	B	-

Connector No.	F18
Connector Name	SECONDARY SPEED SENSOR
Connector Type	RK03FB



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

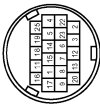
Connector No.	F23
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	PH40FB-F22-L-TH



Terminal No.	Color Of Wire	Signal Name [Specification]
1	P/B	TRANSMISSION RANGE SWITCH 2
2	P/L	TRANSMISSION RANGE SWITCH 3
3	G/O	TRANSMISSION RANGE SWITCH 4
4	GR	TRANSMISSION RANGE SWITCH 2 (MONITOR)
5	B	GROUND
6	W	SENSOR GROUND
7	W	ROM ASSY (SET 1)
8	W	ROM ASSY (SET 2)
9	W	ROM ASSY (SET 3)
10	BR/R	TRANSMISSION RANGE SWITCH 1
11	BR/W	CVT FLUID TEMPERATURE SENSOR
13	V	PRIMARY PRESSURE SENSOR
14	R/W	SECONDARY PRESSURE SENSOR
15	V/W	-

19	G/B	BACK-UP LAMP RELAY
21	R	BACK-UP LAMP
22	W/R	SENSOR GROUND
23	W/R	SENSOR POWER
24	L/O	SENSOR GROUND
27	R/G	STEP MOTOR B
28	R	STEP MOTOR C
29	O/B	STEP MOTOR B
30	G/R	STEP MOTOR A
31	P	CAN-L
32	L	CAN-H
33	LG	PRIMARY SPEED SENSOR
34	LG/R	SECONDARY SPEED SENSOR
37	V/R	LOCK-UP SELECT SOLENOID VALVE
38	L/W	TORQUE CONVERTER GLITCH SOLENOID VALVE
39	W/B	SECONDARY PRESSURE SOLENOID VALVE
40	R/L	LINE PRESSURE SOLENOID VALVE
42	B	GROUND
46	Y	IGNITION POWER SUPPLY
47	L/R	BATTERY POWER SUPPLY (MEMORY BLOCK-UP)
48	Y	IGNITION POWER SUPPLY

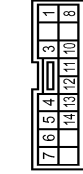
Connector No.	F24
Connector Name	CVT UNIT
Connector Type	RK2ZFGY



Terminal No.	Color Of Wire	Signal Name [Specification]
1	L/R	-
2	R/Y	-
3	W/B	-
4	BR/W	-
5	P/B	-
6	G/R	-
7	G/B	-
8	R/G	-
11	G/W	-
12	L/W	-
13	V/R	-
14	P/L	-
15	G/O	-

16	BR/R	-
17	R	-
18	GR	-
19	W/R	-
20	L/O	-
22	LG	-
23	V/W	-
25	R/W	-

Connector No.	F13
Connector Name	WIRE TO WIRE
Connector Type	TK1BFGY-IV



Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	-
3	G/R	-
4	G/B	-
5	R	-
6	P	-
7	R	-
8	P	-
10	Y/B	-
11	BR/W	-
12	BR	-
13	G	-
14	B	-

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F09B]

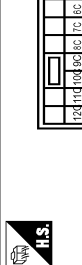
CVT CONTROL SYSTEM

Connector No.	M2
Connector Name	FUSE BLOCK (J/B)
Connector Type	MS12FW-CS



Terminal No.	Color Of Wire	Signal Name [Specification]
4B	R	-
3B	Y	-
10B	W	-
9B	W	-
8B	BR	-
6B	O	-
5B	R/L	-
8B	R/L	-
9B	GR	-

Connector No.	M3
Connector Name	FUSE BLOCK (J/B)
Connector Type	MS12FW-CS



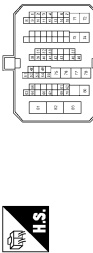
Terminal No.	Color Of Wire	Signal Name [Specification]
10C	LG	-
11C	V	-
12C	Y	-
6C	GR	-
7C	B/R	-
8C	O	-
9C	Y	-

Connector No.	M4
Connector Name	DATA LINK CONNECTOR
Connector Type	BD18FW



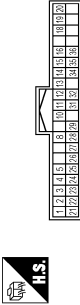
Terminal No.	Color Of Wire	Signal Name [Specification]
3	LG	-
4	LG	-
5	B/R	-
6	L	-
7	R	-
8	G	-
11	SB	-
14	P	-
16	O	-

Connector No.	M11
Connector Name	WIRE TO WIRE
Connector Type	TH30FN-CS10-M8



Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	-
2	W	-
3	B	-
4	O	-
6	O	-
7	LG	-
8	B	-
9	B	-
10	R	-
11	W	-
12	LG	-

Connector No.	M34
Connector Name	COMBINATION METER
Connector Type	TH40FW-MH



Terminal No.	Color Of Wire	Signal Name [Specification]
1	O	BATTERY POWER SUPPLY
2	Y	IGNITION SIGNAL
3	Y	GROUND
4	B	GROUND
5	B/P	ILLUMINATION CONTROL SIGNAL
6	SB	TRIP RESET SWITCH SIGNAL
10	P	METER CONTROL SWITCH GROUND
11	G	ENTER SWITCH SIGNAL
12	BR	SELECT SWITCH SIGNAL
13	Y	ILLUMINATION CONTROL SWITCH SIGNAL (A)
14	V	ILLUMINATION CONTROL SWITCH SIGNAL (C)
15	BR	AIR BAG SIGNAL
16	L	ENGINE COOLANT TEMPERATURE SIGNAL
18	LG	AMBIENT SENSOR SIGNAL
19	R	A/C AUTO CLIMATE CONTROL SENSOR SIGNAL
20	Y	AMBIENT SENSOR GROUND
21	L	CAN-H
22	P	CAN-L
23	B	GROUND
24	B	FUEL LEVEL SENSOR GROUND
25	BR	ALTERNATOR SIGNAL
26	BR	PARKING BRAKE SWITCH SIGNAL
27	Y	BRAKE FLUID LEVEL SWITCH SIGNAL
28	V	SECURITY SIGNAL
29	G	WASHER LEVEL SWITCH SIGNAL
31	SB	VEHICLE SPEED SIGNAL (B-PULSE)
32	P	OVERDRIVE CONTROL SWITCH SIGNAL
34	O	FUEL LEVEL SENSOR SIGNAL
35	D	SEAT BELT SENSOR SIGNAL
38	BR	PASSENGER SEAT BELT WARNING SIGNAL

13	Y	-
14	L	-
15	P	-
31	R	-
32	V	-
33	Y	-
37	BR	-
38	BR	-
39	Y	-
40	P	-
41	L	-
42	G	-
43	W	-
45	LG	-
47	LG	-
49	LG	-
51	SB	-
52	GR	-
53	B	-
54	R	-
55	L	-
56	SHIELD	-
61	BR	-
62	LG	-
63	W/L	-
64	W/R	-
65	O	-
66	SB	-
69	R	-
70	R	-
71	R	-
72	L	-
73	R	-
74	Y	-
75	G	-
76	V	-
77	P	-
78	W	-
80	Y	-
81	W	-
82	L	-
83	R	-

CVT CONTROL SYSTEM

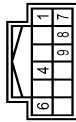
< WIRING DIAGRAM >

[CVT: RE0F09B]

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CVT CONTROL SYSTEM

Connector No.	M57
Connector Name	CVT SHIFT SELECTOR
Connector Type	TH112FW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
1	BR	-
4	BR	-
6	G	-
7	B	-
8	L	-
9	G	-

Connector No.	M121
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
1	W	REAR WINDOW DEF RELAY CONT
2	LG	COMBI SW INPUT 5
3	Y	COMBI SW INPUT 4
4	O	COMBI SW INPUT 3
5	G	COMBI SW INPUT 2
9	L	COMBI SW INPUT 1
10	GR	RET OTL UNLOCK SW
11	GR	RM SW (COMBI SW automatic starting stop)
12	Y	RE OTL LOCK SW (with automatic starting stop)
13	Y	STOP LAMP SW 1
14	BR	DOOR LK & UNLK SW UNLOCK
15	W	DOOR LK & UNLK SW LOCK
16	L	OPTICAL SENS
17	L	REAR WINDOW DEF SW

18	Y	DRIVER SEAT BELT SENS Y
19	O	SEAT BELT SENS Y
20	B	REAR SEAT SENS GND
21	R	NATS ANT AMP
22	V	SECURITY INFO CONT
23	V	SECURITY INFO CONT
24	B	DOUBLE LINK
25	W	NATS ANT AMP
26	W	NATS ANT AMP
27	O	A/G CON
28	BR	BLOWER FAN ON
29	P	HAZARD SW
30	L	BK DOOR OPNR SW
31	O	DR DOOR UNLK SENS
32	Y	COMBI SW OUTPUT 5
33	W	COMBI SW OUTPUT 4
34	GR	COMBI SW OUTPUT 3
35	BR	COMBI SW OUTPUT 2
36	R	COMBI SW OUTPUT 1
37	G	DEFENT SW
38	SR	RECEIVER COMM
39	L	CAN-H
40	P	CAN-L

SHIFT LOCK SYSTEM

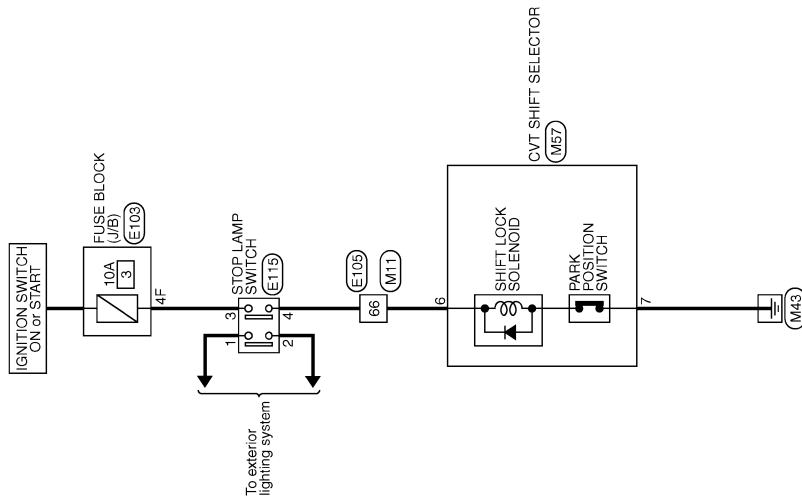
< WIRING DIAGRAM >

[CVT: RE0F09B]

SHIFT LOCK SYSTEM

Wiring Diagram

INFOID:000000009650107



CVT SHIFT LOCK SYSTEM

2010/12/13

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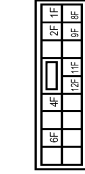
SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F09B]

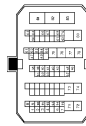
CVT SHIFT LOCK SYSTEM

Connector No.	E103
Connector Name	FUSE BLOCK (J/B)
Connector Type	MS16FW-C5



Terminal No.	Color Of Wire	Signal Name [Specification]
1F	G	-
2F	SB	-
4F	R	-
6F	LG	-
8F	P	-
9F	BR	-

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH10PW-C51D-M3



Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	-
2	W	-
3	B	-
4	R	-
5	G	-
6	SB	-
7	LG	-
8	Y	-
9	R	-
10	BR	-
11	Y	-
12	O	-

13	W	-
14	P	-
15	P	-
31	GR	-
32	R	-
33	W	-
37	BR	-
38	G	-
39	V	-
40	P	-
41	L	-
42	LG	-
43	O	-
45	GR	-
46	G	-
47	L	-
48	SB	-
51	BR	-
52	G	-
53	B	-
54	O	-
55	Y	-
56	SHIELD	-
61	P	-
62	G	-
63	W/L	-
64	W/R	-
65	W	-
66	W	-
67	SB	-
68	SB	-
69	Y	-
70	R	-
71	R	-
72	L	-
73	LG	-
74	L	-
75	GR	-
76	Y	-
77	SB	-
78	Y	-
79	G	-
80	R	-
81	L	-
82	LG	-
83	R	-

Connector No.	E115
Connector Name	STOP LAMP SWITCH
Connector Type	MS16FW-LG



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

Connector No.	M11
Connector Name	WIRE TO WIRE
Connector Type	TH10PW-C51D-M3



Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	-
2	W	-
3	B	-
4	R	-
6	O	-
7	G	-
8	G	-
9	B	-
10	R	-
11	LG	-
12	Y	-
13	Y	-
14	L	-
15	P	-
31	R	-

32	V	-
33	Y	-
34	BR	-
35	BR	-
36	BR	-
38	Y	-
40	P	-
41	L	-
42	G	-
43	W	-
45	LG	-
46	V	-
47	LG	-
49	G	-
51	SB	-
52	GR	-
53	B	-
54	R	-
55	L	-
56	SHIELD	-
61	BR	-
62	LG	-
63	W/L	-
64	W/R	-
66	O	-
67	SB	-
69	Y	-
70	R	-
71	R	-
72	L	-
73	LG	-
75	G	-
76	V	-
77	P	-
78	W	-
80	Y	-
81	W	-
82	L	-
83	R	-

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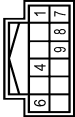
SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F09B]

CVT SHIFT LOCK SYSTEM

Connector No.	M57
Connector Name	CVT SHIFT SELECTOR
Connector Type	TH12FW-NH

Terminal No.	Color/Off Type	Signal Name [Specification]
1	PR	--
4	BR	--
6	GR	--
7	B	--
8	L	--
9	G	--

JRDWC1315GB

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000009650108

1. COLLECT THE INFORMATION FROM THE CUSTOMER

Get the detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred) using the question sheet. Refer to [TM-60, "Diagnostic Work Sheet"](#).

>> GO TO 2.

2. CHECK SYMPTOM 1

Check the following items based on the information obtained from the customer.

- Fail-safe. Refer to [TM-45, "Fail-safe"](#).
- CVT fluid inspection. Refer to [TM-149, "Inspection"](#).
- Line pressure test. Refer to [TM-65, "Work Procedure"](#).
- Stall test. Refer to [TM-64, "Work Procedure"](#).

>> GO TO 3.

3. CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is detected.
 - Record DTC.
 - Erase DTC.

Is any DTC detected?

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

4. PERFORM DIAGNOSTIC PROCEDURE

Perform "Diagnostic Procedure" for the displayed DTC. Repair detected items.

>> GO TO 5.

5. PERFORM DTC CONFIRMATION PROCEDURE

Perform "DTC CONFIRMATION PROCEDURE" for the displayed DTC.

Is DTC detected?

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

6. CHECK SYMPTOM 2

Confirm the symptom described by the customer.

Is any malfunction present?

- YES >> GO TO 7.
NO >> INSPECTION END

7. ROAD TEST

Perform "ROAD TEST". Refer to [TM-67, "Description"](#).

>> GO TO 8.

8. CHECK SYMPTOM 3

Confirm the symptom described by the customer.

Is any malfunction present?

- YES >> GO TO 2.

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DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[CVT: RE0F09B]

NO >> INSPECTION END

Diagnostic Work Sheet

INFOID:000000009650109

DESCRIPTION

There are many operating conditions that may cause a malfunction of the transmission parts. By understanding those conditions properly, a quick and exact diagnosis can be achieved.

In general, perception of a problem varies depending on individuals. Ask the customer about his/her concerns carefully. It is important to understand the phenomenon or status. To systemize all the information for the diagnosis, prepare the question sheet referring to the question points.

In some cases, multiple conditions that appear simultaneously may cause a DTC to be detected.

KEY POINTS

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

SEF907L

WORKSHEET SAMPLE

Question sheet

Customer's name	MR/MS	Registration number		Initial year registration	Year Month day
		Vehicle type		Chassis No.	
Storage date	Year Month day	Engine		Mileage	km/MPH
Symptom		<input type="checkbox"/> Vehicle does not drive. (<input type="checkbox"/> R position <input type="checkbox"/> D position <input type="checkbox"/> L position) <input type="checkbox"/> Upshifting does not occur. <input type="checkbox"/> Downshifting does not occur. <input type="checkbox"/> Lock-up malfunction <input type="checkbox"/> Shift point is too high. <input type="checkbox"/> Shift point is too low. <input type="checkbox"/> Shift shock (<input type="checkbox"/> N⇒ D <input type="checkbox"/> Lock-up <input type="checkbox"/> R, D, and L position) <input type="checkbox"/> Slip (<input type="checkbox"/> N⇒ D <input type="checkbox"/> Lock-up <input type="checkbox"/> R, D, and L position) <input type="checkbox"/> Noise <input type="checkbox"/> Vibration When selector lever position is shifted, shift pattern does not change. <input type="checkbox"/> Other			
First occurrence		<input type="checkbox"/> Recently (as from month of year)			
Frequency of occurrence		<input type="checkbox"/> Always <input type="checkbox"/> Under certain conditions <input type="checkbox"/> Sometimes (time(s)/day)			
Climate conditions		Irrelevant			
	Weather	<input type="checkbox"/> Clear <input type="checkbox"/> Cloud <input type="checkbox"/> Rain <input type="checkbox"/> Snow <input type="checkbox"/> Others ()			
	Temperature	<input type="checkbox"/> Hot <input type="checkbox"/> Warm <input type="checkbox"/> Cool <input type="checkbox"/> Cold <input type="checkbox"/> Temperature (Approx. °C/°F)			
	Relative humidity	<input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low			
Transaxle condition		<input type="checkbox"/> In cold-start <input type="checkbox"/> During warm-up (approx. °C/°F) <input type="checkbox"/> After warm-up <input type="checkbox"/> Engine speed: rpm			
Road conditions		<input type="checkbox"/> Urban area <input type="checkbox"/> Suburb area <input type="checkbox"/> Highway <input type="checkbox"/> Mountainous road (uphill or downhill)			
Operating condition, etc.		Irrelevant <input type="checkbox"/> When engine starts <input type="checkbox"/> During idling <input type="checkbox"/> During driving <input type="checkbox"/> During acceleration <input type="checkbox"/> At constant speed driving <input type="checkbox"/> During deceleration <input type="checkbox"/> During cornering (RH curve or LH curve)			
Other conditions					

ADDITIONAL SERVICE WHEN REPLACING TCM

< BASIC INSPECTION >

[CVT: RE0F09B]

ADDITIONAL SERVICE WHEN REPLACING TCM

Description

INFOID:000000009650110

When replacing the TCM, perform the following work.

LOADING AND STORING OF CALIBRATION DATA

- The TCM acquires calibration data (individual characteristic value) of each solenoid that is stored in the ROM assembly (in the control valve). This enables the TCM to perform accurate control. After the TCM is replaced, check that the calibration data is correctly loaded and stored.

CAUTION:

When replacing TCM and transaxle assembly as a set, replace transaxle assembly first and then replace TCM.

If the TCM is replaced in advance, perform "ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY". Refer to [TM-62, "Description"](#).

Procedure

INFOID:000000009650111

CAUTION:

Immediately after TCM is replaced or after control valve or transaxle assembly is replaced (after TCM initialization is complete), self-diagnosis result of "P1701", "P1709" may be displayed. In this case, erase self-diagnosis result using CONSULT. After erasing self-diagnosis result, perform DTC P1701, P1709 reproduction procedure and check that malfunction is not detected. Refer to [TM-114, "DTC Logic" \(P1701\)](#), [TM-118, "DTC Logic" \(P1709\)](#).

1. LOAD CALIBRATION DATA

1. Shift the selector lever to the "P" position.
2. Turn ignition switch ON.
3. Check that "P" is displayed on shift position indicator on combination meter.

NOTE:

Displayed approximately 1 – 2 seconds after the selector lever is moved to the "P" position.

Does the shift position indicator display "P"?

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

2. DETECT MALFUNCTIONING ITEM

Check the following items:

- Harness between the TCM and the ROM assembly inside the transaxle assembly is open or shorted.
- Disconnected, loose, bent, collapsed, or otherwise abnormal connector housing terminals

Is the inspection result normal?

- YES >> GO TO 1.
NO >> Repair or replace the malfunctioning parts.

3. STORE CALIBRATION DATA

1. Turn ignition switch OFF and wait for 5 seconds.
2. Turn ignition switch ON.

Does the shift position indicator display "P" at the same time when turning ON the ignition switch?

- YES >> WORK END
NO >> Check harness between battery and TCM harness connector terminal. Refer to [TM-114, "Diagnosis Procedure"](#).

ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F09B]

ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

Description

INFOID:000000009650112

When replacing the transaxle assembly, perform the following work.

ERASING, LOADING AND STORING OF CALIBRATION DATA

- The TCM acquires calibration data (individual characteristic value) of each solenoid that is stored in the ROM assembly (in the control valve). This enables the TCM to perform accurate control. For this reason, after the transaxle assembly is replaced, it is necessary to erase the calibration data previously stored in TCM, to load new calibration data, and to stored them.

ERASING OF CVT FLUID DEGRADATION LEVEL DATA

- TCM records the degradation level of the CVT fluid calculated from the vehicle driving status. Therefore, if the transaxle assembly is replaced, it is necessary to erase the CVT fluid degradation level data recorded by TCM.

Procedure

INFOID:000000009650113

CAUTION:

Immediately after TCM is replaced or after transaxle assembly is replaced (after TCM initialization is complete), self-diagnosis result of "P1701", "P1709" may be displayed. In this case, erase self-diagnosis result using CONSULT. After erasing self-diagnosis result, perform DTC P1701, P1709 reproduction procedure and check that malfunction is not detected. Refer to [TM-114, "DTC Logic" \(P1701\)](#), [TM-118, "DTC Logic" \(P1709\)](#).

1. PREPARATION BEFORE WORK

ⓐ With CONSULT

1. Start the engine.

CAUTION:

Never drive the vehicle.

2. Select "Data Monitor" in "TRANSMISSION".
3. Select "ATFTEMP COUNT".

Is "ATFTEMP COUNT" 47 [equivalent to 20°C (68°F)] or more?

YES >> GO TO 2.

- NO >> 1. Warm up the transaxle assembly until "ATFTEMP COUNT" reaches "47" [equivalent to 20°C (68°F)] or more.
2. GO TO 2.

2. PERFORM TCM INITIALIZATION

ⓐ With CONSULT

1. Turn ignition switch OFF.
 2. Turn ignition switch ON.
- #### CAUTION:
- Never start the engine.**
3. Select "Self Diagnostic Results" in "TRANSMISSION".
 4. Shift selector lever to "R" position.
 5. Depress slightly the accelerator pedal (Pedal angle: 2.0/8) while depressing the brake pedal.
 6. Select "Erase" with step 5.
 7. Release brake pedal and accelerator pedal.
 8. Select "CALIB DATA" in "TRANSMISSION".
 9. Check that "CALIB DATA" value is as shown as in the following table.

Item name	Display value
UNIT CLB ID 1	00
UNIT CLB ID 2	00
UNIT CLB ID 3	00
UNIT CLB ID 4	00

ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F09B]

Item name	Display value
UNIT CLB ID 5	00
UNIT CLB ID 6	00

Is "CALIB DATA" value it?

YES >> GO TO 3.

NO >> GO TO 1.

3. LOAD CALIBRATION DATA

1. Shift selector lever to "P" position.
2. Check that "P" is displayed on shift position indicator on combination meter.

NOTE:

It indicates approximately 1 – 2 seconds after shifting the selector lever to "P" position.

Does shift position indicator display "P"?

YES >> GO TO 5.

NO >> GO TO 4.

4. DETECT MALFUNCTIONING ITEM

Check the following items:

- Harness between the TCM and the ROM assembly inside the transaxle assembly is open or shorted.
- Disconnected, loose, bent, collapsed, or otherwise abnormal connector housing terminals
- Power supply and ground of TCM. (Refer to [TM-114. "Diagnosis Procedure".](#))

Is the inspection result normal?

YES >> GO TO 1.

NO >> Repair or replace the malfunctioning parts.

5. STORE CALIBRATION DATA

1. Turn ignition switch OFF and wait for 5 seconds.
2. Turn ignition switch ON.

Does the shift position indicator display "P" at the same time when turning ON the ignition switch?

YES >> GO TO 6.

NO >> Check harness between battery and TCM harness connector terminal. Refer to [TM-114. "Diagnosis Procedure".](#)

6. ERASE CVT FLUID DEGRADATION LEVEL DATA

With CONSULT

1. Select "WORK SUPPORT" in "TRANSMISSION".
2. Select "CONFORM CVTF DETERIORATION".
3. Touch "Clear".

>> WORK END

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STALL TEST

< BASIC INSPECTION >

[CVT: RE0F09B]

STALL TEST

Work Procedure

INFOID:000000009650114

1. Check the amount of engine oil. Replenish if necessary. Refer to [LU-8, "Inspection"](#).
2. Check for leak of the CVT fluid. Refer to [TM-149, "Inspection"](#).
3. Drive for about 10 minutes to warm up the vehicle so that the CVT fluid temperature is 50 to 80°C (122 to 176°F).
4. Be sure to apply the parking brake and block the tires.
5. Start the engine, depress the brake pedal and shift the selector lever to the "D" position.
6. While depressing the brake pedal, depress the accelerator pedal gradually.
7. Read the stall speed quickly. Then, release your foot from the accelerator pedal quickly.

CAUTION:

Never depress the accelerator pedal for 5 seconds or more during the test.

Stall speed : [TM-179, "Stall Speed"](#)

8. Shift the selector lever to the "N" position.
9. Cool the CVT fluid.
CAUTION:
Run the engine with the idle speed for at least 1 minute.
10. Shift the selector lever to the "R" position and perform Step 6 to Step 9 again.

RESULT OF INSPECTION

	"D" position	"R" position	Possible cause
Stall speed	H	O	• Forward clutch
	O	H	• Reverse brake
	L	L	• Engine and torque converter one-way clutch • Accelerator pedal position sensor
	H	H	• Line pressure low • Primary pulley • Secondary pulley • Steel belt

- O: Stall speed within standard value position.
- H: Stall speed is higher than standard value.
- L: Stall speed is lower than standard value.

LINE PRESSURE TEST

< BASIC INSPECTION >

[CVT: RE0F09B]

LINE PRESSURE TEST

Work Procedure

INFOID:000000009650115

1. Check the amount of engine oil. Replenish if necessary. Refer to [LU-8, "Inspection"](#).
2. Check for leak of the CVT fluid. Refer to [TM-149, "Inspection"](#).
3. Drive for about 10 minutes to warm up the vehicle so that the CVT fluid temperature is 50 to 80°C (122 to 176°F).
4. After warming up transaxle assembly, remove oil pressure detection plug (A) and install oil pressure gauge [special service tool: — (OTC3492)].

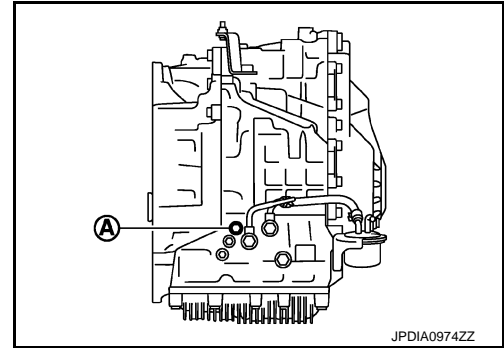
NOTE:

When using oil pressure gauge, be sure to use O-ring attached to oil pressure detection plug.

5. Be sure to apply the parking brake and block the tires.
6. Start the engine.
7. Measure the line pressure at both idle and the stall speed.

CAUTION:

Keep brake pedal pressed all the way down during measurement.



Line pressure : [TM-179, "Line Pressure"](#)

8. Install O-ring to fluid pressure detection plug after the measurements are complete.

CAUTION:

- **Never reuse O-ring.**
- **Apply CVT fluid to O-ring.**

9. Install oil pressure detection plug and tighten to the specified torque.



: 7.5 N·m (0.77 kg·m, 66 in·lb)

RESULT OF INSPECTION

Condition		Possible cause
Idle speed	Low for all positions ("P", "R", "N", "D", "L")	Possible causes include malfunctions in the pressure supply system and low oil pump output. For example <ul style="list-style-type: none"> • Oil pump wear • Pressure regulator valve or plug sticking or spring fatigue • Oil strainer ⇒ oil pump ⇒ pressure regulator valve passage oil leak • Engine idle speed too low
	Only low for a specific position	Possible causes include an oil pressure leak in a passage or device related to the position after the pressure is distributed by the manual valve.
	High	Possible causes include a sensor malfunction or malfunction in the line pressure adjustment function. For example <ul style="list-style-type: none"> • Accelerator pedal position signal malfunction • CVT fluid temperature sensor malfunction • Line pressure solenoid malfunction (sticking in OFF state, filter clog, cut line) • Pressure regulator valve or plug sticking

LINE PRESSURE TEST

< BASIC INSPECTION >

[CVT: RE0F09B]

	Condition	Possible cause
Stall speed	Line pressure does not rise higher than the line pressure for idle.	Possible causes include a sensor malfunction or malfunction in the pressure adjustment function. For example <ul style="list-style-type: none">• TCM malfunction• Line pressure solenoid malfunction (shorting, sticking in ON state)• Pressure regulator valve or plug sticking
	The pressure rises, but does not enter the standard position.	Possible causes include malfunctions in the pressure supply system and malfunction in the pressure adjustment function. For example <ul style="list-style-type: none">• Oil pump wear• Line pressure solenoid valve or plug sticking• Pressure regulator valve or plug sticking
	Only low for a specific position	Possible causes include an oil pressure leak in a passage or device related to the position after the pressure is distributed by the manual valve.

ROAD TEST

Description

INFOID:000000009650116

- The purpose of the test is to determine the overall performance of CVT and analyze causes of problems.
- The road test consists of the following three parts:
 1. [TM-67, "Check before Engine Is Started"](#)
 2. [TM-67, "Check at Idle"](#)
 3. [TM-68, "Cruise Test"](#)
- Before the road test, familiarize yourself with all test procedures and items to check.
- Perform tests for all the check items until a malfunction phenomenon is detected. Perform diagnosis for NG items after the completion of road tests.

