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TM

SECTION

TRANSAXLE & TRANSMISSION

TM

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BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

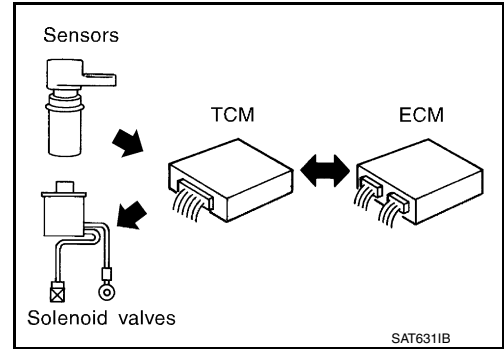
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INTRODUCTION

The TCM receives signals from the vehicle speed sensor and transmission range switch. Then it provides shift control or lock-up control via CVT solenoid valves.

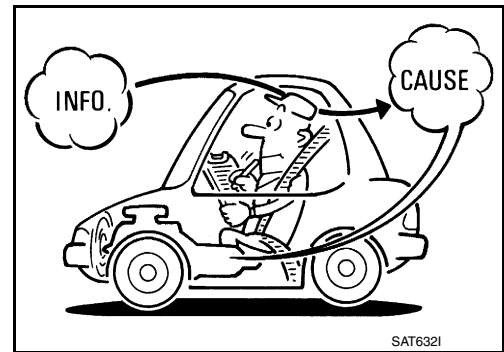
The TCM also communicates with the ECM by means of signals sent from sensing elements used with the OBD-related parts of the CVT system for malfunction-diagnostic purposes. The TCM is capable of diagnosing malfunctioning parts while the ECM can store malfunctions in its memory.

Input and output signals must always be correct and stable in the operation of the CVT system. The CVT system must be in good operating condition and be free of valve seizure, solenoid valve malfunction, etc.



It is much more difficult to diagnose a malfunction that occurs intermittently rather than continuously. Most intermittent malfunctions are caused by poor electric connections or improper wiring. In this case, careful checking of suspected circuits may help prevent the replacement of good parts.

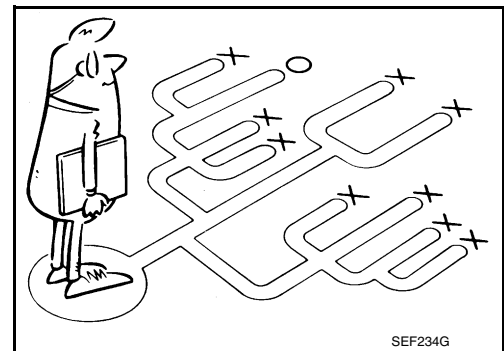
A visual check only may not find the cause of the malfunctions. A road test with CONSULT (or GST) or a circuit tester connected should be performed. Follow the "DETAILED FLOW".



Before undertaking actual checks, take a few minutes to talk with a customer who approaches with a driveability complaint. The customer can supply good information about such malfunctions, especially intermittent ones. Find out what symptoms are present and under what conditions they occur. A "Diagnostic Work Sheet" as shown on the example (Refer to [TM-6](#)) should be used.

Start your diagnosis by looking for "conventional" malfunctions first. This will help troubleshoot driveability malfunctions on an electronically controlled engine vehicle.

Also check related Service Bulletins.



DETAILED FLOW

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 diagnosis work sheet. Refer to [TM-6, "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-123, "Fail-safe"](#).
- CVT fluid inspection. Refer to [TM-155, "Inspection"](#).
- Line pressure test. Refer to [TM-162, "Inspection and Judgment"](#).

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DIAGNOSIS AND REPAIR WORK FLOW

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< BASIC INSPECTION >

- Stall test. Refer to [TM-160, "Inspection and Judgment"](#).

>> GO TO 3.

3.CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is detected.
 - Record DTC.
 - Erase DTC. Refer to [TM-36, "Diagnosis Description"](#).

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-164, "Description"](#).

>> GO TO 8.

8.CHECK SYMPTOM 3

Confirm the symptom described by the customer.

Is any malfunction present?

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

Diagnostic Work Sheet

INFOID:000000010113227

INFORMATION FROM CUSTOMER

KEY POINTS

- **WHAT**..... Vehicle & CVT model
- **WHEN**..... Date, Frequencies
- **WHERE**..... Road conditions
- **HOW**..... Operating conditions, Symptoms

Customer name MR/MS	Model & Year	VIN
Trans. Model	Engine	Mileage
Malfunction Date	Manuf. Date	In Service Date
Frequency	<input type="checkbox"/> Continuous <input type="checkbox"/> Intermittent (times a day)	

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[CVT: RE0F09B]

Symptoms	<input type="checkbox"/> Vehicle does not move. (<input type="checkbox"/> Any position <input type="checkbox"/> Particular position)	
	<input type="checkbox"/> No shift	
	<input type="checkbox"/> Lock-up malfunction	
	<input type="checkbox"/> Shift shock or slip (<input type="checkbox"/> N → D <input type="checkbox"/> N → R <input type="checkbox"/> Lock-up <input type="checkbox"/> Any drive position)	
	<input type="checkbox"/> Noise or vibration	
	<input type="checkbox"/> No pattern select	
	<input type="checkbox"/> Others ()	
Malfunction Indicator Lamp (MIL)	<input type="checkbox"/> Continuously lit	<input type="checkbox"/> Not lit

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DIAGNOSTIC WORK SHEET

1	<input type="checkbox"/> Read the item on cautions concerning fail-safe and understand the customer's complaint.		TM-123
2	<input type="checkbox"/> CVT fluid inspection, stall test and line pressure test		TM-155 TM-160 TM-162
	<input type="checkbox"/> CVT fluid inspection		
	<input type="checkbox"/> Leak (Repair leak location.) <input type="checkbox"/> State <input type="checkbox"/> Amount		
	<input type="checkbox"/> Stall test		
	<input type="checkbox"/> Torque converter one-way clutch <input type="checkbox"/> Reverse brake <input type="checkbox"/> Forward clutch <input type="checkbox"/> Steel belt		
<input type="checkbox"/> Engine <input type="checkbox"/> Line pressure low <input type="checkbox"/> Primary pulley <input type="checkbox"/> Secondary pulley			
<input type="checkbox"/> Line pressure inspection - Suspected part:			
3	<input type="checkbox"/> Perform self diagnosis.		TM-38
	Enter checks for detected items.		
4	<input type="checkbox"/> Perform road test.		TM-164
	4-1.	Check before engine is started	TM-164
	4-2.	Check at idle	TM-165
	4-3.	Cruise test	TM-166
	<input type="checkbox"/> Check malfunction phenomena to repair or replace malfunctioning part after completing all road tests.		TM-137
5	<input type="checkbox"/> Drive vehicle to check that the malfunction phenomenon has been resolved.		
6	<input type="checkbox"/> Erase the results of the self-diagnosis from the TCM and the ECM.		

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ADDITIONAL SERVICE WHEN REPLACING TCM

< BASIC INSPECTION >

[CVT: RE0F09B]

ADDITIONAL SERVICE WHEN REPLACING TCM

Description

INFOID:000000010113228

When replacing the TCM, perform the following work.

TCM PROGRAMMING

- Since vehicle specifications are not yet written in a new TCM, it is necessary to write them with CONSULT.

CAUTION:

When replacing TCM, save TCM data on CONSULT before removing TCM.

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-10, "Description"](#).

Procedure

INFOID:000000010113229

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 reproduction procedure and check that malfunction is not detected. Refer to [TM-95, "DTC Logic"](#) (P1701), [TM-99, "DTC Logic"](#) (P1709).

1. CHECK TCM PART NUMBER

Check TCM part number to see whether it is blank TCM or not.

NOTE:

- Part number of blank TCM is 310F6-XXXXX.
- Check the part number when ordering TCM or with the one included in the label on the container box.

Is the TCM a blank TCM?

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

2. SAVING TCM DATA

ⓑ With CONSULT

1. Turn ignition switch OFF.
2. Turn ignition switch ON.
3. Select "Re/programming, Configuration".
4. Select "AT/CVT".

NOTE:

If "AT/CVT" is not displayed and TCM data cannot be saved on CONSULT, GO TO 3.

5. Select "Programming".
6. Save TCM data on CONSULT according to the CONSULT display.

>> GO TO 3.

3. REPLACE TCM

Replace TCM. Refer to [TM-168, "Removal and Installation"](#).

>> GO TO 4.

4. LOAD CALIBRATION DATA

1. Shift the selector lever to the "P" position.
2. Turn ignition switch ON.

ADDITIONAL SERVICE WHEN REPLACING TCM

< BASIC INSPECTION >

[CVT: RE0F09B]

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 6.

NO >> GO TO 5.

5. 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 4.

NO >> Repair or replace the malfunctioning parts.

6. 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-1 (TCM is blank) >> GO TO 7.

YES-2 (TCM is not blank) >> WORK END

NO >> Check harness between battery and TCM harness connector terminal. Refer to [TM-95. "Diagnosis Procedure"](#).

7. PROGRAMMING

Ⓜ With CONSULT

1. Select "Programming".
2. Perform programming according to the CONSULT display.

>> WORK END

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ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F09B]

ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

Description

INFOID:000000010113230

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/control valve 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/control valve is replaced, it is necessary to erase the CVT fluid degradation level data recorded by TCM.

Procedure

INFOID:000000010113231

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 reproduction procedure and check that malfunction is not detected. Refer to [TM-95, "DTC Logic" \(P1701\)](#), [TM-99, "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 "Special Function" in "TRANSMISSION".
 9. Select "CALIB DATA".
 10. 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-95. "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-95. "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".

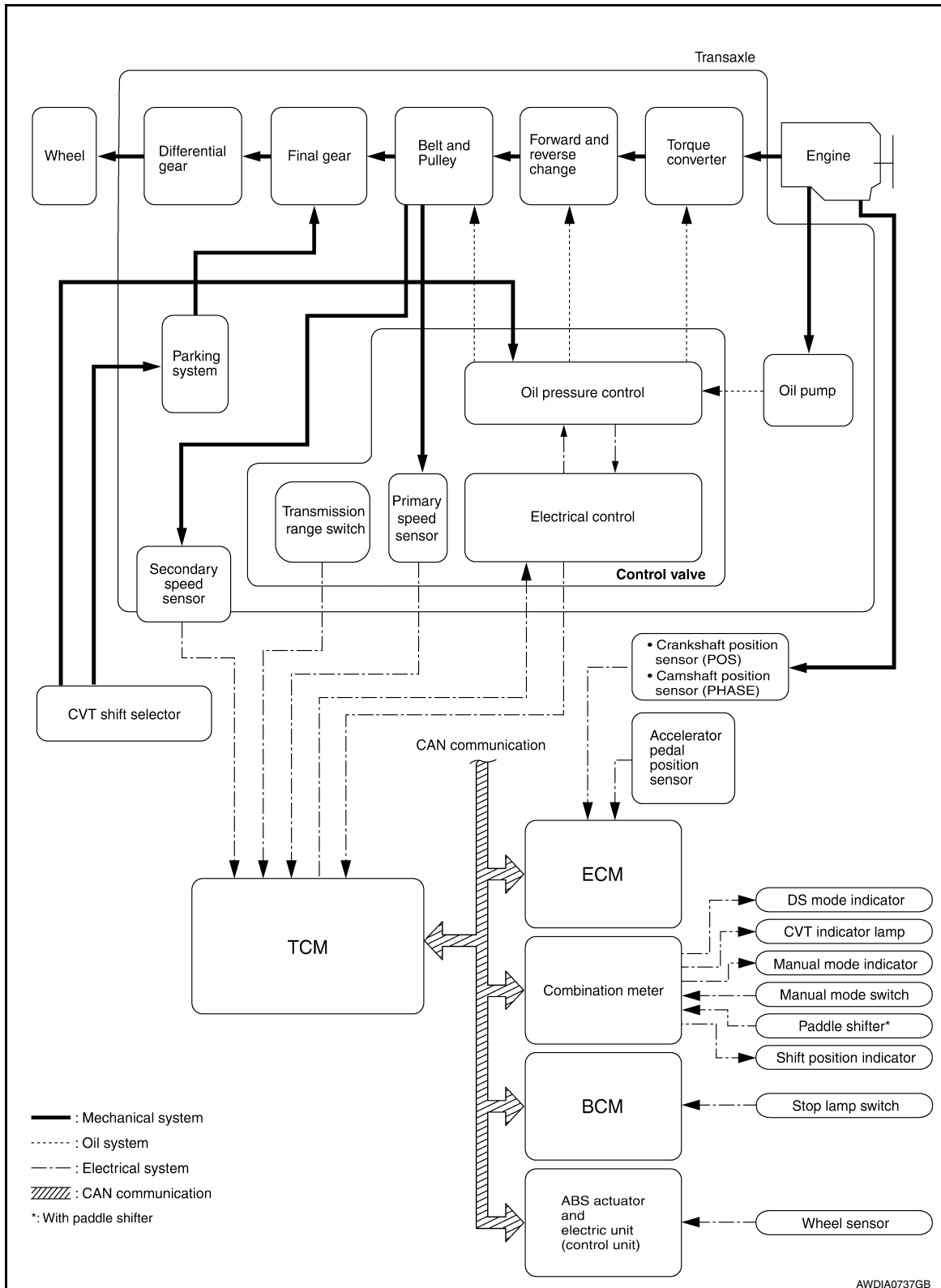
>> WORK END

SYSTEM DESCRIPTION

CVT SYSTEM

System Diagram

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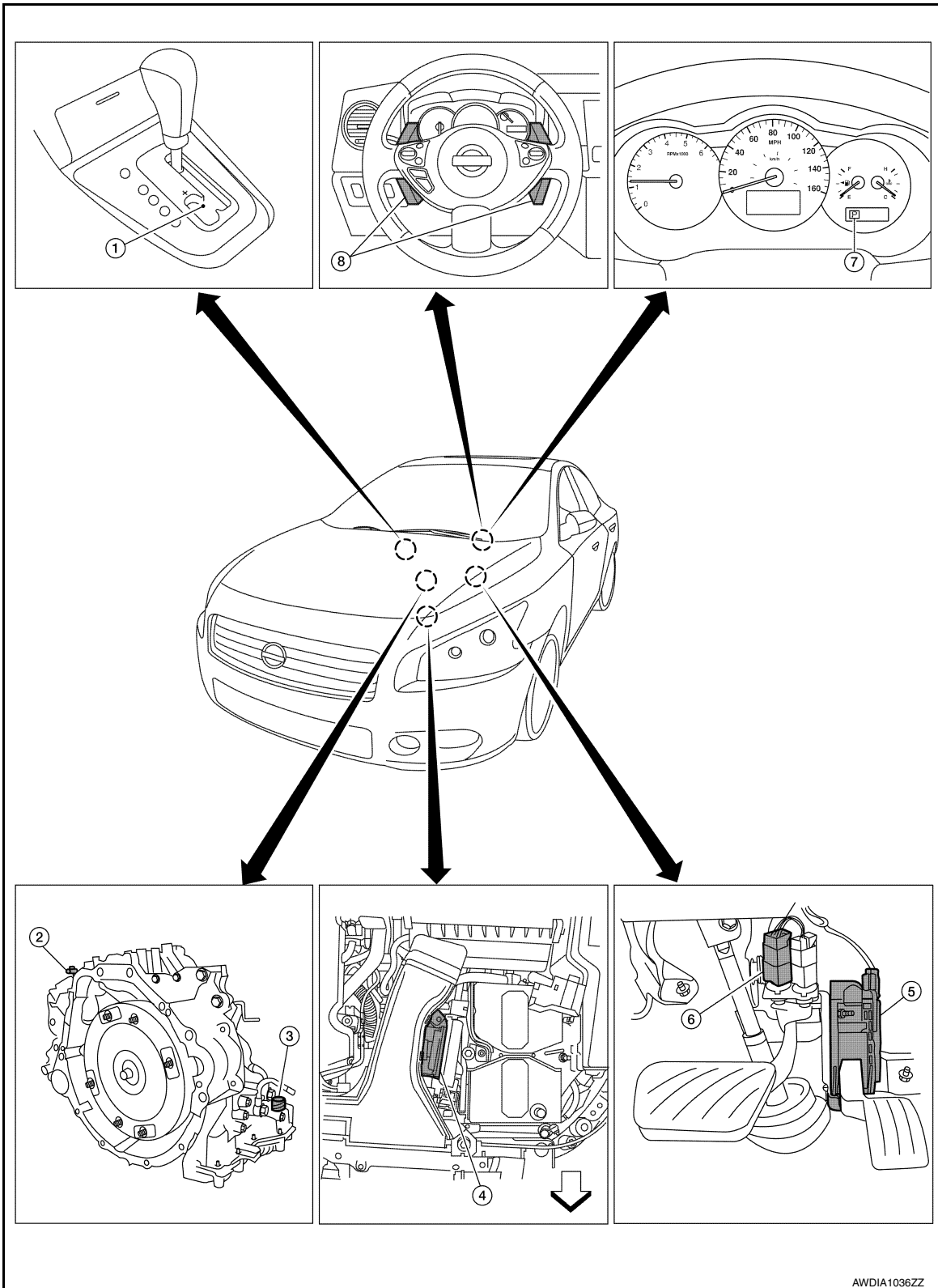
CVT SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