Check before Engine Is Started

INFOID:000000009650117

1.CHECK OD OFF INDICATOR LAMP

1. Park vehicle on flat surface.
2. Shift the selector lever to "P" position.
3. Turn ignition switch OFF and wait at least 5 seconds.
4. Turn ignition switch ON.

Has OD OFF indicator lamp been turned ON for about 2 seconds?

- YES >> 1. Turn ignition switch OFF.
 2. Perform self-diagnosis and note NG items. Refer to [TM-48, "DTC Index"](#).
 3. Go to [TM-67, "Check at Idle"](#).
- NO >> Stop "Road Test". Refer to [TM-137, "Symptom Table"](#).

Check at Idle

INFOID:000000009650118

1.CHECK STARTING THE ENGINE (PART 1)

1. Park vehicle on flat surface.
2. Shift the selector lever to "P" and "N" positions.
3. Turn ignition switch OFF.
4. Turn ignition switch to "START" position.

Is engine started?

- YES >> GO TO 2.
- NO >> Stop "Road Test". Refer to [TM-137, "Symptom Table"](#).

2.CHECK STARTING THE ENGINE (PART 2)

1. Turn ignition switch OFF.
2. Turn ignition switch ON.
3. Shift the selector lever to "R", "D" and "L" positions.
4. Turn ignition switch to "START" position.

Is engine started?

- YES >> Stop "Road Test". Refer to [TM-137, "Symptom Table"](#).
- NO >> GO TO 3.

3.CHECK "P" POSITION FUNCTION

1. Shift the selector lever to "P" position.
2. Turn ignition switch OFF.
3. Release parking brake.
4. Push vehicle forward or backward.
5. Apply parking brake.

Does vehicle move forward or backward?

- YES >> Refer to [TM-137, "Symptom Table"](#). GO TO 4.
- NO >> GO TO 4.

4.CHECK "N" POSITION FUNCTION

ROAD TEST

[CVT: RE0F09B]

< BASIC INSPECTION >

1. Start the engine.
2. Shift the selector lever to "N" position.
3. Release parking brake.

Does vehicle move forward or backward?

- YES >> Refer to [TM-137, "Symptom Table"](#). GO TO 5.
NO >> GO TO 5.

5.CHECK SHIFT SHOCK

1. Apply foot brake.
2. Shift the selector lever to "R" position.

Is there large shock when changing from "N" to "R" position?

- YES >> Refer to [TM-137, "Symptom Table"](#). GO TO 6.
NO >> GO TO 6.

6.CHECK "R" POSITION FUNCTION

Release foot brake for several seconds.

Does vehicle creep backward?

- YES >> GO TO 7.
NO >> Refer to [TM-137, "Symptom Table"](#). GO TO 7.

7.CHECK "D" POSITION FUNCTION

Shift the selector lever to "D" and "L" positions and check if vehicle creeps forward.

Does vehicle creep forward?

- YES >> Go to [TM-68, "Cruise Test"](#).
NO >> Stop "Road Test". Refer to [TM-137, "Symptom Table"](#).

Cruise Test

INFOID:000000009650119

1.CHECK VEHICLE SPEED WHEN SHIFTING GEARS (PART 1)

1. Drive vehicle for approximately 10 minutes to warm engine oil and CVT fluid up to operating temperature.

CVT fluid operating temperature : 50 – 80°C (122 – 176°F)

2. Park vehicle on flat surface.
3. Shift the selector lever to "P" position.
4. Start the engine.
5. Shift the selector lever to "D" position.
6. Accelerate vehicle at 2/8 throttle opening.
7. Read vehicle speed and engine speed. Refer to [TM-179, "Vehicle Speed When Shifting Gears"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Refer to [TM-137, "Symptom Table"](#). GO TO 2.

2.CHECK VEHICLE SPEED WHEN SHIFTING GEARS (PART 2)

1. Stop the vehicle on flat surface.
2. Accelerate vehicle at 8/8 throttle opening.
3. Read vehicle speed and engine speed. Refer to [TM-179, "Vehicle Speed When Shifting Gears"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Refer to [TM-137, "Symptom Table"](#). GO TO 3.

3.CHECK OVERDRIVE OFF CONDITION (PART 1)

1. Stop the vehicle on flat surface.
2. Push overdrive control switch. (O/D OFF indicator lamp is on)
3. Accelerate vehicle at 2/8 throttle opening.
4. Read vehicle speed and engine speed. Refer to [TM-179, "Vehicle Speed When Shifting Gears"](#).

Is the inspection result normal?

- YES >> GO TO 4.

ROAD TEST

< BASIC INSPECTION >

[CVT: RE0F09B]

NO >> Refer to [TM-137, "Symptom Table"](#). GO TO 4.

4.CHECK OVERDRIVE OFF CONDITION (PART 2)

1. Stop the vehicle on flat surface.
2. Accelerate vehicle at 8/8 throttle opening.
3. Read vehicle speed and engine speed. Refer to [TM-179, "Vehicle Speed When Shifting Gears"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Refer to [TM-137, "Symptom Table"](#). GO TO 5.

5.CHECK "L" POSITION FUNCTION (PART 1)

1. Stop the vehicle on flat surface.
2. Shift the selector lever to "L" position.
3. Accelerate vehicle at 2/8 throttle opening.
4. Read vehicle speed and engine speed. Refer to [TM-179, "Vehicle Speed When Shifting Gears"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Refer to [TM-137, "Symptom Table"](#). GO TO 6.

6.CHECK "L" POSITION FUNCTION (PART 2)

1. Stop the vehicle on flat surface.
2. Accelerate vehicle at 8/8 throttle opening.
3. Read vehicle speed and engine speed. Refer to [TM-179, "Vehicle Speed When Shifting Gears"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Refer to [TM-137, "Symptom Table"](#). GO TO 7.

7.CHECK ENGINE BRAKE FUNCTION

Check engine brake.

Does engine braking effectively reduce vehicle speed in "L" position?

YES >> 1. Stop the vehicle.

2. Perform "Self Diagnostic Results" in "TRANSMISSION".

NO >> Refer to [TM-137, "Symptom Table"](#). Then continue trouble diagnosis.

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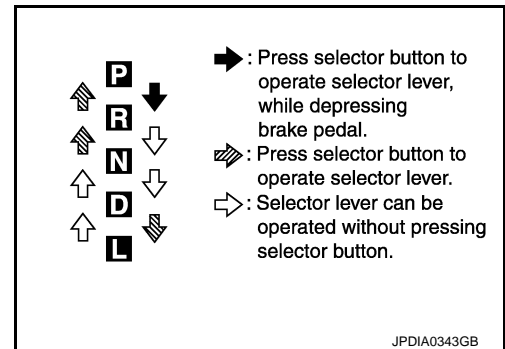
CVT POSITION

Inspection and Adjustment

INFOID:00000009650120

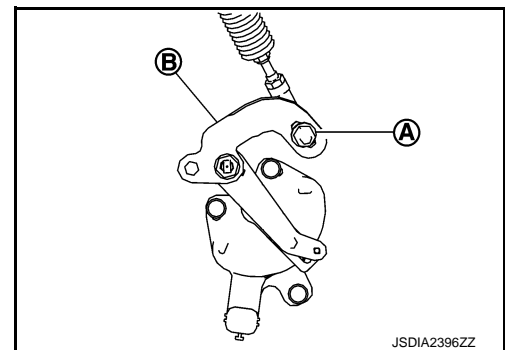
INSPECTION

1. Turn ignition switch ON (engine stop) when selector lever is "P" position.
2. Check that selector lever can be shifted to other than "P" position when brake pedal is depressed. Also check that selector lever can be shifted from "P" position only when brake pedal is depressed.
3. Shift the selector lever and check for excessive effort, sticking, noise or rattle.
4. Check that selector lever stops at each position with the feel of engagement when it is moved through all the positions. Check that the actual position of selector lever matches the position shown by shift position indicator and manual lever on the transaxle.
5. The method of operating selector lever to individual positions correctly should be as shown.
6. When selector button is pressed in "P", "R", "N", "D" or "L" position without applying forward/backward force to selector lever, check button operation for sticking.
7. Check that back-up lamps illuminate only when selector lever is placed in the "R" position.
8. When in "R" position, check that back-up lamps do not illuminate even when the selector lever is in the "P" position.
CAUTION:
Check the lighting without pressing shift button.
9. Check that back-up lamps do not illuminate when selector lever is pushed toward the "R" position when in the "P" or "N" position.
CAUTION:
Check the lighting without pressing shift button.
10. Check that the engine can only be started with selector lever in the "P" and "N" positions.
11. Check that transaxle is locked completely in "P" position.



ADJUSTMENT

1. Shift the selector lever to "P" position.
CAUTION:
Turn wheels more than 1/4 rotations and apply the park lock.
2. Loosen the control cable nut (A).
3. Place manual lever (B) to "P" position.
CAUTION:
Never apply any force to manual lever.
4. Tighten the control cable nut. Refer to [TM-156, "Exploded View"](#).
CAUTION:
Fix manual lever when tightening.



U0100 LOST COMMUNICATION (ECM A)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

DTC/CIRCUIT DIAGNOSIS

U0100 LOST COMMUNICATION (ECM A)

DTC Logic

INFOID:000000009650121

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
U0100	Lost Communication With ECM/PCM A	When the ignition switch is ON, TCM is unable to receive the CAN communications signal from ECM continuously for 2 seconds or more.	<ul style="list-style-type: none">• ECM• Harness or connector (CAN communication line is open or shorted)

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

Is "U0100" detected?

- YES >> Go to [TM-71, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650122

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

U1000 CAN COMM CIRCUIT

Description

INFOID:000000009650123

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

DTC Logic

INFOID:000000009650124

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detected condition	Possible cause
U1000	CAN Communication Line	When TCM is not transmitting or receiving CAN communication signal for 2 seconds or more.	Harness or connectors (CAN communication line is open or shorted.)

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

Ⓔ With CONSULT

1. Turn ignition switch ON.
2. Start engine and wait at least 5 seconds.
3. Check DTC.

Is "U1000" detected?

- YES >> Go to [TM-72, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650125

Go to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

U1010 CONTROL UNIT (CAN)

DTC Logic

INFOID:000000009650126

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detected condition	Possible cause
U1010	TCM Communication Malfunction	When detecting error during the initial diagnosis of CAN controller to TCM	TCM

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

Ⓜ With CONSULT

1. Start the engine.
2. Maintain the idling conditions for 6 seconds or more.
3. Check DTC.

Is "U1010" detected?

- YES >> Go to [TM-73, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650127

1. CHECK INTERMITTENT INCIDENT

Refer to [GI-42, "Intermittent Incident"](#).

Is the inspection result normal?

- YES >> Replace the TCM. Refer to [TM-158, "Removal and Installation"](#).
NO >> Repair or replace damaged parts.

P0615 STARTER RELAY

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0615 STARTER RELAY

DTC Logic

INFOID:000000009650128

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detected condition	Possible cause
P0615	Starter Relay Circuit	The starter relay monitor value is OFF when the starter relay command value is ON.	<ul style="list-style-type: none"> • Harness or connectors (Starter relay circuit is open or shorted.) • Starter relay • IPDM E/R
		The starter relay monitor value is ON when the starter relay command value is OFF.	

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

ⓐ With CONSULT

1. Turn ignition switch ON.
2. Shift the selector lever to "P" or "N" position and wait at least 10 seconds.
3. Check DTC.

Is "P0615" detected?

- YES >> Go to [TM-74. "Diagnosis Procedure"](#).
 NO >> INSPECTION END.

Diagnosis Procedure

INFOID:000000009650129

1. CHECK STARTER RELAY SIGNAL

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Turn ignition switch ON.
4. Check the voltage between IPDM E/R harness connector terminal and ground.

+		-	Condition	Voltage (Approx.)
IPDM E/R				
Connector	Terminal			
F12	72	Ground	Selector lever in "P" and "N" positions	10 – 16 V
			Selector lever in other positions	0 V

Is the inspection result normal?

- YES >> Check IPDM E/R. Refer to [PCS-16. "Reference Value"](#).
 NO >> GO TO 2.

2. CHECK HARNESS BETWEEN TCM AND IPDM E/R

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check the continuity between TCM harness connector terminal and IPDM E/R harness connector terminal.

TCM		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
F23	20	F12	72	Existed

P0615 STARTER RELAY

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

4. Check the continuity between TCM harness connector terminal and ground.

TCM		—	Continuity
Connector	Terminal		
F23	20	Ground	Not existed

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).

NO >> Repair or replace damaged parts.

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P0703 BRAKE SWITCH B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0703 BRAKE SWITCH B

DTC Logic

INFOID:000000009650130

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detected condition	Possible cause
P0703	Brake Switch "B" Circuit	<p>TCM detects malfunction in two continuous DCs in CAN communication with BCM</p> <p>When below diagnosis condition is met, if ON/OFF of stop lamp switch signal does not switch in two continuous DCs, the DTC is detected at succeeding ignition switch ON</p> <ul style="list-style-type: none">• Diagnosis Condition- Vehicle speed is kept 30km/h (19 MPH) or more for 10 seconds	<ul style="list-style-type: none">• Harness or connectors- (Stop lamp switch circuit is open or shorted.)- (CAN communication line is open or shorted.)• Stop lamp switch• Stop lamp relay• BCM

NOTE:

DC stands for "DRIVING CYCLE" and indicates a series of driving cycle of "Ignition switch OFF → ON → driving → OFF".

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

Ⓜ With CONSULT

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 10 seconds or more.

Vehicle speed : 30 km/h (19 MPH) or more

4. Depress the brake pedal.
5. Stop the vehicle.
6. Turn ignition switch OFF.
7. Repeat step 1 to 6.
8. Turn ignition switch ON.
9. Check DTC.

Is "P0703" detected?

- YES >> Go to [TM-76, "Diagnosis Procedure"](#).
- NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650131

1. CHECK STOP LAMP RELAY SIGNAL

1. Turn ignition switch OFF.
2. Check and adjust the installation position of stop lamp switch. Refer to [BR-7, "Inspection and Adjustment"](#).
3. Disconnect the BCM connector.
4. Check the voltage between BCM connector terminal and ground.

P0703 BRAKE SWITCH B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

+		-	Condition	Voltage (Approx.)
BCM				
Connector	Terminal			
M121	9	Ground	Depressed brake pedal	9 – 16 V
			Released brake pedal	0 V

Is the inspection result normal?

YES >> Check the BCM. Refer to [BCS-40, "Reference Value"](#).

NO >> GO TO 2.

2. CHECK HARNESS BETWEEN STOP LAMP RELAY AND BCM

1. Disconnect the stop lamp relay.
2. Check the continuity between stop lamp relay harness connector terminal and BCM harness connector terminal.

Stop lamp relay		BCM		Continuity
Connector	Terminal	Connector	Terminal	
E15	3	M121	9	Existed

3. Check the continuity between BCM harness connector terminal and ground.

BCM		—	Continuity
Connector	Terminal		
M121	9	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the following.

- Harness for short or open between BCM and fuse block (J/B)
- Harness for short or open between stop lamp relay and fuse block (J/B)
- Fuse block (J/B)

3. CHECK STOP LAMP SWITCH SIGNAL

Check the voltage between stop lamp relay harness connector terminal and ground.

+		-	Condition	Voltage (Approx.)
Stop lamp relay				
Connector	Terminal			
E15	2	Ground	Depressed brake pedal	9 – 16 V
			Released brake pedal	0 V

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 4.

4. CHECK STOP LAMP SWITCH

Check the stop lamp switch. Refer to [TM-78, "Component Inspection \(Stop Lamp Switch\)"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace the stop lamp switch. Refer to [BR-18, "Exploded View"](#).

5. CHECK HARNESS BETWEEN STOP LAMP SWITCH AND STOP LAMP RELAY

1. Disconnect the stop lamp switch.
2. Check the continuity between stop lamp switch harness connector terminal and stop lamp relay harness connector terminal.

P0703 BRAKE SWITCH B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

Stop lamp switch		Stop lamp relay		Continuity
Connector	Terminal	Connector	Terminal	
E115	2	E15	2	Existed

3. Check the continuity between stop lamp switch harness connector terminal and ground.

Stop lamp switch		—	Continuity
Connector	Terminal		
E115	2	Ground	Not existed

Is the inspection result normal?

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

6. CHECK STOP LAMP RELAY

Check the stop lamp relay. Refer to [TM-78, "Component Inspection \(Stop Lamp Relay\)"](#).

Is the inspection result normal?

- YES >> GO TO 7.
- NO >> Replace the stop lamp relay. Refer to [TM-10, "CVT CONTROL SYSTEM : Component Parts Location"](#).

7. DETECT MALFUNCTIONING ITEMS

Check the following.

- Harness for short or open between stop lamp switch and fuse block (J/B)
- Harness for short or open between stop lamp relay and fuse block (J/B)
- 10A fuse [# 7, located in fuse block (J/B)]
- Battery

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).
- NO >> Repair or replace damaged parts.

Component Inspection (Stop Lamp Switch)

INFOID:000000009650132

1. CHECK STOP LAMP SWITCH

Check the continuity between stop lamp switch connector terminals.

Stop lamp switch		Condition	Continuity
Terminal			
1	2	Depressed brake pedal	Existed
		Released brake pedal	Not existed

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace the stop lamp switch. Refer to [BR-18, "Exploded View"](#).

Component Inspection (Stop Lamp Relay)

INFOID:000000009650133

1. CHECK STOP LAMP RELAY

1. Disconnect the stop lamp relay. Refer to [TM-10, "CVT CONTROL SYSTEM : Component Parts Location"](#).
2. Apply 12 V direct current between stop lamp relay 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 stop lamp relay terminals 3 and 5.

P0703 BRAKE SWITCH B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

Stop lamp relay		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 stop lamp relay.

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P0705 TRANSMISSION RANGE SWITCH A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0705 TRANSMISSION RANGE SWITCH A

DTC Logic

INFOID:000000009650134

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detected condition	Possible cause
P0705	Transmission Range Sensor "A" Circuit (PRNDL Input)	When below diagnosis conditions are met, two or more range signals are kept ON simultaneously for 2 seconds or more <ul style="list-style-type: none"> • Diagnosis Conditions - Vehicle speed: 11 km/h (7 MPH) or more - Accelerator pedal position: 1.1/8 or more - Engine speed: 450 rpm or more 	<ul style="list-style-type: none"> • Harness or connectors (Transmission range switches circuit is open or shorted.) • Transmission range switch
		When below diagnosis conditions are met, transmission range switch 3 monitoring value is kept OFF for 2 seconds or more <ul style="list-style-type: none"> • Diagnosis Conditions - Vehicle speed: 11 km/h (7 MPH) or more - Accelerator pedal position: 1.1/8 or more - Engine speed: 450 rpm or more - Transmission range switch 3: ON 	
		When below diagnosis conditions are met, transmission range switch 3 monitoring value is kept ON for 2 seconds or more <ul style="list-style-type: none"> • Diagnosis Conditions - Vehicle speed: 11 km/h (7 MPH) or more - Accelerator pedal position: 1.1/8 or more - Engine speed: 450 rpm or more - Transmission range switch 3: OFF 	

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

Ⓜ With CONSULT

1. Turn ignition switch ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Start the engine.
4. Shift the selector lever to "D" position.
5. Drive vehicle and maintain the following conditions for 2 seconds or more.

VEHICLE SPEED : 11 km/h (7 MPH) or more
 ENG SPEED SIG : 450 rpm
 ACCEL POSI SEN 1 : 1.1/8 or more

6. Stop the vehicle.
7. Shift the selector lever to "R" position.
8. Drive vehicle and maintain the following conditions for 2 seconds or more.

VEHICLE SPEED : 11 km/h (7 MPH) or more
 ENG SPEED SIG : 450 rpm
 ACCEL POSI SEN 1 : 1.1/8 or more

P0705 TRANSMISSION RANGE SWITCH A

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

 With GST

Follow the procedure "With CONSULT".

Is "P0705" detected?

- YES >> Go to [TM-81, "Diagnosis Procedure"](#).
- NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650135

1. CHECK CVT POSITION

Check CVT position. Refer to [TM-70, "Inspection and Adjustment"](#)

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> Adjust CVT position. Refer to [TM-70, "Inspection and Adjustment"](#).

2. CHECK TRANSMISSION RANGE SWITCH

1. Turn ignition switch OFF.
2. Disconnect the CVT unit connector.
3. Check the transmission range switch. Refer to [TM-81, "Component Inspection \(Transmission Range Switch\)"](#).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Replace the transaxle assembly due to malfunction in the transmission range switch. Refer to [TM-174, "Removal and Installation"](#)

3. CHECK HARNESS BETWEEN TCM AND CVT UNIT

1. Disconnect the TCM connector.
2. Check the continuity between TCM harness connector terminals and CVT unit harness connector terminals.

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F23	1	F24	5	Existed
	2		14	
	3		15	
	4		18	
	11		4	

3. Check the continuity between TCM harness connector terminals and ground.

TCM		—	Continuity
Connector	Terminal		
F23	1	Ground	Not existed
	2		
	3		
	4		
	11		

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).
- NO >> Repair or replace damaged parts.

Component Inspection (Transmission Range Switch)

INFOID:000000009650136

1. CHECK TRANSMISSION RANGE SWITCH

Check the continuity between CVT unit connector terminals and ground.

P0705 TRANSMISSION RANGE SWITCH A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

CVT unit Terminal	—	Condition	Continuity
4	Ground	Selector lever in "N", "D", and "L" positions	Existed
		Selector lever in other positions	Not existed
5		Selector lever in "D" and "L" positions	Existed
		Selector lever in other positions	Not existed
14		Selector lever in "R" and "D" positions	Existed
		Selector lever in other positions	Not existed
15		Selector lever in "D" and "L" positions	Existed
		Selector lever in other positions	Not existed
18		Selector lever in "R", "N", and "D" positions	Existed
		Selector lever in other positions	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the transaxle assembly due to malfunction in the transmission range switch. Refer to [TM-174, "Removal and Installation"](#).

P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A

DTC Logic

INFOID:000000009650137

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detected condition	Possible cause
P0710	Transmission Fluid Temperature Sensor "A" Circuit	CVT fluid temperature recognized by TCM keeps above 180°C (356°F) for 5 seconds or more	<ul style="list-style-type: none"> • Harness or connectors (Sensor circuit is open or shorted.) • CVT fluid temperature sensor
		When below diagnosis conditions are met, CVT fluid temperature recognized by TCM keeps below -40°C (-40°F) for 5 seconds or more <ul style="list-style-type: none"> • Diagnosis Condition - Vehicle speed: 11 km/h (7 MPH) or more 	
		CVT fluid temperature does not rise to 10°C (50°F) after driving for a certain period of time with the TCM-received fluid temperature sensor value between -40°C (-40°F) and 9°C (48.2°F).	
		The following conditions are maintained for 5 minutes after the completion of engine diagnosis P0111, P0116, and P0196: <ul style="list-style-type: none"> • CVT fluid temperature – Engine coolant temperature > 55°C (131°F) • CVT fluid temperature – Engine coolant temperature < -27°C (-16.6°F) 	CVT fluid temperature sensor

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION (PART 1)

1. Start the engine.
2. Maintain the following condition for 5 seconds or more.

Vehicle speed : 20 km/h (12 MPH) or more

3. Stop the vehicle.
4. Check the first trip DTC.

Is "P0710" detected?

YES >> Go to [TM-84, "Diagnosis Procedure"](#).

NO >> GO TO 3.

3. CHECK DTC DETECTION (PART 2)

Ⓜ With CONSULT

1. Turn ignition switch OFF and cool the engine.
2. Turn ignition switch ON.

CAUTION:

Never start the engine.

3. Select "Data Monitor" in "TRANSMISSION".
4. Select "FLUID TEMP".
5. Record CVT fluid temperature.
6. Start the engine and wait for at least 2 minutes.
7. Drive the vehicle for the total minutes specified in the Driving time column below with the following conditions satisfied.

P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

Selector lever : "D" position
Accelerator pedal position : 1.0/8 or more
Vehicle speed : 10 km/h (7 MPH) or more

CVT fluid temperature before engine start	Driving time
-40°C (-40°F) – -31°C (-23.8°F)	17 minutes or more
-30°C (-22°F) – -21°C (-5.8°F)	15 minutes or more
-20°C (-4°F) – -11°C (-12.2°F)	12 minutes or more
-10°C (14°F) – -1°C (30.2°F)	9 minutes or more
0°C (32°F) – 9°C (48.2°F)	6 minutes or more
Other than the above	— (Go to 4.)

8. Stop the vehicle.
9. Check the first trip DTC.

⊗ With GST

1. Turn ignition switch OFF and cool the engine.
2. Start the engine and wait for at least 2 minutes.
3. Drive the vehicle and maintain the following conditions for 17 minutes or more.

Selector lever : "D" position
Accelerator pedal position : 1.0/8 or more
Vehicle speed : 10 km/h (7 MPH) or more

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0710" detected?

YES >> Go to [TM-84, "Diagnosis Procedure"](#).
NO >> GO TO 4.

4. CHECK CVT FLUID TEMPERATURE SENSOR

1. Turn ignition switch OFF.
2. Disconnect CVT unit connector.
3. Check resistance between CVT unit connector terminals.

CVT unit Terminal	Condition	Resistance (Approx.)
17 – 19	CVT fluid temperature: 20°C (68°F)	6.29 – 6.83 kΩ
	CVT fluid temperature: 50°C (122°F)	2.10 – 2.15 kΩ
	CVT fluid temperature: 80°C (176°F)	0.85 – 0.90 kΩ

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the transaxle assembly due to malfunction in the CVT fluid temperature sensor. Refer to [TM-174, "Removal and Installation"](#).

Diagnosis Procedure

INFOID:000000009650138

1. CHECK CVT FLUID TEMPERATURE SENSOR

1. Turn ignition switch OFF.
2. Disconnect the CVT unit connector.
3. Check the CVT fluid temperature sensor. Refer to [TM-85, "Component Inspection \(CVT Fluid Temperature Sensor\)"](#).

Is the inspection result normal?

YES >> GO TO 2.

P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

NO >> Replace the transaxle assembly due to malfunction in the CVT fluid temperature sensor. Refer to [TM-174, "Removal and Installation"](#).

2.CHECK HARNESS BETWEEN TCM AND CVT UNIT

1. Disconnect the TCM connector.
2. Check continuity between TCM harness connector terminals and CVT unit harness connector terminals.

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F23	13	F24	17	Existed
	25		19	

3. Check continuity between TCM harness connector terminals and ground.

TCM		—	Continuity
Connector	Terminal		
F23	13	Ground	Not existed
	25		

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).
 NO >> Repair or replace damaged parts.

Component Inspection (CVT Fluid Temperature Sensor)

INFOID:000000009650139

1.CHECK CVT FLUID TEMPERATURE SENSOR

1. Check the resistance between CVT unit connector terminals.

CVT unit		Condition	Resistance (Approx.)
Terminal			
17	19	When CVT fluid temperature is 20°C (68°F)	6.29 – 6.83 kΩ
		When CVT fluid temperature is 50°C (122°F)	2.10 – 2.25 kΩ
		When CVT fluid temperature is 80°C (176°F)	0.85 – 0.90 kΩ

2. Check the continuity between CVT unit connector terminal and ground.

CVT unit		—	Continuity
Terminal			
17		Ground	Not existed

Is the inspection result normal?

- YES >> INSPECTION END
 NO >> Replace the transaxle assembly due to malfunction in the CVT fluid temperature sensor. Refer to [TM-174, "Removal and Installation"](#).

P0715 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0715 INPUT SPEED SENSOR A

DTC Logic

INFOID:000000009650140

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P0715	Input/Turbine Speed Sensor "A" Circuit	<p>When below diagnosis conditions are met, primary speed sensor value is kept less than 150 rpm for 5 seconds or more</p> <ul style="list-style-type: none"> • Diagnosis Conditions - Selector lever: "D" position - Vehicle speed: 11 km/h (7 MPH) or more - Accelerator pedal position: 1.1/8 or more - Engine speed: 450 rpm or more - Secondary speed: More than 500 rpm <p>When below diagnosis conditions are met, and primary speed sensor value is 1,000 rpm or more, signal input from primary speed sensor is suddenly stopped and that status is kept for 0.1 second or more</p> <ul style="list-style-type: none"> • Diagnosis Conditions - Selector lever: "D" position - Vehicle speed: 11 km/h (7 MPH) or more - Accelerator pedal position: 1.1/8 or more - Engine speed: 450 rpm or more 	<ul style="list-style-type: none"> • Harness or connectors (Primary speed sensor circuit is open or shorted.) • Primary speed sensor

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 5 seconds or more.

Selector lever : "D" position
 Vehicle speed : 40 km/h (25 MPH) or more
 Accelerator pedal position : 1.1/8 or more

With GST

Follow the procedure "With CONSULT".

Is "P0715" detected?

- YES >> Go to [TM-86. "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650141

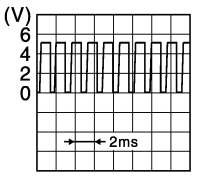
1. CHECK TCM INPUT SIGNAL

1. Turn ignition switch OFF.
2. Lift the vehicle.
3. Start the vehicle.
4. Check frequency of primary speed sensor.

P0715 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

TCM		Condition	Standard value (Approx.)
Connector	Terminal		
F23	33 25	<ul style="list-style-type: none"> Selector lever: "L" position Vehicle speed: 20 km/h (12 MPH) 	760 Hz  <small>JPDA0877ZZ</small>

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).

NO >> GO TO 2.

2. CHECK POWER SUPPLY AND SENSOR GROUND

- Turn ignition switch OFF.
- Check the voltage between TCM connector terminals.

Connector	TCM		Condition	Voltage (Approx.)
	+	-		
Terminal				
F23	25	26	Ignition switch ON	5.0 V
			Ignition switch OFF	0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Go to [TM-114, "Diagnosis Procedure"](#).

3. CHECK HARNESS BETWEEN TCM AND CVT UNIT

- Turn ignition switch OFF.
- Disconnect the TCM connector.
- Disconnect the CVT unit connector.
- Check the continuity between TCM harness connector terminals and CVT unit harness connector terminal.

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F23	25	F24	19	Existed
	26		20	
	33		22	

- Check the continuity between TCM harness connector terminal and ground.

TCM		—	Continuity
Connector	Terminal		
F23	25	Ground	Not existed
	26		
	33		

Is the inspection result normal?

YES >> Replace the transaxle assembly due to malfunction in the primary speed sensor. Refer to [TM-174, "Removal and Installation"](#).

NO >> Repair or replace damaged parts.

P0720 OUTPUT SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0720 OUTPUT SPEED SENSOR

DTC Logic

INFOID:000000009650142

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P0720	Output Speed Sensor Circuit	When below diagnosis conditions are met, secondary speed sensor value is kept less than 150 rpm for 5 seconds or more <ul style="list-style-type: none"> • Diagnosis Conditions <ul style="list-style-type: none"> - Selector lever: "D" position - Accelerator pedal position: 1.1/8 or more - Primary speed: More than 1,000 rpm 	<ul style="list-style-type: none"> • Harness or connectors (Secondary speed sensor circuit is open or shorted.) • Secondary speed sensor
		When below diagnosis conditions are met, the signal from secondary speed sensor is not input for 0.1 second or more <ul style="list-style-type: none"> • Diagnosis Conditions <ul style="list-style-type: none"> - Selector lever: "D" position - Vehicle speed: 11 km/h (7 MPH) or more - Accelerator pedal position: 1.1/8 or more 	

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 5 seconds or more.

Selector lever	:	"D" position
Vehicle speed	:	40 km/h (25 MPH) or more
Accelerator pedal position	:	1.1/8 or more

With GST

Follow the procedure "With CONSULT".

Is "P0720" detected?

- YES >> Go to [TM-88, "Diagnosis Procedure"](#).
- NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650143

1. CHECK SECONDARY SPEED SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the secondary speed sensor connector.
3. Turn ignition switch ON.
4. Check the voltage between secondary speed sensor harness connector terminal and ground.

Secondary speed sensor		—	Voltage (Approx.)
Connector	Terminal		
F19	3	Ground	10 – 16 V

P0720 OUTPUT SPEED SENSOR

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

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

2. CHECK TCM INPUT SIGNAL

1. Turn ignition switch OFF.
2. Connect the secondary speed sensor connector.
3. Lift the vehicle.
4. Start the vehicle.
5. Check frequency of secondary speed sensor.

Connector	TCM		Condition	Standard value (Approx.)
	+	-		
Terminal				
F23	34	7	<ul style="list-style-type: none"> • Selector lever: "D" position • Vehicle speed: 20 km/h (12 MPH) 	<p>370 Hz</p> <p style="text-align: right; font-size: small;">JPDIA0878ZZ</p>

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-42. "Intermittent Incident"](#).
- NO >> GO TO 3.

3. CHECK HARNESS BETWEEN TCM AND SECONDARY SPEED SENSOR

1. Turn ignition switch OFF.
2. Disconnect the TCM connector.
3. Disconnect the secondary speed sensor connector.
4. Check continuity between TCM harness connector terminals and secondary speed sensor harness connector terminals.

TCM		Secondary speed sensor		Continuity
Connector	Terminal	Connector	Terminal	
F23	7	F19	1	Existed
	34		2	

5. Check continuity between TCM harness connector terminals and ground.

TCM		—	Continuity
Connector	Terminal		
F23	7	Ground	Not existed
	34		

Is the inspection result normal?

- YES >> Replace the secondary speed sensor. Refer to [TM-161. "Removal and Installation"](#).
- NO >> Repair or replace damaged parts.

4. CHECK HARNESS BETWEEN SECONDARY SPEED SENSOR AND IPDM E/R

1. Turn ignition switch OFF.
2. Disconnect the IPDM E/R connector.
3. Check the continuity between secondary speed sensor harness connector terminal and IPDM E/R harness connector terminal.

P0720 OUTPUT SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

Secondary speed sensor		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
F19	3	E11	58	Existed

4. Check the continuity between secondary speed sensor harness connector terminal and ground.

Secondary speed sensor		—	Continuity
Connector	Terminal		
F19	3	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5. DETECT MALFUNCTIONING ITEMS

Check the following items:

- IPDM E/R
- 10A fuse (# 43, located in IPDM E/R)
- Harness open circuit or short circuit between ignition switch and IPDM E/R
- Ignition switch

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).

NO >> Repair or replace damaged parts.

P0725 ENGINE SPEED

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0725 ENGINE SPEED

Description

INFOID:000000009650144

The engine speed signal is transmitted from ECM to TCM via CAN communication line.

DTC Logic

INFOID:000000009650145

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P0725	Engine Speed Input Circuit	TCM detects malfunction in CAN communication with ECM	<ul style="list-style-type: none"> • Harness or connectors (CAN communication line is open or shorted.) • ECM
		When below diagnosis conditions are met, engine speed received from ECM becomes less than 250 rpm <ul style="list-style-type: none"> • Diagnosis Condition <ul style="list-style-type: none"> - Primary speed: 1,000 rpm or more 	

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

Ⓜ With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "PRI SPEED".
4. Drive the vehicle.
5. Maintain the following conditions for 10 seconds or more.

PRI SPEED : 1,000 rpm or more

6. Stop the vehicle.
7. Check DTC.

Is "P0725" detected?

- YES >> Go to [TM-91, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650146

1. CHECK DTC WITH ECM

Ⓜ With CONSULT

1. Turn ignition switch ON.
2. Perform "Self Diagnostic Results" in "ENGINE".

Is any DTC detected?

- YES >> Check DTC detected item. Refer to [EC-96, "DTC Index"](#).
 NO >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).

P0740 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0740 TORQUE CONVERTER

DTC Logic

INFOID:000000009650147

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P0740	Torque Converter Clutch Circuit/Open	<p>Torque converter clutch solenoid valve monitor voltage value of TCM keeps less than 70 % of command voltage for 1 second or more</p> <p>When below diagnosis conditions are met, torque converter clutch solenoid valve monitor current value of TCM keeps less than 400 mA for 5 seconds or more</p> <ul style="list-style-type: none">• Diagnosis Condition- Torque converter clutch solenoid valve command current value: 750 mA or more	<ul style="list-style-type: none">• Harness or connectors (Torque converter clutch solenoid valve circuit is open or shorted.)• Torque converter clutch solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Start the engine.
2. Warm up the engine. [Set the CVT fluid to 10°C (50°F) or more.]

NOTE:

When the ambient temperature is 20°C (68°F), the CVT fluid usually increases to 50 to 80°C (122 to 176°F) with driving in an urban area for approximately 10 minutes.

3. Drive the vehicle.
4. Maintain the following conditions for 10 seconds or more.

Selector lever : "D" position
Vehicle speed : 40 km/h (25 MPH) or more

5. Stop the vehicle.
6. Check DTC.

With GST

Follow the procedure "With CONSULT".

Is "P0740" detected?

- YES >> Go to [TM-92, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650148

1. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

1. Disconnect the CVT unit connector.
2. Check the torque converter clutch solenoid valve. Refer to [TM-93, "Component Inspection \(Torque Converter Clutch Solenoid Valve\)"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace the transaxle assembly due to malfunction in the torque converter clutch solenoid valve.
Refer to [TM-174, "Removal and Installation"](#).

P0740 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

2. CHECK HARNESS BETWEEN TCM AND CVT UNIT

1. Disconnect the TCM connector.
2. Check the continuity between TCM harness connector terminal and CVT unit harness connector terminal.

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F23	38	F24	12	Existed

3. Check continuity between TCM harness connector terminal and ground.

TCM		—	Continuity
Connector	Terminal		
F23	38	Ground	Not existed

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).
 NO >> Repair or replace damaged parts.

Component Inspection (Torque Converter Clutch Solenoid Valve)

INFOID:000000009650149

1. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check the resistance between CVT unit connector terminal and ground.

CVT unit Terminal	—	Condition	Resistance (Approx.)
12	Ground	CVT fluid temperature: 20°C (68°F)	5.60 – 6.60 Ω
		CVT fluid temperature: 50°C (122°F)	6.76 – 6.87 Ω
		CVT fluid temperature: 80°C (176°F)	7.47 – 7.59 Ω

Is the inspection result normal?

- YES >> INSPECTION END
 NO >> Replace the transaxle assembly due to malfunction in the torque converter clutch solenoid valve.
 Refer to [TM-174, "Removal and Installation"](#).

P0744 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0744 TORQUE CONVERTER

Description

INFOID:000000009650150

This malfunction is detected when the torque converter clutch does not lock-up as instructed by the TCM. This is not only caused by electrical malfunctions (circuits open or shorted), but also by mechanical malfunctions such as control valve sticking, improper solenoid valve operation, etc.

DTC Logic

INFOID:000000009650151

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P0744	Torque Converter Clutch Circuit Intermittent	When below diagnosis conditions are met, torque converter slip speed keeps above the defined value (40 rpm + vehicle speed/2) for 30 seconds or more • Diagnosis Conditions - Selector lever: "D" position - Vehicle speed: 11 km/h (7 MPH) or more - Accelerator pedal position: 1.1/8 or more - Engine speed: 450 rpm or more - CVT fluid temperature: 20°C – 180°C (68°F – 356°F) - LU command pressure: More than 0.2 MPa	<ul style="list-style-type: none">• Torque converter clutch solenoid valve• Hydraulic control circuit

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

Ⓔ With CONSULT

1. Start the engine.
2. Warm up the engine. [Set the CVT fluid to 20°C (68°F) or more.]

NOTE:

When the ambient temperature is 20°C (68°F), the CVT fluid usually increases to 50 to 80°C (122 to 176°F) with driving in an urban area for approximately 10 minutes.

3. Maintain the following condition for at least 30 seconds.

Selector lever	: "D" position
Accelerator pedal position	: 1.1/8 or more
Vehicle speed	: 25 km/h (16 MPH) or more

Ⓕ With GST

Follow the procedure "With CONSULT".

Is "P0744" detected?

- YES >> Go to [TM-94, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650152

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to [TM-65, "Work Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 2.

P0744 TORQUE CONVERTER

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

NO >> Repair or replace damaged parts. Refer to [TM-65, "Work Procedure"](#).

2.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check torque converter clutch solenoid valve. Refer to [TM-92, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 6.

3.CHECK LOCK-UP SELECT SOLENOID VALVE

Check lock-up select solenoid valve. Refer to [TM-123, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4.CHECK PRIMARY SPEED SENSOR SYSTEM

Check primary speed sensor system. Refer to [TM-86, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5.CHECK SECONDARY SPEED SENSOR SYSTEM

Check secondary speed sensor system. Refer to [TM-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace damaged parts.

6.CHECK DTC

ⓂWith CONSULT

1. Perform "DTC CONFIRMATION PROCEDURE". Refer to [TM-94, "DTC Logic"](#).

2. Check DTC.

Is "P0744" displayed?

YES >> Replace the transaxle assembly due to malfunction in the torque converter clutch solenoid valve.
Refer to [TM-174, "Removal and Installation"](#).

NO >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).

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P0745 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0745 PRESSURE CONTROL SOLENOID A

DTC Logic

INFOID:000000009650153

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P0745	Pressure Control Solenoid "A"	Line pressure solenoid valve monitor voltage value of TCM keeps less than 70% of command voltage for 1 second or more When below diagnosis conditions are met, line pressure solenoid valve monitor current value of TCM keeps less than 400 mA for 5 seconds or more <ul style="list-style-type: none">• Diagnosis Condition- Line pressure solenoid valve command current value: 750 mA or more	<ul style="list-style-type: none">• Harness or connectors (Line pressure solenoid valve circuit is open or shorted.)• Line pressure solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Start the engine.
2. Drive the vehicle at least for 10 seconds.
3. Stop the vehicle.
4. Check DTC.

With GST

Follow the procedure "With CONSULT".

Is "P0745" detected?

YES >> Go to [TM-96, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650154

1. CHECK LINE PRESSURE SOLENOID VALVE

1. Disconnect the CVT unit connector.
2. Check the line pressure solenoid valve. Refer to [TM-97, "Component Inspection \(Line Pressure Solenoid Valve\)"](#)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the transaxle assembly due to malfunction in the line pressure solenoid valve. Refer to [TM-174, "Removal and Installation"](#).

2. CHECK HARNESS BETWEEN TCM AND CVT UNIT

1. Disconnect the TCM connector.
2. Check the continuity between TCM harness connector terminal and CVT unit harness connector terminal.

P0745 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F23	40	F24	2	Existed

3. Check the continuity between TCM harness connector terminal and ground.

TCM		—	Continuity
Connector	Terminal		
F23	40	Ground	Not existed

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).
- NO >> Repair or replace damaged parts.

Component Inspection (Line Pressure Solenoid Valve)

INFOID:000000009650155

1. CHECK LINE PRESSURE SOLENOID VALVE

Check the resistance between CVT unit connector terminal and ground.

CVT unit Terminal	—	Condition	Resistance (Approx.)
2	Ground	CVT fluid temperature: 20°C (68°F)	5.60 – 6.60 Ω
		CVT fluid temperature: 50°C (122°F)	6.76 – 6.87 Ω
		CVT fluid temperature: 80°C (176°F)	7.47 – 7.59 Ω

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace the transaxle assembly due to malfunction in the line pressure solenoid valve. Refer to [TM-174, "Removal and Installation"](#).

P0746 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0746 PRESSURE CONTROL SOLENOID A

Description

INFOID:000000009650156

- When line pressure solenoid valve is under electrically normal condition, if unusual gear change ratio at LOW side is detected due to low line pressure, it is judged as malfunction.
- This DTC is not caused by electrical malfunction (circuit is open or shorted), but caused by mechanical malfunction (control valve clogging, solenoid valve sticking, etc.).

DTC Logic

INFOID:000000009650157

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P0746	Pressure Control Solenoid "A" Performance/Stuck Off	<p>When below diagnosis conditions are met, either of detection conditions A, B, or C is met</p> <ul style="list-style-type: none">• Diagnosis Conditions<ul style="list-style-type: none">- Selector lever: "D" position- Vehicle speed: 11 km/h (7 MPH) or more- Accelerator pedal position: 1.1/8 or more- Engine speed: More than 600 rpm- Primary speed: More than 500 rpm- CVT fluid temperature: 20°C – 180°C (68°F – 356°F)• Detected Condition A<ul style="list-style-type: none">- The gear ratio of primary speed/secondary speed exceeds 2.7 and keeps the status for 0.2 seconds or more• Detected Condition B<ul style="list-style-type: none">- The gear ratio of primary speed/secondary speed exceeds 3.5 and keeps the status for 0.1 seconds or more	<ul style="list-style-type: none">• Line pressure control system• Line pressure solenoid valve• Secondary speed sensor• Primary speed sensor

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Start the engine.
2. Warm up the engine. [Set the CVT fluid to 20°C (68°F) or more.]

NOTE:

When the ambient temperature is 20°C (68°F), the CVT fluid usually increases to 50 to 80°C (122 to 176°F) with driving in an urban area for approximately 10 minutes.

3. Drive the vehicle.
4. Maintain the following conditions for 1 second or more.

Selector lever	: "D" position
Vehicle speed	: 40 km/h (25 MPH) or more
Accelerator pedal position	: 1.1/8 or more

5. Stop the vehicle.
6. Check DTC.

With GST

Follow the procedure "With CONSULT".

Is "P0746" detected?

- YES >> Go to [TM-99, "Diagnosis Procedure"](#).
- NO >> INSPECTION END

P0746 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

Diagnosis Procedure

INFOID:000000009650158

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to [TM-65, "Work Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts. Refer to [TM-65, "Work Procedure"](#).

2. CHECK LINE PRESSURE SOLENOID VALVE

1. Turn ignition switch OFF.
2. Disconnect the CVT unit connector.
3. Check line pressure solenoid valve. Refer to [TM-99, "Component Inspection \(Line Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace the transaxle assembly due to malfunction in the line pressure solenoid valve. Refer to [TM-174, "Removal and Installation"](#).

3. CHECK PRIMARY SPEED SENSOR SYSTEM

Check primary speed sensor system. Refer to [TM-86, "DTC Logic"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK SECONDARY SPEED SENSOR SYSTEM

Check secondary speed sensor system. Refer to [TM-88, "DTC Logic"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5. PERFORM INTERMITTENT INCIDENT

Refer to [GI-42, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace the transaxle assembly. Refer to [TM-174, "Removal and Installation"](#).

NO >> Repair or replace damaged parts.

Component Inspection (Line Pressure Solenoid Valve)

INFOID:000000009650159

1. CHECK LINE PRESSURE SOLENOID VALVE

Check the resistance between CVT unit connector terminal and ground.

CVT unit Terminal	—	Condition	Resistance (Approx.)
2	Ground	CVT fluid temperature: 20°C (68°F)	5.60 – 6.60 Ω
		CVT fluid temperature: 50°C (122°F)	6.76 – 6.87 Ω
		CVT fluid temperature: 80°C (176°F)	7.47 – 7.59 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the transaxle assembly due to malfunction in the line pressure solenoid valve. Refer to [TM-174, "Removal and Installation"](#).

P0776 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0776 PRESSURE CONTROL SOLENOID B

Description

INFOID:000000009650160

- When secondary pressure solenoid valve is under electrically normal condition, the DTC is detected if secondary pressure is low.
- This DTC is not caused by electrical malfunction (circuit is open or shorted), but caused by mechanical malfunction (control valve clogging, solenoid valve sticking, etc.).

DTC Logic

INFOID:000000009650161

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P0776	Pressure Control Solenoid "B" Performance/Stuck Off	When below diagnosis conditions are met, the difference between command value and actual value of secondary pressure exceeds 1.2 MPa and keeps for 30 seconds or more • Diagnosis Conditions - Selector lever: "D" position - Vehicle speed: 11 km/h (7 MPH) or more - Accelerator pedal position: 1.1/8 or more - Engine speed: 450 rpm or more - TCM power supply: More than 10 V - CVT fluid temperature: 20°C – 180°C (68°F – 356°F)	<ul style="list-style-type: none">• Secondary pressure sensor• Secondary pressure solenoid valve• Secondary pressure solenoid valve oil passage• Line pressure solenoid valve oil passage

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

Ⓟ With CONSULT

1. Start the engine.
2. Warm up the engine. [Set the CVT fluid to 10°C (50°F) or more.]

NOTE:

When the ambient temperature is 20°C (68°F), the CVT fluid usually increases to 50 to 80°C (122 to 176°F) with driving in an urban area for approximately 10 minutes.

3. Drive the vehicle.
4. Maintain the following conditions for 30 seconds or more.

Selector lever : "D" position
Vehicle speed : 11 km/h (7 MPH) or more
Accelerator pedal position : 1.1/8 or more

5. Stop the vehicle.
6. Check DTC.

Ⓢ With GST

Follow the procedure "With CONSULT".

Is "P0776" detected?

- YES >> Go to [TM-101, "Diagnosis Procedure"](#).
NO >> INSPECTION END

P0776 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

Diagnosis Procedure

INFOID:000000009650162

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to [TM-65, "Work Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts. Refer to [TM-65, "Work Procedure"](#).

2. CHECK SECONDARY PRESSURE SOLENOID VALVE

1. Turn ignition switch OFF.
2. Disconnect the CVT unit connector.
3. Check the secondary pressure solenoid valve. Refer to [TM-101, "Component Inspection \(Secondary Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace the transaxle assembly due to malfunction in the secondary pressure solenoid valve. Refer to [TM-174, "Removal and Installation"](#).

3. CHECK SECONDARY PRESSURE SENSOR SYSTEM

Check the secondary pressure sensor system. Refer to [TM-104, "DTC Logic"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. PERFORM INTERMITTENT INCIDENT

Refer to [GI-42, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace the transaxle assembly. Refer to [TM-174, "Removal and Installation"](#).

NO >> Repair or replace damaged parts.

Component Inspection (Secondary Pressure Solenoid Valve)

INFOID:000000009650163

1. CHECK SECONDARY PRESSURE SOLENOID VALVE

Check the resistance between CVT unit connector terminal and ground.

CVT unit Terminal	—	Condition	Resistance (Approx.)
3	Ground	CVT fluid temperature: 20°C (68°F)	5.60 – 6.60 Ω
		CVT fluid temperature: 50°C (122°F)	6.76 – 6.87 Ω
		CVT fluid temperature: 80°C (176°F)	7.47 – 7.59 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the transaxle assembly due to malfunction in the secondary pressure solenoid valve. Refer to [TM-174, "Removal and Installation"](#).

P0778 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0778 PRESSURE CONTROL SOLENOID B

DTC Logic

INFOID:000000009650164

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P0778	Pressure Control Solenoid "B" Electrical	Secondary pressure solenoid valve monitor voltage value of TCM keeps less than 70% of command voltage for 1 second or more	<ul style="list-style-type: none">• Harness or connectors (Secondary pressure solenoid valve circuit is open or shorted.)• Secondary pressure solenoid valve
		When below diagnosis conditions are met, secondary pressure solenoid valve monitor current value of TCM keeps less than 400 mA for 5 seconds or more <ul style="list-style-type: none">• Diagnosis Condition<ul style="list-style-type: none">- Secondary pressure solenoid valve command current value: 750 mA or more	

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

④ With CONSULT

1. Start the engine.
2. Drive the vehicle at least for 10 seconds.
3. Stop the vehicle.
4. Check DTC.

④ With GST

Follow the procedure "With CONSULT".

Is "P0778" detected?

YES >> Go to [TM-102, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650165

1. CHECK SECONDARY PRESSURE SOLENOID VALVE

1. Disconnect the CVT unit connector.
2. Check the secondary pressure solenoid valve. Refer to [TM-103, "Component Inspection \(Secondary Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the transaxle assembly due to malfunction in the secondary pressure solenoid valve. Refer to [TM-174, "Removal and Installation"](#).

2. CHECK HARNESS BETWEEN TCM AND CVT UNIT

1. Disconnect TCM connector.
2. Check the continuity between TCM harness connector terminal and CVT unit harness connector terminal.

P0778 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F23	39	F24	3	Existed

3. Check the continuity between TCM harness connector terminal and ground.

TCM		—	Continuity
Connector	Terminal		
F23	39	Ground	Not existed

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).
- NO >> Repair or replace damaged parts.

Component Inspection (Secondary Pressure Solenoid Valve)

INFOID:000000009650166

1. CHECK SECONDARY PRESSURE SOLENOID VALVE

Check the resistance between CVT unit connector terminal and ground.

CVT unit Terminal	—	Condition	Resistance (Approx.)
3	Ground	CVT fluid temperature: 20°C (68°F)	5.60 – 6.60 Ω
		CVT fluid temperature: 50°C (122°F)	6.76 – 6.87 Ω
		CVT fluid temperature: 80°C (176°F)	7.47 – 7.59 Ω

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace the transaxle assembly due to malfunction in the secondary pressure solenoid valve.
Refer to [TM-174, "Removal and Installation"](#).

P0840 TRANSMISSION FLUID PRESSURE SEN/SW A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0840 TRANSMISSION FLUID PRESSURE SEN/SW A

DTC Logic

INFOID:000000009650167

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P0840	Transmission Fluid Pressure Sensor/Switch "A" Circuit	When below diagnosis conditions are met, secondary pressure sensor value is kept 4.7 V or more for 5 seconds or more <ul style="list-style-type: none"> Diagnosis Conditions - CVT fluid temperature: More than -20°C (-4°F) - Target secondary pressure: 5.7 MPa or less 	<ul style="list-style-type: none"> Harness or connectors (Secondary pressure sensor circuit is open or shorted.) Secondary pressure sensor
		When below diagnosis conditions are met, secondary pressure sensor value is kept 0.09 V or less for 5 seconds or more <ul style="list-style-type: none"> Diagnosis Condition - CVT fluid temperature: More than -20°C (-4°F) 	

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

- Start the engine.
- Warm up the engine. [Set the CVT fluid to -19°C (-4°F) or more.]

NOTE:

When the ambient temperature is 20°C (68°F), the CVT fluid usually increases to 50 to 80°C (122 to 176°F) with driving in an urban area for approximately 10 minutes.

- Wait for 10 seconds or more.
- Check DTC.

With GST

Follow the procedure "With CONSULT".

Is "P0840" detected?

- YES >> Go to [TM-104, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650168

1. CHECK TCM INPUT SIGNAL

- Start the engine.
- Check the voltage between TCM connector terminals.

Connector	TCM		Condition	Voltage (Approx.)
	+	-		
	Terminal			
F23	15	25	"N" position idle	1.0 V

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).
 NO >> GO TO 2.

2. CHECK POWER AND SENSOR GROUND

P0840 TRANSMISSION FLUID PRESSURE SEN/SW A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

1. Turn ignition switch OFF.
2. Check the voltage between TCM terminals.

TCM		Condition	Voltage (Approx.)
Connector	Terminal		
F23	25	Turn ignition switch ON	5.0 V
	26	Turn ignition switch OFF	0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Go to [TM-114, "Diagnosis Procedure"](#).

3. CHECK HARNESS BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect the TCM connector.
3. Disconnect the CVT unit connector.
4. Check continuity between TCM harness connector terminals and CVT unit harness connector terminals.

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F23	15	F24	23	Existed
	25		19	
	26		20	

5. Check continuity between TCM harness connector terminals and ground.

TCM		—	Continuity
Connector	Terminal		
F23	15	Ground	Not existed
	25		
	26		

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. PERFORM INTERMITTENT INCIDENT

Refer to [GI-42, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace the transaxle assembly due to malfunction in the secondary pressure sensor. Refer to [TM-174, "Removal and Installation"](#).

NO >> Repair or replace damaged parts.

P0841 TRANSMISSION FLUID PRESSURE SEN/SW A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0841 TRANSMISSION FLUID PRESSURE SEN/SW A

Description

INFOID:000000009650169

Detects oil sensor function malfunction based on the mutual relation between primary pressure sensor and secondary pressure sensor.

DTC Logic

INFOID:000000009650170

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P0841	Transmission Fluid Pressure Sensor/Switch A Circuit Range/Performance	Primary pressure sensor value and secondary pressure sensor value exceed standard range and keep the status for 5 seconds or more	<ul style="list-style-type: none">• Harness or connectors (Secondary pressure sensor circuit is open or shorted.)• Harness or connectors (Primary pressure sensor circuit is open or shorted.)• Secondary pressure sensor• Primary pressure sensor

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

Ⓟ With CONSULT

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 5 seconds or more.

Vehicle speed : 30 km/h (17 MPH) or more

4. Stop the vehicle.
5. Check DTC.

Is "P0841" detected?

- YES >> Go to [TM-106, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650171

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to [TM-65, "Work Procedure"](#).

Is the inspection result normal?

- YES >> .GO TO 2.
NO >> Repair or replace damaged parts. Refer to [TM-65, "Work Procedure"](#).

2. CHECK PRIMARY PRESSURE SENSOR SYSTEM

Check primary pressure sensor system. Refer to [TM-86, "DTC Logic"](#).

Is the inspection result normal?

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

P0841 TRANSMISSION FLUID PRESSURE SEN/SW A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

3. CHECK SECONDARY PRESSURE SENSOR SYSTEM

Check secondary pressure sensor system. Refer to [TM-88, "DTC Logic"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK LINE PRESSURE SOLENOID VALVE

1. Turn ignition switch OFF.
2. Disconnect the CVT unit connector.
3. Check the line pressure solenoid valve. Refer to [TM-99, "Component Inspection \(Line Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace the transaxle assembly due to malfunction in the line pressure solenoid valve. Refer to [TM-174, "Removal and Installation"](#).

5. CHECK SECONDARY PRESSURE SOLENOID VALVE

Check the secondary pressure solenoid valve. Refer to [TM-103, "Component Inspection \(Secondary Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace the transaxle assembly due to malfunction in the secondary pressure solenoid valve. Refer to [TM-174, "Removal and Installation"](#).

6. CHECK STEP MOTOR SYSTEM

Check the step motor system. Refer to [TM-125, "DTC Logic"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.

7. CHECK INTERMITTENT INCIDENT

Refer to [GI-42, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace the transaxle assembly. Refer to [TM-174, "Removal and Installation"](#).

NO >> Repair or replace damaged parts.

Component Inspection (Line Pressure Solenoid Valve)

INFOID:000000009650172

1. CHECK LINE PRESSURE SOLENOID VALVE

Check the resistance between CVT unit connector terminal and ground.

CVT unit Terminal	—	Condition	Resistance (Approx.)
2	Ground	CVT fluid temperature: 20°C (68°F)	5.60 – 6.60 Ω
		CVT fluid temperature: 50°C (122°F)	6.76 – 6.87 Ω
		CVT fluid temperature: 80°C (176°F)	7.47 – 7.59 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the transaxle assembly due to malfunction in the line pressure solenoid valve. Refer to [TM-174, "Removal and Installation"](#).

Component Inspection (Secondary Pressure Solenoid Valve)

INFOID:000000009650173

1. CHECK SECONDARY PRESSURE SOLENOID VALVE

P0841 TRANSMISSION FLUID PRESSURE SEN/SW A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

Check the resistance between CVT unit connector terminal and ground.

CVT unit Terminal	—	Condition	Resistance (Approx.)
3	Ground	CVT fluid temperature: 20°C (68°F)	5.60 – 6.60 Ω
		CVT fluid temperature: 50°C (122°F)	6.76 – 6.87 Ω
		CVT fluid temperature: 80°C (176°F)	7.47 – 7.59 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the transaxle assembly due to malfunction in the secondary pressure solenoid valve.
Refer to [TM-174, "Removal and Installation"](#).