Component Parts Location

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1. CVT shift selector assembly (Manual mode select switch and manual mode position select switch)
2. Secondary speed sensor
3. CVT unit harness connector

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CVT SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

-
- | | | |
|---|--|---------------------|
| 4. TCM | 5. Accelerator pedal position (APP) sensor | 6. Stop lamp switch |
| 7. Shift positioner indicator
Manual mode indicator
DS mode indicator | 8. Paddle shifters | |

MECHANICAL SYSTEM

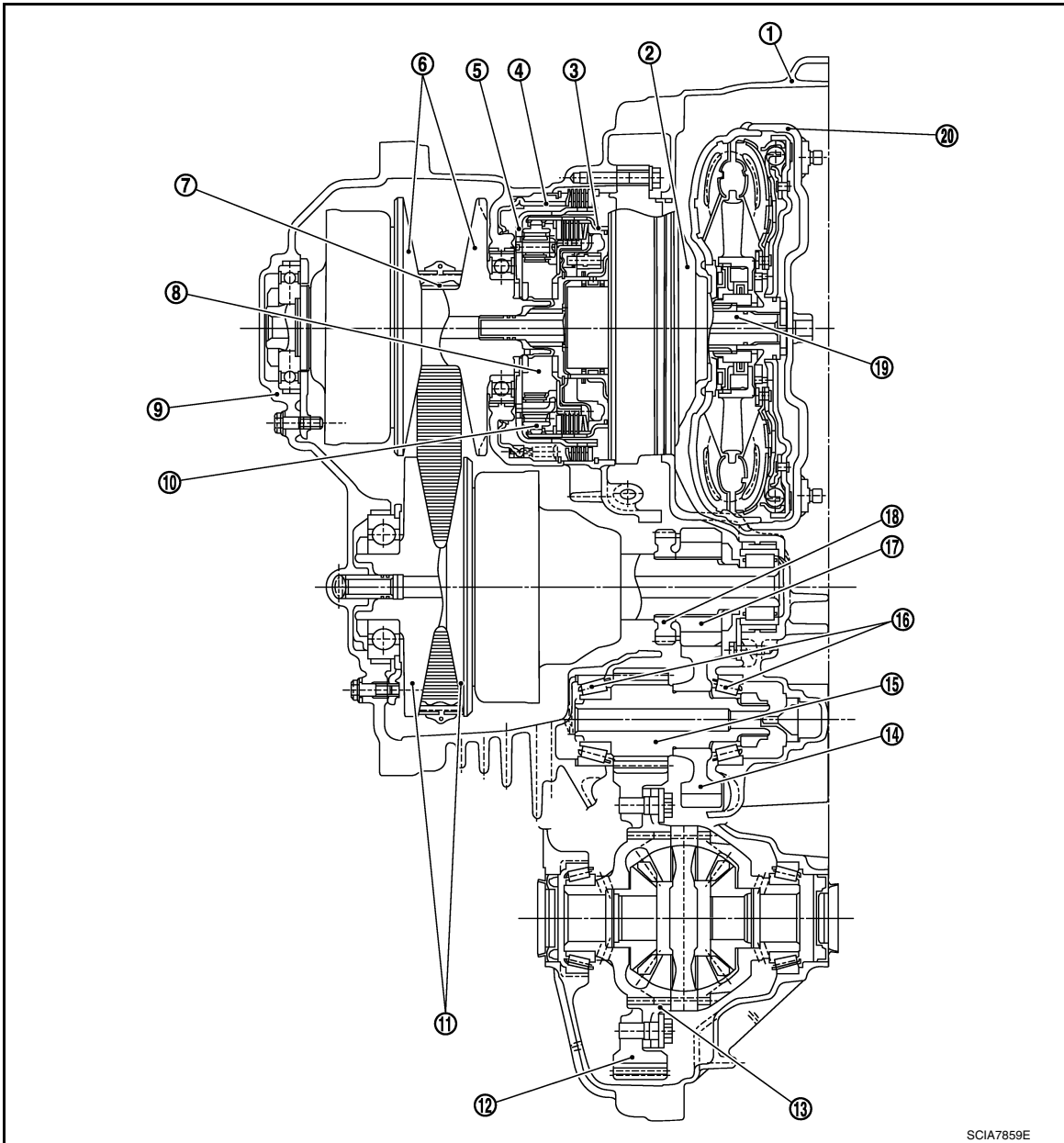
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[CVT: RE0F09B]

MECHANICAL SYSTEM

Cross-Sectional View

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- | | | |
|--------------------------|----------------------|--------------------|
| 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 | |

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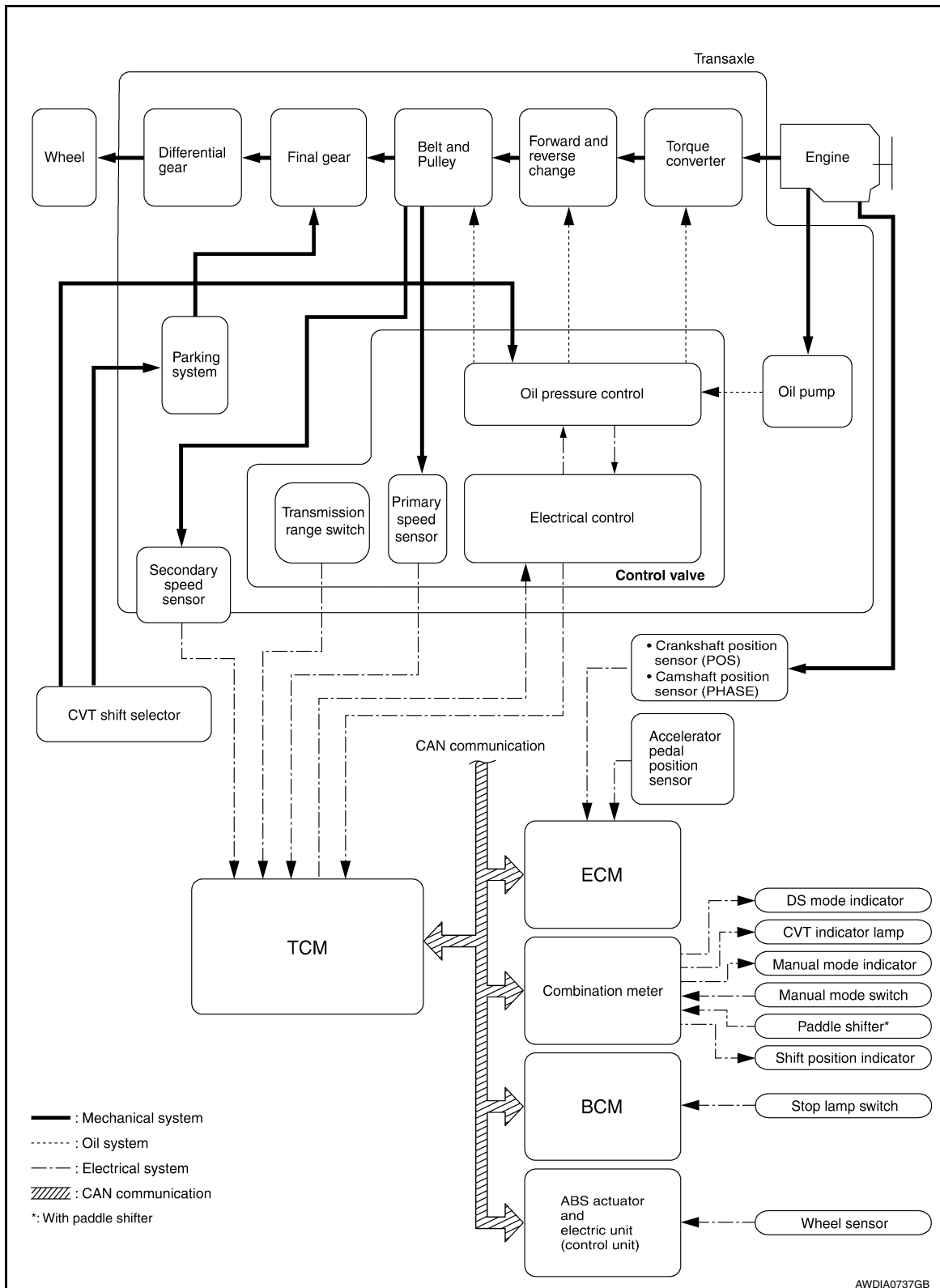
MECHANICAL SYSTEM

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[CVT: RE0F09B]

System Diagram

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System Description

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Transmits the power from the engine to the drive wheel.

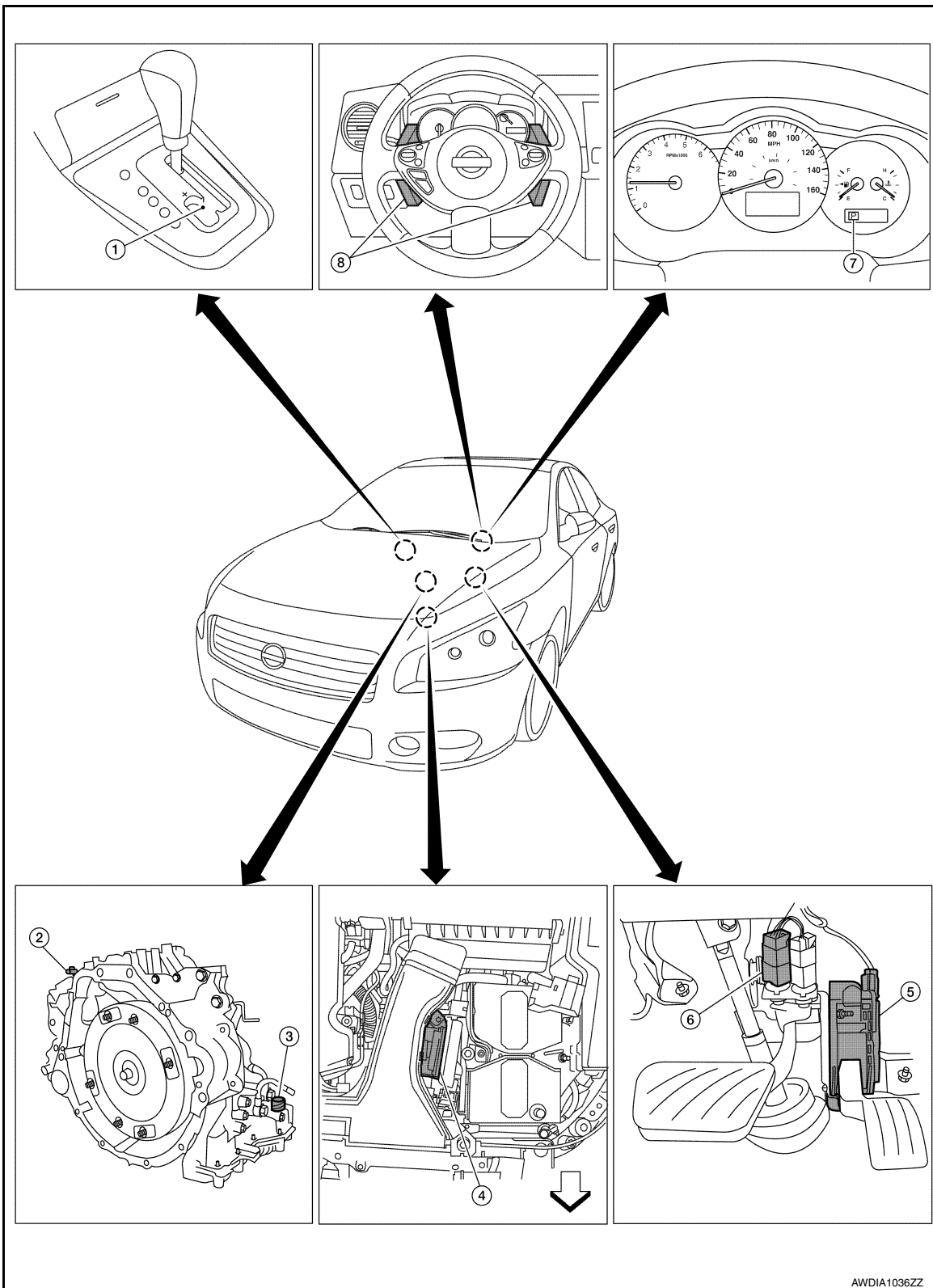
MECHANICAL SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

Component Parts Location

INFOID:00000009469020



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MECHANICAL SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

- | | | |
|---|--|---------------------|
| 4. TCM | 5. Accelerator pedal position (APP) sensor | 6. Stop lamp switch |
| 7. Shift positioner indicator
Manual mode indicator
DS mode indicator | 8. Paddle shifters | |

Component Description

INFOID:000000010113298

Item	Function
Torque converter	The torque converter is the device that increases the engine torque as well as the conventional AT and transmits it to the transaxle.
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.
Planetary gear	Perform the transmission of drive power and the switching of forward/backward movement.
Forward clutch	
Reverse brake	
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 star wheels 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	
Output gear	Reduction gear consists of primary deceleration (output gear and idler gear in pair) and secondary deceleration (reduction gear and final gear in pair). Each of them uses a helical gear.
Idler gear	
Reduction gear	
Final gear	
Differential	
Manual shaft	The parking rod rotates the parking pole and the parking pole engages with the parking gear when the manual shaft is in "P" position. As a result the parking gear and the output axis are fixed.
Parking rod	
Parking pawl	
Parking gear	

HYDRAULIC CONTROL SYSTEM

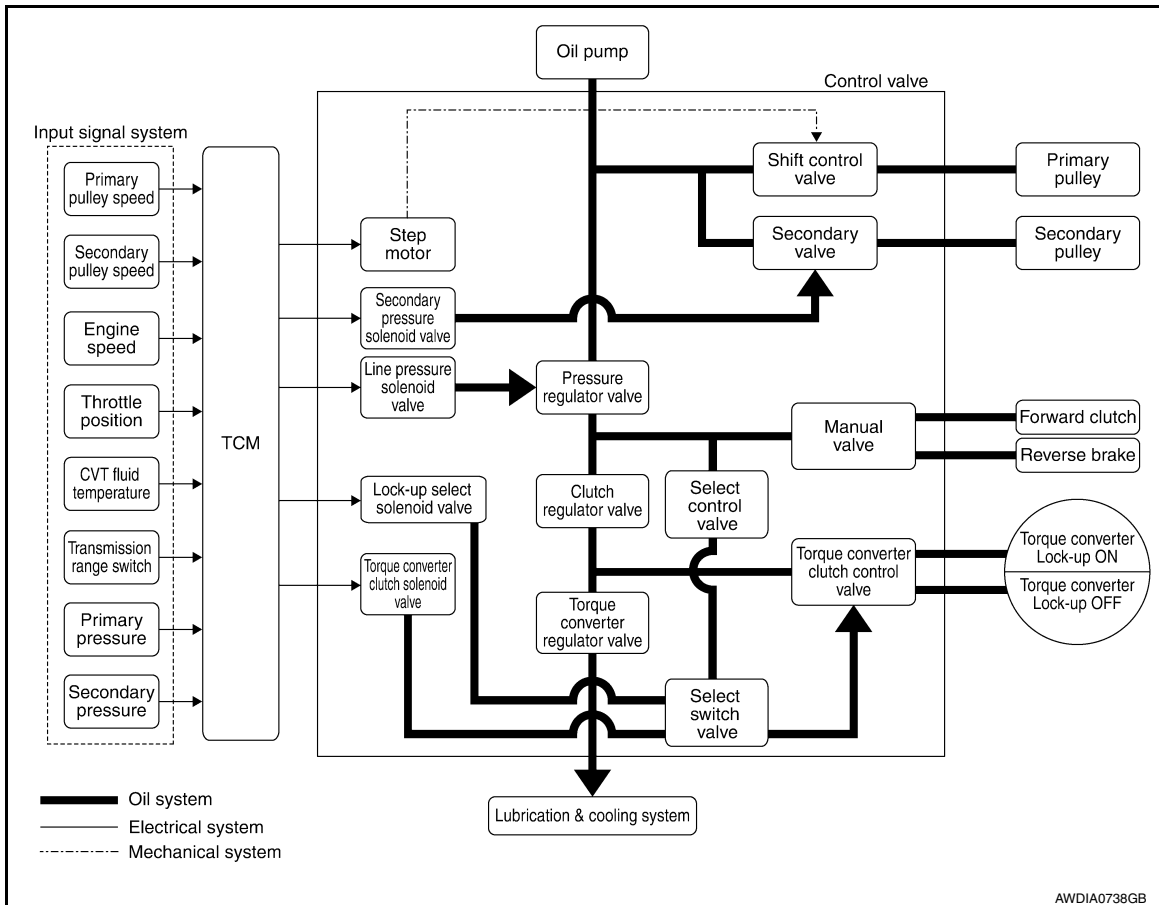
< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