P0845 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0845 TRANSMISSION FLUID PRESSURE SEN/SW B

DTC Logic

INFOID:000000009650174

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P0845	Transmission Fluid Pressure Sensor/Switch "B" Circuit	When below diagnosis conditions are met, secondary pressure sensor value is kept 4.7 V or more or 0.09 V or less for 5 seconds or more <ul style="list-style-type: none"> • Diagnosis Condition - CVT fluid temperature: More than -20°C (-4°F) 	<ul style="list-style-type: none"> • Harness or connectors (Primary pressure sensor circuit is open or shorted.) • Primary pressure sensor

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

Ⓜ With CONSULT

1. Start the engine.
2. Warm up the engine. [Set the CVT fluid to -19°C (-4°F) or more.]

NOTE:

When the ambient temperature is 20°C (68°F), the CVT fluid usually increases to 50 to 80°C (122 to 176°F) with driving in an urban area for approximately 10 minutes.

3. Wait for 5 seconds or more.
4. Check DTC.

Ⓜ With GST

Follow the procedure "With CONSULT".

Is "P0845" detected?

- YES >> Go to [TM-109, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650175

1. CHECK TCM INPUT SIGNAL

1. Start the engine.
2. Check the voltage between TCM connector terminals.

Connector	TCM		Condition	Voltage (Approx.)
	+	-		
	Terminal			
F23	14	25	"N" position idle	0.7 – 3.5 V

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).
 NO >> GO TO 2.

2. CHECK SENSOR POWER AND SENSOR GROUND

1. Turn ignition switch OFF.
2. Check the voltage between TCM connector terminals.

P0845 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

TCM			Condition	Voltage (Approx.)
Connector	+	-		
	Terminal			
F23	25	26	Ignition switch ON	5.0 V
			Ignition switch OFF	0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Go to [TM-114, "Diagnosis Procedure"](#).

3. CHECK HARNESS BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect the TCM connector.
3. Disconnect the CVT unit connector.
4. Check the continuity between TCM harness connector terminal and CVT unit harness connector terminal.

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F23	14	F24	25	Existed
	25		19	
	26		20	

5. Check the continuity between TCM harness connector terminal and ground.

TCM		—	Continuity
Connector	Terminal		
F23	14	Ground	Not existed
	25		
	26		

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK INTERMITTENT INCIDENT

Refer to [GI-42, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace the transaxle assembly due to malfunction in the primary pressure sensor. Refer to [TM-174, "Removal and Installation"](#).

NO >> Repair or replace damaged parts.

P0868 TRANSMISSION FLUID PRESSURE

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0868 TRANSMISSION FLUID PRESSURE

Description

INFOID:000000009650176

Secondary pressure solenoid valve controls input and output of secondary pressure to secondary pulley according to driving condition, following the command by TCM.

DTC Logic

INFOID:000000009650177

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P0868	Transmission Fluid Pressure Low	When below diagnosis conditions are met, the detection condition is met twice with interval of 30 seconds or more <ul style="list-style-type: none"> • Diagnosis Conditions <ul style="list-style-type: none"> - Accelerator pedal position: 0.5/8 or less - Vehicle speed: 15 km/h (9 MPH) or less - CVT fluid temperature: 22°C – 109°C (72°F – 228°F) - Secondary actual pressure: More than "X" • Detected Condition <ul style="list-style-type: none"> - The difference between secondary command pressure and secondary actual pressure exceeds 0.25 MPa keeps for 1.5 seconds or more 	<ul style="list-style-type: none"> • Harness or connectors (Secondary pressure solenoid valve circuit is open or shorted.) • Secondary pressure solenoid valve system • Secondary pressure sensor • Line pressure control system
		When below diagnosis conditions are met, either of detection conditions A or B is met <ul style="list-style-type: none"> • Diagnosis Conditions <ul style="list-style-type: none"> - Accelerator pedal position: 0.5/8 or more - Vehicle speed: 15 km/h (9 MPH) or more - CVT fluid temperature: 22°C – 109°C (72°F – 228°F) - The difference between secondary command pressure and secondary actual pressure exceeds 0.25 MPa keeps for 1.5 seconds or more • Detected Condition A <ul style="list-style-type: none"> - The difference between secondary command pressure and secondary actual pressure exceeds 2.0 MPa keeps for 1.5 seconds or more • Detected Condition B <ul style="list-style-type: none"> - The difference between "X" and secondary actual pressure exceeds 2.0 MPa keeps for 1.5 seconds or more 	

*: "X" shows lower limit of oil flow amount from oil pump according to engine speed.

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION (PART 1)

Ⓜ With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "RANGE", "ATF TEMP SEN", "ACCEL POSI SEN 1", and "ESTM VSP SIG".
4. Drive the vehicle.
5. Maintain the following conditions for 2 minutes or more.

P0868 TRANSMISSION FLUID PRESSURE

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

RANGE	: D
ATF TEMP SEN	: 2.00 V or less
ACCEL POSI SEN 1	: 0.1/8 – 0.5/8
ESTM VSP SIG	: 10 – 15 km/h (7 – 9 MPH)

6. Stop the vehicle.
7. Check DTC.

Is “P0868” detected?

- YES >> Go to [TM-112, "Diagnosis Procedure"](#).
NO >> GO TO 3.

3.CHECK DTC DETECTION (PART 2)

 With CONSULT

1. Select “Data Monitor” in “TRANSMISSION”.
2. Select “RANGE”, “ATF TEMP SEN”, “ACCEL POSI SEN 1”, “BRAKESW”, and “ESTM VSP SIG”.
3. Drive the vehicle.
4. Maintain the following conditions for 30 seconds or more.

RANGE	: D
ATF TEMP SEN	: 2.00 V or less
ACCEL POSI SEN 1	: 0.5/8 – 1.0/8
BRAKESW	: Off
ESTM VSP SIG	: 40 km/h (25 MPH) or more

5. Stop the vehicle.
6. Check DTC.

Is “P0868” detected?

- YES >> Go to [TM-112, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650178

1.CHECK LINE PRESSURE

Perform line pressure test. Refer to [TM-65, "Work Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace damaged parts. Refer to [TM-65, "Work Procedure"](#).

2.CHECK LINE PRESSURE SOLENOID VALVE

1. Turn ignition switch OFF.
2. Disconnect the CVT unit connector.
3. Check line pressure solenoid valve. Refer to [TM-99, "Component Inspection \(Line Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace the transaxle assembly due to malfunction in the line pressure solenoid valve. Refer to [TM-174, "Removal and Installation"](#).

3.CHECK SECONDARY PRESSURE SOLENOID VALVE

Check the secondary pressure solenoid valve. Refer to [TM-103, "Component Inspection \(Secondary Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Replace the transaxle assembly due to malfunction in the secondary pressure solenoid valve. Refer to [TM-174, "Removal and Installation"](#).

4.CHECK SECONDARY PRESSURE SENSOR SYSTEM

P0868 TRANSMISSION FLUID PRESSURE

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

Check the secondary pressure sensor system. Refer to [TM-104. "DTC Logic"](#).

Is the inspection result normal?

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

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-42. "Intermittent Incident"](#).

Is the inspection result normal?

- YES >> Replace the transaxle assembly. Refer to [TM-174. "Removal and Installation"](#).
- NO >> Repair or replace damaged parts.

Component Inspection (Line Pressure Solenoid Valve)

INFOID:000000009650179

1.CHECK LINE PRESSURE SOLENOID VALVE

Check the resistance between CVT unit connector terminal and ground.

CVT unit Terminal	—	Condition	Resistance (Approx.)
2	Ground	CVT fluid temperature: 20°C (68°F)	5.60 – 6.60 Ω
		CVT fluid temperature: 50°C (122°F)	6.76 – 6.87 Ω
		CVT fluid temperature: 80°C (176°F)	7.47 – 7.59 Ω

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace the transaxle assembly due to malfunction in the line pressure solenoid valve. Refer to [TM-174. "Removal and Installation"](#).

Component Inspection (Secondary Pressure Solenoid Valve)

INFOID:000000009650180

1.CHECK SECONDARY PRESSURE SOLENOID VALVE

Check the resistance between CVT unit connector terminal and ground.

CVT unit Terminal	—	Condition	Resistance (Approx.)
3	Ground	CVT fluid temperature: 20°C (68°F)	5.60 – 6.60 Ω
		CVT fluid temperature: 50°C (122°F)	6.76 – 6.87 Ω
		CVT fluid temperature: 80°C (176°F)	7.47 – 7.59 Ω

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace the transaxle assembly due to malfunction in the secondary pressure solenoid valve. Refer to [TM-174. "Removal and Installation"](#).

P1701 TCM

Description

INFOID:000000009650181

Detects malfunction when power source (backup) is not supplied to TCM and learning function is stopped.

CAUTION:

“P1701” can be displayed in self diagnosis result immediately after TCM replacement and after transaxle assembly replacement (after TCM initialization operation). In this case, erase self diagnosis result using CONSULT. After erasing self diagnosis result, perform reproducing operation of “P1701” to confirm that there is no longer malfunction.

DTC Logic

INFOID:000000009650182

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P1701	Power Supply Circuit	Detects malfunction when power source (backup) is not supplied to TCM and learning function is stopped	Harness or connectors (TCM power supply circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

Ⓟ With CONSULT

1. Start the engine.
2. Maintain the idling conditions for 10 seconds or more.
3. Drive the vehicle for 10 seconds or more.
4. Stop the vehicle.
5. Turn ignition switch OFF.
6. Wait for 10 seconds or more.
7. Start the engine.
8. Check DTC.

Is “P1701” detected?

- YES >> Go to [TM-114. "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650183

1. CHECK TCM POWER SOURCE (PART 1)

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

P1701 TCM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

+		-	Condition	Voltage (Approx.)
TCM				
Connector	Terminal			
F23	46	Ground	Turn ignition switch ON	10 – 16 V
			Turn ignition switch OFF	0 V
	48		Turn ignition switch ON	10 – 16 V
			Turn ignition switch OFF	0 V

Is the inspection result normal?

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

2. CHECK TCM POWER SOURCE (PART 2)

- Turn ignition switch OFF.
- Check the voltage between TCM harness connector terminals and ground.

+		-	Condition	Voltage (Approx.)
TCM				
Connector	Terminal			
F23	47	Ground	Always	10 – 16 V

Is the inspection result normal?

- YES >> GO TO 6.
NO >> GO TO 5.

3. CHECK HARNESS BETWEEN TCM AND IPDM E/R

- Turn ignition switch OFF.
- Disconnect the IPDM E/R connector.
- Check the continuity between TCM harness connector terminals and IPDM E/R harness connector terminal.

TCM		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
F23	46	E11	58	Existed
	48			

- Check the continuity between TCM harness connector terminals and ground.

TCM		—	Continuity
Connector	Terminal		
F23	46	Ground	Not existed
	48		

Is the inspection result normal?

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

4. DETECT MALFUNCTIONING ITEMS

Check the following items.

- IPDM E/R
- 10A fuse (# 43, located in IPDM E/R)
- Harness for short or open between IPDM E/R and ignition switch
- Ignition switch

Is the inspection result normal?

P1701 TCM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

YES >> Check intermittent incident. Refer to [GI-42. "Intermittent Incident"](#).

NO >> Repair or replace damaged parts.

5. DETECT MALFUNCTIONING ITEMS

Check the following items.

- Fuse block (J/B)
- 10A fuse [# 11, located in Fuse block (J/B)]
- Harness for short or open between TCM and battery
- Battery

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-42. "Intermittent Incident"](#).

NO >> Repair or replace damaged parts.

6. CHECK GROUND CIRCUIT

Check the continuity between TCM harness connector terminals and ground.

TCM		—	Continuity
Connector	Terminal		
F23	5	Ground	Existed
	42		

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-42. "Intermittent Incident"](#).

NO >> Repair or replace damaged parts.

P1705 TP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1705 TP SENSOR

DTC Logic

INFOID:000000009650184

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P1705	Accelerator Pedal Position Sensor Signal	The difference between two accelerator pedal position signals that TCM receives from ECM (via CAN communication) exceeds 1/8 and keeps for 1 second or more	<ul style="list-style-type: none">• Harness or connectors (CAN communication line is open or shorted.)• ECM

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

Ⓜ With CONSULT

1. Start the engine.
2. Apply the parking brake.
3. Perform full accelerator pedal depression and keep for 1 second.
4. Release a foot from accelerator pedal.
5. Check DTC.

Is "P1705" detected?

- YES >> Go to [TM-117, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650185

1. CHECK DTC WITH ECM

Ⓜ With CONSULT

1. Turn ignition switch ON.
2. Perform "Self Diagnostic Results" in "ENGINE".

Is any DTC detected?

- YES >> Check DTC detected item. Refer to [EC-96, "DTC Index"](#).
NO >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).

P1709 INCOMPLETED DATA WRITING

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1709 INCOMPLETED DATA WRITING

Description

INFOID:000000009650186

When TCM does not store calibration data (individual characteristic value) of each solenoid valve that is stored in the ROM assembly (in the control valve), a malfunction is detected.

DTC Logic

INFOID:000000009650187

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P1709	Incompleted Data Writing	When TCM does not store calibration data (individual characteristic value) of each solenoid valve that is stored in the ROM assembly (in the control valve).	<ul style="list-style-type: none">• Harness or connectors (ROM assembly circuit is open or shorted.)• TCM• ROM assembly (in the control valve)

DTC CONFIRMATION PROCEDURE

NOTE:

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF. Then wait at least 10 seconds before performing the next test.

1. CHECK DTC DETECTION

Ⓜ With CONSULT

1. Turn ignition switch OFF.
2. Wait for at least 10 consecutive seconds.
3. Turn ignition switch ON.
4. Perform "Self Diagnostic Results" in "TRANSMISSION".

Is "P1709" detected?

- YES >> Go to [TM-118, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650188

1. CHECK HARNESS BETWEEN TCM AND CVT UNIT HARNESS CONNECTOR (ROM ASSEMBLY) (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM vehicle side harness connector terminals and CVT unit vehicle side harness connector terminal.

TCM vehicle side harness connector		CVT unit vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F23	8	F24	11	Existed
	9		1	
	10		16	
	25		19	
	26		20	

Is the inspection result normal?

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

2. CHECK HARNESS BETWEEN TCM AND CVT UNIT HARNESS CONNECTOR (ROM ASSEMBLY) (PART 2)

Check continuity between TCM vehicle side harness connector terminals and ground.

P1709 INCOMPLETED DATA WRITING

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F23	8	Ground	Not existed
	9		
	10		
	25		
	26		

A

B

C

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

TM

3. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-114. "Diagnosis Procedure"](#).

E

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

F

4. REPLACE TCM

1. Replace the TCM. Refer to [TM-158. "Removal and Installation"](#).

G

2. Perform "DTC CONFIRMATION PROCEDURE". Refer to [TM-118. "DTC Logic"](#).

Is the inspection result normal?

YES >> INSPECTION END

H

NO >> Replace the transaxle assembly. Refer to [TM-174. "Removal and Installation"](#).

I

J

K

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P

P1722 VEHICLE SPEED

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1722 VEHICLE SPEED

Description

INFOID:000000009650189

The vehicle speed signal is transmitted from ABS actuator and electric unit (control unit) to TCM via CAN communication line.

DTC Logic

INFOID:000000009650190

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P1722	Vehicle Speed Signal Circuit	TCM detects malfunction in CAN communication with ABS actuator and electric unit (control unit)	<ul style="list-style-type: none">• Harness or connectors (CAN communication line is open or shorted.)• ABS actuator and electric unit (control unit)
		Vehicle speed signal received by TCM (via CAN communication) changes 17 km/h (11 MPH) or more in 0.1 second	
		When vehicle speed detected by TCM is 10 km/h (7 MPH) or more, vehicle speed signal received by ABS actuator and electric unit (control unit) (CAN signal) is 2 km/h (1 MPH) or less	

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

④ With CONSULT

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 10 seconds or more.

Vehicle speed : 10 km/h (7 MPH) or more

4. Stop the vehicle.
5. Check DTC.

Is "P1722" detected?

- YES >> Go to [TM-120, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650191

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

④ With CONSULT

1. Turn ignition switch ON.
2. Perform "Self Diagnostic Results" in "ABS".

Is any DTC detected?

- YES >> Check DTC detected item. Refer to [BRC-38, "DTC Index"](#).
NO >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).

P1723 SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1723 SPEED SENSOR

Description

INFOID:000000009650192

Judges it as malfunction when it detects noise (pulse) generated by irregular contact of harness etc. of primary speed sensor and secondary speed sensor.

DTC Logic

INFOID:000000009650193

DTC DETECTION LOGIC

CAUTION:

One of the "P0715" or the "P0720" is displayed with the DTC at the same time.

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P1723	Speed Sensor Circuit	High frequency element extracted by TCM from primary speed sensor and secondary speed sensor exceeds a defined value and keeps the status for 1 second or more	Harness or connectors (Primary speed sensor circuit is open or shorted.) (Secondary speed sensor circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 5 seconds or more.

Selector lever : "D" position
 Vehicle speed : 20 km/h (13 MPH) or more

Is "P1723" detected?

- YES >> Go to [TM-121, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650194

1. CHECK SECONDARY SPEED SENSOR SYSTEM

Check the secondary speed sensor system. Refer to [TM-88, "DTC Logic"](#).

Is the inspection result normal?

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

2. CHECK PRIMARY SPEED SENSOR SYSTEM

Check the primary speed sensor system. Refer to [TM-86, "DTC Logic"](#).

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).
 NO >> Repair or replace damaged parts.

P1726 THROTTLE CONTROL SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1726 THROTTLE CONTROL SIGNAL

Description

INFOID:000000009650195

The electric throttle control actuator consists of throttle control motor, accelerator pedal position sensor, throttle position sensor, etc. The actuator sends a signal to the ECM, and ECM sends the signal to TCM via CAN communication.

DTC Logic

INFOID:000000009650196

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P1726	Throttle Control Signal Circuit	TCM receives unusual signal of engine system from ECM	Harness or connectors (Electric throttle sensor signal circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

④ With CONSULT

1. Start the engine.
2. Maintain the idling condition for 10 seconds or more.
3. Check DTC.

Is "P1726" detected?

- YES >> Go to [TM-122. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650197

1. CHECK DTC WITH ECM

④ With CONSULT

1. Turn ignition switch ON.
2. Perform "Self Diagnostic Results" in "ENGINE".

Is any DTC detected?

- YES >> Check DTC detected item. Refer to [EC-96. "DTC Index"](#).
NO >> Check intermittent incident. Refer to [GI-42. "Intermittent Incident"](#).

P1740 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1740 SELECT SOLENOID

DTC Logic

INFOID:000000009650198

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P1740	Lock-up Select Solenoid Valve Circuit	When lock-up select solenoid valve command value of TCM is ON, the OFF status of lock-up select solenoid valve monitor value keeps for 0.2 seconds or more	<ul style="list-style-type: none"> Harness or connectors (Lock-up select solenoid circuit is open or shorted.) Lock-up select solenoid valve
		When lock-up select solenoid valve command value of TCM is OFF, the ON status of lock-up select solenoid valve monitor value keeps for 0.2 seconds or more	

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

Ⓜ With CONSULT

- Start the engine.
- Operate selector lever and keep for 1 second or more in each position.
- Check DTC.

Ⓜ With GST

Follow the procedure "With CONSULT".

Is "P1740" detected?

- YES >> Go to [TM-123, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650199

1. CHECK LOCK-UP SELECT SOLENOID VALVE

- Turn ignition switch OFF.
- Disconnect the CVT unit connector.
- Check the lock-up select solenoid valve. Refer to [TM-124, "Component Inspection \(Lock-up Select Solenoid Valve\)"](#).

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> Replace the transaxle assembly due to malfunction in the lock-up select solenoid valve. Refer to [TM-174, "Removal and Installation"](#).

2. CHECK HARNESS BETWEEN TCM AND CVT UNIT

- Disconnect the TCM connector.
- Check the continuity between TCM harness connector terminal and CVT unit harness connector terminal.

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F23	37	F24	13	Existed

- Check the continuity between TCM harness connector terminal and ground.

P1740 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

TCM		—	Continuity
Connector	Terminal		
F23	37	Ground	Not existed

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-42. "Intermittent Incident"](#).

NO >> Repair or replace damaged parts.

Component Inspection (Lock-up Select Solenoid Valve)

INFOID:000000009650200

1. CHECK LOCK-UP SELECT SOLENOID VALVE

Check the resistance between CVT unit connector terminal and ground.

CVT unit Terminal	—	Condition	Resistance
13	Ground	CVT fluid temperature: 20°C (68°F)	12.3 – 13.5 Ω
		CVT fluid temperature: 50°C (122°F)	13.7 – 15.1 Ω
		CVT fluid temperature: 80°C (176°F)	15.1 – 16.7 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the transaxle assembly due to malfunction in the lock-up select solenoid valve. Refer to [TM-174. "Removal and Installation"](#).

P1777 STEP MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1777 STEP MOTOR

DTC Logic

INFOID:000000009650201

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P1777	Step Motor Circuit	When step motor command value of TCM is ON, the OFF status of step motor monitor value keeps for 0.2 seconds or more	<ul style="list-style-type: none"> • Harness or connectors (Step motor circuit is open or shorted.) • Step motor
		When step motor command value of TCM is OFF, the ON status of step motor monitor value keeps for 0.2 seconds or more	

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 5 seconds or more.

Selector lever : "D" position
 Vehicle speed : 20 km/h (13 MPH) or more

 With GST

Follow the procedure "With CONSULT".

Is "P1777" detected?

- YES >> Go to [TM-125, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650202

1. CHECK STEP MOTOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the TCM connector.
3. Check the resistance between TCM harness connector terminals.

Connector	TCM Terminal		Resistance (Approx.)
	27	28	
F23	27	28	30.0 Ω
	29	30	

4. Check the resistance between TCM harness connector terminals and ground.

P1777 STEP MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

TCM		—	Resistance (Approx.)
Connector	Terminal		
F23	27	Ground	15.0 Ω
	28		
	29		
	30		

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-42. "Intermittent Incident"](#).
 NO >> GO TO 2.

2.CHECK STEP MOTOR

1. Disconnect the CVT unit connector.
2. Check the step motor. Refer to [TM-126. "Component Inspection \(Step Motor\)"](#).

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> Replace the transaxle assembly due to malfunction in the step motor. Refer to [TM-174. "Removal and Installation"](#).

3.CHECK HARNESS BETWEEN TCM AND CVT UNIT

1. Check the continuity between TCM harness connector terminals and CVT unit harness connector terminals.

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F23	27	F24	9	Existed
	28		8	
	29		7	
	30		6	

2. Check the continuity between TCM harness connector terminals and ground.

TCM		—	Continuity
Connector	Terminal		
F23	27	Ground	Not existed
	28		
	29		
	30		

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-42. "Intermittent Incident"](#).
 NO >> Repair or replace damaged parts.

Component Inspection (Step Motor)

INFOID:000000009650203

1.CHECK STEP MOTOR

1. Check the resistance between CVT unit connector terminals.

CVT unit		Resistance (Approx.)
Terminal		
6	7	30.0 Ω
8	9	

2. Check the resistance between CVT unit connector terminals and ground.

P1777 STEP MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

CVT unit terminal	—	Resistance (Approx.)
6	Ground	15.0 Ω
7		
8		
9		

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the transaxle assembly due to malfunction in the step motor. Refer to [TM-174, "Removal and Installation"](#).

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P1778 STEP MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1778 STEP MOTOR

Description

INFOID:000000009650204

- The step motor changes the step by turning 4 coils ON/OFF according to the signal from TCM. As a result, the flow of line pressure to primary pulley is changed and pulley ratio is controlled.
- This diagnosis item is detected when the electrical system is OK, but the mechanical system is NG.
- This diagnosis item is detected when the state of the changing of the speed mechanism in the unit does not operate normally.

DTC Logic

INFOID:000000009650205

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible cause
P1778	Step Motor Circuit Intermittent	When below diagnosis conditions are met, the difference between actual primary speed and command primary speed calculated by shift control logic exceeds 1,000 rpm and keeps the status for 5 seconds or more <ul style="list-style-type: none">• Diagnosis Conditions<ul style="list-style-type: none">- Selector lever: "D" position- Vehicle speed: 11 km/h (7 MPH) or more- Accelerator pedal position: 1.1/8- Engine speed: 450 rpm or more- CVT fluid temperature: 20°C – 180°C (68°F – 356°F)	Step motor

DTC CONFIRMATION PROCEDURE

CAUTION:

- Always drive vehicle at a safe speed.
- Check primary speed and vehicle speed before perform "DTC CONFIRMATION PROCEDURE".
- If hi-gear fixation occurred, go to [TM-86. "Diagnosis Procedure"](#).

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

Ⓜ With CONSULT

1. Start the engine.
2. Warm up the engine. [Set the CVT fluid to 20°C (68°F) or more.]

NOTE:

When the ambient temperature is 20°C (68°F), the CVT fluid usually increases to 50 to 80°C (122 to 176°F) with driving in an urban area for approximately 10 minutes.

3. Maintain the following conditions for at least 30 seconds.

Selector lever : "D" position
Accelerator pedal position : 1.1/8 or more
Vehicle speed : 20 km/h (13 MPH) or more

Ⓜ With GST

Follow the procedure "With CONSULT".

Is "P1778" detected?

- YES >> Go to [TM-128. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009650206

1. CHECK STEP MOTOR SYSTEM

P1778 STEP MOTOR

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

Check the step motor system. Refer to [TM-125, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

2.CHECK PRIMARY SPEED SENSOR SYSTEM

Check the primary speed sensor system. Refer to [TM-86, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3.CHECK SECONDARY SPEED SENSOR SYSTEM

Check the secondary speed sensor system. Refer to [TM-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4.CHECK INTERMITTENT INCIDENT

Refer to [GI-42, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace the transaxle assembly. Refer to [TM-174, "Removal and Installation"](#).

NO >> Repair or replace damaged parts.

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SHIFT POSITION INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

SHIFT POSITION INDICATOR CIRCUIT

Component Function Check

INFOID:000000009650207

1. CHECK SHIFT POSITION INDICATOR

1. Start the engine.
2. Check that correct selector lever position ("P", "R", "N", "D", "L") is displayed as selector lever is moved into each position.

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Go to [TM-130. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009650208

1. CHECK INPUT SIGNALS

Ⓟ With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "RANGE".
4. Check that correct selector lever position ("P", "R", "N", "D", "L") is displayed as selector lever is moved into each position.

Is the inspection result normal?

- YES >> INSPECTION END
NO-1 (The actual gear position changes, but the shift position indicator is not indicated.)>>Perform "Self Diagnostic Results" in "TRANSMISSION".
NO-2 (The actual gear position and the indication on the shift position indicator do not coincide.)>>Perform "Self Diagnostic Results" in "TRANSMISSION".
NO-3 (Only a specific position or positions is/are not indicated on the shift position indicator.)>>Check the combination meter. Refer to [MWI-35. "CONSULT Function"](#).

OVERDRIVE CONTROL SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

OVERDRIVE CONTROL SWITCH

Component Function Check

INFOID:000000009650209

1. CHECK O/D OFF INDICATOR LAMP

When ignition switch is turned ON, check that O/D OFF indicator lamp in combination meter illuminates during 2 seconds approximately.

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> Go to [TM-133, "Diagnosis Procedure"](#).

2. CHECK OVERDRIVE CONTROL SWITCH

1. Shift the selector lever to "D" position.
2. When overdrive control switch is operated, check that O/D OFF indicator lamp in combination meter illuminates/extinguishes.

Is the inspection result normal?

- YES >> INSPECTION END.
- NO >> Go to [TM-131, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009650210

1. CHECK OVERDRIVE CONTROL SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the CVT shift selector connector.
3. Turn ignition switch ON.
4. Check the voltage between CVT shift selector harness connector terminals.

Connector	CVT shift selector		Voltage (Approx.)
	+	-	
	Terminal		
M57	1	4	12 V

Is the inspection result normal?

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

2. CHECK OVERDRIVE CONTROL SWITCH

Check the overdrive control switch. Refer to [TM-132, "Component Inspection \(Overdrive Control Switch\)"](#).

Is the inspection result normal?

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

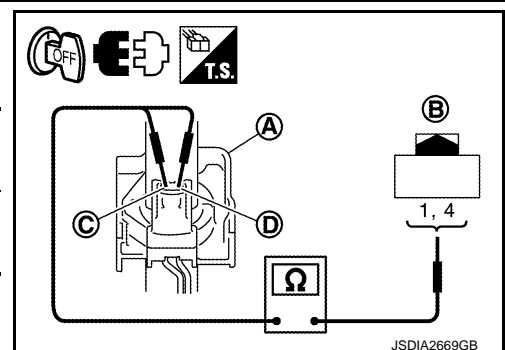
3. CHECK CVT SHIFT SELECTOR HARNESS

Check the continuity between harness plate (A) and CVT shift selector (B).

Harness plate	CVT shift selector		Continuity
		Terminal	
C		1	Existed
D		4	

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-42, "Intermittent Incident"](#).
- NO >> Replace the CVT shift selector assembly. Refer to [TM-154, "Exploded View"](#).



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OVERDRIVE CONTROL SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

4. CHECK GROUND CIRCUIT

Check the continuity between CVT shift selector harness connector terminal and ground.

CVT shift selector		—	Continuity
Connector	Terminal		
M57	4	Ground	Existed

Is the inspection result normal?

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

5. CHECK HARNESS BETWEEN CVT SHIFT SELECTOR AND COMBINATION METER

1. Turn ignition switch OFF.
2. Disconnect the combination meter connector.
3. Check the continuity between CVT shift selector harness connector terminal and combination meter harness connector terminal.

CVT shift selector		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
M57	1	M34	32	Existed

4. Check continuity between CVT shift selector harness connector terminal and ground.

CVT shift selector		—	Continuity
Connector	Terminal		
M57	1	Ground	Not existed

Is the inspection result normal?

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

6. CHECK COMBINATION METER INPUT SIGNAL

1. Connect all of the disconnected connectors.
2. Turn ignition switch ON.
3. Select "Data Monitor" in "METER/M&A".
4. Select "O/D OFF SW".
5. Check that "O/D OFF SW" turns ON/OFF when overdrive control switch is operated. Refer to [MWI-40. "Reference Value"](#).

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-42. "Intermittent Incident"](#).
NO >> Replace the combination meter. Refer to [MWI-93. "Exploded View"](#).

Component Inspection (Overdrive Control Switch)

INFOID:000000009650211

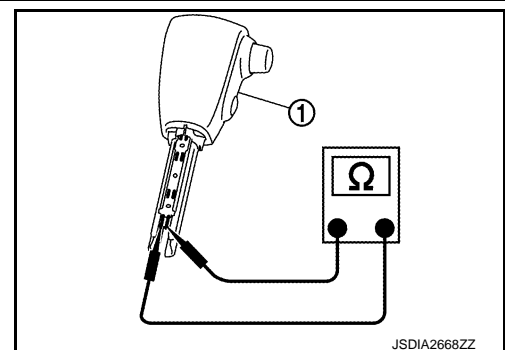
1. CHECK OVERDRIVE CONTROL SWITCH

Check the continuity between wires of select lever knob (1).

Condition	Continuity
Overdrive control switch is depressed	Existed
Overdrive control switch is released	Not existed

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace the selector lever knob. Refer to [TM-154. "Exploded View"](#).



JSDIA2668ZZ

OD OFF INDICATOR LAMP

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

OD OFF INDICATOR LAMP

Component Function Check

INFOID:000000009650212

1. CHECK O/D OF INDICATOR LAMP

When ignition switch is turned ON, check that O/D OFF indicator lamp in combination meter illuminates during 2 seconds approximately.

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Go to [TM-133, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009650213

1. CHECK DTC (TCM)

Ⓜ With CONSULT

1. Turn ignition switch ON.
2. Check "Self Diagnostic Results" in "TRANSMISSION".

Is any DTC detected?

- YES >> Check DTC detected item. Refer to [TM-48, "DTC Index"](#).
- NO >> GO TO 2.

2. CHECK DTC (COMBINATION METER)

Ⓜ With CONSULT

Check "Self Diagnostic Results" in "METER/M&A".

Is any DTC detected?

- YES >> Check DTC detected item. Refer to [MWI-48, "DTC Index"](#).
- NO >> GO TO 3.

3. CHECK COMBINATION METER INPUT SIGNAL

Ⓜ With CONSULT

1. Shift the selector lever to "D" position.
2. Select "Data Monitor" in "METER/M&A".
3. Select "O/D OFF IND".
4. Check that "O/D OFF IND" turns ON/OFF when overdrive control switch is operated. Refer to [MWI-40, "Reference Value"](#).

Is the inspection result normal?

- YES >> Replace the combination meter. Refer to [MWI-93, "Exploded View"](#).
- NO >> GO TO 4.

4. CHECK TCM INPUT/OUTPUT SIGNAL

Ⓜ With CONSULT

1. Select "Data Monitor" in "TRANSMISSION".
2. Select "SPORT MODE SW".
3. Check that "SPORT MODE SW" turns ON/OFF when overdrive control switch is operated. Refer to [TM-40, "Reference Value"](#).

Is the inspection result normal?

- YES >> Replace the combination meter. Refer to [MWI-93, "Exploded View"](#).
- NO >> Check the overdrive control switch. Refer to [TM-131, "Diagnosis Procedure"](#).

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SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

SHIFT LOCK SYSTEM

Component Function Check

INFOID:000000009650214

1. CHECK CVT SHIFT LOCK OPERATION

1. Turn ignition switch ON.
2. Move selector lever to "P" position.
3. Attempt to shift selector lever to any other position with brake pedal released.

Can selector lever be shifted to any other position?

- YES >> Go to [TM-134, "Diagnosis Procedure"](#).
NO >> GO TO 2.

2. CHECK CVT SHIFT LOCK OPERATION

Attempt to shift selector lever to any other position with brake pedal depressed.

Can the selector lever be shifted to any other position?

- YES >> INSPECTION END
NO >> Go to [TM-134, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009650215

1. CHECK POWER SOURCE

1. Turn ignition switch OFF.
2. Disconnect the fuse block (J/B) connector.
3. Turn ignition switch ON.
4. Check the voltage between fuse block (J/B) connector terminal and ground.

+		-	Voltage (Approx.)
Fuse block (J/B)			
Connector	Terminal		
E103	4F	Ground	10 – 16 V

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Check the following.
- 10A fuse [No. 3, located in fuse block (J/B)]
 - Ignition switch

2. CHECK HARNESS BETWEEN FUSE BLOCK (J/B) AND STOP LAMP SWITCH (PART 1)

1. Turn ignition switch OFF.
2. Disconnect the stop lamp switch connector.
3. Check continuity between fuse block (J/B) harness connector terminal and stop lamp switch harness connector terminal.

Fuse block (J/B)		Stop lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
E103	4F	E115	3	Existed

Is the inspection result normal?

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

3. CHECK HARNESS BETWEEN FUSE BLOCK (J/B) AND STOP LAMP SWITCH (PART 2)

Check continuity between stop lamp switch harness connector terminal and ground.

SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

Stop lamp switch		—	Continuity
Connector	Terminal		
E115	3	Ground	Not existed

Is the inspection result normal?

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

4.CHECK STOP LAMP SWITCH

Check the stop lamp switch. Refer to [TM-136. "Component Inspection \(Stop Lamp Switch\)".](#)

Is the inspection result normal?

- YES >> GO TO 5.
- NO >> Replace stop lamp switch. Refer to [BR-18. "Exploded View".](#)

5.CHECK HARNESS BETWEEN STOP LAMP SWITCH AND CVT SHIFT SELECTOR (PART 1)

1. Disconnect the CVT shift selector connector.
2. Check the continuity between stop lamp switch harness connector terminal and CVT shift selector harness connector terminal.

Stop lamp switch		CVT shift selector		Continuity
Connector	Terminal	Connector	Terminal	
E115	4	M57	6	Existed

Is the inspection result normal?

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

6.CHECK HARNESS BETWEEN STOP LAMP SWITCH AND CVT SHIFT SELECTOR (PART 2)

Check the continuity between control harness connector terminal and ground.

CVT shift selector		—	Continuity
Connector	Terminal		
M57	6	Ground	Not existed

Is the inspection result normal?

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

7.CHECK GROUND CIRCUIT

Check the continuity between CVT shift selector harness connector terminal and ground.

CVT shift selector		—	Continuity
Connector	Terminal		
M57	7	Ground	Existed

Is the inspection result normal?

- YES >> GO TO 8.
- NO >> Repair or replace damaged parts.

8.CHECK CVT SHIFT SELECTOR

1. Shift selector lever to "P" position.
2. Check the continuity between CVT shift selector connector terminals.

CVT shift selector			Continuity
Connector	Terminal		
M57	6	7	Existed

Is the inspection result normal?

SHIFT LOCK SYSTEM

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 9.
NO >> Replace CVT shift selector. Refer to [TM-154, "Exploded View"](#).

9.CHECK SHIFT LOCK SOLENOID

1. Remove the shift lock unit. Refer to [TM-154, "Exploded View"](#).
2. Check the shift lock solenoid. Refer to [TM-136, "Component Inspection \(Shift Lock Solenoid\)"](#).

Is the inspection result normal?

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

Component Inspection (Stop Lamp Switch)

INFOID:000000009650216

1.CHECK STOP LAMP SWITCH

Check the continuity between stop lamp switch connector terminals.

Stop lamp switch		Condition	Continuity
Terminal			
3	4	Depressed brake pedal	Existed
		Released brake pedal	Not existed

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace the stop lamp switch. Refer to [BR-18, "Exploded View"](#).

Component Inspection (Shift Lock Solenoid)

INFOID:000000009650217

1.CHECK SHIFT LOCK SOLENOID

Apply voltage to CVT shift selector connector terminals and then check that shift lock solenoid is activated.

CAUTION:

Connect the fuse between the terminals when applying the voltage.

CVT shift selector connector		Condition	Status
Terminal			
6	7	<ul style="list-style-type: none">• Park switch: ON• Apply 12 V direct current between terminals 6 and 7.	Shift lock solenoid operates

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace the shift lock unit. Refer to [TM-154, "Exploded View"](#).

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F09B]

SYMPTOM DIAGNOSIS

SYSTEM SYMPTOM

Symptom Table

INFOID:0000000009650218

The diagnostics item numbers show the sequence for inspection. Inspect in order from item 1.

No.	Item	Symptom	Condition	Diagnostic item	Reference
1	Shift Shock	Large shock. ("N"→ "D" position)	ON vehicle	1. Engine idle speed	EC-455
				2. Engine speed signal	TM-91
				3. Accelerator pedal position sensor	TM-122
				4. CVT position	TM-70
				5. CVT fluid temperature sensor	TM-83
				6. CAN communication line	TM-72
				7. CVT fluid level and state	TM-149
				8. Line pressure test	TM-65
				9. Torque converter clutch solenoid valve	TM-92
				10. Lock-up select solenoid valve	TM-123
				11. Transmission range switch	TM-80
			OFF vehicle	12. Forward clutch	TM-174
				13. Control valve	
2	Shift Shock	Large shock. ("N"→ "R" position)	ON vehicle	1. Engine idle speed	EC-455
				2. Engine speed signal	TM-91
				3. Accelerator pedal position sensor	TM-122
				4. CVT position	TM-70
				5. CVT fluid temperature sensor	TM-83
				6. CAN communication line	TM-72
				7. CVT fluid level and state	TM-149
				8. Line pressure test	TM-65
				9. Torque converter clutch solenoid valve	TM-92
				10. Lock-up select solenoid valve	TM-123
				11. Transmission range switch	TM-80
			OFF vehicle	12. Reverse brake	TM-174
				13. Control valve	
3	Shift Shock	Shock is too large for lock-up.	ON vehicle	1. CVT position	TM-70
				2. Engine speed signal	EC-455
				3. CAN communication line	TM-72
				4. CVT fluid level and state	TM-149
			OFF vehicle	5. Torque converter	TM-177
				6. Control valve	TM-174

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SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F09B]

No.	Item	Symptom	Condition	Diagnostic item	Reference
4	Slips/Will Not Engage	Vehicle cannot take off from "D" position.	ON vehicle	1. CVT fluid level and state	TM-149
				2. CVT position	TM-70
				3. CAN communication line	TM-72
				4. Line pressure test	TM-65
				5. Stall test	TM-64
				6. Step motor	TM-125
				7. Primary speed sensor	TM-86
				8. Secondary speed sensor	TM-88
				9. Accelerator pedal position sensor	TM-122
				10. CVT fluid temperature sensor	TM-83
				11. Secondary pressure sensor	TM-104
				12. TCM power supply and ground	TM-114
			OFF vehicle	13. Oil pump assembly	TM-174
				14. Forward clutch	
				15. Control valve	
				16. Parking components	
5	Slips/Will Not Engage	Vehicle cannot take off from "R" position.	ON vehicle	1. CVT fluid level and state	TM-149
				2. CVT position	TM-70
				3. CAN communication line	TM-72
				4. Line pressure test	TM-65
				5. Stall test	TM-64
				6. Step motor	TM-125
				7. Primary speed sensor	TM-86
				8. Secondary speed sensor	TM-88
				9. Accelerator pedal position sensor	TM-122
				10. CVT fluid temperature sensor	TM-83
				11. Secondary pressure sensor	TM-104
				12. TCM power supply and ground	TM-114
			OFF vehicle	13. Oil pump assembly	TM-174
				14. Reverse brake	
				15. Control valve	
				16. Parking components	

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F09B]

No.	Item	Symptom	Condition	Diagnostic item	Reference
6		Does not lock-up.	ON vehicle	1. CVT fluid level and state	TM-149
				2. Line pressure test	TM-65
				3. Engine speed signal	TM-91
				4. Primary speed sensor	TM-86
				5. Torque converter clutch solenoid valve	TM-92
				6. CAN communication line	TM-72
				7. Stall test	TM-64
				8. Step motor	TM-125
				9. Transmission range switch	TM-80
				10. Lock-up select solenoid valve	TM-123
				11. CVT fluid temperature sensor	TM-83
				12. Secondary speed sensor	TM-88
				13. Secondary pressure sensor	TM-104
			OFF vehicle	14. Torque converter	TM-177
				15. Oil pump assembly	TM-174
				16. Control valve	
7	Slips/Will Not Engage	Does not hold lock-up condition.	ON vehicle	1. CVT fluid level and state	TM-149
				2. Line pressure test	TM-65
				3. Engine speed signal	TM-91
				4. Primary speed sensor	TM-86
				5. Torque converter clutch solenoid valve	TM-92
				6. CAN communication line	TM-72
				7. Stall test	TM-64
				8. Step motor	TM-125
				9. Transmission range switch	TM-80
				10. Lock-up select solenoid valve	TM-123
				11. CVT fluid temperature sensor	TM-83
				12. Secondary speed sensor	TM-88
				13. Secondary pressure sensor	TM-104
			OFF vehicle	14. Torque converter	TM-177
				15. Oil pump assembly	TM-174
				16. Control valve	

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SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F09B]

No.	Item	Symptom	Condition	Diagnostic item	Reference
8		Lock-up is not released.	ON vehicle	1. CVT fluid level and state	TM-149
				2. Line pressure test	TM-65
				3. Engine speed signal	TM-91
				4. Primary speed sensor	TM-86
				5. Torque converter clutch solenoid valve	TM-92
				6. CAN communication line	TM-72
				7. Stall test	TM-64
			OFF vehicle	8. Torque converter	TM-177
				9. Oil pump assembly	TM-174
				10. Control valve	
9	Slips/Will Not Engage	With selector lever in "D" position, acceleration is extremely poor.	ON vehicle	1. CVT fluid level and state	TM-149
				2. Line pressure test	TM-65
				3. Stall test	TM-64
				4. Accelerator pedal position sensor	TM-122
				5. CAN communication line	TM-72
				6. Transmission range switch	TM-80
				7. CVT position	TM-70
				8. Step motor	TM-125
				9. Primary speed sensor	TM-86
				10. Secondary speed sensor	TM-88
				11. Primary pressure sensor	TM-109
				12. Secondary pressure sensor	TM-104
				13. CVT fluid temperature sensor	TM-83
				14. TCM power supply and ground	TM-114
			OFF vehicle	15. Torque converter	TM-177
				16. Oil pump assembly	TM-174
				17. Forward clutch	
				18. Control valve	

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F09B]

No.	Item	Symptom	Condition	Diagnostic item	Reference
10	Slips/Will Not Engage	With selector lever in "R" position, acceleration is extremely poor.	ON vehicle	1. CVT fluid level and state	TM-149
				2. Line pressure test	TM-65
				3. Stall test	TM-64
				4. Accelerator pedal position sensor	TM-122
				5. CAN communication line	TM-72
				6. Transmission range switch	TM-80
				7. CVT position	TM-70
				8. Step motor	TM-125
				9. Primary speed sensor	TM-86
				10. Secondary speed sensor	TM-88
				11. Primary pressure sensor	TM-109
				12. Secondary pressure sensor	TM-104
				13. CVT fluid temperature sensor	TM-83
				14. TCM power supply and ground	TM-114
			OFF vehicle	15. Torque converter	TM-177
				16. Oil pump assembly	TM-174
				17. Reverse brake	
				18. Control valve	
11	Slips at lock-up.		ON vehicle	1. CVT fluid level and state	TM-149
				2. Line pressure test	TM-65
				3. Engine speed signal	TM-91
				4. Primary speed sensor	TM-86
				5. Torque converter clutch solenoid valve	TM-92
				6. CAN communication line	TM-72
				7. Stall test	TM-64
				8. Step motor	TM-125
				9. Transmission range switch	TM-80
				10. Lock-up select solenoid valve	TM-123
				11. CVT fluid temperature sensor	TM-83
				12. Secondary speed sensor	TM-88
				13. Secondary pressure sensor	TM-104
			OFF vehicle	14. Torque converter	TM-177
				15. Oil pump assembly	TM-174
				16. Control valve	

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SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F09B]

No.	Item	Symptom	Condition	Diagnostic item	Reference
12	Others	No creep at all.	ON vehicle	1. CVT fluid level and state	TM-149
				2. Line pressure test	TM-65
				3. Accelerator pedal position sensor	TM-122
				4. Transmission range switch	TM-80
				5. CAN communication line	TM-72
				6. Stall test	TM-64
				7. CVT position	TM-70
				8. Step motor	TM-125
				9. Primary speed sensor	TM-86
				10. Secondary speed sensor	TM-86
				11. CVT fluid temperature sensor	TM-83
				12. Primary pressure sensor	TM-109
				13. Secondary pressure sensor	TM-104
				14. TCM power supply and ground	TM-114
			OFF vehicle	15. Torque converter	TM-177
				16. Oil pump assembly	TM-174
				17. Gear system	
				18. Forward clutch	
				19. Reverse brake	
				20. Control valve	

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F09B]

No.	Item	Symptom	Condition	Diagnostic item	Reference
13	Others	Vehicle cannot drive in all positions.	ON vehicle	1. CVT fluid level and state	TM-149
				2. Line pressure test	TM-65
				3. Transmission range switch	TM-80
				4. Stall test	TM-64
				5. CVT position	TM-70
				6. Step motor	TM-125
				7. Primary speed sensor	TM-86
				8. Secondary speed sensor	TM-88
				9. Accelerator pedal position sensor	TM-122
				10. CVT fluid temperature sensor	TM-83
				11. Secondary pressure sensor	TM-104
				12. TCM power supply and ground	TM-114
			OFF vehicle	13. Torque converter	TM-177
				14. Oil pump assembly	TM-174
				15. Gear system	
				16. Forward clutch	
				17. Reverse brake	
				18. Control valve	
				19. Parking components	
14	Others	With selector lever in "D" position, driving is not possible.	ON vehicle	1. CVT fluid level and state	
				2. Line pressure test	TM-65
				3. Transmission range switch	TM-80
				4. Stall test	TM-64
				5. CVT position	TM-70
				6. Step motor	TM-125
				7. Primary speed sensor	TM-86
				8. Secondary speed sensor	TM-88
				9. Accelerator pedal position sensor	TM-122
				10. CVT fluid temperature sensor	TM-83
				11. Secondary pressure sensor	TM-104
				12. TCM power supply and ground	TM-114
			OFF vehicle	13. Torque converter	TM-177
				14. Oil pump assembly	TM-174
				15. Gear system	
				16. Forward clutch	
				17. Control valve	
				18. Parking components	

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SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F09B]

No.	Item	Symptom	Condition	Diagnostic item	Reference
15	Others	With selector lever in "R" position, driving is not possible.	ON vehicle	1. CVT fluid level and state	TM-149
				2. Line pressure test	TM-65
				3. Transmission range switch	TM-80
				4. Stall test	TM-64
				5. CVT position	TM-70
				6. Step motor	TM-125
				7. Primary speed sensor	TM-86
				8. Secondary speed sensor	TM-88
				9. Accelerator pedal position sensor	TM-122
				10. CVT fluid temperature sensor	TM-83
				11. Secondary pressure sensor	TM-104
				12. TCM power supply and ground	TM-114
			OFF vehicle	13. Torque converter	TM-177
				14. Oil pump assembly	TM-174
				15. Gear system	
				16. Reverse brake	
				17. Control valve	
				18. Parking components	
16	Others	Judder occurs during lock-up.	ON vehicle	1. CVT fluid level and state	
				2. Engine speed signal	TM-91
				3. Primary speed sensor	TM-86
				4. Secondary speed sensor	TM-88
				5. Accelerator pedal position sensor	TM-122
				6. CAN communication line	TM-72
				7. Torque converter clutch solenoid valve	TM-92
			OFF vehicle	8. Torque converter	TM-177
				9. Control valve	TM-174
17	Others	Strange noise in "D" position.	ON vehicle	1. CVT fluid level and state	TM-149
				2. Engine speed signal	TM-91
				3. CAN communication line	TM-72
			OFF vehicle	4. Torque converter	TM-177
				5. Oil pump assembly	TM-174
				6. Gear system	
				7. Forward clutch	
				8. Control valve	
				9. Bearing	

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F09B]

No.	Item	Symptom	Condition	Diagnostic item	Reference
18	Others	Strange noise in "R" position.	ON vehicle	1. CVT fluid level and state	TM-149
				2. Engine speed signal	TM-91
				3. CAN communication line	TM-72
			OFF vehicle	4. Torque converter	TM-177
				5. Oil pump assembly	TM-174
				6. Gear system	
				7. Reverse brake	
				8. Control valve	
19	Others	Strange noise in "N" position.	ON vehicle	1. CVT fluid level and state	TM-149
				2. Engine speed signal	TM-91
				3. CAN communication line	TM-72
			OFF vehicle	4. Torque converter	TM-177
				5. Oil pump assembly	TM-174
				6. Gear system	
				7. Control valve	
20	Others	Vehicle does not decelerate by engine brake.	ON vehicle	1. CVT fluid level and state	TM-149
				2. CVT position	TM-70
				3. Overdrive control switch	TM-131
				4. CAN communication line	TM-72
				5. Step motor	TM-125
				6. Primary speed sensor	TM-86
				7. Secondary speed sensor	TM-88
				8. Line pressure test	TM-65
				9. Engine speed signal	TM-91
				10. Accelerator pedal position sensor	TM-122
			OFF vehicle	11. Control valve	TM-174

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SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F09B]

No.	Item	Symptom	Condition	Diagnostic item	Reference
21		Maximum speed low.	ON vehicle	1. CVT fluid level and state	TM-149
				2. Line pressure test	TM-65
				3. Accelerator pedal position sensor	TM-122
				4. CAN communication line	TM-72
				5. Stall test	TM-64
				6. Step motor	TM-125
				7. Primary speed sensor	TM-86
				8. Secondary speed sensor	TM-88
				9. Primary pressure sensor	TM-109
				10. Secondary pressure sensor	TM-104
				11. CVT fluid temperature sensor	TM-83
			OFF vehicle	12. Torque converter	TM-177
				13. Oil pump assembly	TM-174
				14. Gear system	
				15. Forward clutch	
				16. Control valve	
22	Others	With selector lever in "P" position, vehicle does not enter parking condition or, with selector lever in another position, parking condition is not cancelled.	ON vehicle	1. Transmission range switch	TM-80
				2. CVT position	TM-70
			OFF vehicle	3. Parking components	TM-174
23		Vehicle drives with CVT in "P" position.	ON vehicle	1. Transmission range switch	TM-80
				2. CVT fluid level and state	TM-149
				3. CVT position	TM-70
			OFF vehicle	4. Parking components	TM-174
				5. Gear system	
				6. Control valve	
24		Vehicle drives with CVT in "N" position.	ON vehicle	1. Transmission range switch	TM-80
				2. CVT fluid level and state	TM-149
				3. CVT position	TM-70
			OFF vehicle	4. Gear system	TM-174
				5. Forward clutch	
				6. Reverse brake	
				7. Control valve	

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F09B]

No.	Item	Symptom	Condition	Diagnostic item	Reference
25		Engine stall.	ON vehicle	1. CVT fluid level and state	TM-149
				2. Engine speed signal	TM-91
				3. Primary speed sensor	TM-86
				4. Torque converter clutch solenoid valve	TM-92
				5. CAN communication line	TM-72
				6. Stall test	TM-64
				7. Secondary pressure sensor	TM-104
			OFF vehicle	8. Torque converter	TM-177
				9. Control valve	TM-174
26		Engine stalls when selector lever is shifted "N"→"D" or "R".	ON vehicle	1. CVT fluid level and state	TM-149
				2. Engine speed signal	TM-91
				3. Primary speed sensor	TM-86
				4. Torque converter clutch solenoid valve	TM-92
				5. CAN communication line	TM-72
				6. Stall test	TM-64
			OFF vehicle	7. Torque converter	TM-177
				8. Control valve	TM-174
27	Others	Engine speed does not return to idle.	ON vehicle	1. CVT fluid level and state	TM-149
				2. Accelerator pedal position sensor	TM-122
				3. Secondary speed sensor	TM-88
				4. CAN communication line	TM-72
			OFF vehicle	5. Control valve	TM-174
28		CVT does not shift	ON vehicle	1. CVT fluid level and state	TM-149
				2. CVT position	TM-70
				3. Line pressure test	TM-65
				4. Engine speed signal	TM-91
				5. Accelerator pedal position sensor	TM-122
				6. CAN communication line	TM-72
				7. Primary speed sensor	TM-86
				8. Secondary speed sensor	TM-88
				9. Step motor	TM-125
			OFF vehicle	10. Control valve	TM-174
				11. Oil pump assembly	
29		Engine does not start in "N" or "P" position.	ON vehicle	1. Ignition switch and starter	PWO-4, STR-5
				2. CVT position	TM-70
				3. Transmission range switch	TM-80

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SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F09B]

No.	Item	Symptom	Condition	Diagnostic item	Reference
30		Engine starts in positions other than "N" or "P".	ON vehicle	1. Ignition switch and starter	PWO-4, STR-5
				2. CVT position	TM-70
				3. Transmission range switch	TM-80
31		When brake pedal is depressed with ignition switch ON, selector lever cannot be shifted from "P" position to other position.	ON vehicle	1. Stop lamp switch	TM-16
				2. Shift lock solenoid	
				3. CVT shift selector	
32	Others	When brake pedal is not depressed with ignition switch ON, selector lever can be shifted from "P" position to other position.	ON vehicle	1. Stop lamp switch	TM-16
				2. Shift lock solenoid	
				3. CVT shift selector	
33		Cannot be changed to overdrive OFF condition.	ON vehicle	1. Overdrive control switch	TM-131
				2. CAN communication line	TM-72
				3. Combination meter	MWI-72
34		OD OFF indicator lamp is not turned ON.	ON vehicle	1. CAN communication line	TM-72
				2. Combination meter	MWI-72
				3. TCM power supply and ground	TM-114

PERIODIC MAINTENANCE

CVT FLUID

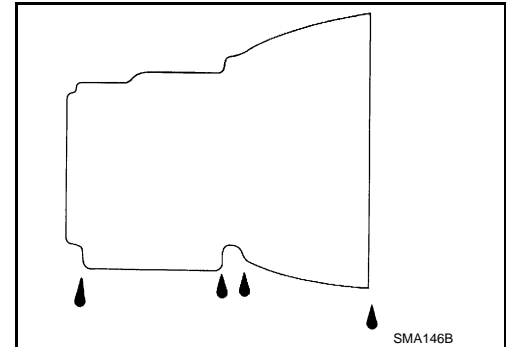
Inspection

INFOID:000000009650219

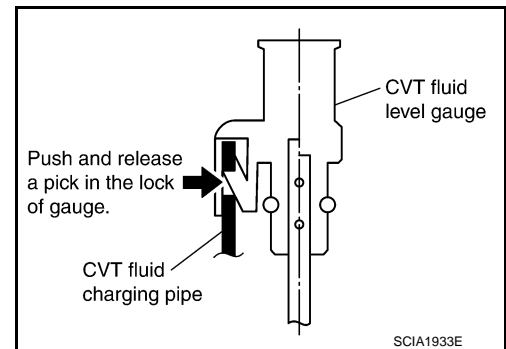
CHECKING CVT FLUID

The fluid level should be checked with the fluid warmed up to 50 to 80°C (122 to 176°F). The fluid level check procedure is as follows:

1. Check for fluid leakage.
2. With the engine warmed up, drive the vehicle in an urban area. When ambient temperature is 20°C (68°F), it takes about 10 minutes for the CVT fluid to warm up to 50 to 80°C (122 to 176°F).
3. Park the vehicle on a level surface.
4. Apply parking brake firmly.
5. With engine at idle, while depressing brake pedal, move shift selector throughout the entire shift range.



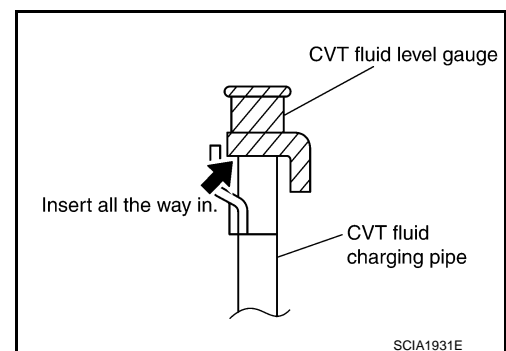
6. Pull out the CVT fluid level gauge from the CVT fluid charging pipe after pressing the tab on the CVT fluid level gauge to release the lock.



7. Wipe fluid off the CVT fluid level gauge. Insert the CVT fluid level gauge rotating 180° from the originally installed position, then securely push the CVT fluid level gauge until it meets the top end of the CVT fluid charging pipe.

CAUTION:

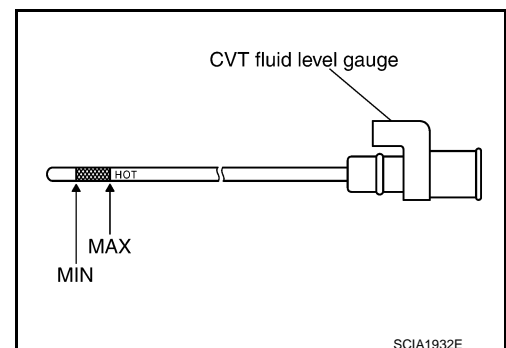
When wiping away the CVT fluid level gauge, always use lint-free paper, not a cloth rag.



8. Place the selector lever in "P" or "N" and check that the fluid level is within the specified range.

CAUTION:

When reinstalling CVT fluid level gauge, insert it into the CVT fluid charging pipe and rotate it to the original installation position until securely locked.