HYDRAULIC CONTROL SYSTEM

System Diagram

INFOID:0000000010113299



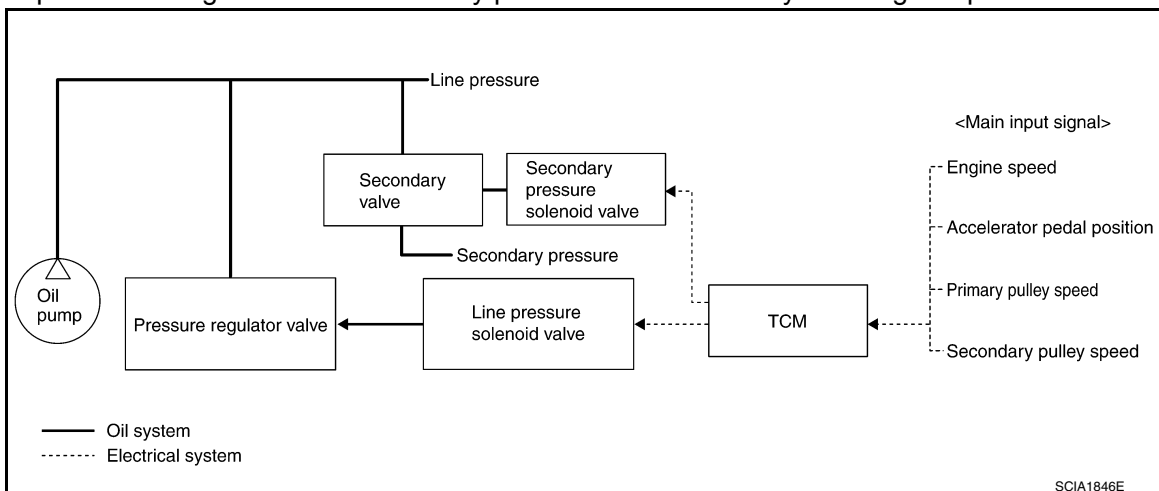
System Description

INFOID:0000000010113300

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.
- Line pressure solenoid valve activates pressure regulator valve, and line pressure from oil pump is adjusted for the optimum driving condition. Secondary pressure is controlled by lowering line pressure.



HYDRAULIC CONTROL SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

Normal Control

Optimize the line pressure and secondary pressure, depending on driving conditions, on the basis of the throttle position, the engine speed, the primary pulley (input) revolution speed, the secondary pulley (output) revolution speed, the brake signal, the transmission range switch signal, the lock-up signal, the voltage, the target gear ratio, the fluid temperature, and the fluid pressure.

Feedback Control

For the normal fluid control and the select fluid control, secondary pressure is detected for feedback control by using a secondary pressure sensor to set a high-precision secondary pressure.

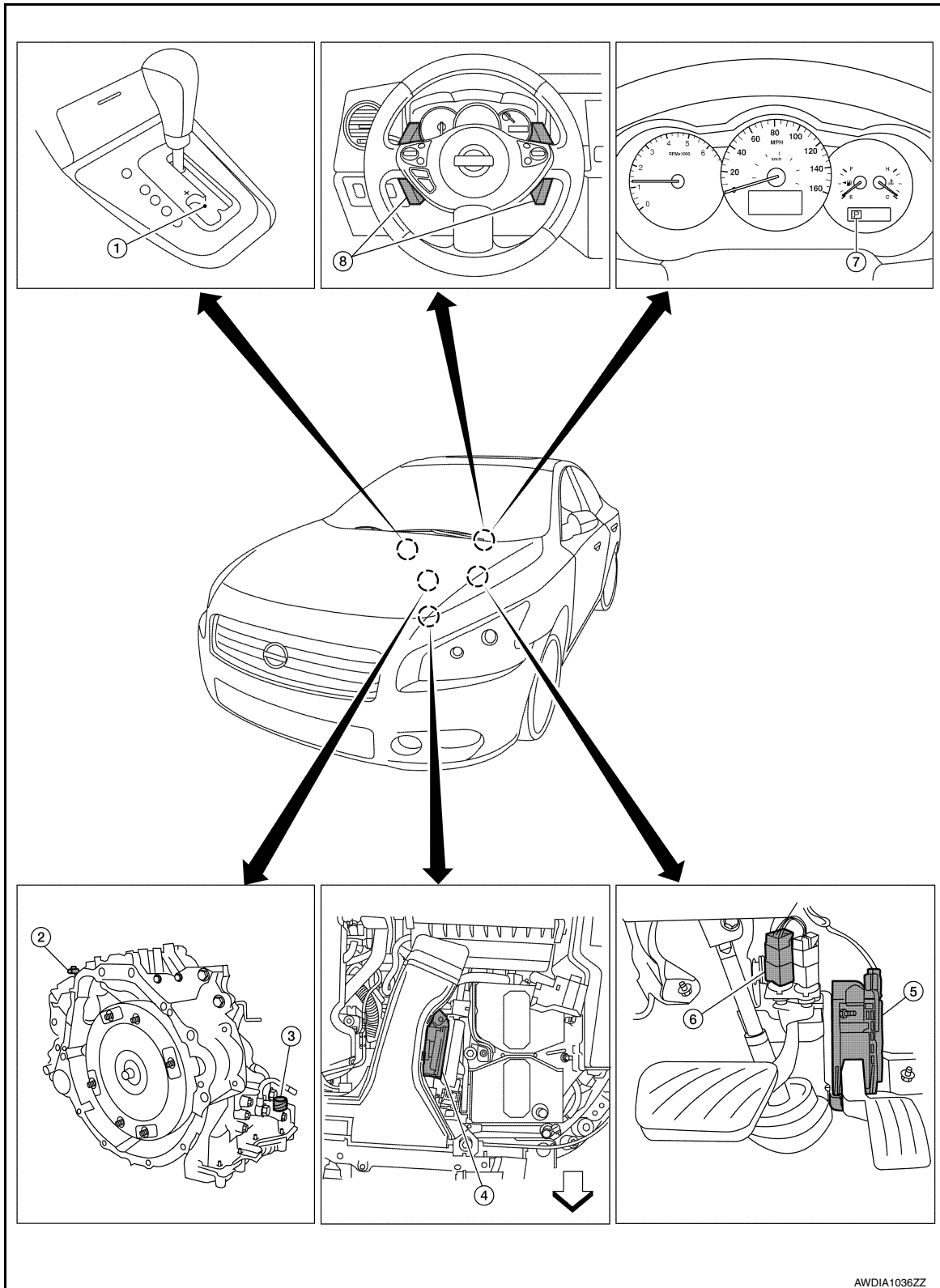
HYDRAULIC CONTROL SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

Component Parts Location

INFOID:000000009469024



1. CVT shift selector assembly (Manual mode select switch and manual mode position select switch)
2. Secondary speed sensor
3. CVT unit harness connector

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HYDRAULIC CONTROL SYSTEM

[CVT: RE0F09B]

< SYSTEM DESCRIPTION >

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|---|--|---------------------|
| 4. TCM | 5. Accelerator pedal position (APP) sensor | 6. Stop lamp switch |
| 7. Shift positioner indicator
Manual mode indicator
DS mode indicator | 8. Paddle shifters | |

Component Description

INFOID:000000010113301

TRANSAXLE ASSEMBLY

Name	Function
Torque converter regulator valve	Optimizes the supply pressure for the torque converter depending on driving conditions.
Pressure regulator valve	Optimizes the discharge pressure from the oil pump depending on driving conditions.
TCC control valve	<ul style="list-style-type: none"> Activates or deactivates the lock-up. Locks up smoothly by opening lock-up operation excessively.
Shift control valve	Controls inflow/outflow of line pressure from the primary pulley depending on the stroke difference between the stepping motor and the primary pulley.
Secondary valve	Controls the line pressure from the secondary pulley depending on operating conditions.
Clutch regulator valve	Adjusts the clutch operating pressure depending on operating conditions.
Manual valve	Transmits the clutch operating pressure to each circuit in accordance with the selected position.
Select control valve	Engages forward clutch, reverse brake smoothly depending on select operation.
Select switch valve	The select switch valve enables to select engagement/disengagement of lock-up clutch and that of forward clutch and reverse clutch.
TCC solenoid valve	TM-67
Secondary pressure solenoid valve	TM-77
Line pressure solenoid valve	TM-71
Step motor	TM-109
Lock-up select solenoid valve	TM-106
Primary speed sensor	TM-57
Secondary speed sensor	TM-60
Transmission range switch	TM-50
Primary pulley	TM-18
Secondary pulley	
Forward clutch	
Torque converter	

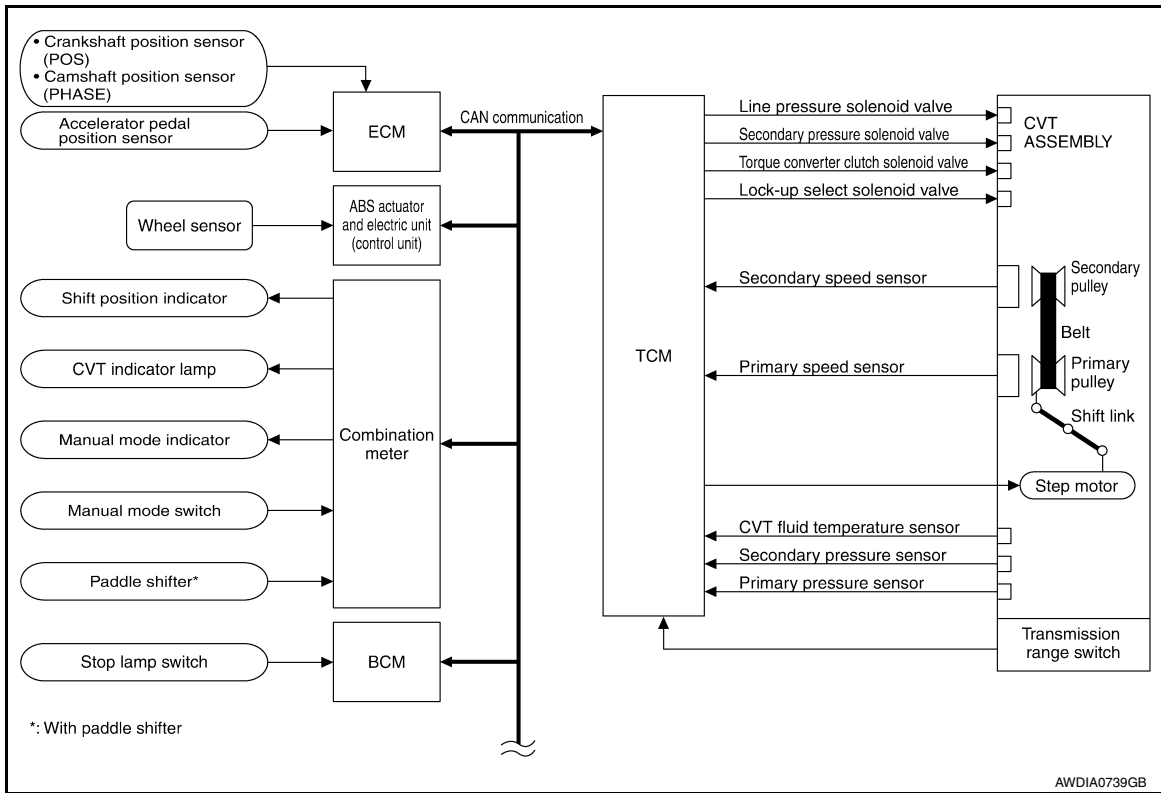
EXCEPT TRANSAXLE ASSEMBLY

Name	Function
TCM	Judges driving condition according to signals from each sensor, and optimally controls variable speed mechanism.
Accelerator pedal position sensor	TM-98

CONTROL SYSTEM

System Diagram

INFOID:0000000010113439



System Description

INFOID:0000000010113440

The CVT senses vehicle operating conditions through various sensors. It always controls the optimum shift position and reduces shifting and lock-up shocks.

TCM FUNCTION

The function of the TCM is to:

- Receive input signals sent from various switches and sensors.
- Determine required line pressure, shifting point, and lock-up operation.
- Send required output signals to the step motor and the respective solenoids.

SENSORS (or SIGNAL)		TCM		ACTUATORS
Transmission range switch	⇒	Shift control	⇒	Step motor
Accelerator pedal position signal		Line pressure control		Torque converter clutch solenoid valve
Closed throttle position signal		Primary pressure control		Lock-up select solenoid valve
Engine speed signal		Secondary pressure control		Line pressure solenoid valve
CVT fluid temperature sensor		Lock-up control		Secondary pressure solenoid valve
Vehicle speed signal		Engine brake control		Manual mode indicator
Manual mode signal		Vehicle speed control		Shift position indicator
Paddle shifter signal*		Fail-safe control		Starter relay
Stop lamp switch signal		Self-diagnosis		DS mode indicator
Primary speed sensor		CONSULT communication line		
Secondary speed sensor		Duet-EA control		
Primary pressure sensor		CAN system		
Secondary pressure sensor		On board diagnosis		

*: With paddle shifter

INPUT/OUTPUT SIGNAL OF TCM

CONTROL SYSTEM

< SYSTEM DESCRIPTION >

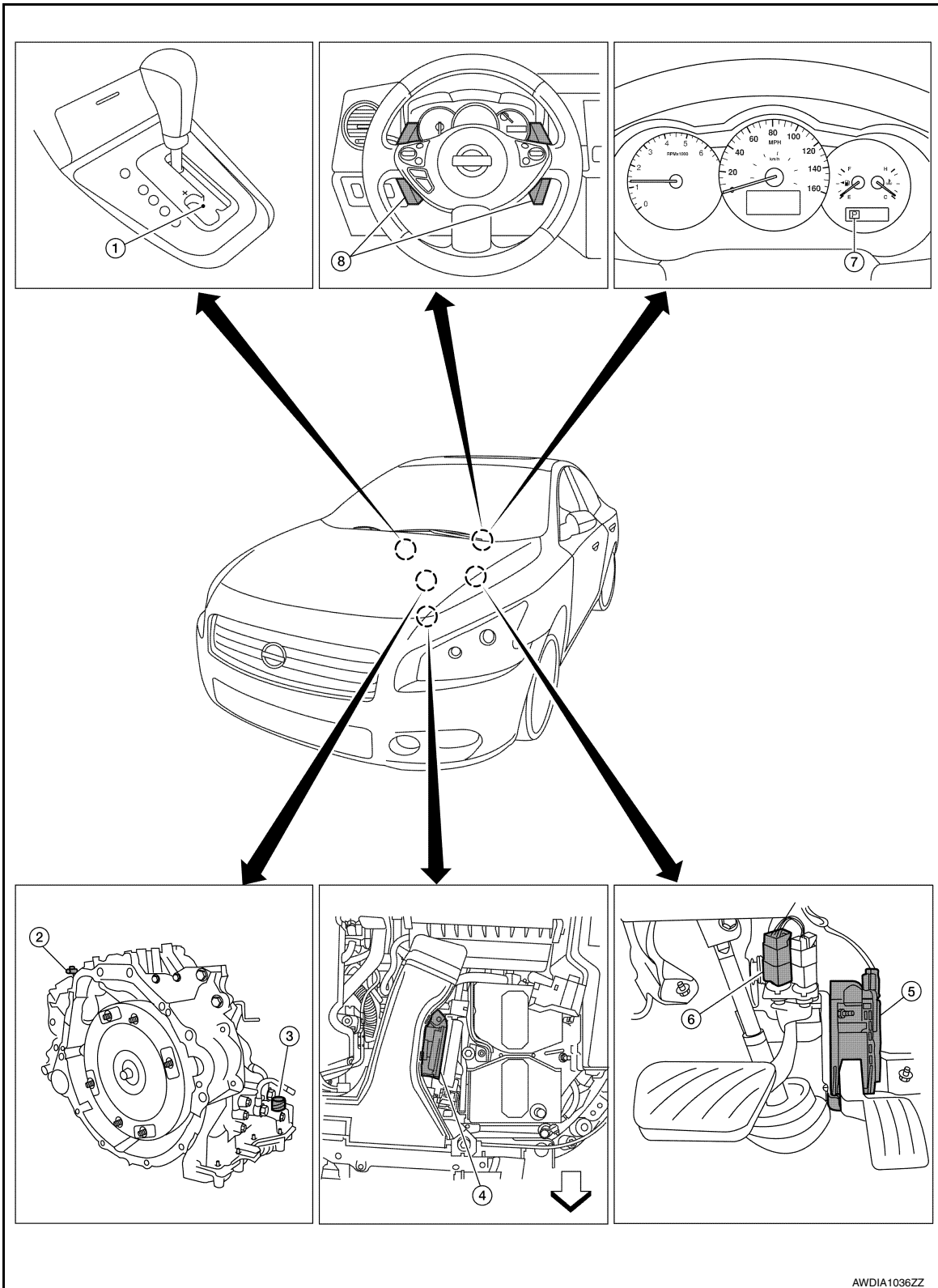
[CVT: RE0F09B]

Control item		Fluid pressure control	Select control	Shift control	Lock-up control	CAN communication control	Fail-safe function*2
Input	Transmission range switch	X	X	X	X	X	X
	Accelerator pedal position signal*1	X	X	X	X	X	X
	Closed throttle position signal*1	X		X	X	X	
	Engine speed signal*1	X	X		X	X	X
	CVT fluid temperature sensor	X	X	X	X		X
	Manual mode signal*1	X		X	X	X	X
	Stop lamp switch signal*1	X		X	X	X	
	Primary speed sensor	X		X	X	X	X
	Secondary speed sensor	X	X	X	X	X	X
	Primary pressure sensor	X		X			
	Secondary pressure sensor	X		X			X
	TCM power supply voltage signal	X	X	X	X	X	X
Output	Step motor			X			X
	TCC solenoid valve		X		X		X
	Lock-up select solenoid valve		X		X		X
	Line pressure solenoid valve	X	X	X			X
	Secondary pressure solenoid valve	X		X			X

- *1: Input by CAN communications.
- *2: If these input and output signals are different, the TCM triggers the fail-safe function.