CVT FLUID CONDITION

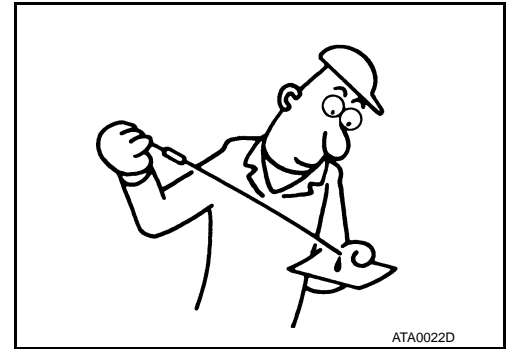
CVT FLUID

< PERIODIC MAINTENANCE >

[CVT: RE0F09B]

Check CVT fluid condition.

- If CVT fluid is very dark or smells burned, check operation of CVT. Flush cooling system after repair of CVT.
- If CVT fluid contains frictional material (clutches, brakes, etc.), replace radiator and flush cooler line using cleaning solvent and compressed air after repair of CVT. Refer to [TM-151, "Cleaning"](#).



Fluid status	Conceivable cause	Required operation
Varnished (viscous varnish state)	CVT fluid becomes degraded due to high temperatures.	Replace the CVT fluid and check the CVT main unit and the vehicle for malfunctions (wire harnesses, cooler pipes, etc.)
Milky white or cloudy	Water in the fluid	Replace the CVT fluid and check for places where water is getting in.
Large amount of metal powder mixed in	Unusual wear of sliding parts within CVT	Replace the CVT fluid and check for improper operation of the CVT.

Changing

INFOID:00000009650220

CAUTION:

Replace a O-ring with new ones at the final stage of the operation when installing.

1. Remove drain plug from oil pan.
2. Remove O-ring from drain plug.
3. Install O-ring to drain plug.

CAUTION:

Never reuse O-ring.

4. Install drain plug to oil pan. Refer to [TM-164, "Exploded View"](#).
5. Fill CVT fluid from CVT fluid charging pipe to the specified level.

Recommended fluid and fluid capacity : Refer to [MA-10, "Fluids and Lubricants"](#).

CAUTION:

- Use only recommended CVT fluid. Never mix with other fluid.
- Using CVT fluid other than Genuine recommended CVT fluid will deteriorate in driveability and CVT durability, and may damage the CVT, which is not covered by the warranty.
- When filling CVT fluid, take care not to scatter heat generating parts such as exhaust.
- Sufficiently shake the container of CVT fluid before using.
- Delete CVT fluid deterioration date with CONSULT after changing CVT fluid. Refer to [TM-35, "CONSULT Function"](#).

6. With the engine warmed up, drive the vehicle in an urban area.

NOTE:

When ambient temperature is 20°C (68°F), it takes about 10 minutes for the CVT fluid to warm up to 50 to 80°C (122 to 176°F).

7. Check CVT fluid level and condition.
8. Repeat steps 1 to 5 if CVT fluid has been contaminated.

CVT FLUID COOLER SYSTEM

< PERIODIC MAINTENANCE >

[CVT: RE0F09B]

CVT FLUID COOLER SYSTEM

Cleaning

INFOID:000000009650221

Whenever an automatic transaxle is repaired, overhauled, or replaced, the CVT fluid cooler mounted in the radiator must be inspected and cleaned.

Metal debris and friction material, if present, can be trapped or be deposited in the CVT fluid cooler. This debris can contaminate the newly serviced CVT or, in severe cases, can block or restrict the flow of CVT fluid. In either case, malfunction of the newly serviced CVT may occur.

Debris, if present, may deposit as CVT fluid enters the cooler inlet. It will be necessary to back flush the cooler through the cooler outlet in order to flush out any built up debris.

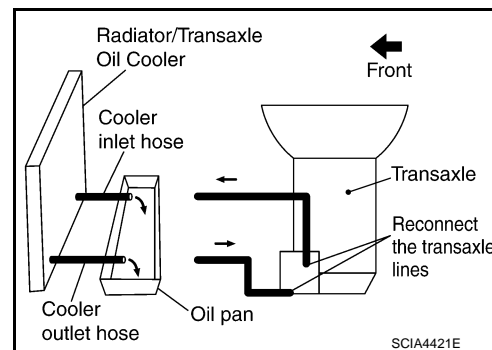
CVT FLUID COOLER CLEANING PROCEDURE

1. Position an oil pan under the transaxle's inlet and outlet cooler hoses.
2. Identify the inlet and outlet fluid cooler hoses.
3. Disconnect the fluid cooler inlet and outlet rubber hoses from the steel cooler tubes or bypass valve.

NOTE:

Replace the cooler hoses if rubber material from the hose remains on the tube fitting.

4. Allow any CVT fluid that remains in the cooler hoses to drain into the oil pan.

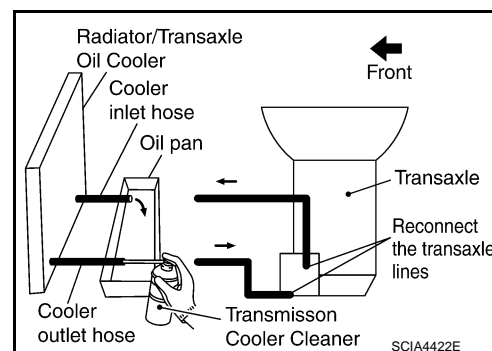


5. Insert the extension adapter hose of a can of Transmission Cooler Cleaner (Nissan P/N 999MP-AM006) into the cooler outlet hose.

CAUTION:

- Wear safety glasses and rubber gloves when spraying the Transmission Cooler Cleaner.
- Spray Transmission Cooler Cleaner only with adequate ventilation.
- Avoid contact with eyes and skin.
- Do not breath vapors or spray mist.

6. Hold the hose and can as high as possible and spray Transmission Cooler Cleaner in a continuous stream into the cooler outlet hose until CVT fluid flows out of the cooler inlet hose for 5 seconds.



7. Insert the tip of an air gun into the end of the cooler outlet hose.
8. Wrap a shop rag around the air gun tip and end of the cooler outlet hose.

9. Blow compressed air regulated to 5 to 9 kg/cm² (70 to 130 psi) through the cooler outlet hose for 10 seconds to force out any remaining CVT fluid.

10. Repeat steps 5 through 9 three additional times.

11. Position an oil pan under the banjo bolts that connect the CVT fluid cooler steel lines to the transaxle.

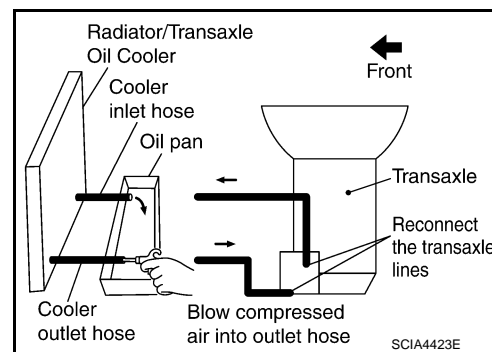
12. Remove the banjo bolts.

13. Flush each steel line from the cooler side back toward the transaxle by spraying Transmission Cooler Cleaner in a continuous stream for 5 seconds.

14. Blow compressed air regulated to 5 to 9 kg/cm² (70 to 130 psi) through each steel line from the cooler side back toward the transaxle for 10 seconds to force out any remaining CVT fluid.

15. Ensure all debris is removed from the steel cooler lines.

16. Ensure all debris is removed from the banjo bolts and fittings.



CVT FLUID COOLER SYSTEM

< PERIODIC MAINTENANCE >

[CVT: RE0F09B]

17. Perform "CVT FLUID COOLER DIAGNOSIS PROCEDURE".

CVT FLUID COOLER DIAGNOSIS PROCEDURE

NOTE:

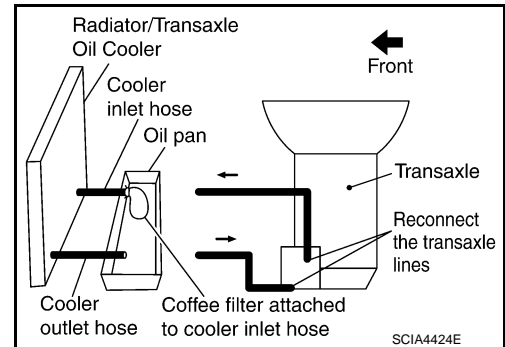
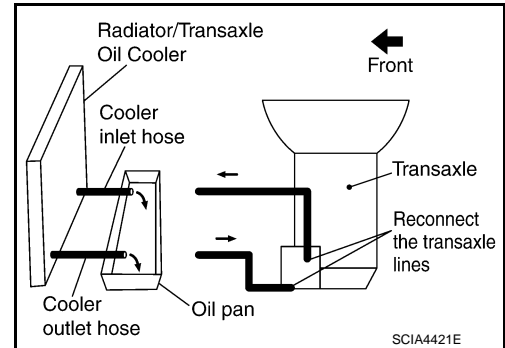
Insufficient cleaning of the cooler inlet hose exterior may lead to inaccurate debris identification.

1. Position an oil pan under the transaxle's inlet and outlet cooler hoses.
2. Clean the exterior and tip of the cooler inlet hose.
3. Insert the extension adapter hose of a can of Transmission Cooler Cleaner (Nissan P/N 999MP-AM006) into the cooler outlet hose.

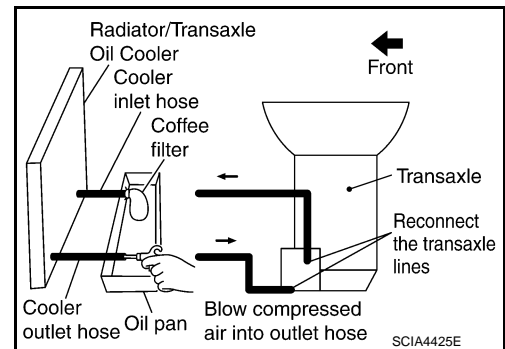
CAUTION:

- Wear safety glasses and rubber gloves when spraying the Transmission Cooler Cleaner.
- Spray Transmission Cooler Cleaner only with adequate ventilation.
- Avoid contact with eyes and skin.
- Do not breath vapors or spray mist.

4. Hold the hose and can as high as possible and spray Transmission Cooler Cleaner in a continuous stream into the cooler outlet hose until CVT fluid flows out of the cooler inlet hose for 5 seconds.
5. Tie a common white, basket-type coffee filter to the end of the cooler inlet hose.

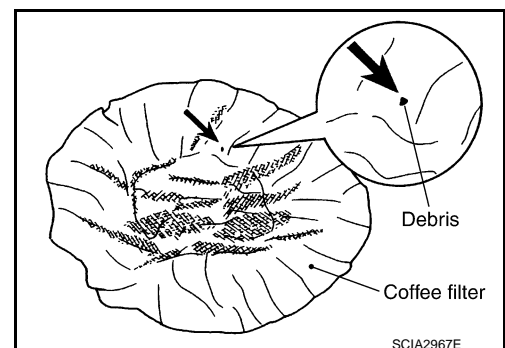


6. Insert the tip of an air gun into the end of the cooler outlet hose.
7. Wrap a shop rag around the air gun tip and end of cooler outlet hose.
8. Blow compressed air regulated to 5 to 9 kg/cm² (70 to 130 psi) through the cooler outlet hose to force any remaining CVT fluid into the coffee filter.
9. Remove the coffee filter from the end of the cooler inlet hose.
10. Perform "CVT FLUID COOLER INSPECTION PROCEDURE".



CVT FLUID COOLER INSPECTION PROCEDURE

1. Inspect the coffee filter for debris.
 - a. If small metal debris less than 1 mm (0.040 in) in size or metal powder is found in the coffee filter, this is normal. If normal debris is found, the CVT fluid cooler/radiator can be reused and the procedure is ended.

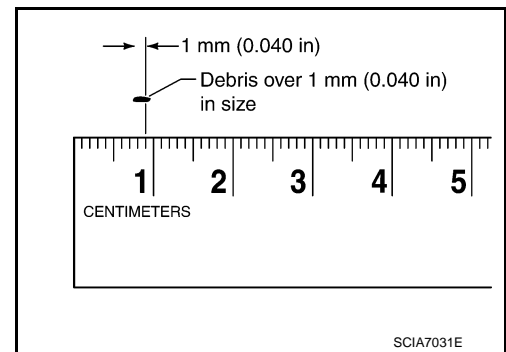


CVT FLUID COOLER SYSTEM

< PERIODIC MAINTENANCE >

[CVT: RE0F09B]

- b. If one or more pieces of debris are found that are over 1 mm (0.040 in) in size and/or peeled clutch facing material is found in the coffee filter, the fluid cooler is not serviceable. The radiator/ fluid cooler must be replaced and the inspection procedure is ended.



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CVT FLUID COOLER FINAL INSPECTION

After performing all procedures, ensure that all remaining oil is cleaned from all components.

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CVT SHIFT SELECTOR

< REMOVAL AND INSTALLATION >

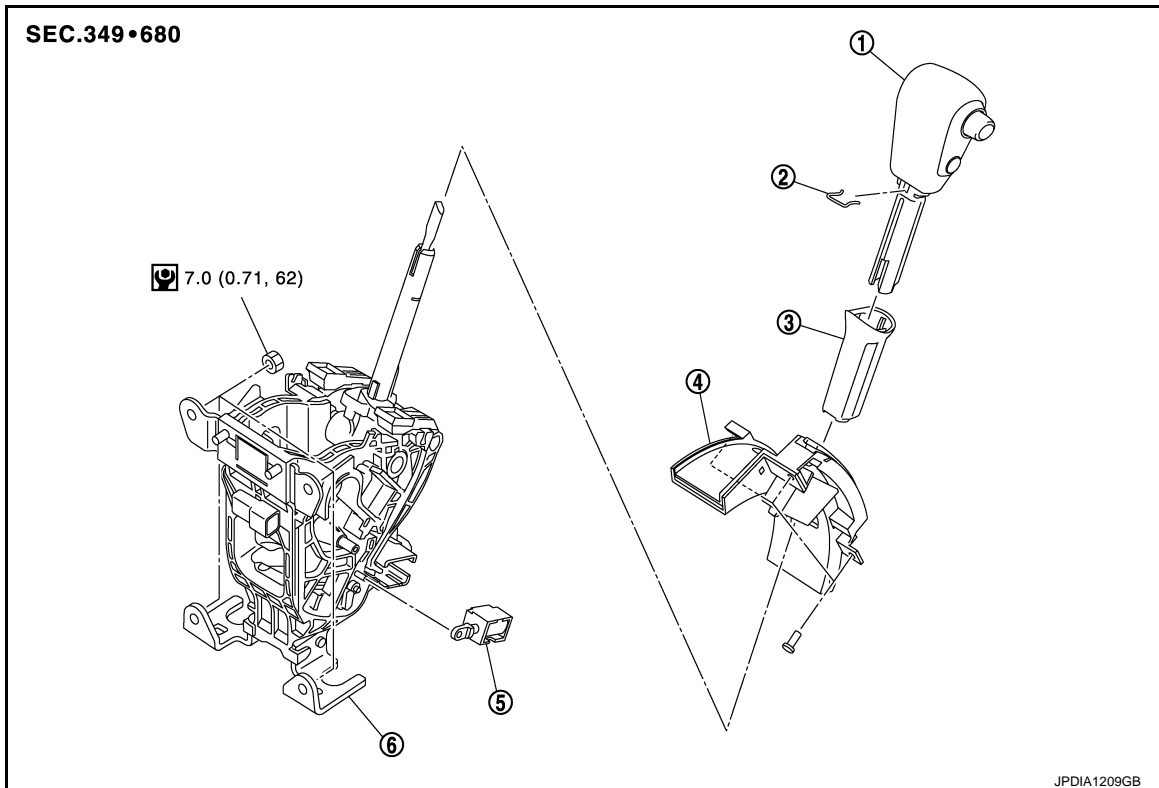
[CVT: RE0F09B]

REMOVAL AND INSTALLATION


CVT SHIFT SELECTOR

Exploded View

INFOID:000000009650222



- | | | |
|------------------------|------------------------|--------------------------------|
| 1. Selector lever knob | 2. Lock pin | 3. Knob cover |
| 4. Slide plate | 5. Shift lock solenoid | 6. CVT shift selector assembly |

 : N·m (kg·m, in·lb)

Removal and Installation

INFOID:000000009650223

REMOVAL

CAUTION:

Always apply the parking brake before performing removal and installation.

1. Disconnect the battery cable from the negative terminal. Refer to [PG-105, "Removal and Installation"](#).

2. Move selector lever to "N" position.

CAUTION:

When pushing shift lock release button, warp waste around the tip of flat screw driver to prevent damage.

3. Slide knob cover (1) below selector lever downward.

CAUTION:

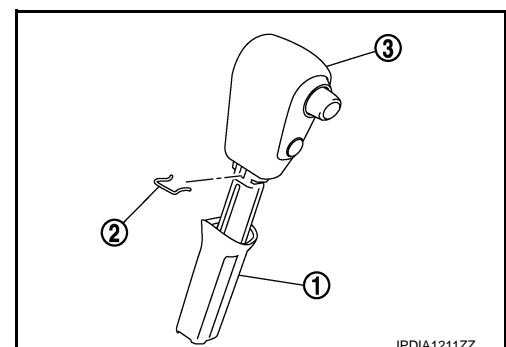
Be careful not to damage knob cover.

4. Pull lock pin (2) out of selector lever knob (3).

5. Remove selector lever knob and knob cover.

6. Remove cluster lid C. Refer to [IP-14, "Removal and Installation"](#).

7. Disconnect CVT shift selector connector.



CVT SHIFT SELECTOR

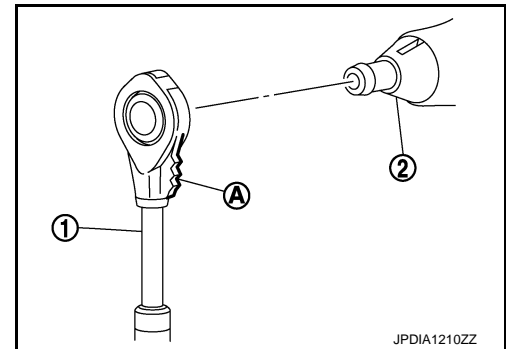
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

8. Remove control cable (1) from CVT shift selector assembly (2).

A : The ribbed

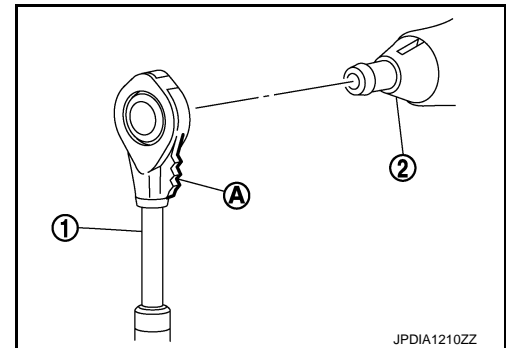
9. Remove CVT shift selector assembly.



INSTALLATION

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

- When installing control cable (1) to CVT shift selector assembly (2), check that control cable is fully pressed in with the ribbed (A) surface facing rearward.

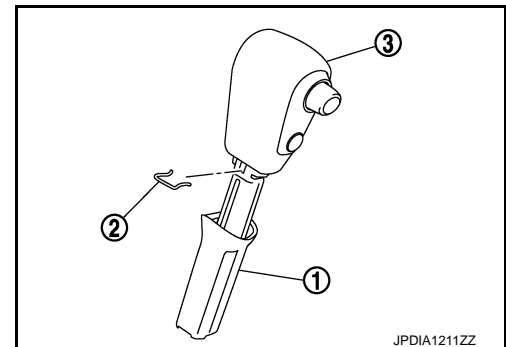


- Refer to the followings when installing the selector lever knob to the CVT shift selector assembly.

1. Install the lock pin (2) to the selector lever knob (3).
2. Install the knob cover (1) to the selector lever knob.
3. Insert the selector lever knob into the CVT shift selector assembly until it clicks.

CAUTION:

- When pressing the selector lever knob onto the selector lever, never press the selector lever knob button.
 - Never strike the selector lever knob to press it into place.
4. After installing the selector lever knob to the CVT shift selector assembly, check that the pulling on the selector lever knob does not disconnect it.



Disassembly and Assembly

INFOID:000000009650224

Disassembly

1. Remove slide plate from cluster lid C.
2. Disconnect the shift lock solenoid connector.
3. Remove shift lock solenoid from CVT shift selector assembly.

Assembly

Assembly in the reverse order of disassembly.

Inspection and Adjustment

INFOID:000000009650225

ADJUSTMENT AFTER INSTALLATION

Adjust the CVT positions after installing CVT shift selector assembly. Refer to [TM-70, "Inspection and Adjustment"](#).

INSPECTION AFTER INSTALLATION

Check the CVT positions after adjusting the CVT positions. Refer to [TM-70, "Inspection and Adjustment"](#).

CONTROL CABLE

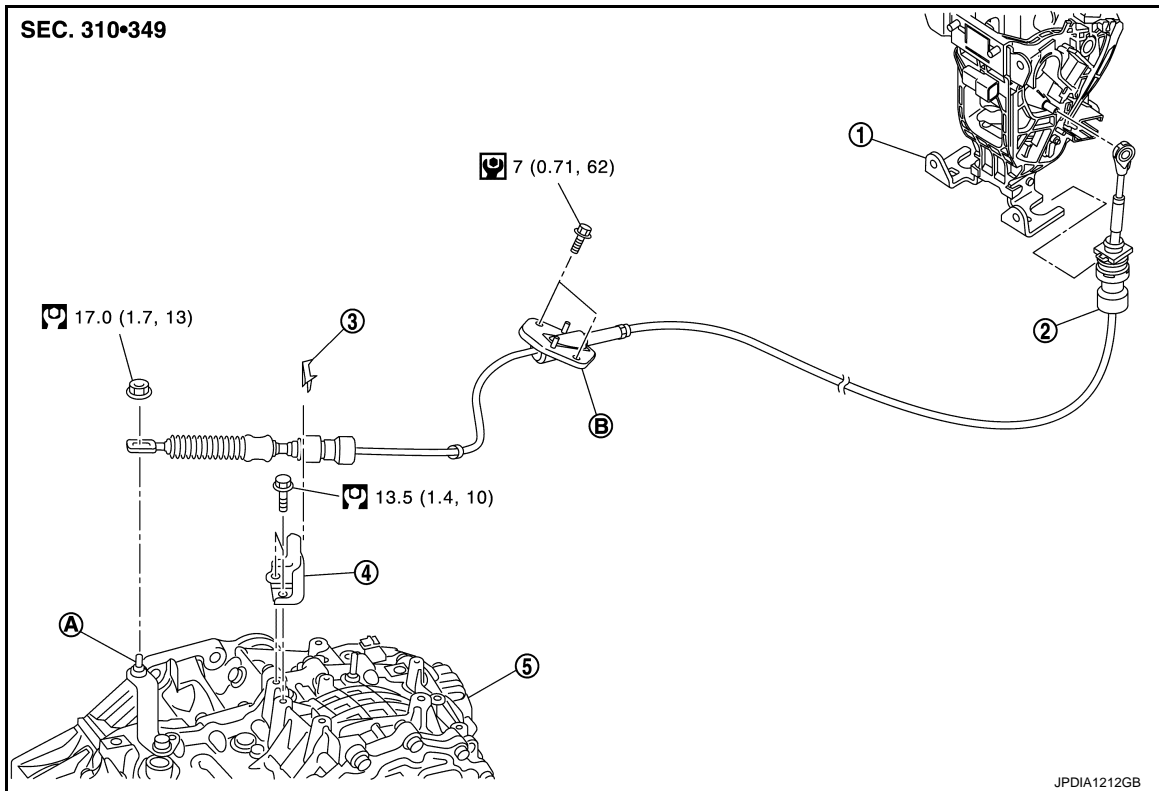
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

CONTROL CABLE

Exploded View

INFOID:000000009650226



- | | | |
|--------------------------------|-----------------------|---------------|
| 1. CVT shift selector assembly | 2. Control cable | 3. Lock plate |
| 4. Bracket | 5. Transaxle assembly | |
| A. Manual lever | B. Retainer | |

: N·m (kg-m, ft-lb)

: N·m (kg-m, in-lb)

Removal and Installation

INFOID:000000009650227

REMOVAL

CAUTION:

Always apply the parking brake before performing removal and installation.

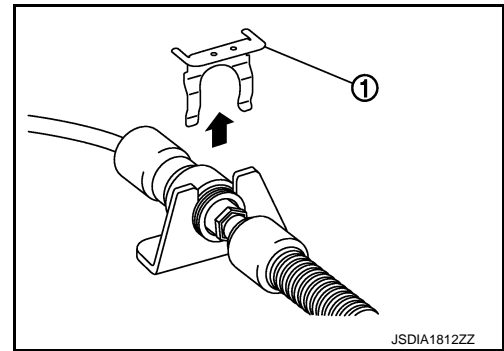
1. Disconnect the battery cable from the negative terminal. Refer to [PG-105, "Removal and Installation"](#).
2. Remove control cable from CVT shift selector assembly. Refer to [TM-154, "Removal and Installation"](#).
3. Remove air duct (inlet) and air cleaner case. Refer to [EM-26, "Removal and Installation"](#).
4. Remove the control cable installation nut from the manual lever.

CONTROL CABLE

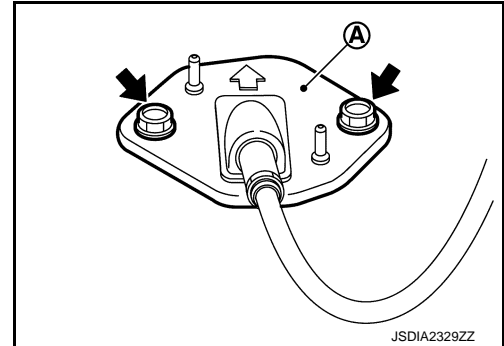
[CVT: RE0F09B]

< REMOVAL AND INSTALLATION >

5. Remove lock plate (1) from control cable.
6. Remove instrument lower cover center. Refer to [IP-14](#), "[Removal and Installation](#)".



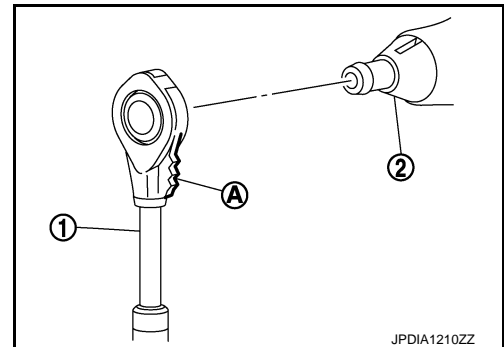
7. Remove bolts (←) of retainer (A).
8. Remove the control cable from the vehicle.
9. Remove bracket from transaxle assembly.



INSTALLATION

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

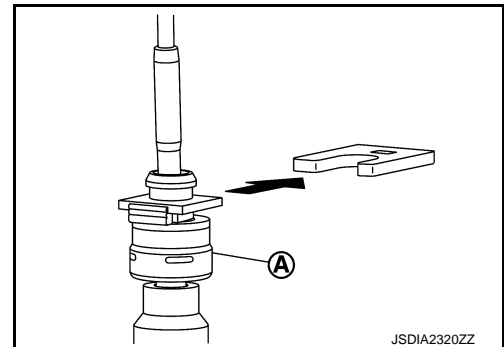
- When installing control cable (1) to CVT shift selector assembly (2), check that control cable is fully pressed in with the ribbed (A) surface facing rearward.



- Install the socket (A) onto the CVT shift selector assembly.

CAUTION:

- Place the socket onto the CVT shift lever, then fasten it in place from above.
- Check that the pulling on the socket does not disconnect it.



Inspection and Adjustment

INFOID:000000009650228

ADJUSTMENT AFTER INSTALLATION

Adjust the CVT positions after installing control cable. Refer to [TM-70](#), "[Inspection and Adjustment](#)".

INSPECTION AFTER INSTALLATION

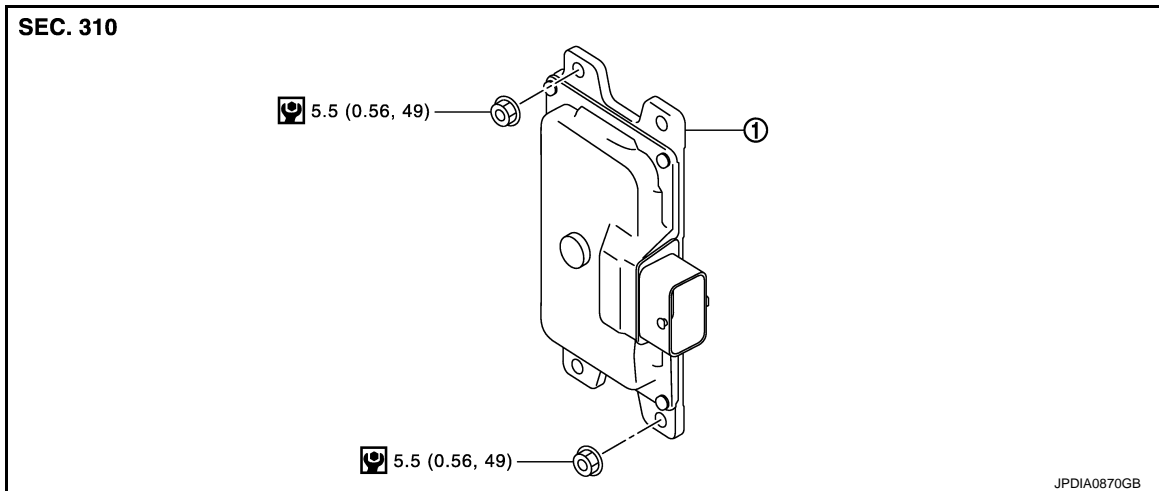
Check the CVT positions after adjusting the CVT positions. Refer to [TM-70](#), "[Inspection and Adjustment](#)".

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TCM

Exploded View

INFOID:000000009650229



1. TCM

 : N·m (kg·m, in·lb)

Removal and Installation

INFOID:000000009650230

REMOVAL

CAUTION:

- When replacing TCM and transaxle assembly as a set, replace transaxle assembly first and then replace TCM. Refer to [TM-61, "Description"](#).
- Never impact on TCM when removing or installing TCM.

1. Disconnect the battery cable from the negative terminal. Refer to [PG-105, "Removal and Installation"](#).
2. Remove air duct (inlet). Refer to [EM-26, "Removal and Installation"](#).
3. Move battery harness to a place to keep the harness clear of working area.
4. Disconnect TCM connector.
5. Remove TCM.

INSTALLATION

Install in the reverse order of removal.

Adjustment

INFOID:000000009650231

ADJUSTMENT AFTER INSTALLATION

Perform "ADDITIONAL SERVICE WHEN REPLACING TCM". Refer to [TM-61, "Description"](#).

AIR BREATHER HOSE

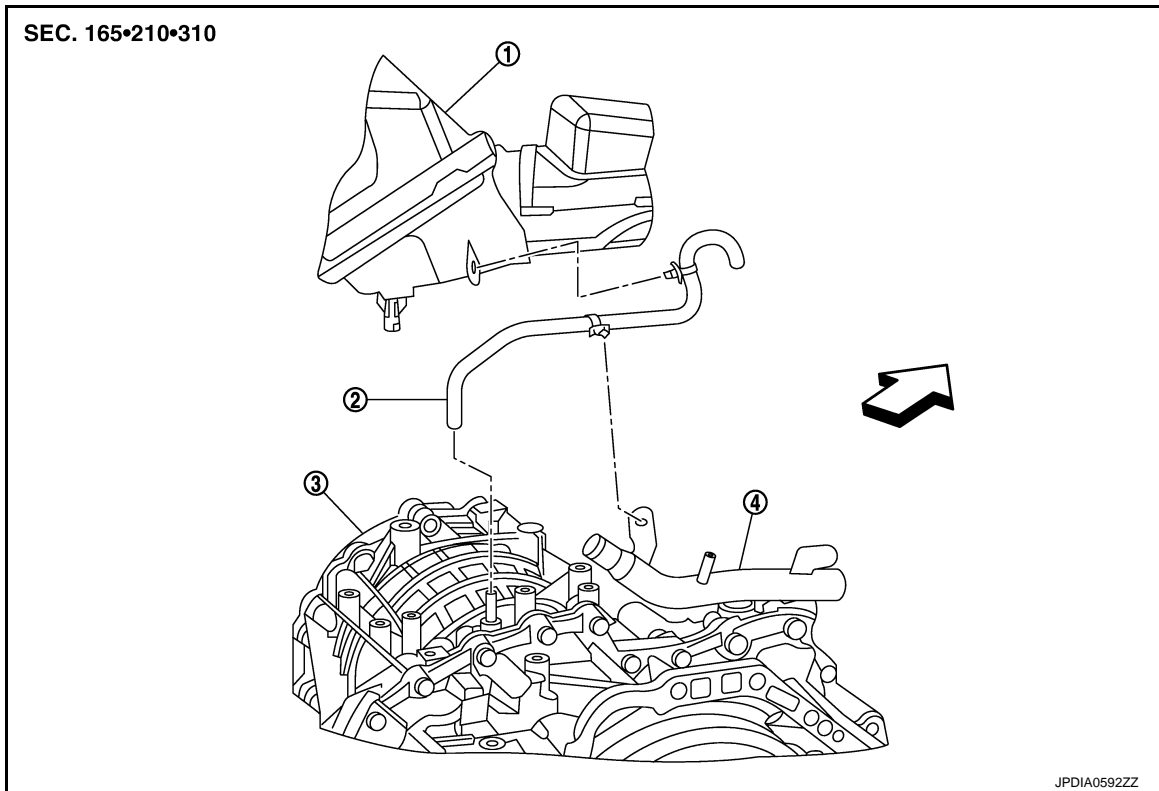
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

AIR BREATHER HOSE

Exploded View

INFOID:000000009650232



1. Air cleaner case
2. Air breather hose
3. Transaxle assembly
4. Heater pipe
- ⇐ : Vehicle front

Removal and Installation

INFOID:000000009650233

REMOVAL

1. Disconnect the battery cable from the negative terminal. Refer to [PG-105, "Removal and Installation"](#).
2. Remove air duct (inlet). Refer to [EM-26, "Removal and Installation"](#).
3. Remove clip from air cleaner case.
4. Remove air cleaner case and air duct assembly. Refer to [EM-26, "Removal and Installation"](#).
5. Remove clip from heater pipe.
6. Remove air breather hose from transaxle assembly.

INSTALLATION

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

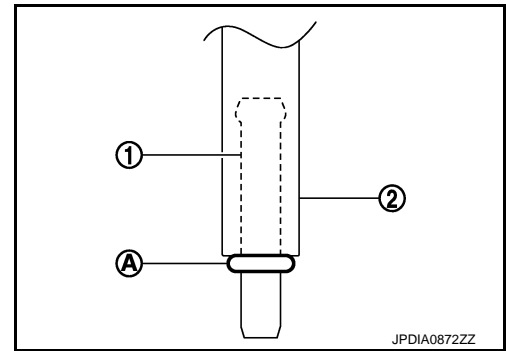
CAUTION:

AIR BREATHER HOSE

< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

- Insert air breather hose (2) to the bend (A) of air breather tube (1).
- Install air breather hose to air breather tube so that the paint mark is facing forward.
- Check that air breather hose is not collapsed or blocked due to folding or bending when installed.



SECONDARY SPEED SENSOR

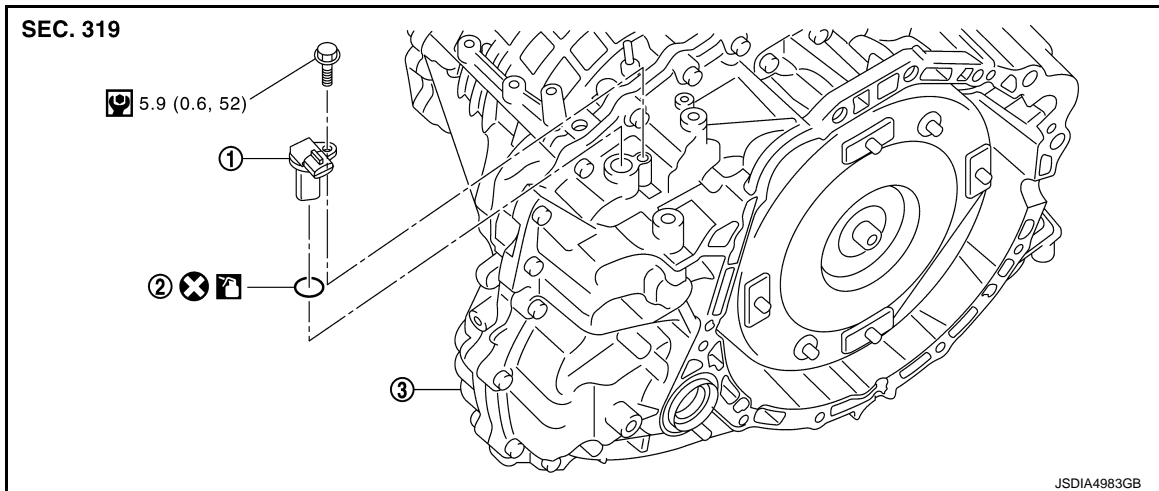
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

SECONDARY SPEED SENSOR

Exploded View

INFOID:000000009650234



1. Secondary speed sensor 2. O-ring 3. Transaxle assembly

: N·m (kg-m, in-lb)

: Always replace after every disassembly.

: Apply CVT fluid

Removal and Installation

INFOID:000000009650235

REMOVAL

1. Remove the battery. Refer to [PG-105, "Removal and Installation"](#).
2. Remove ECM and bracket. Refer to [EC-460, "Removal and Installation"](#).
3. Remove air duct (inlet), air duct assembly, and air cleaner case. Refer to [EM-26, "Removal and Installation"](#).
4. Disconnect secondary speed sensor connector.
5. Remove secondary speed sensor.
6. Remove O-ring from secondary speed sensor.

INSTALLATION

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

CAUTION:

- Never reuse O-ring.
- Apply CVT fluid to O-ring.

Inspection

INFOID:000000009650236

INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage and check CVT fluid level. Refer to [TM-149, "Inspection"](#).

DIFFERENTIAL SIDE OIL SEAL

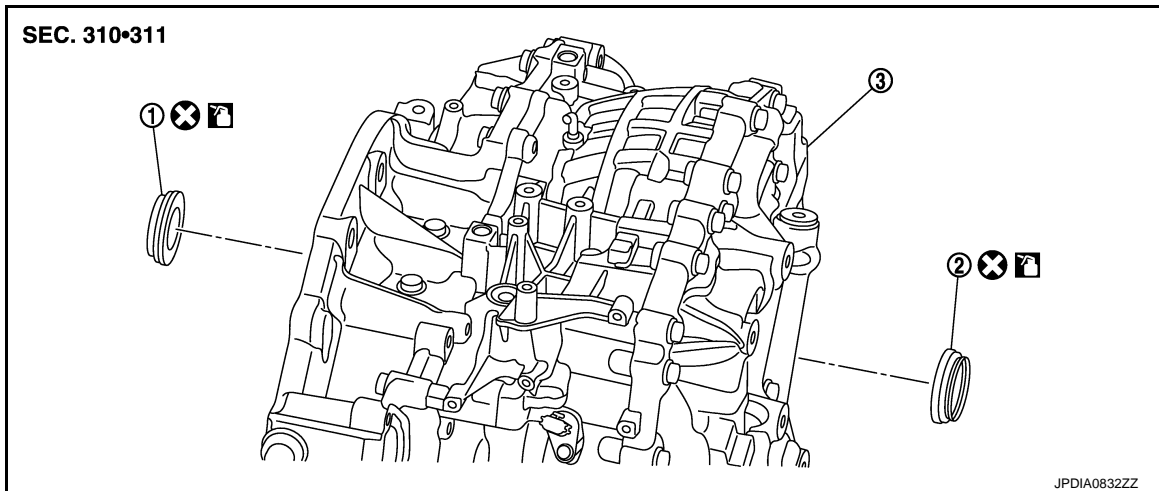
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

DIFFERENTIAL SIDE OIL SEAL

Exploded View

INFOID:000000009650237



1. RH differential side oil seal 2. LH differential side oil seal 3. Transaxle assembly

⊗ : Always replace after every disassembly.

■ : Apply CVT fluid

Removal and Installation

INFOID:000000009650238

REMOVAL

RH Differential Side Oil Seal

1. Disconnect the battery cable from the negative terminal. Refer to [PG-105. "Removal and Installation"](#).
2. Remove exhaust front tube. Refer to [EX-6. "Removal and Installation"](#).
3. Remove right front drive shaft. Refer to [FAX-19. "RIGHT SIDE : Removal and Installation"](#).
4. Use oil seal remover or a similar means and remove the RH differential side oil seal.

CAUTION:

When removing the differential side oil seal, be careful not to scratch the oil seal mounting surfaces of the transaxle case and converter housing.

LH Differential Side Oil Seal

1. Remove left front drive shaft. Refer to [FAX-18. "LEFT SIDE : Removal and Installation"](#).
2. Use oil seal remover or a similar means and remove the LH differential side oil seal.

CAUTION:

When removing the differential side oil seal, be careful not to scratch the oil seal mounting surfaces of the transaxle case and converter housing.

INSTALLATION

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

CAUTION:

- Never reuse differential side oil seals.
- Apply CVT fluid to the differential side oil seal lip and around the oil seal.
- When inserting the drive shaft, be sure to use a protector (SST: KV38107900).

DIFFERENTIAL SIDE OIL SEAL

< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

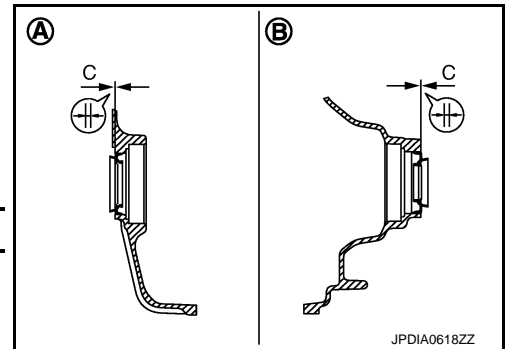
- Drive each differential side oil seal evenly using the drift so that differential side oil seal protrudes by the dimension (C) respectively.

- A : Transaxle case side
- B : Converter housing side

Unit: mm (in)

Dimension C	0 ± 0.5 (0 ± 0.020)
-------------	---------------------

NOTE:
Differential side oil seal pulling direction is used as the reference.



Drift to be used:

Location	Tool number (Kent-Moore No.)
Transaxle case side	ST33400001 (J-26082)
Converter housing side	

Inspection

INFOID:000000009650239

INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage and check CVT fluid level. Refer to [TM-149, "Inspection"](#).

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OIL PAN

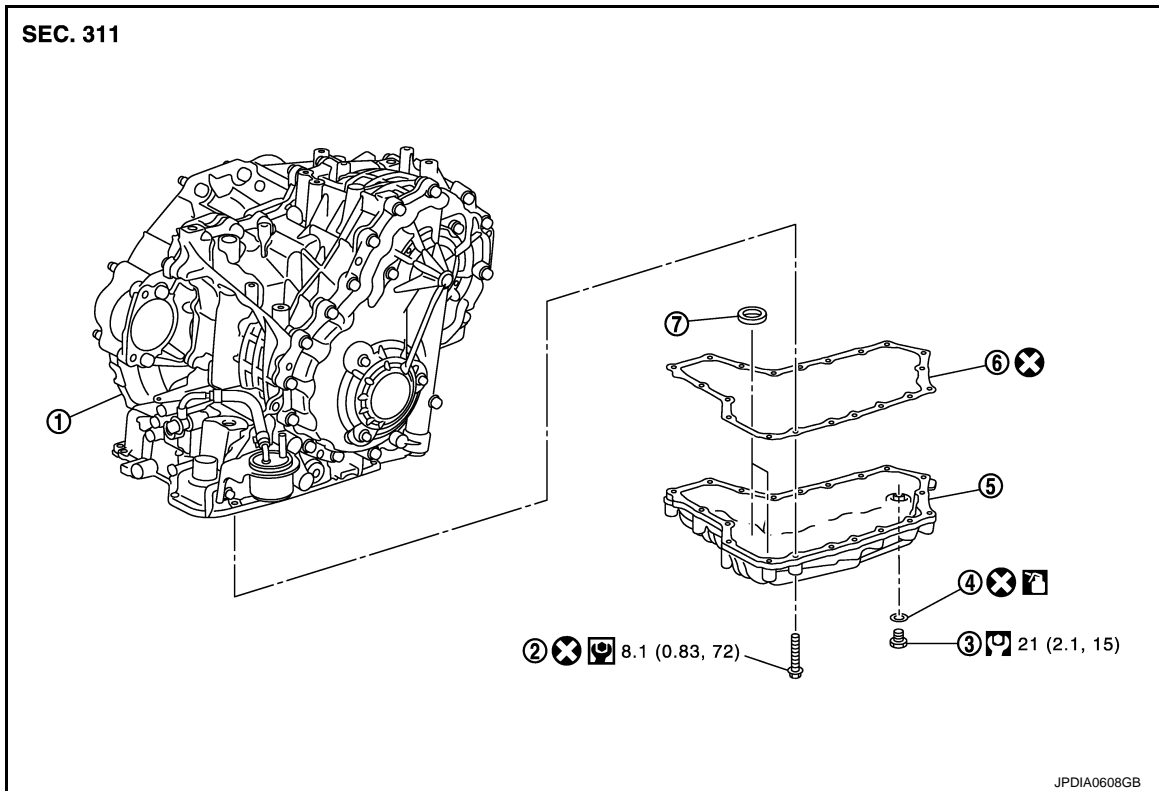
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

OIL PAN

Exploded View

INFOID:000000009650240



- | | | |
|-----------------------|-------------------------|-------------------|
| 1. Transaxle assembly | 2. Oil pan fitting bolt | 3. Drain plug |
| 4. O-ring | 5. Oil pan | 6. Oil pan gasket |
| 7. Magnet | | |

: N·m (kg-m, ft-lb)

: N·m (kg-m, in-lb)

: Always replace after every disassembly.

: Apply CVT fluid

Removal and Installation

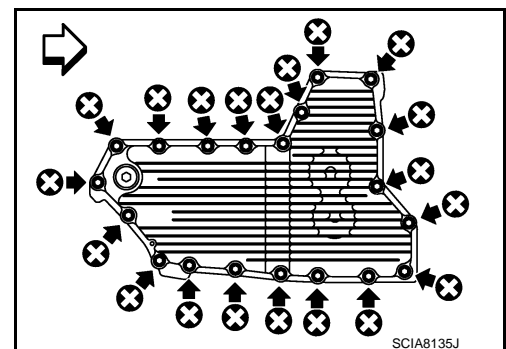
INFOID:000000009650241

REMOVAL

1. Remove engine under cover with power tool.
2. Remove drain plug and then drain CVT fluid.
3. Remove O-ring from drain plug.
4. Remove oil pan fitting bolts () from oil pan.

: Vehicle front

5. Remove oil pan.

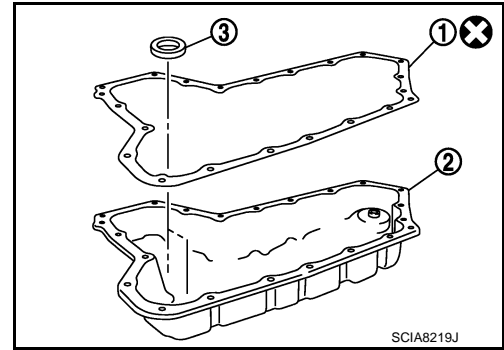


OIL PAN

< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

6. Remove oil pan gasket (1) from oil pan (2).
7. Remove magnet (3) from oil pan.



INSTALLATION

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

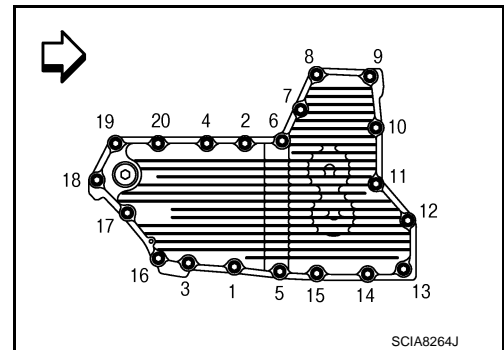
CAUTION:

- Never reuse oil pan gasket, O-ring, and oil pan fitting bolts.
- Apply CVT fluid to O-ring.
- Completely remove all moisture, oil and old gasket, etc. from the oil pan gasket mounting surface of transaxle case and oil pan.
- Install the oil pan to the transaxle case with the following procedure.

1. Install the oil pan gasket to the oil pan.
2. Install the oil pan assembly to the transaxle case, and then temporarily tighten the oil pan mounting bolt.
3. Tighten the oil pan mounting bolts in the order shown in the figure to the specified torque.

← : Vehicle front

4. Tighten the oil pan mounting bolts again clockwise from (1) shown in the figure to the specified torque.



Inspection

INFOID:000000009650242

INSPECTION AFTER REMOVAL

- If a large amount of worn material is found, clutch plate may be worn.
 - If iron powder is found, bearings, gears, or clutch plates may be worn.
 - If aluminum powder is found, bushing may be worn, or chips or burrs of aluminum casting parts may enter.
- Check points where wear is found in all cases.

INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage and check CVT fluid level. Refer to [TM-149, "Inspection"](#).

WATER HOSE

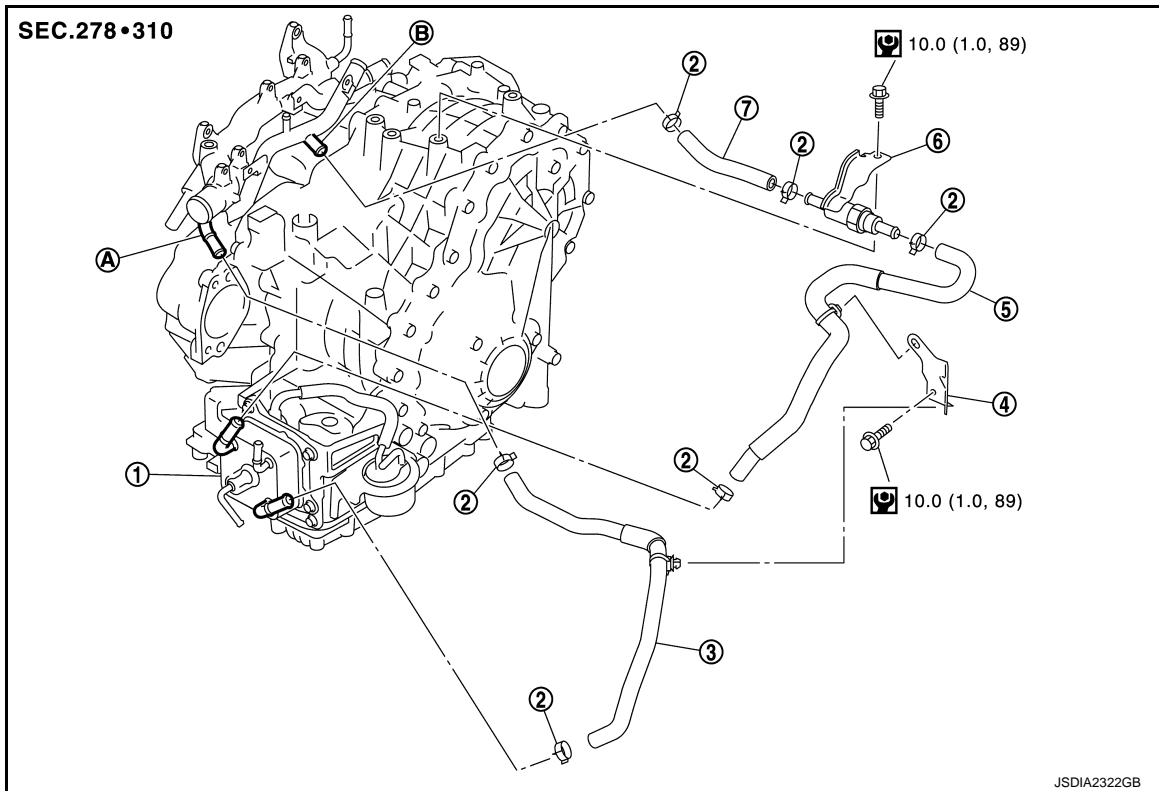
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]


WATER HOSE

Exploded View

INFOID:000000009650243



- | | | |
|-------------------|-----------------|----------------------|
| 1. CVT oil warmer | 2. Hose clamp | 3. Water hose A |
| 4. Bracket | 5. Water hose B | 6. Heater thermostat |
| 7. Water hose C | | |
| A. Water outlet | B. Heater pipe | |

 : N·m (kg-m, in-lb)

Removal and Installation

INFOID:000000009650244

REMOVAL

WARNING:

Never remove the radiator cap when the engine is hot. Serious burns could occur from high pressure coolant escaping from the radiator.

CAUTION:

Perform these steps after the coolant temperature has cooled sufficiently.

1. Remove air duct (inlet). Refer to [EM-26, "Removal and Installation"](#).
2. Remove the battery. Refer to [PG-105, "Removal and Installation"](#).
3. Remove ECM and bracket. Refer to [EC-460, "Removal and Installation"](#).
4. Remove hose clamp, and then remove water hoses.
5. Remove heater thermostat.
6. Remove bracket.

INSTALLATION

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

CAUTION:

Install clips of water hose A/B to bracket.

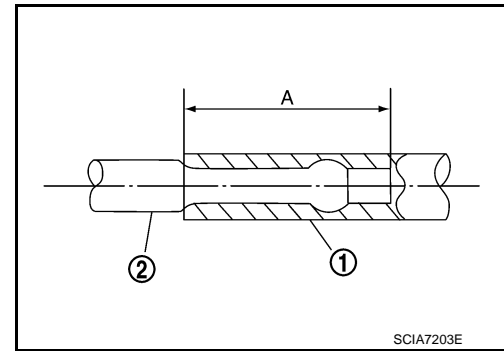
WATER HOSE

< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

- Insert water hose according to dimension "A" described below.

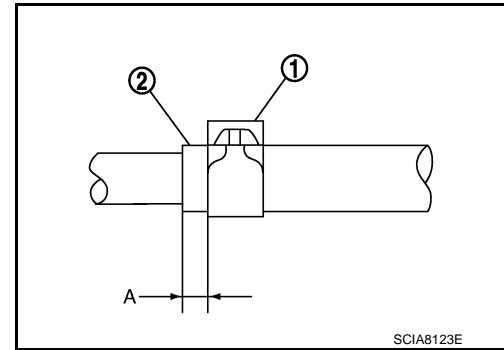
Water hose (1)	Insert side tube (2)	Dimension "A"
Water hose A	Water outlet	27 mm (1.06 in)
	CVT oil warmer	
Water hose B	CVT oil warmer	
	Heater thermostat	
Water hose C	Heater thermostat	
	Heater pipe	



- Set hose clamps (1) from the end of CVT water hose A (2) according to dimension "A" described below.

Dimension "A" : 5 – 7 mm (0.20 – 0.28 in)

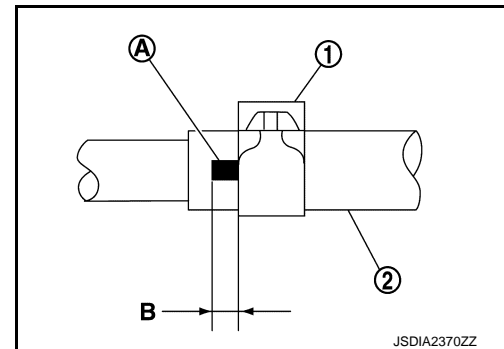
- Hose clamp should not interfere with the bulge.



- To install hose clamp (1) to CVT water hose B/C (2), refer to the following dimension "B".

A : Paint mark

Dimension B : 0 – 1 mm (0 – 0.04 in)



Water hose	Hose end	Paint mark	Position of hose clamp
Water hose A	Water outlet side	Facing upward	Facing upward
	CVT oil warmer side	Facing forward	Facing forward
Water hose B	CVT oil warmer side	Facing forward	Facing forward
	Heater thermostat side	—	Facing forward
Water hose C	Heater thermostat side	—	Facing forward
	Heater pipe side	Facing upward	Facing upward

Inspection

INFOID:000000009650245

INSPECTION AFTER REMOVAL

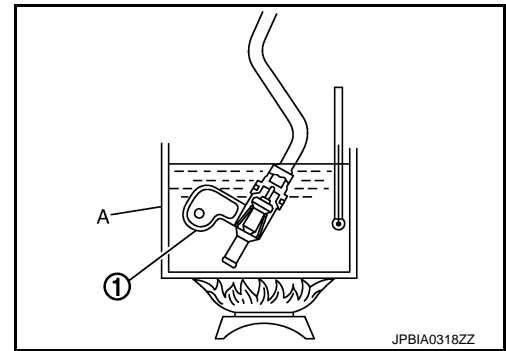
Heater Thermostat

WATER HOSE

[CVT: RE0F09B]

< REMOVAL AND INSTALLATION >

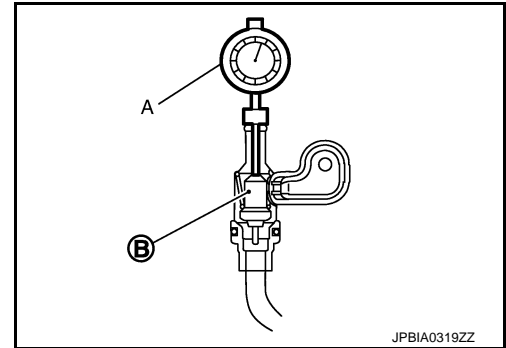
- Fully immerse the heater thermostat (1) in a container (A) filled with water. Continue heating the water while stirring.
- Continue heating the heater thermostat for 5 minutes or more after bringing the water to a boil.
- Quickly take the heater thermostat out of the hot water, measure the heater thermostat within 10 seconds.



- Place dial indicator (A) on the pellet (B) and measure the elongation from the initial state.

Standard : Refer to [TM-179, "Heater Thermostat"](#).

- If out of standard, replace heater thermostat.



INSPECTION AFTER INSTALLATION

Start the engine, and check the joints for coolant leakage. Refer to [TM-149, "Inspection"](#).