Component Parts Location

INFOID:00000009469028



- 1. CVT shift selector assembly (Manual mode select switch and manual mode position select switch)
- 2. Secondary speed sensor
- 3. CVT unit harness connector

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CONTROL SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

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|---|--|---------------------|
| 4. TCM | 5. Accelerator pedal position (APP) sensor | 6. Stop lamp switch |
| 7. Shift positioner indicator
Manual mode indicator
DS mode indicator | 8. Paddle shifters | |

Component Description

INFOID:000000010113441

TRANSAXLE ASSEMBLY

Name	Function
Transmission range switch	TM-50
CVT fluid temperature sensor	TM-53
Primary speed sensor	TM-57
Secondary speed sensor	TM-60
Primary pressure sensor	TM-90
Secondary pressure sensor	TM-85
Step motor	TM-109
TCC solenoid valve	TM-67
Lock-up select solenoid valve	TM-106
Line pressure solenoid valve	TM-71
Secondary pressure solenoid valve	TM-77

EXCEPT TRANSAXLE ASSEMBLY

Name	Function
TCM	TM-22
Stop lamp switch	TM-47

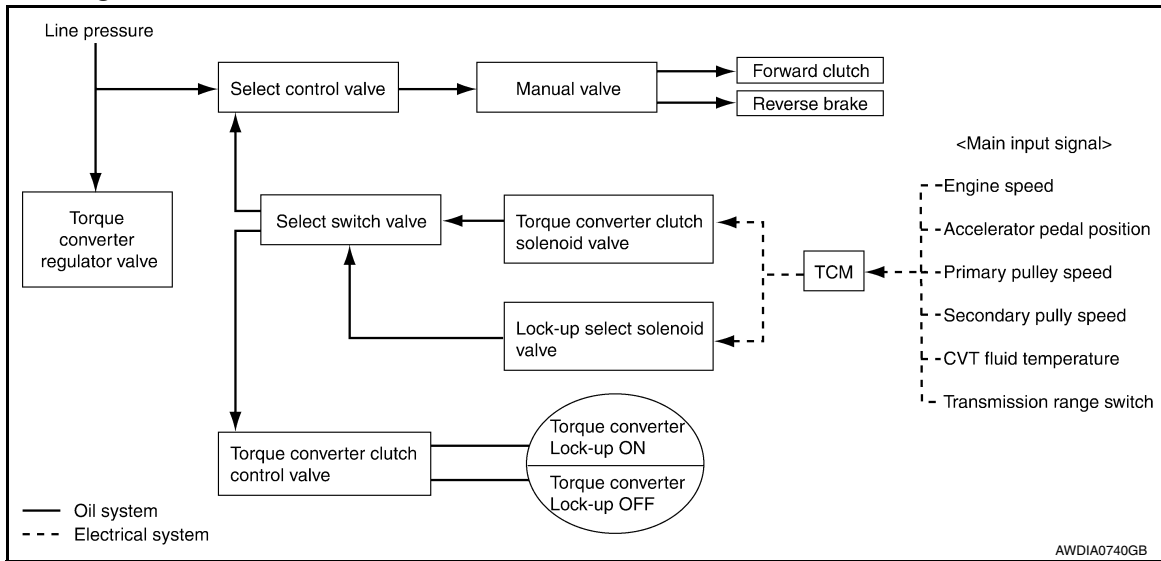
LOCK-UP AND SELECT CONTROL SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

LOCK-UP AND SELECT CONTROL SYSTEM

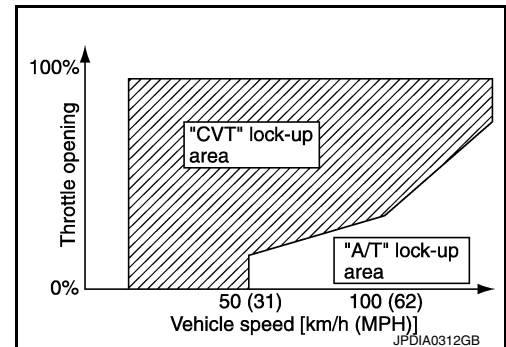
System Diagram



System Description

INFOID:000000010113443

- 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 engages or releases the torque converter 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 CVT models.



TORQUE CONVERTER CLUTCH AND SELECT CONTROL VALVE CONTROL

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.

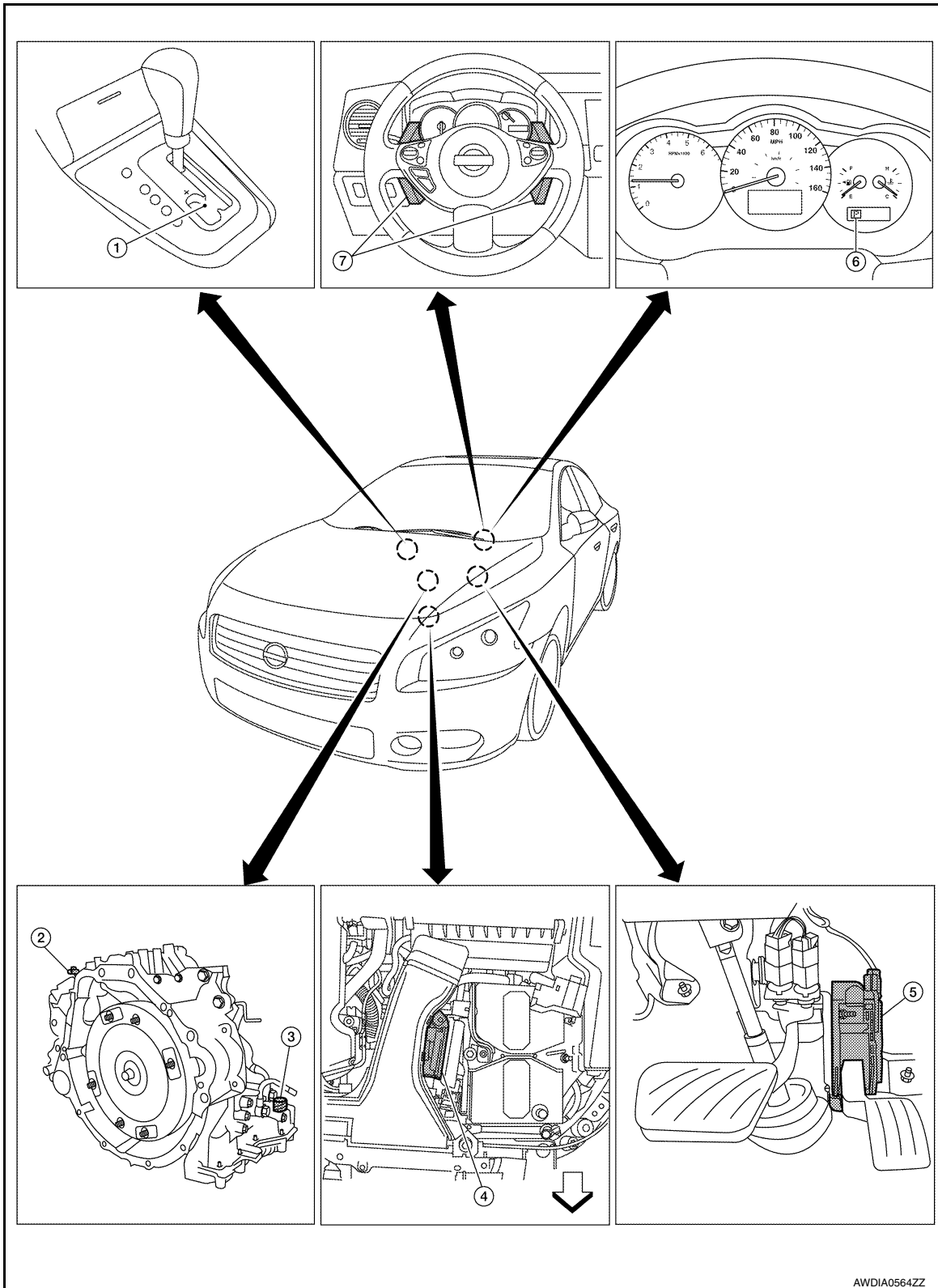
LOCK-UP AND SELECT CONTROL SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

Component Parts Location

INFOID:000000009469032



LOCK-UP AND SELECT CONTROL SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

- | | | | |
|---|--|---|---|
| 1. CVT shift selector assembly (Manual mode select switch and manual mode position select switch) | 2. Secondary speed sensor | 3. CVT unit harness connector | A |
| 4. TCM | 5. Accelerator pedal position (APP) sensor | 7. Shift positioner indicator
Manual mode indicator
DS mode indicator | B |
| 8. Paddle shifters | | | C |

Component Description

INFOID:000000010113444

TRANSAXLE ASSEMBLY

TM

Name	Function
Torque converter regulator valve	
TCC control valve	
Select control valve	TM-22
Select switch valve	
Manual valve	
TCC solenoid valve	TM-67
Lock-up select solenoid valve	TM-106
Primary speed sensor	TM-57
Secondary speed sensor	TM-60
CVT fluid temperature sensor	TM-53
Transmission range switch	TM-50
Forward clutch	
Reverse brake	TM-18
Torque converter	

EXCEPT TRANSAXLE ASSEMBLY

Name	Function
TCM	TM-22
Accelerator pedal position sensor	TM-98

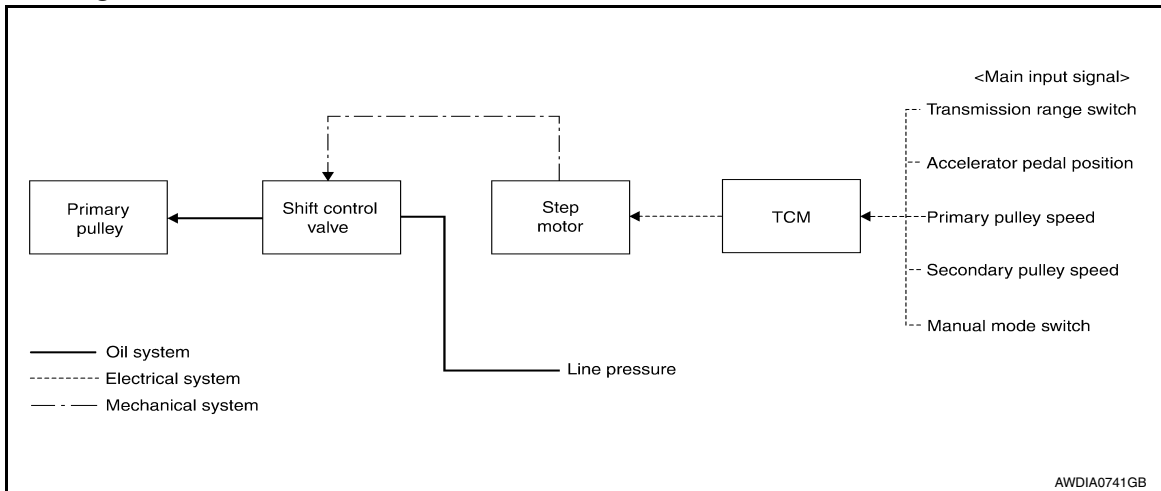
SHIFT CONTROL SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

SHIFT CONTROL SYSTEM

System Diagram



NOTE:

The gear ratio is set for each position separately.

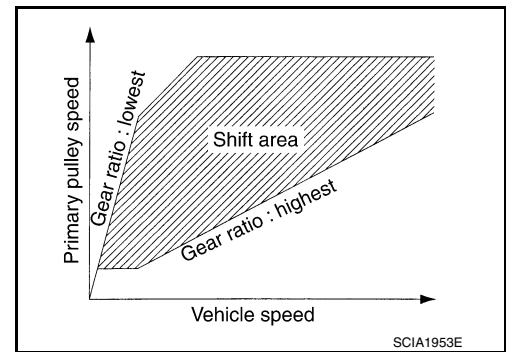
System Description

INFOID:000000010113447

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.

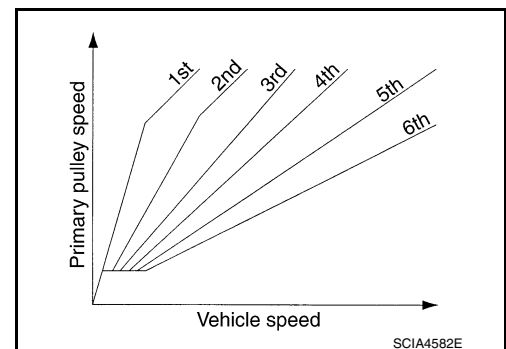
“D” POSITION

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



“M” POSITION

By moving the selector lever to + side or - side, the manual mode switch is changed over, and shift change like M/T becomes possible following the changing gear set line step by step.



“DS” POSITION

- When the selector lever is put in the manual shift gate side, the driver can drive more sporty than “D” position.
- “DS” mode can be switched according to the following method.

SHIFT CONTROL SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

- When the selector lever is in the "D" position, shifting the selector lever to manual shift gate enables switching to "DS" mode.
- When in "DS" mode, shifting the selector lever to the main gate enables to cancel "DS" mode.
- After switching to manual mode with paddle shifter, switching to "DS" mode can not be enabled even when the selector lever is shifted to the manual gate. (With paddle shifter)

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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.

C

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.