FLUID COOLER SYSTEM

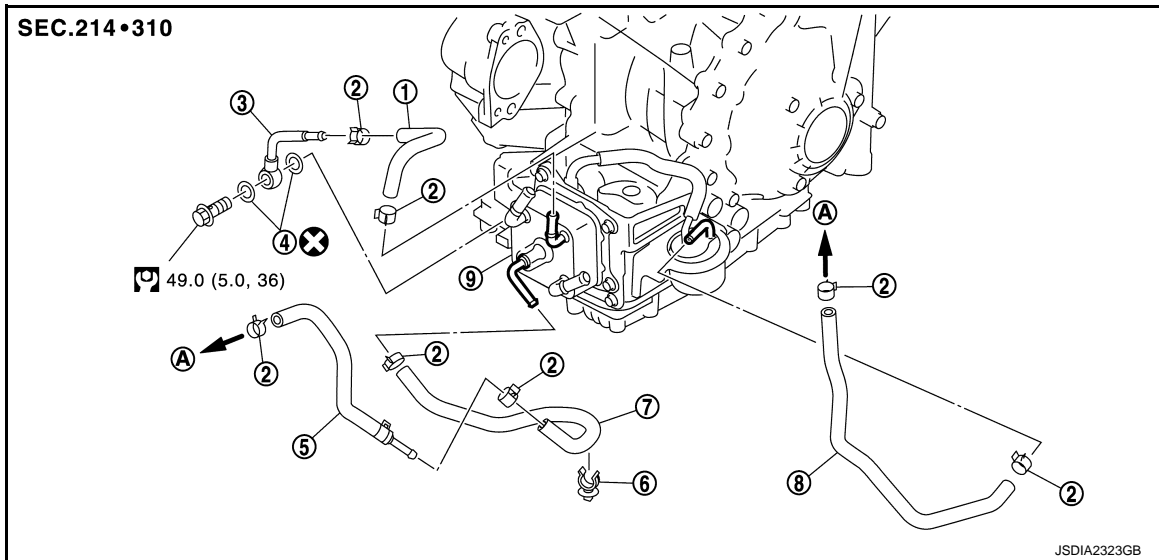
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

FLUID COOLER SYSTEM CVT FLUID COOLER HOSE

CVT FLUID COOLER HOSE : Exploded View

INFOID:000000009650246



- | | | |
|----------------------------|----------------------------|--------------------------|
| 1. CVT fluid cooler hose A | 2. Hose clamp | 3. CVT fluid cooler tube |
| 4. Copper washer | 5. CVT fluid cooler hose B | 6. Clip |
| 7. CVT fluid cooler hose C | 8. CVT fluid cooler hose D | 9. CVT oil warmer |
- A. To radiator

: N-m (kg-m, ft-lb)

: Always replace after every disassembly.

CVT FLUID COOLER HOSE : Removal and Installation

INFOID:000000009650247

REMOVAL

1. Remove the battery. Refer to [PG-105, "Removal and Installation"](#).
2. Remove air duct (inlet) and air cleaner case. Refer to [EM-26, "Removal and Installation"](#).
3. Remove ECM and bracket. Refer to [EC-460, "Removal and Installation"](#).
4. Remove hose clamp, and then remove CVT fluid cooler hoses.
5. Remove CVT fluid cooler tube.

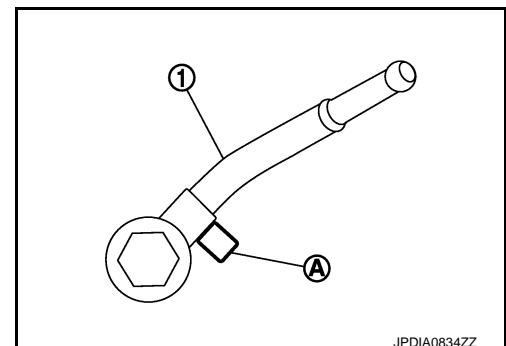
INSTALLATION

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

CAUTION:

Never reuse copper washer.

- When installing the fluid cooler tube (1) onto the transaxle assembly, install it so that it is in contact with the transaxle case boss (A).



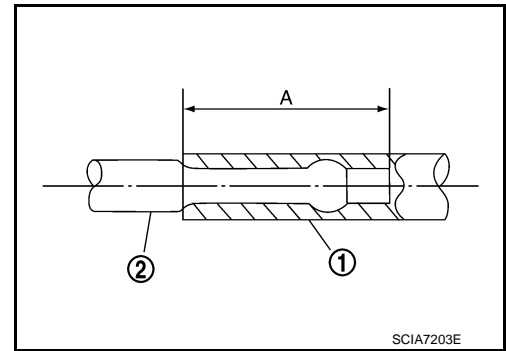
FLUID COOLER SYSTEM

< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

- Insert CVT fluid cooler hose according to dimension “A” described below.

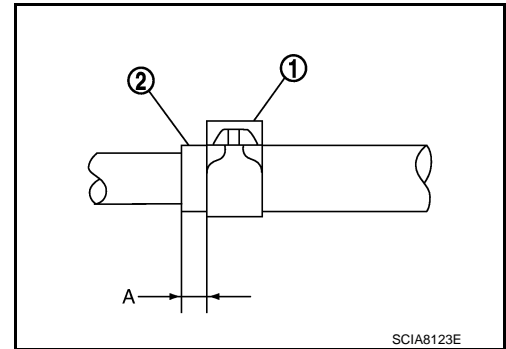
CVT fluid cooler hose (1)	Insert side tube (2)	Dimension “A”
CVT fluid cooler hose A	CVT fluid cooler tube CVT oil warmer	33 mm (1.30 in)
CVT fluid cooler hose B	Radiator	30 mm (1.18 in)
CVT fluid cooler hose C	CVT fluid cooler hose B CVT oil warmer	
CVT fluid cooler hose D	Transaxle assembly	
	Radiator	



- Set hose clamps (1) from the end of CVT fluid cooler hose (2) according to dimension “A” described below.

Dimension “A” : 5 – 9 mm (0.20 – 0.35 in)

- Hose clamp should not interfere with the bulge.



CVT fluid cooler hose	Hose end	Paint mark	Position of hose clamp
CVT fluid cooler hose A	CVT fluid cooler tube	Upward and 45° frontward	Upward and 45° frontward
	CVT oil warmer	Frontward	Frontward
CVT fluid cooler hose B	Radiator	Upward	Upward
CVT fluid cooler hose C	CVT fluid cooler hose B	Upward	Upward
	CVT oil warmer	Frontward	Frontward
CVT fluid cooler hose D	Transaxle assembly	Upward	Upward
	Radiator	Backward	Backward

CVT FLUID COOLER HOSE : Inspection

INFOID:000000009650248

INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage and check CVT fluid level. Refer to [TM-149, "Inspection"](#).

CVT OIL WARMER

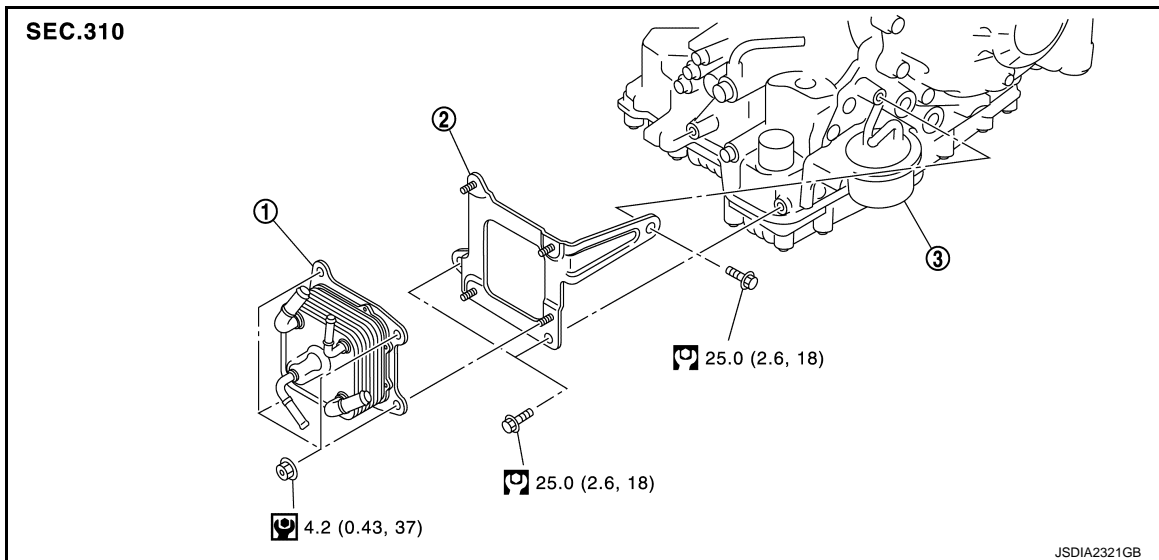
FLUID COOLER SYSTEM

< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

CVT OIL WARMER : Exploded View

INFOID:000000009650249



1. CVT oil warmer

2. Bracket

3. Transaxle assembly

: N·m (kg-m, ft-lb)

: N·m (kg-m, in-lb)

CVT OIL WARMER : Removal and Installation

INFOID:000000009650250

REMOVAL

WARNING:

Never remove the radiator cap when the engine is hot. Serious burns could occur from high pressure coolant escaping from the radiator.

CAUTION:

Perform these steps after the coolant temperature has cooled sufficiently.

1. Remove water hose from CVT oil warmer. Refer to [TM-166, "Removal and Installation"](#).
2. Remove fluid cooler hose from CVT oil warmer. Refer to [TM-169, "CVT FLUID COOLER HOSE : Removal and Installation"](#).
3. Remove CVT oil warmer.
4. Remove bracket.

INSTALLATION

Install in the reverse order of removal.

CVT OIL WARMER : Inspection

INFOID:000000009650251

INSPECTION AFTER INSTALLATION

- Check for CVT fluid leakage and check CVT fluid level. Refer to [TM-149, "Inspection"](#).
- Start the engine, and check the joints for coolant leakage. Refer to [TM-149, "Inspection"](#).

CVT FLUID FILTER

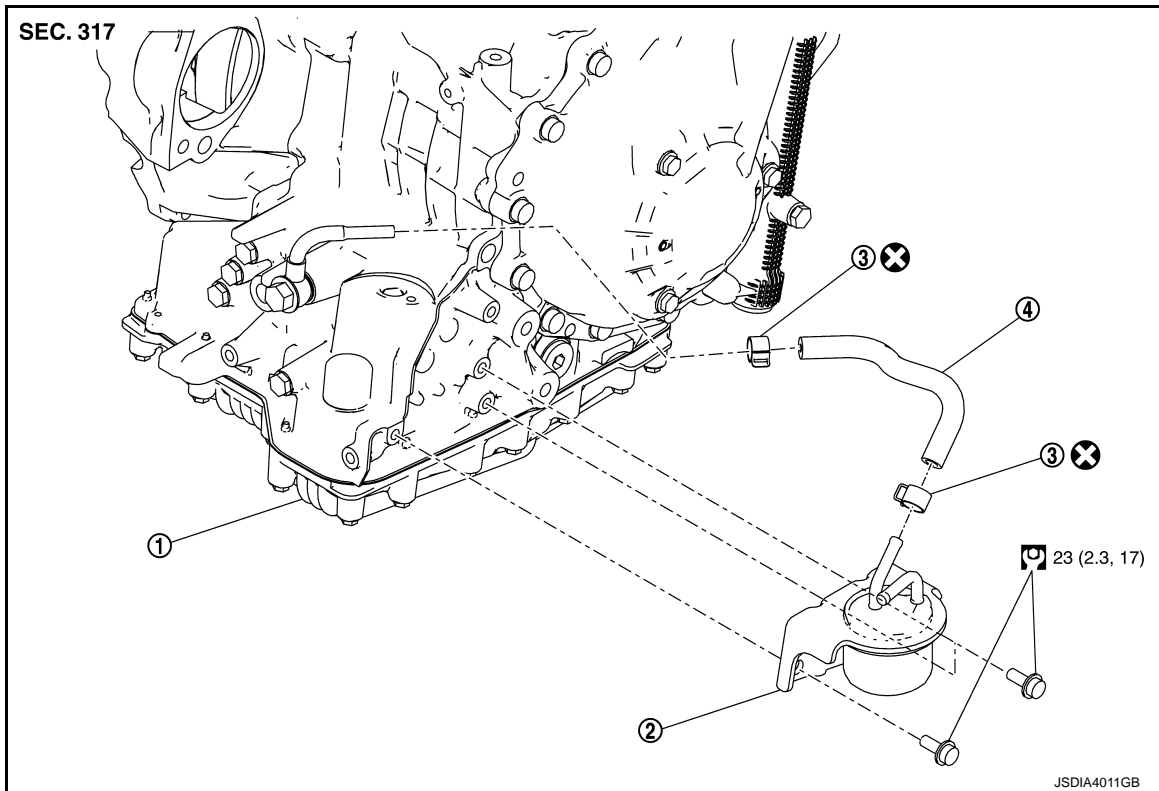
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]


CVT FLUID FILTER


Exploded View

INFOID:000000009975037



- 1. Transaxle
- 2. CVT fluid filter
- 3. Hose clamp
- 4. Filter hose

 : Always replace after every disassembly.

 : N·m (kg-m, ft-lb)

Removal and Installation

INFOID:000000009975038

NOTE:

Cap or plug openings to prevent fluid from spilling.

REMOVAL

1. Remove front fender protector LH. Refer to [EXT-23, "Removal and Installation"](#).
2. Pull out fluid cooler hose D from CVT fluid filter. Refer to [TM-169, "CVT FLUID COOLER HOSE : Exploded View"](#).
3. Remove filter hose.
4. Remove CVT fluid filter from transaxle assembly.

INSTALLATION

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

CAUTION:

Never reuse hose clamp.

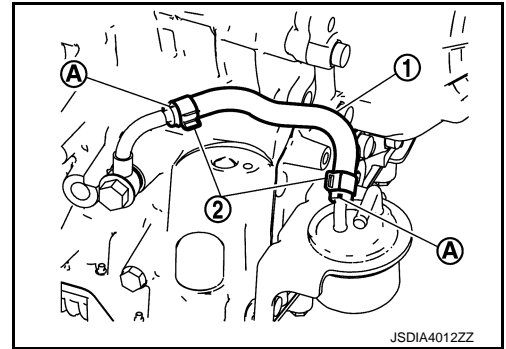
CVT FLUID FILTER

< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

- Install filter hose (1) and hose clamps (2) as shown in the figure.

A : Paint mark



A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

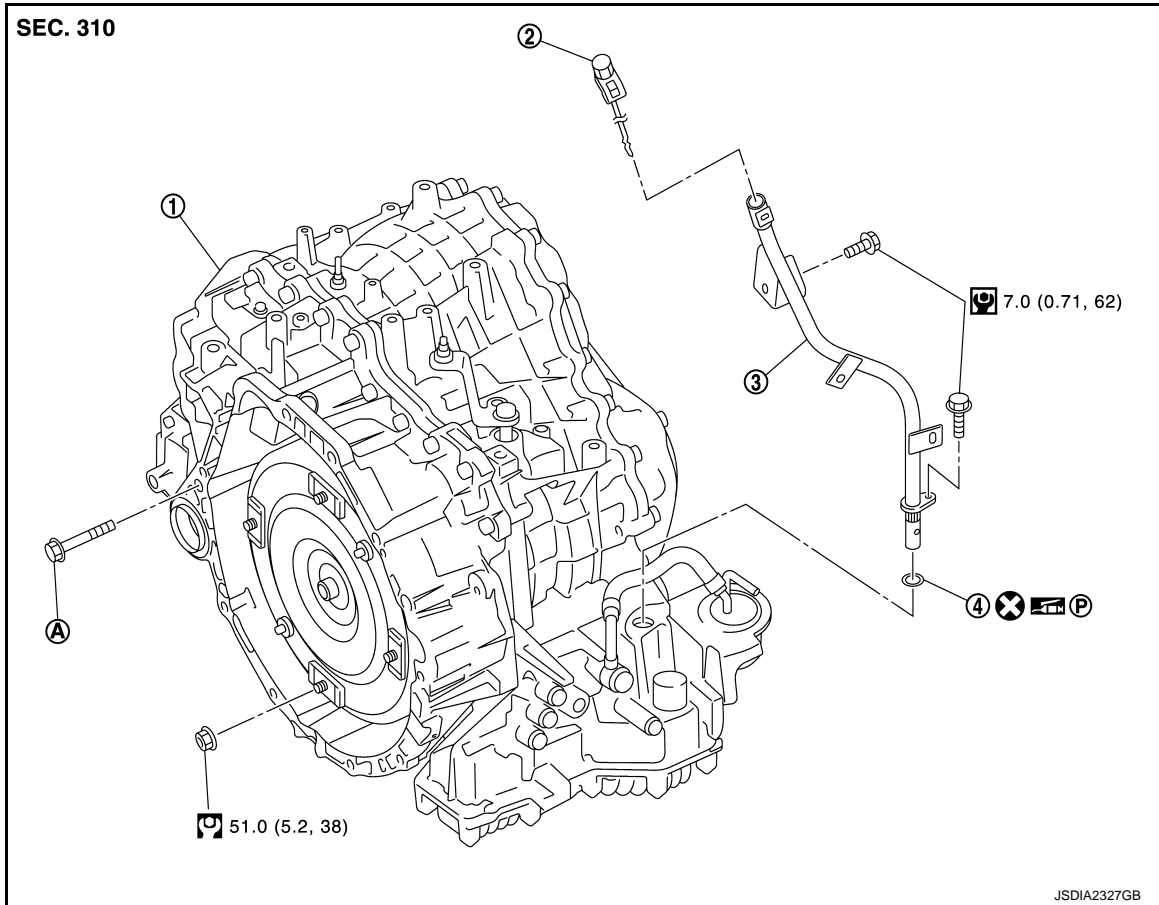
[CVT: RE0F09B]

UNIT REMOVAL AND INSTALLATION

TRANSAXLE ASSEMBLY

Exploded View

INFOID:000000009650252



1. Transaxle assembly

2. CVT fluid level gauge

3. CVT fluid charging pipe

4. O-ring

A. For tightening torque, refer to [TM-174, "Removal and Installation"](#).

: N·m (kg-m, ft-lb)

: N·m (kg-m, in-lb)

: Always replace after every disassembly.

: Apply petroleum jelly.

Removal and Installation

INFOID:000000009650253

REMOVAL

WARNING:

Never remove the reservoir tank cap when the engine is hot. Serious burns could occur from high-pressure engine coolant escaping from the reservoir tank.

CAUTION:

Perform this step engine is cold.

NOTE:

When replacing TCM and transaxle assembly as a set, replace transaxle assembly first and then replace TCM. Refer to [TM-62, "Description"](#).

TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

1. Remove the engine assembly, the transaxle assembly, and front suspension member as a set. Refer to [EM-56, "Removal and Installation"](#).
2. Disconnect following harness connector and wire harness.
 - CVT unit connector
 - Secondary speed sensor connector
 - Heated oxygen sensor 2 (bank 2) connector
 - Crankshaft position sensor connector
3. Remove crankshaft position sensor (POS). Refer to [EM-38, "Removal and Installation"](#).
4. Remove air breather hose. Refer to [TM-159, "Removal and Installation"](#).
5. Remove CVT fluid level gauge.
6. Remove CVT fluid charging pipe.
7. Remove O-ring from CVT fluid charging pipe.
8. Remove rear plate cover. Refer to [EM-38, "Removal and Installation"](#).
9. Turn crankshaft, and remove the tightening nuts for drive plate and torque converter.

CAUTION:
When turning crankshaft, turn it clockwise as viewed from the front of the engine.
10. Remove transaxle assembly fixing bolts with power tool.
11. Remove transaxle assembly from engine assembly with a hoist.

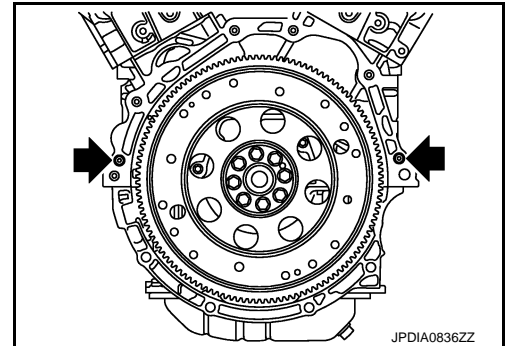
CAUTION:
Secure torque converter to prevent it from dropping.
12. Remove CVT oil warmer. Refer to [TM-171, "CVT OIL WARMER : Removal and Installation"](#).

INSTALLATION

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

CAUTION:

- Never reuse O-ring.
- Apply petroleum jelly to O-ring.
- Check fitting of dowel pins (←) when installing transaxle assembly to engine assembly.



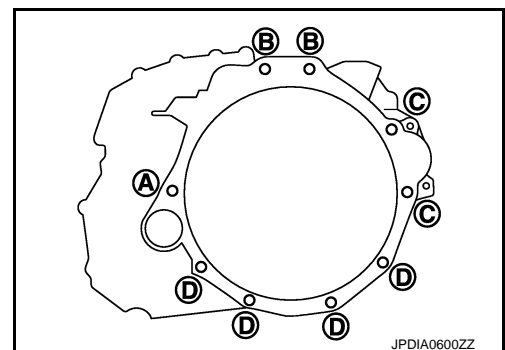
- Follow the procedure below and install transaxle to engine.
 1. Rotate torque converter to align a torque converter stud bolt with the service hole.
 2. Rotate drive plate to align a torque converter stud bolt insertion hole of drive plate with service hole.
 3. Install transaxle to engine.

CAUTION:

Be careful not to strike the drive plate when inserting torque converter stud bolts to drive plate holes.

4. Tighten the fixing bolts in accordance with the following.

Insertion direction	Engine assembly to transaxle assembly		Transaxle assembly to engine assembly	
	A	D	B	C
Bolt position				
Number of bolts	1	4	2	2
Bolt length mm (in)	55 (2.17)	45 (1.77)	39 (1.54)	108 (4.25)
Tightening torque N·m (kg·m, ft·lb)	74.5 (7.6, 55)	50 (5.1, 37)	74.5 (7.6, 55)	



TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

5. After tighten the torque converter nuts temporarily, tighten the torque converter nuts to the specified torque.

CAUTION:

- When turning crankshaft, turn it clockwise as viewed from the crankshaft pulley side.
- When tightening the torque converter nuts after fixing the crankshaft pulley bolts, confirm the tightening torque of the crankshaft pulley mounting bolts. Refer to [EM-66, "Exploded View"](#).

Inspection and Adjustment

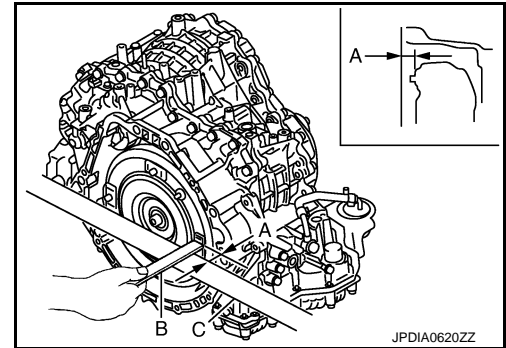
INFOID:000000009650254

INSPECTION BEFORE INSTALLATION

After inserting a torque converter to transaxle assembly, check that dimension (A) is within the reference value limit.

- B : Scale
C : Straightedge

Dimension A : Refer to [TM-179, "Torque Converter"](#).



INSPECTION AFTER INSTALLATION

Check the following.

- Check for CVT fluid leakage and check CVT fluid level. Refer to [TM-149, "Inspection"](#).
- Check CVT position. Refer to [TM-70, "Inspection and Adjustment"](#).
- Start and warm up the engine. Visually check that there is no leakage of engine coolant and CVT fluid.

ADJUSTMENT AFTER INSTALLATION

Perform "ADDITIONAL SERVICE WHEN REPLACE TRANSAXLE ASSEMBLY". Refer to [TM-62, "Description"](#).

TORQUE CONVERTER

< UNIT DISASSEMBLY AND ASSEMBLY >

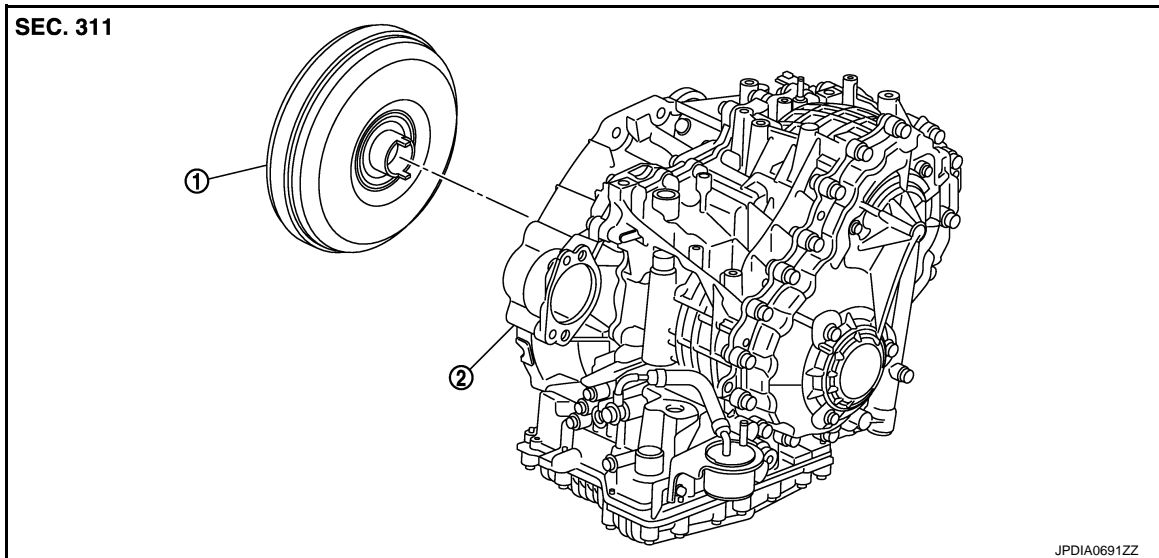
[CVT: RE0F09B]

UNIT DISASSEMBLY AND ASSEMBLY

TORQUE CONVERTER

Exploded View

INFOID:000000009650255



1. Torque converter

2. Transaxle assembly

Disassembly

INFOID:000000009650256

1. Remove transaxle assembly. Refer to [TM-174, "Removal and Installation"](#).
2. Remove torque converter from transaxle assembly.

CAUTION:

Never damage bushing inside of torque converter sleeve when removing torque converter.

Assembly

INFOID:000000009650257

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

TORQUE CONVERTER

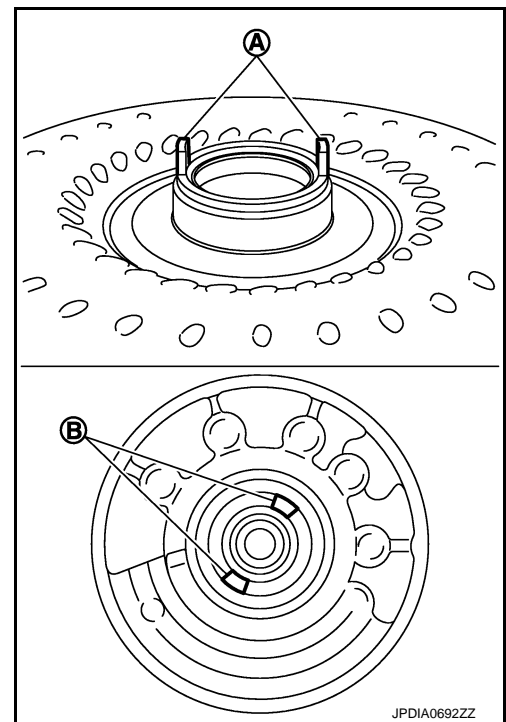
< UNIT DISASSEMBLY AND ASSEMBLY >

[CVT: RE0F09B]

- Attach the pawl (A) of the torque converter to the inner gear hole (B) on the oil pump side.

CAUTION:

- Rotate the torque converter for installing torque converter.
- Never damage bushing inside of torque converter sleeve when removing converter.



Inspection

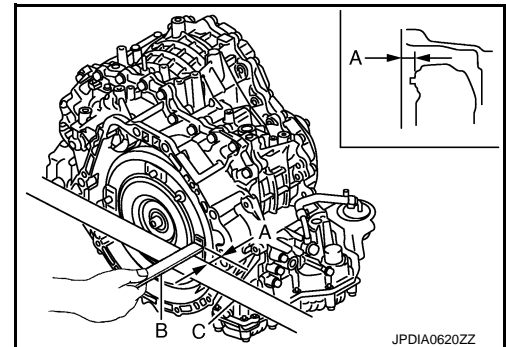
INFOID:000000009650258

INSPECTION AFTER INSTALLATION

After inserting a torque converter to transaxle assembly, check dimension (A) is within the reference value limit.

- B : Scale
- C : Straightedge

Dimension A : Refer to [TM-179, "Torque Converter"](#).



SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[CVT: RE0F09B]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specification

INFOID:000000009650259

Applied model	Engine	VQ35DE
	Axle	2WD
CVT model		RE0F09B
Transmission gear ratio	"D" position	2.371 – 0.439
	Reverse	1.766
	Final drive	4.878
Recommended fluid and fluid capacity		Refer to MA-10, "Fluids and Lubricants" .

Vehicle Speed When Shifting Gears

INFOID:000000009650260

Numerical value data are reference values.

Unit: rpm

Throttle position	Shift pattern	Engine speed	
		At 40 km/h (25 MPH)	At 60 km/h (37 MPH)
8/8	"D" position	3,100 – 4,000	4,200 – 5,100
	Overdrive OFF condition	3,100 – 4,000	4,200 – 5,100
	"L" position	3,100 – 4,000	4,200 – 5,100
2/8	"D" position	1,100 – 3,000	1,200 – 3,400
	Overdrive OFF condition	2,200 – 3,000	2,800 – 3,600
	"L" position	2,700 – 3,600	3,600 – 4,500

CAUTION:

Lock-up clutch is engaged when vehicle speed is approximately 18 km/h (11 MPH) to 90 km/h (56 MPH).

Stall Speed

INFOID:000000009650261

Stall speed	2,700 – 3,250 rpm
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Line Pressure

INFOID:000000009650262

Unit: kPa (kg/cm², psi)

Engine speed	Line pressure
	"R", "D" and "L" positions
At idle	700 (7.14, 101.5)
At stall	5,700 (58.14, 826.5)

Torque Converter

INFOID:000000009650263

Dimension between end of converter housing and torque converter	14.0 mm (0.55 in)
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Heater Thermostat

INFOID:000000009650264

Standard

Valve opening temperature	71°C (159°F)
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SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[CVT: RE0F09B]

Maximum valve lift	5.0 mm / 85°C (0.197 in / 185°F)
Valve closing temperature	65°C (149°F)