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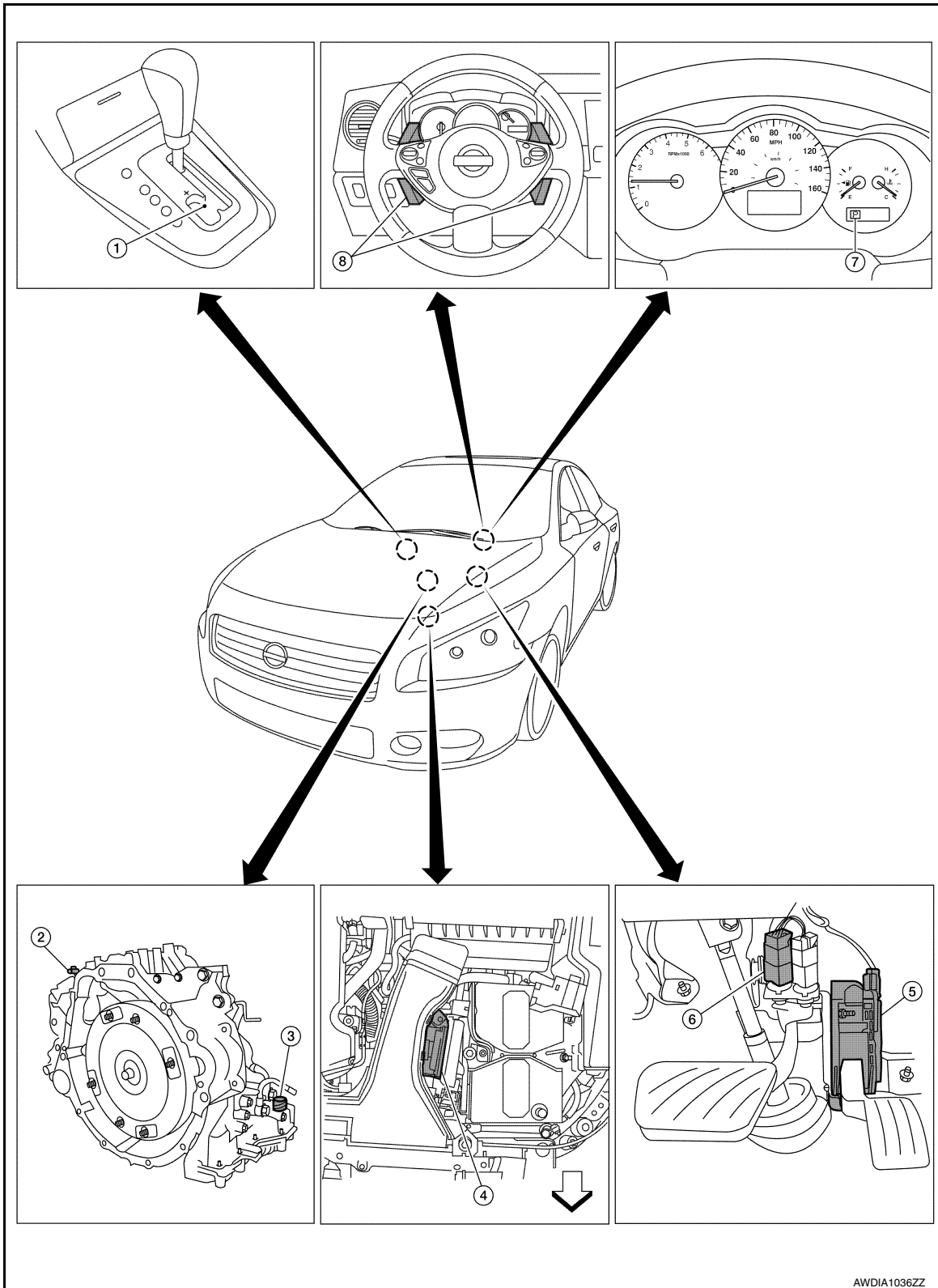
SHIFT CONTROL SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

Component Parts Location

INFOID:000000009469036



1. CVT shift selector assembly (Manual mode select switch and manual mode position select switch)
2. Secondary speed sensor
3. CVT unit harness connector
4. Secondary speed sensor
5. CVT unit harness connector
6. CVT unit harness connector
7. Instrument cluster

SHIFT CONTROL SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

- | | | |
|---|--|---------------------|
| 4. TCM | 5. Accelerator pedal position (APP) sensor | 6. Stop lamp switch |
| 7. Shift positioner indicator
Manual mode indicator
DS mode indicator | 8. Paddle shifters | |

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Component Description

INFOID:000000010113448

TRANSAXLE ASSEMBLY

C

Item	Function
Transmission range switch	TM-50
Primary speed sensor	TM-57
Secondary speed sensor	TM-60
Step motor	TM-109
Shift control valve	TM-22
Primary pulley	TM-18
Secondary pulley	TM-18

TM

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EXCEPT TRANSAXLE ASSEMBLY

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Item	Function
TCM	TM-22

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SHIFT LOCK SYSTEM

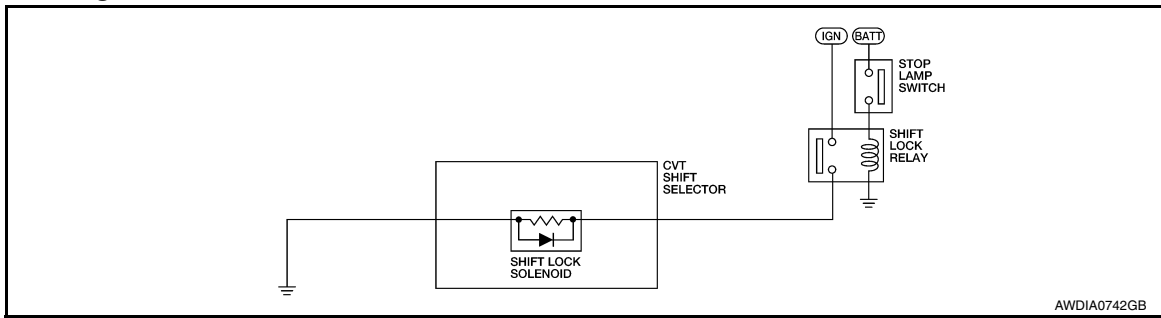
< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

SHIFT LOCK SYSTEM

System Diagram

INFOID:000000009469038



AWDIA0742GB

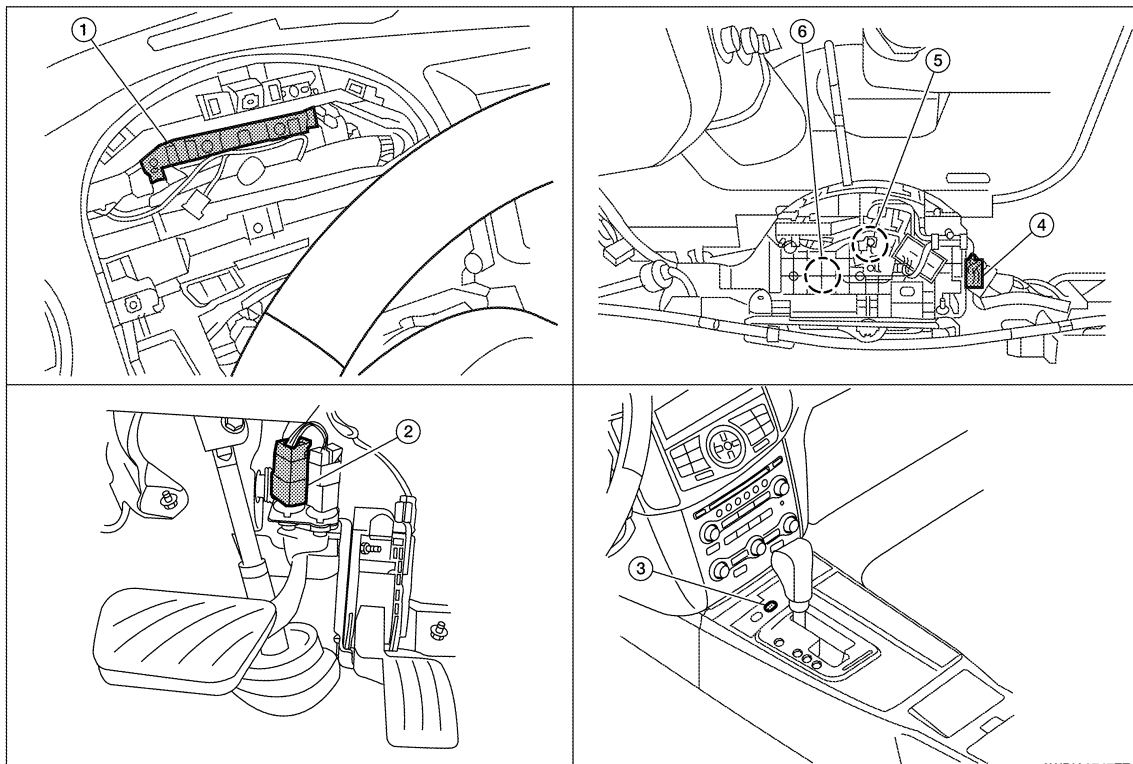
System Description

INFOID:000000009469039

The selector lever cannot be shifted from "P" position to any other position unless the ignition switch is in the ON position and the brake pedal is depressed.

Component Parts Location

INFOID:000000009469040



AWDIA0747ZZ

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| 1. BCM (view with combination meter removed) | 2. Stop lamp switch | 3. Shift lock release |
| 4. CVT shift selector connector | 5. Park position switch | 6. Shift lock solenoid |

Component Description

INFOID:000000009469041

SHIFT LOCK SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

Component		Function
CVT shift selector	Shift lock solenoid	Operates according to the signal from the shift lock relay.
	Lock plate	The lock plate restricts the position pin stroke by selector button operation according to the shift lock unit status.
	Position pin	The position pin, linking with the selector button, restricts the selector lever movement.
	Shift lock release	Cancels the shift lock forcibly.
Stop lamp switch		Provides voltage to the shift lock relay when brake pedal is depressed.
Shift lock relay		Provides voltage to the shift lock solenoid when ignition switch is ON and brake pedal is depressed.

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ON BOARD DIAGNOSTIC (OBD) SYSTEM

Diagnosis Description

INFOID:000000010113452

DESCRIPTION

The CVT system has two self-diagnostic systems.

The first is the emission-related on board diagnostic system (OBD-II) performed by the TCM in combination with the ECM. A malfunction is indicated by the MIL (Malfunction Indicator Lamp) and is stored as a DTC in the ECM memory and in the TCM memory.

The second is the TCM original self-diagnosis performed by the TCM. A malfunction history is stored in the TCM memory. The detected items are overlapped with OBD-II self-diagnostic items. For details, refer to [TM-124. "DTC Index"](#).

OBD-II FUNCTION

The ECM provides emission-related on board diagnostic (OBD-II) functions for the CVT system. One function is to receive a signal from the TCM used with OBD-related parts of the CVT system. The signal is sent to the ECM when a malfunction occurs in the corresponding OBD-related part. The other function is to indicate a diagnostic result by means of the MIL (Malfunction Indicator Lamp) on the instrument panel. Sensors, switches and solenoid valves are used as sensing elements.

The MIL automatically illuminates in "One or Two Trip Detection Logic" when a malfunction is sensed in relation to CVT system parts.

ONE OR TWO TRIP DETECTION LOGIC OF OBD-II

One Trip Detection Logic

If a malfunction is sensed during the first test drive, the MIL illuminates and the ECM memory stores the malfunction as a DTC. The TCM is not provided with such a memory function.

Two Trip Detection Logic



When a malfunction is sensed during the first test drive, it is stored in the ECM memory as a 1st trip DTC (diagnostic trouble code) or 1st trip freeze frame data. At this point, the MIL does not illuminate. — 1st trip
If the same malfunction as that experienced during the first test drive is sensed during the second test drive, the MIL will illuminate. — 2nd trip

The "trip" in the "One or Two Trip Detection Logic" means a driving mode in which self-diagnosis is performed during vehicle operation.

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

How to Read DTC and 1st Trip DTC

DTC and 1st trip DTC can be read by the following methods.

( with **CONSULT** or ( **GST**) CONSULT or GST (Generic Scan Tool) Examples: P0705, P0720, etc.

These DTC are prescribed by SAE J2012.

(CONSULT also displays the malfunctioning component or system.)

- **1st trip DTC No. is the same as DTC No.**
- **Output of the diagnostic trouble code indicates that the indicated circuit has a malfunction. However, in case of the Mode II and GST, they do not indicate whether the malfunction is still occurring or it occurred in the past and has returned to normal.**

CONSULT can identify them as shown below, therefore, CONSULT (if available) is recommended.

- DTC or 1st trip DTC of a malfunction is displayed in SELF-DIAGNOSTIC RESULTS mode for "ENGINE" with CONSULT. Time data indicates how many times the vehicle was driven after the last detection of a DTC.
- If the DTC is being detected currently, the time data will be "0".
- If a 1st trip DTC is stored in the ECM, the time data will be "1t".

Freeze Frame Data and 1st Trip Freeze Frame Data

- The ECM has a memory function, which stores the driving conditions such as fuel system status, calculated load value, engine coolant temperature, short-term fuel trim, long-term fuel trim, engine speed and vehicle speed at the moment the ECM detects a malfunction.

Data that are stored in the ECM memory, along with the 1st trip DTC, are called 1st trip freeze frame data, and the data, stored together with the DTC data, are called freeze frame data and displayed on CONSULT or GST. The 1st trip freeze frame data can only be displayed on the CONSULT screen, not on the GST.

Only one set of freeze frame data (either 1st trip freeze frame data or freeze frame data) can be stored in the ECM. 1st trip freeze frame data is stored in the ECM memory along with the 1st trip DTC. There is no priority for 1st trip freeze frame data, and it is updated each time a different 1st trip DTC is detected. However, once

ON BOARD DIAGNOSTIC (OBD) SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

freeze frame data (2nd trip detection/MIL on) is stored in the ECM memory, 1st trip freeze frame data is no longer stored. Remember, only one set of freeze frame data can be stored in the ECM. The ECM has the following priorities to update the data.

Priority	Items	
1	Freeze frame data	Misfire — DTC: P0300 - P0306 Fuel Injection System Function — DTC: P0171, P0172, P0174, P0175
2		Except the above items (Includes CVT related items)
3	1st trip freeze frame data	

Both 1st trip freeze frame data and freeze frame data (along with the DTC) are cleared when the ECM memory is erased.

How to Erase DTC

- The diagnostic trouble code can be erased by CONSULT, GST or ECM DIAGNOSTIC TEST MODE as described below.
- If the battery cable is disconnected, the diagnostic trouble code will be lost within 24 hours.**
- When erasing the DTC, using CONSULT or GST is easier and quicker than switching the mode selector on the ECM.**
- The following emission-related diagnostic information is cleared from the ECM memory when erasing DTC related to OBD-II. For details, refer to [EC-542, "DTC Index"](#).
- Diagnostic trouble codes (DTC)**
- 1st trip diagnostic trouble codes (1st trip DTC)**
- Freeze frame data**
- 1st trip freeze frame data**
- System readiness test (SRT) codes**
- Test values**

Ⓜ How to Erase DTC (With CONSULT)

The emission related diagnostic information in the TCM and ECM can be erased by selecting "ALL Erase" in the "Description" of "FINAL CHECK" mode with CONSULT.

Ⓜ How to Erase DTC (With GST)

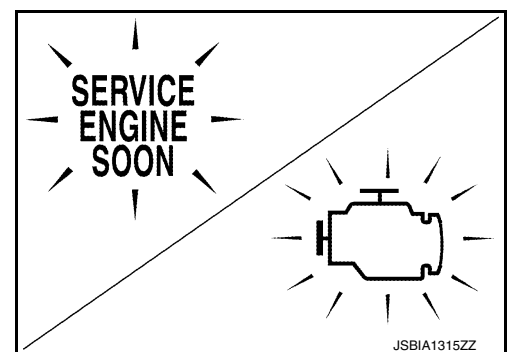
- If the ignition switch stays ON after repair work, be sure to turn ignition switch OFF once. Wait at least 10 seconds and then turn it ON (engine stopped) again.
- Select Mode 4 with GST (Generic Scan Tool).

MALFUNCTION INDICATOR LAMP (MIL)

Description

The MIL is located on the instrument panel.

- The MIL is turned ON when the ignition switch is turned ON without the engine running. This is a bulb check.
 - If the MIL is not turned ON, refer to [EC-507, "Component Function Check"](#).
- Turn OFF the MIL when the engine is started. If the MIL remains ON, the on board diagnostic system has detected an engine system malfunction.



DIAGNOSIS SYSTEM (TCM)

CONSULT Function

INFOID:000000010113453

FUNCTION

CONSULT can display each diagnostic item using the diagnostic test modes shown following.

Diagnostic test mode	Function
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 Diagnostic 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	Characteristic information for TCM and CVT assembly can be read. Do not use, but displayed.

WORK SUPPORT MODE

Display Item List

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 touching “UP” or “DOWN” on CONSULT screen. However, do not select a mode other than “0” and “OFF”. Selecting “+1” or “-1” or “-2” may cause irregular driveability.

Check CVT Fluid Deterioration Date

“CVTF DETERIORATION DATE”

- 210000 or more** : It is necessary to change CVT fluid.
- Less than 210000** : It is not necessary to change CVT fluid.

CAUTION:

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

SELF DIAGNOSTIC RESULTS MODE

Display Items List

Refer to [TM-124, "DTC Index"](#).

DATA MONITOR MODE

Display Items List

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

X: Standard, —: Not applicable, ▼: Option

Monitored item (Unit)	Monitor item selection			Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	
VSP SENSOR (km/h)	X	—	▼	Secondary speed sensor
ESTM VSP SIG (km/h)	X	—	▼	—
PRI SPEED SEN (rpm)	X	—	▼	—
ENG SPEED SIG (rpm)	X	—	▼	—
SEC HYDR SEN (V)	X	—	▼	—
PRI HYDR SEN (V)	X	—	▼	—
ATF TEMP SEN (V)	X	—	▼	CVT fluid temperature sensor
VIGN SEN (V)	X	—	▼	—
VEHICLE SPEED (km/h or mph)	—	X	▼	Vehicle speed recognized by the TCM.
PRI SPEED (rpm)	—	X	▼	Primary pulley speed
SEC SPEED (rpm)	—	—	▼	Secondary pulley speed
ENG SPEED (rpm)	—	X	▼	—
SLIP REV (rpm)	—	X	▼	Difference between engine speed and primary pulley speed.
GEAR RATIO	—	X	▼	—
G SPEED (G)	—	—	▼	—
ACC PEDAL OPEN (0.0/8)	X	X	▼	Degree of opening for accelerator recognized by the TCM. For fail-safe operation, the specific value used for control is displayed.
TRQ RTO	—	—	▼	—
SEC PRESS (MPa)	—	X	▼	—
PRI PRESS (MPa)	—	X	▼	—
ATFTEMP COUNT	—	X	▼	Means CVT fluid temperature. Actual oil temperature °C (°F) cannot be checked unless a numeric value is converted. Refer to TM-152 .
DSR REV (rpm)	—	—	▼	—
DGEAR RATIO	—	—	▼	—
DSTM STEP (step)	—	—	▼	—
STM STEP (step)	—	X	▼	—
LU PRS (MPa)	—	—	▼	—
LINE PRS (MPa)	—	—	▼	—
TGT SEC PRESS (MPa)	—	—	▼	—
ISOLT1 (A)	—	X	▼	Torque converter clutch solenoid valve output current
ISOLT2 (A)	—	X	▼	Line pressure solenoid valve output current
ISOLT3 (A)	—	X	▼	Secondary pressure solenoid valve output current

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

Monitored item (Unit)	Monitor item selection			Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	
SOLMON1 (A)	X	X	▼	Torque converter clutch solenoid valve monitor current
SOLMON2 (A)	X	X	▼	Line pressure solenoid valve monitor current
SOLMON3 (A)	X	X	▼	Secondary pressure solenoid valve monitor current
RANGE SW 3M (On/Off)	X	—	▼	Transmission range switch 3 ON-OFF status monitor
RANGE SW 4 (On/Off)	X	—	▼	Transmission range switch 4 ON-OFF status
RANGE SW 3 (On/Off)	X	—	▼	Transmission range switch 3 ON-OFF status
RANGE SW 2 (On/Off)	X	—	▼	Transmission range switch 2 ON-OFF status
RANGE SW 1 (On/Off)	X	—	▼	Transmission range switch 1 ON-OFF status
BRAKESW (On/Off)	X	X	▼	Stop lamp switch (signal input via CAN communications)
FULL SW (On/Off)	X	X	▼	Signal input via CAN communications
IDLE SW (On/Off)	X	X	▼	
SPORT MODE SW (On/Off)	X	X	▼	
STRDWSW (On/Off)	X	—	▼	Responds only to vehicles with addle shifter
STRUPSW (On/Off)	X	—	▼	
DOWNLVR (On/Off)	X	—	▼	Responds only to vehicles with manual mode
UPLVR (On/Off)	X	—	▼	
NONMMODE (On/Off)	X	—	▼	
MMODE (On/Off)	X	—	▼	
INDLRNG (On/Off)	—	—	▼	—
INDDRNG (On/Off)	—	—	▼	"D" position indicator output
INDNRNG (On/Off)	—	—	▼	"N" position indicator output
INDRRNG (On/Off)	—	—	▼	"R" position indicator output
INDPRNG (On/Off)	—	—	▼	"P" position indicator output
CVT LAMP (On/Off)	—	—	▼	—
SPORT MODE IND (On/Off)	—	—	▼	Not mounted but displayed.
MMODE IND (On/Off)	—	—	▼	—
SMCOIL D (On/Off)	—	—	▼	Step motor coil "D" energizing status
SMCOIL C (On/Off)	—	—	▼	Step motor coil "C" energizing status
SMCOIL B (On/Off)	—	—	▼	Step motor coil "B" energizing status
SMCOIL A (On/Off)	—	—	▼	Step motor coil "A" energizing status
LUSEL SOL OUT (On/Off)	—	—	▼	—
REV LAMP (On/Off)	—	X	▼	—
STRTR RLY OUT (On/Off)	—	—	▼	Starter relay

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F09B]

Monitored item (Unit)	Monitor item selection			Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	
LUSEL SOL MON (On/Off)	—	—	▼	—
STRTR RLY MON (On/Off)	—	—	▼	Starter relay monitor
VDC ON (On/Off)	X	—	▼	—
TCS ON (On/Off)	X	—	▼	—
ABS ON (On/Off)	X	—	▼	—
ACC ON (On/Off)	X	—	▼	Not mounted but displayed.
RANGE	—	X	▼	Indicates position is recognized by TCM. Indicates a specific value required for control when fail-safe function is activated.
M GEAR POS	—	X	▼	Not mounted but displayed.
CVT-A	—	—	▼	—
CVT-B	—	—	▼	—

Diagnostic Tool Function

INFOID:000000010113454

OBD-II SELF-DIAGNOSTIC PROCEDURE (WITH GST)

Refer to [EC-127, "GST \(Generic Scan Tool\)"](#).

U0100 LOST COMMUNICATION (ECM A)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

DTC/CIRCUIT DIAGNOSIS

U0100 LOST COMMUNICATION (ECM A)

DTC Logic

INFOID:000000010113455

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 first trip DTC.

Is "U0100" detected?

- YES >> Go to [TM-42, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000010113456

For the diagnosis procedure, refer to [LAN-15, "Trouble Diagnosis Flow Chart"](#).

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010113457

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:0000000010113458

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	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

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 ON.
2. Start engine and wait for at least 6 seconds.
3. Perform "Self Diagnostic Results" in "TRANSMISSION".

 With GST

Follow the procedure "With CONSULT".


Is "U1000" detected?

- YES >> Go to [TM-43, "Diagnosis Procedure"](#).
- NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010113459

1. CHECK CAN COMMUNICATION CIRCUIT

 With CONSULT

1. Turn ignition switch ON and start engine.
2. Perform "Self Diagnostic Results" in "TRANSMISSION".

Is "U1000" indicated?

- YES >> Go to LAN section. Refer to [LAN-24, "CAN System Specification Chart"](#).
- NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

U1010 CONTROL UNIT (CAN)

Description

INFOID:000000010113460

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:000000010113461

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

NOTE:

If "DTC CONFIRMATION PROCEDURE" has been previously performed, 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 ON.
2. Start engine and wait for at least 6 seconds.
3. Perform "SELF-DIAG RESULTS" mode for "TRANSMISSION".

Ⓜ With GST

Follow the procedure "With CONSULT".

Is "U1010" detected?

- YES >> Go to [TM-44, "Diagnosis Procedure"](#).
- NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000010113462

1. CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

- YES >> Replace the TCM. Refer to [TM-168, "Exploded View"](#).
- NO >> Repair or replace damaged parts.

P0615 STARTER RELAY

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0615 STARTER RELAY

Description

INFOID:0000000010113463

- TCM controls starter relay in IPDM E/R.
- TCM switches starter relay ON at "P" or "N" position and allows to crank engine.
- Then it prohibits cranking other than at "P" or "N" position.

DTC Logic

INFOID:0000000010113464

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0615	Starter Relay Circuit	If this signal is ON other than in "P" or "N" position, this is judged to be a malfunction. (And if it is OFF in "P" or "N" position, this too is judged to be a malfunction.)	<ul style="list-style-type: none"> • Harness or connectors (Starter relay and TCM circuit is open or shorted.) • Starter relay circuit

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

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

Is "P0615" detected?

- YES >> Go to [TM-45, "Diagnosis Procedure"](#).
 NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

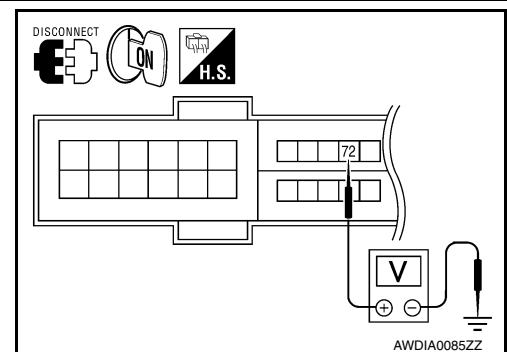
INFOID:0000000010113465

Regarding Wiring Diagram information, refer to [TM-126, "Wiring Diagram"](#).

1. CHECK STARTER RELAY SIGNAL

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

IPDM E/R vehicle side harness connector		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
F10	72	Ground	Selector lever in "P" and "N" positions	Battery voltage
			Selector lever in other positions	0V



Is the inspection result normal?

- YES >> Check starter relay and starter control relay. Refer to [PCS-11, "Diagnosis Description"](#).
 NO >> GO TO 2.

2. CHECK HARNESS BETWEEN TCM AND IPDM E/R (PART 1)

P0615 STARTER RELAY

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

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

TCM vehicle side harness connector		IPDM E/R vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	20	F10 (B)	72	Existed

Is the inspection result normal?

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

3. CHECK HARNESS BETWEEN TCM AND IPDM E/R (PART 2)

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

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	20		Not existed

Is the inspection result normal?

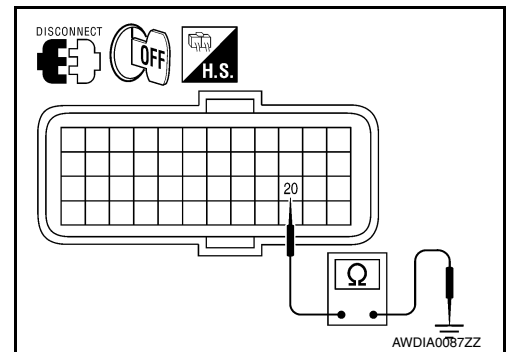
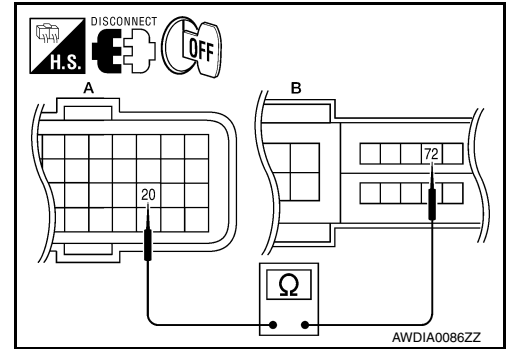
- YES >> GO TO 4.
 NO >> Repair or replace damaged parts.

4. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168. "Exploded View"](#).
 NO >> Repair or replace damaged parts.



P0703 BRAKE SWITCH B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0703 BRAKE SWITCH B

Description

INFOID:0000000010113466

BCM detects ON/OFF state of the stop lamp switch and transmits the data to the TCM via CAN communication by converting the data to a signal.

DTC Logic

INFOID:0000000010113467

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0703	Brake Switch B Circuit	When the brake switch does not switch to ON or OFF.	<ul style="list-style-type: none"> • Harness or connectors - (Stop lamp switch, and BCM circuit are open or shorted.) - (CAN communication line is open or shorted.) • Stop lamp switch

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

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 ON.
2. Start engine.
3. Drive vehicle for at least 3 consecutive seconds.
4. Perform "Self Diagnostic Results" in "TRANSMISSION".

Is "P0703" detected?

YES >> Go to [TM-47, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

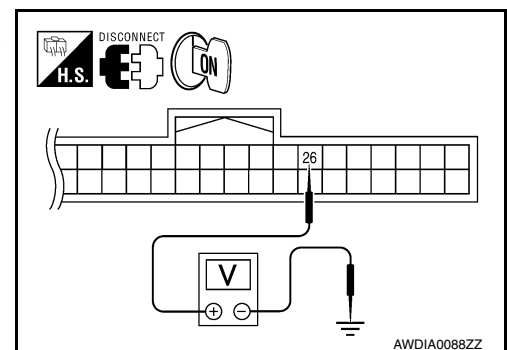
INFOID:0000000010113468

Regarding Wiring Diagram information, refer to [TM-126, "Wiring Diagram"](#).

1. CHECK STOP LAMP SWITCH CIRCUIT

1. Check and adjust the installation position of stop lamp switch. Refer to [BR-14, "Inspection and Adjustment"](#).
2. Disconnect BCM connector.
3. Check voltage between BCM vehicle side harness connector terminal and ground.

BCM vehicle side harness connector		Condition	Voltage (Approx.)
Connector	Terminal		
M18	26	Depressed brake pedal	Battery voltage
		Released brake pedal	0V



Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 2.

2. CHECK HARNESS BETWEEN STOP LAMP SWITCH AND BCM (PART 1)

P0703 BRAKE SWITCH B

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

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

Stop lamp switch vehicle side harness connector		BCM vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
E38 (A)	4	M18 (B)	26	Existed

Is the inspection result normal?

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

3.CHECK HARNESS BETWEEN STOP LAMP SWITCH AND BCM (PART 2)

Check continuity between BCM vehicle side harness connector terminal and ground.

BCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
M18	26		Not existed

Is the inspection result normal?

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

4.CHECK STOP LAMP SWITCH

Check stop lamp switch. Refer to [TM-48, "Component Inspection \(Stop Lamp Switch\)"](#).

Is the inspection result normal?

- YES >> Check the following.
- Harness for short or open between battery and stop lamp switch
 - 10A fuse [No. 7, located in fuse block (J/B)]
- NO >> Repair or replace stop lamp switch.

5.CHECK BCM

Ⓟ With CONSULT

1. Turn ignition switch OFF.
2. Connect BCM connector.
3. Turn ignition switch ON.
4. Select "BRAKE SW 1" in "Data Monitor" in "BCM" and verify the proper operation of ON/OFF. Refer to [BCS-41, "Reference Value"](#).

Is the inspection result normal?

- YES >> GO TO 6.
 NO >> Replace BCM. Refer to [BCS-79, "Removal and Installation"](#).

6.DETECT MALFUNCTIONING ITEMS

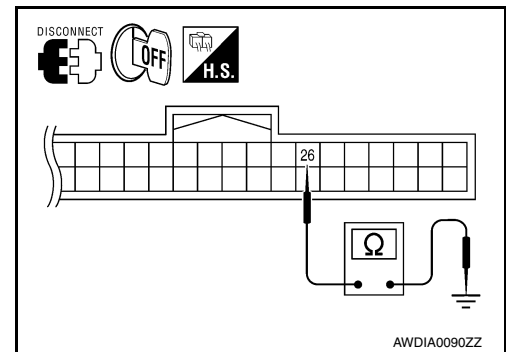
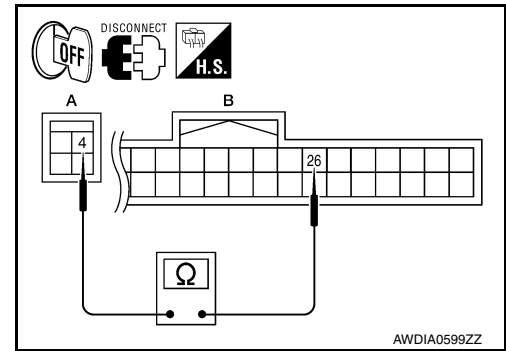
Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).
 NO >> Repair or replace damaged parts.

Component Inspection (Stop Lamp Switch)

1.CHECK STOP LAMP SWITCH



INFOID:000000010113469

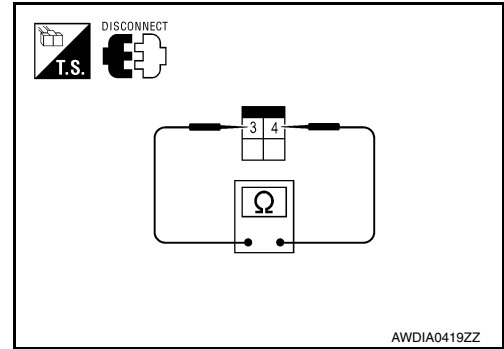
P0703 BRAKE SWITCH B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

Check continuity between stop lamp switch connector terminals.

Stop lamp switch connector		Condition	Continuity
Connector	Terminal		
E38	3 4	Depressed brake pedal	Existed
		Released brake pedal	Not existed



Is the inspection result normal?

YES >> INSPECTION END

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

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P0705 TRANSMISSION RANGE SWITCH A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0705 TRANSMISSION RANGE SWITCH A

Description

INFOID:000000010113505

- 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
D	ON	ON	ON	ON	ON

DTC Logic

INFOID:000000010113506

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0705	Transmission Range Sensor A Circuit (PRNDL Input)	TCM does not receive the correct voltage signal (based on the gear position) from the switch.	<ul style="list-style-type: none">• Harness or connectors (Transmission range switches circuit is open or shorted.)• Transmission range switch

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

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 ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Start engine.
4. Drive vehicle and maintain the following conditions for at least 2 consecutive seconds.

VEHICLE SPEED	: More than 10 km/h (6 MPH)
ENG SPEED SIG	: More than 450 rpm
ACC PEDAL OPEN	: More than 1.0/8

Ⓢ With GST

Follow the procedure "With CONSULT".

Is "P0705" detected?

- YES >> Go to [TM-50, "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000010113507

Regarding Wiring Diagram information, refer to [TM-126, "Wiring Diagram"](#).

1. CHECK CVT POSITION

1. Disconnect CVT unit connector.
2. Remove control cable from manual lever. Refer to [TM-173, "Exploded View"](#).
3. Check transmission range switch. Refer to [TM-51, "Component Inspection \(Transmission Range Switch\)"](#).

Is the inspection result normal?

P0705 TRANSMISSION RANGE SWITCH A

[CVT: RE0F09B]

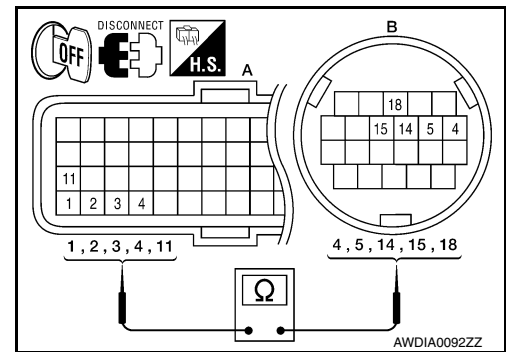
< DTC/CIRCUIT DIAGNOSIS >

- YES >> Adjust CVT position. Refer to [TM-171. "Inspection and Adjustment"](#).
- NO >> GO TO 2.

2. CHECK HARNESS BETWEEN TCM AND TRANSMISSION RANGE SWITCH (PART 1)

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

TCM vehicle side harness connector		CVT unit vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	1	F46 (B)	5	Existed
	2		14	
	3		15	
	4		18	
	11		4	



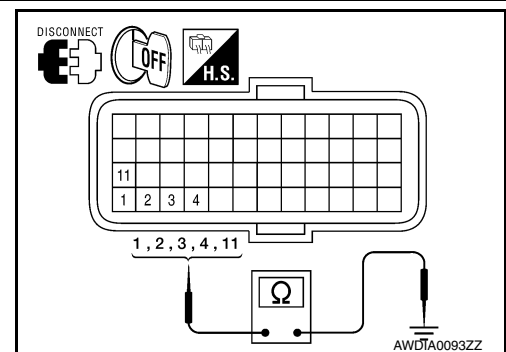
Is the inspection result normal?

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

3. CHECK HARNESS BETWEEN TCM AND TRANSMISSION RANGE SWITCH (PART 2)

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

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	1	Ground	Not existed
	2		
	3		
	4		
	11		



Is the inspection result normal?

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

4. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168. "Exploded View"](#).
- NO >> Repair or replace damaged parts.

Component Inspection (Transmission Range Switch)

INFOID:000000010113508

1. CHECK TRANSMISSION RANGE SWITCH

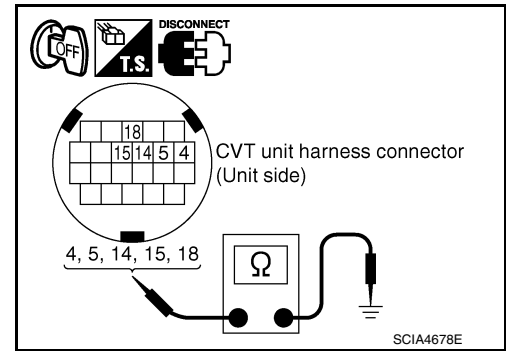
P0705 TRANSMISSION RANGE SWITCH A

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

Check the continuity of the transmission range switch by changing selector lever to various positions and checking continuity between CVT unit terminals and ground.

Shift position	CVT unit connector		Continuity
	Connector	Terminal	
P	F15	4, 5, 14, 15, 18	Not existed
R		4, 15	Existed
		5, 14, 18	Not existed
N		4, 5	Existed
		14, 15, 18	Not existed
D		4, 5, 14, 15, 18	Existed



Is the inspection result normal?

YES >> **INSPECTION END**

NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).

P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A

Description

INFOID:0000000010113593

The CVT fluid temperature sensor detects the CVT fluid temperature and sends a signal to the TCM.

DTC Logic

INFOID:0000000010113594

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0710	Transmission Fluid Temperature Sensor A Circuit	During running, the CVT fluid temperature sensor signal voltage is excessively high or low.	<ul style="list-style-type: none"> • Harness or connectors (Sensor circuit is open or shorted.) • CVT fluid temperature sensor
		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.

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 (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-54, "Diagnosis Procedure"](#).
 NO >> GO TO 2.

2. 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.

Selector lever : “D” position

P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

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
10°C (50°F) or more	— (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-54, "Diagnosis Procedure"](#).
 NO >> GO TO 3.

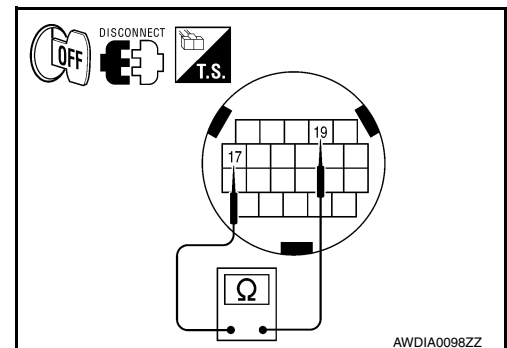
3. CHECK CVT FLUID TEMPERATURE SENSOR

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

CVT unit	CVT unit		Condition	Resistance (Approx.)
Connector	Terminal			
F46	17	19	When CVT fluid temperature is 20°C (68°F)	6.5 kΩ
			When CVT fluid temperature is 80°C (176°F)	0.9 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-188, "Exploded View"](#).



Diagnosis Procedure

INFOID:000000010113595

Regarding Wiring Diagram information, refer to [TM-126, "Wiring Diagram"](#).

1. CHECK CVT FLUID TEMPERATURE SENSOR CIRCUIT

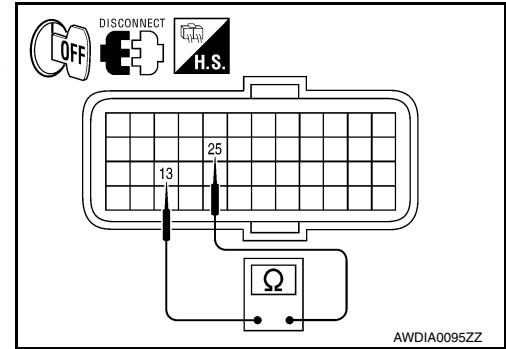
P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

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

TCM vehicle side harness connector		Condition	Resistance (Approx.)
Connector	Terminal		
F15	13	When CVT fluid temperature is 20°C (68°F)	6.5 kΩ
	25	When CVT fluid temperature is 80° (176°F)	0.9 kΩ



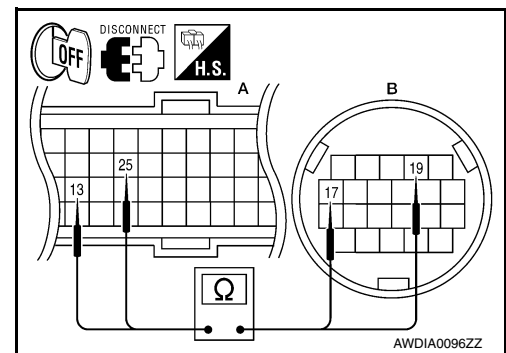
Is the inspection result normal?

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

2.CHECK HARNESS BETWEEN TCM AND CVT UNIT (CVT TEMPERATURE SENSOR) (PART 1)

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

TCM vehicle side harness connector		CVT unit vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	13	F46 (B)	17	Existed
	25		19	



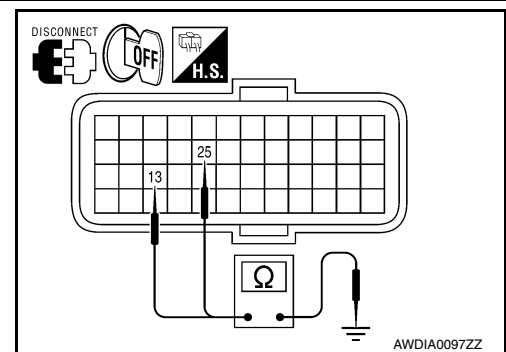
Is the inspection result normal?

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

3.CHECK HARNESS BETWEEN TCM AND CVT UNIT (CVT TEMPERATURE SENSOR) (PART 2)

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

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	13		Not existed
	25		



Is the inspection result normal?

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

4.CHECK CVT FLUID TEMPERATURE SENSOR

Check CVT fluid temperature sensor. Refer to [TM-56, "Component Inspection \(CVT Fluid Temperature Sensor\)"](#).

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).

5.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).
NO >> Repair or replace damaged parts.

P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

Component Inspection (CVT Fluid Temperature Sensor)

INFOID:000000010113596

1. CHECK CVT FLUID TEMPERATURE SENSOR

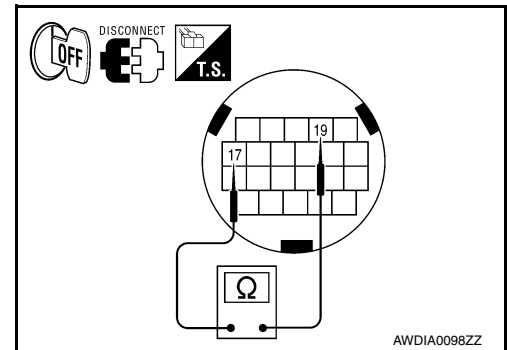
Check resistance between CVT unit connector terminals.

CVT unit connector			Condition	Resistance (Approx.)
Connector	terminal			
F46	17	19	When CVT fluid temperature is 20°C (68°F)	6.5 kΩ
			When CVT fluid temperature is 80°C (176°F)	0.9 kΩ

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).



P0715 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0715 INPUT SPEED SENSOR A

Description

INFOID:0000000010113600

The primary speed sensor detects the primary pulley revolution speed and sends a signal to the TCM.

DTC Logic

INFOID:0000000010113601

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0715	Input/Turbine Speed Sensor A Circuit	<ul style="list-style-type: none"> Input speed sensor (primary speed sensor) signal is not input due to an open circuit. An unexpected signal is input when vehicle is being driven. 	<ul style="list-style-type: none"> Harness or connectors (Sensor circuit is open or shorted.) Primary speed sensor

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

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

- Turn ignition switch ON.
- Select "Data Monitor" in "TRANSMISSION".
- Start engine and maintain the following conditions for at least 5 consecutive seconds.

VEHICLE SPEED	: 10 km/h (6 MPH) or more
ACC PEDAL OPEN	: More than 1.0/8
RANGE	: "D" position
ENG SPEED	: 450 rpm or more
Driving location	: Driving the vehicle uphill (increased engine load) will help maintain the driving conditions required for this test.

With GST

Follow the procedure "With CONSULT".

Is "P0715" detected?

- YES >> Go to [TM-57, "Diagnosis Procedure"](#).
 NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

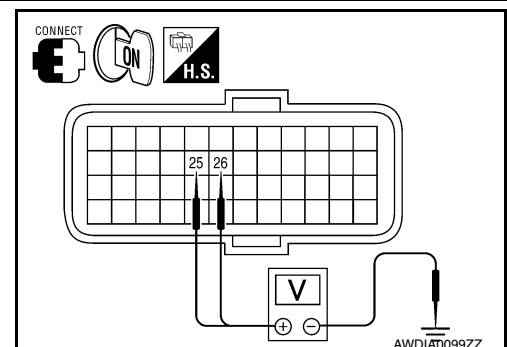
INFOID:0000000010113602

Regarding Wiring Diagram information, refer to [TM-126, "Wiring Diagram"](#).

1. CHECK PRIMARY SPEED SENSOR

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

TCM connector			Voltage (Approx.)
Connector	Terminal		
F15	25	26	4.75 – 5.25 V



P0715 INPUT SPEED SENSOR A

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

3. If OK, check the pulse when vehicle drive.

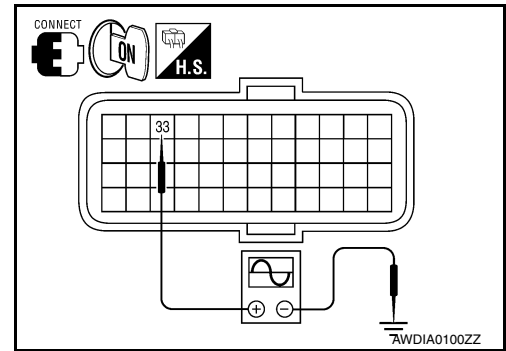
TCM connector		Condition	Voltage (Approx.)
Connector	Terminal		
F15	33	When driving ["M1"position, 20 km/h (12 MPH)]	695 Hz

Is the inspection result normal?

YES >> GO TO 7.

NO - 1 >> Battery voltage is not supplied: GO TO 2.

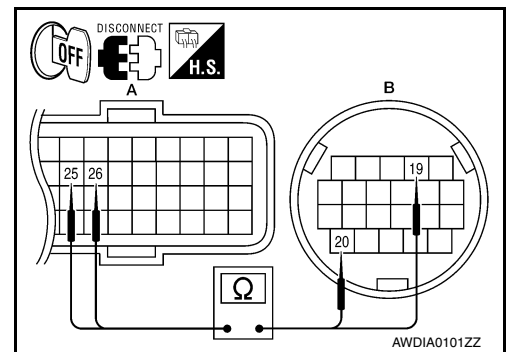
NO - 2 >> Battery voltage is supplied, but there is a malfunction in the frequency: GO TO 4.



2. CHECK HARNESS BETWEEN TCM AND CVT UNIT HARNESS CONNECTOR (SENSOR POWER AND SENSOR GROUND) (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 terminals.

TCM vehicle side harness connector		CVT unit vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	25	F46 (B)	19	Existed
	26		20	Existed



Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3. CHECK HARNESS BETWEEN TCM AND CVT UNIT HARNESS CONNECTOR (SENSOR POWER AND SENSOR GROUND) (PART 2)

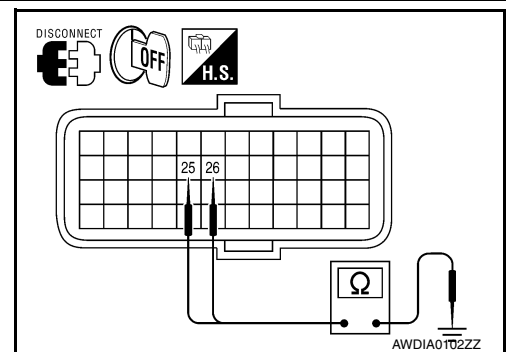
Check continuity between TCM vehicle side harness connector terminals and ground.

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	25		Not existed
	26		

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace damaged parts.



4. CHECK HARNESS BETWEEN TCM AND CVT UNIT HARNESS CONNECTOR (PRIMARY SPEED SENSOR) (PART 1)

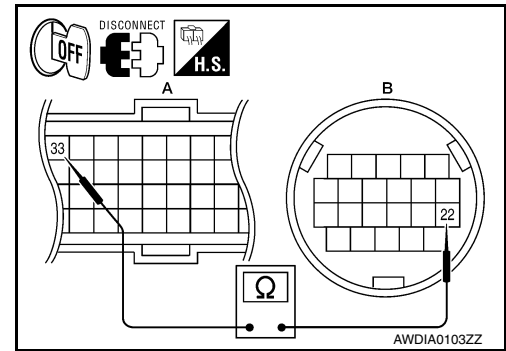
P0715 INPUT SPEED SENSOR A

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

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

TCM vehicle side harness connector		CVT unit vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	33	F46 (B)	22	Existed



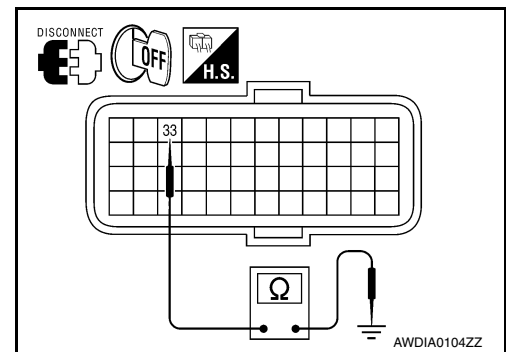
Is the inspection result normal?

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

5. CHECK HARNESS BETWEEN TCM AND CVT UNIT HARNESS CONNECTOR (PRIMARY SPEED SENSOR) (PART 2)

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

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	33		Not existed



Is the inspection result normal?

- YES >> GO TO 6.
 >> Repair or replace damaged parts.

6. CHECK THE TCM SHORT

1. Replace with the same type of TCM. Refer to [TM-168, "Exploded View"](#).
2. Connect each connectors.
3. Perform "DTC CONFIRMATION PROCEDURE". Refer to [TM-57, "DTC Logic"](#).

Is the "P0715" detected again?

- YES >> GO TO 7.
 NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

7. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).
 NO >> Repair or replace damaged parts.

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P0720 OUTPUT SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0720 OUTPUT SPEED SENSOR

Description

INFOID:000000010113603

The secondary speed sensor detects the revolution of the CVT output shaft and emits a pulse signal. The pulse signal is transmitted to the TCM, which converts it into vehicle speed.

DTC Logic

INFOID:000000010113604

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0720	Output Speed Sensor Circuit	<ul style="list-style-type: none"> Signal from vehicle speed sensor CVT [output speed sensor (secondary speed sensor)] is not input due to open or short circuit. An unexpected signal is input during running. 	<ul style="list-style-type: none"> Harness or connectors (Sensor circuit is open or shorted.) Secondary speed sensor

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

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

- Turn ignition switch ON.
- Select "Data Monitor" in "TRANSMISSION".
- Start engine and maintain the following conditions for at least 12 consecutive seconds.

ACC PEDAL OPEN	: More than 1.0/8
RANGE	: "D" position
Driving location	: Driving the vehicle uphill (increased engine load) will help maintain the driving conditions required for this test.

With GST

Follow the procedure "With CONSULT".

Is "P0720" detected?

- YES >> Go to [TM-60, "Diagnosis Procedure"](#).
- NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000010113605

Regarding Wiring Diagram information, refer to [TM-126, "Wiring Diagram"](#).

1. CHECK SECONDARY SPEED SENSOR

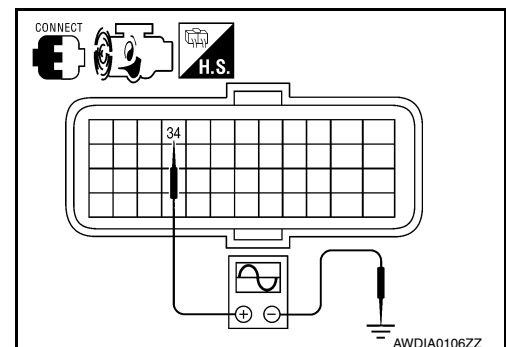
With CONSULT

Check the pulse when vehicle drive.

TCM connector		Condition	Data (Approx.)
Connector	Terminal		
F15	34	When driving ["D" position, 20 km/h (12 MPH)]	390 Hz

Is the inspection result normal?

- YES >> GO TO 11.
- NO >> GO TO 2.



P0720 OUTPUT SPEED SENSOR

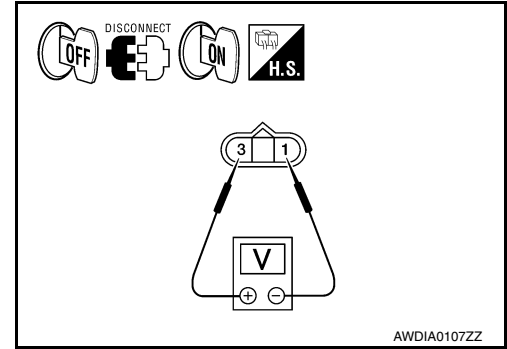
< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

2. CHECK POWER AND SENSOR GROUND

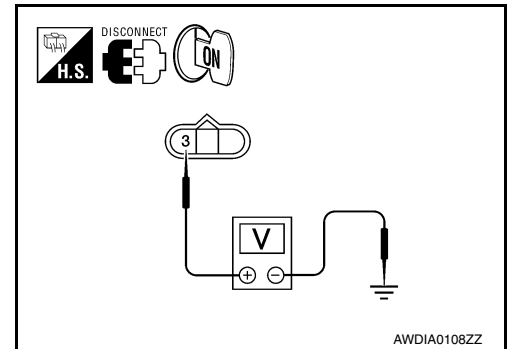
1. Turn ignition switch OFF.
2. Disconnect secondary speed sensor connector.
3. Turn ignition switch ON.
4. Check voltage between secondary speed sensor vehicle side harness connector terminals.

Secondary speed sensor vehicle side harness connector			Voltage (Approx.)
Connector	Terminal		
F23	1	3	Battery voltage



5. Check voltage between secondary speed sensor vehicle side harness connector terminal and ground.

Secondary speed sensor vehicle side harness connector		Ground	Voltage (Approx.)
Connector	Terminal		
F23	3		Battery voltage



Is the inspection result normal?

YES >> GO TO 3.

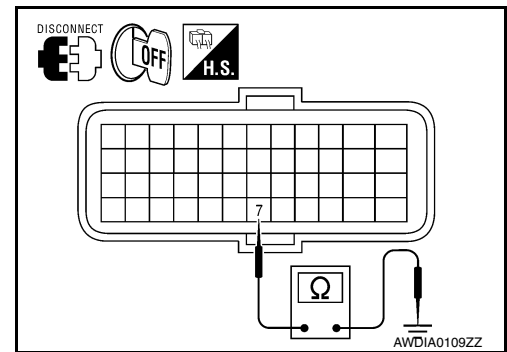
NO-1(Battery voltage is not supplied between terminals 1 and 3, terminal 3 and ground)>>GO TO 6.

NO-2(Battery voltage is not supplied between terminals 1 and 3 only)>>GO TO 8.

3. CHECK HARNESS BETWEEN TCM AND SECONDARY SPEED SENSOR (SENSOR GROUND)

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

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	7		Not existed



Is the inspection result normal?

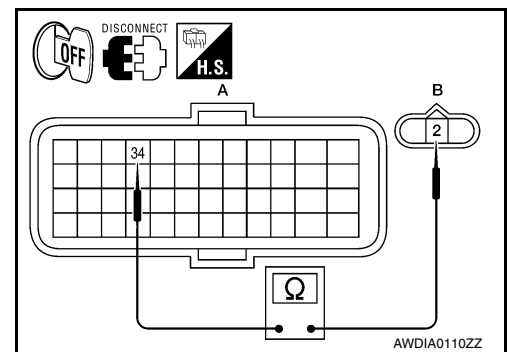
YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK HARNESS BETWEEN TCM AND SECONDARY SPEED SENSOR (PART 1)

Check continuity between TCM vehicle side harness connector terminal and secondary speed sensor vehicle side harness connector terminal.

TCM vehicle side harness connector		Secondary speed sensor vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	34	F23 (B)	2	Existed



Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5. CHECK HARNESS BETWEEN TCM AND SECONDARY SPEED SENSOR (PART 2)

P0720 OUTPUT SPEED SENSOR

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

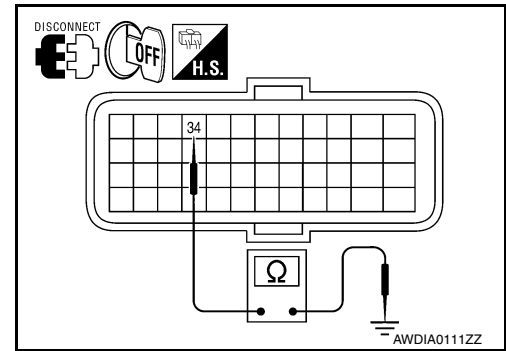
Check continuity between TCM vehicle side harness connector terminal and ground.

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	34		Not existed

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair or replace damaged parts.



6. CHECK HARNESS BETWEEN IPDM E/R AND SECONDARY SPEED SENSOR (POWER) (PART 1)

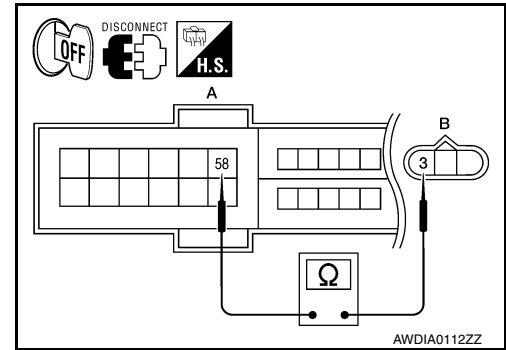
1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R vehicle side harness connector terminal and secondary speed sensor vehicle side harness connector terminal.

IPDM E/R vehicle side harness connector		Secondary speed sensor vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F10 (A)	58	F23 (B)	3	Existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.



7. CHECK HARNESS BETWEEN IPDM E/R AND SECONDARY SPEED SENSOR (POWER) (PART 2)

Check continuity between IPDM E/R vehicle side harness connector terminal and ground.

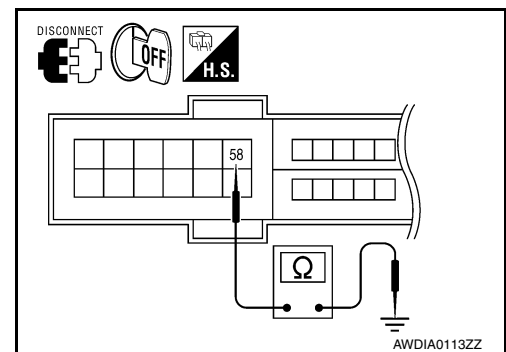
IPDM E/R vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F10	58		Not existed

Is the inspection result normal?

YES >> Check the following. If NG, repair or replace damaged parts.

- Harness for short or open between ignition switch and IPDM E/R
- 10A fuse (No. 34, located in IPDM E/R)
- Ignition switch

NO >> Repair or replace damaged parts.

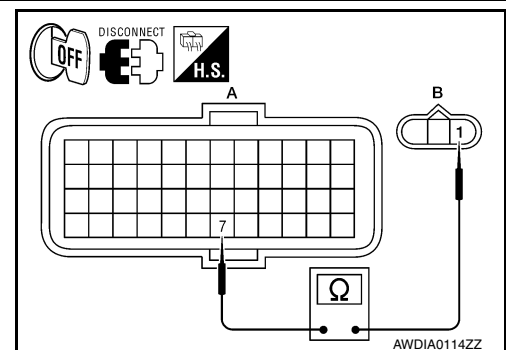


8. CHECK HARNESS BETWEEN TCM AND SECONDARY SPEED SENSOR (SENSOR GROUND) (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between TCM vehicle side harness connector terminal and secondary speed sensor vehicle side harness connector terminal.

TCM vehicle side harness connector		Secondary speed sensor vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	7	F23 (B)	1	Existed

Is the inspection result normal?



P0720 OUTPUT SPEED SENSOR

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 9.
- NO >> Repair or replace damaged parts.

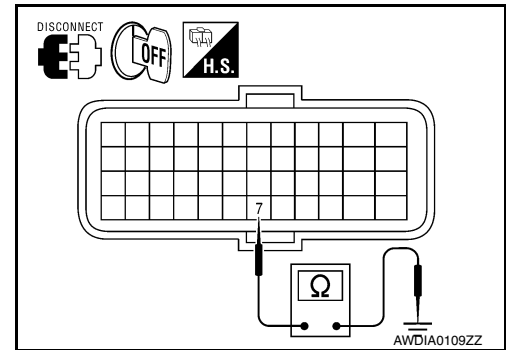
9. CHECK HARNESS BETWEEN TCM AND SECONDARY SPEED SENSOR (SENSOR GROUND) (PART 2)

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

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		Not existed
F15	7		

Is the inspection result normal?

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



10. CHECK TCM

1. Replace with the same type of TCM. Refer to [TM-168, "Exploded View"](#).
2. Perform "DTC CONFIRMATION PROCEDURE". Refer to [TM-60, "DTC Logic"](#).

Is "P0720" detected?

- YES >> Replace the secondary speed sensor. Refer to [TM-184, "Exploded View"](#).
- NO >> Replace TCM. Refer to [TM-168, "Exploded View"](#).

11. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).
- NO >> Repair or replace damaged parts.

P0725 ENGINE SPEED

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0725 ENGINE SPEED

Description

INFOID:000000010113606

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

DTC Logic

INFOID:000000010113607

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0725	Engine Speed Input Circuit	<ul style="list-style-type: none">• TCM does not receive the CAN communication signal from the ECM.• Engine speed is too low while driving.	Harness or connectors (The ECM to the TCM circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

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 ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Start engine and maintain the following conditions for at least 10 consecutive seconds.

PRI SPEED SEN : More than 1000 rpm

Is "P0725" detected?

- YES >> Go to [TM-64, "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000010113608

1.CHECK DTC WITH ECM

ⓂWith CONSULT

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

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Check DTC detected item. Refer to [EC-542, "DTC Index"](#).

2.CHECK DTC WITH TCM

ⓂWith CONSULT

Perform "Self Diagnostic Results" in "TRANSMISSION".

Is "P0725" detected?

- YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).
NO >> GO TO 3.

3.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).
NO >> Repair or replace damaged parts.

P0730 INCORRECT GEAR RATIO

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0730 INCORRECT GEAR RATIO

Description

INFOID:0000000010113609

TCM selects the gear ratio using the engine load (throttle position), the primary pulley revolution speed, and the secondary pulley revolution speed as input signals. Then it changes the operating pressure of the primary pulley and the secondary pulley and changes the groove width of the pulley.

DTC Logic

INFOID:0000000010113610

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0730	Incorrect Gear Ratio	Unexpected gear ratio detected.	Transaxle assembly

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

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

- Turn ignition switch ON.
- Select "Data Monitor" in "TRANSMISSION".
- Check that output voltage of CVT fluid temperature sensor is within the range below.

ATF TEMP SEN : 1.0 – 2.0 V

If it is out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

- Start engine and maintain the following conditions for at least 30 consecutive seconds.

Start test from 0 km/h (0 MPH)

Constant acceleration : Keep 30 seconds or more
VEHICLE SPEED : 10 km/h (6 MPH) or more
ACC PEDAL OPEN : More than 1.0/8
RANGE : "D" position
ENG SPEED : 450 rpm or more

Is "P0730" detected?

- YES >> Go to [TM-65, "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010113611

1. CHECK DTC

Ⓜ With CONSULT

- Turn ignition switch ON.
- Perform "Self Diagnostic Results" in "TRANSMISSION".

Are any DTC detected?

- YES-1 (DTC for "P0730" is detected)>>Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).
YES-2 (DTC except for "P0730" is detected)>>Check DTC detected item. Refer to [TM-38, "CONSULT Function"](#).
NO >> GO TO 2.

2. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

P0730 INCORRECT GEAR RATIO

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).
- NO >> Repair or replace damaged parts.

P0740 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0740 TORQUE CONVERTER

Description

INFOID:0000000010113612

- The torque converter clutch solenoid valve is activated by the TCM in response to signals sent from the vehicle speed and accelerator pedal position sensors. Lock-up piston operation will then be controlled.
- Lock-up operation, however, is prohibited when CVT fluid temperature is too low.
- When the accelerator pedal is depressed (less than 2.0/8) in lock-up condition, the engine speed should not change abruptly. If there is a big jump in engine speed, there is no lock-up.

DTC Logic

INFOID:0000000010113613

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	Malfunction is detected when...	Possible cause
P0740	Torque Converter Clutch Circuit/Open	Normal voltage is not applied to solenoid due to open or short circuit.	<ul style="list-style-type: none"> • Torque converter clutch solenoid valve • Harness or connectors (Solenoid circuit is open or shorted.)

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

④ With CONSULT

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

④ With GST

Follow the procedure "With CONSULT".

Is "P0740" detected?

- YES >> Go to [TM-67, "Diagnosis Procedure"](#).
 NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010113614

Regarding Wiring Diagram information, refer to [TM-126, "Wiring Diagram"](#).

1. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE CIRCUIT

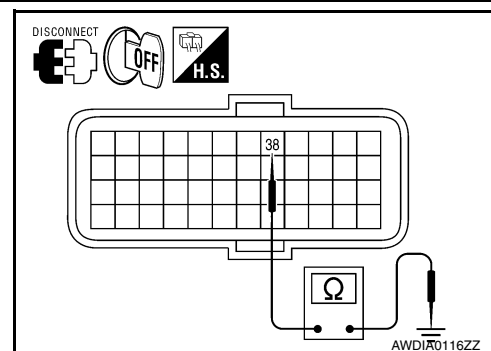
1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check resistance between TCM vehicle side harness connector terminal and ground.

TCM vehicle side harness connector		Ground	Resistance (Approx.)
Connector	Terminal		
F15	38		3.0 – 9.0 Ω

Is the inspection result normal?

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

2. CHECK HARNESS BETWEEN TCM AND CVT UNIT (TORQUE CONVERTER CLUTCH SOLENOID VALVE) (PART 1)



P0740 TORQUE CONVERTER

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

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

TCM vehicle side harness connector		CVT unit vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	38	F46 (B)	12	Existed

Is the inspection result normal?

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

3.CHECK HARNESS BETWEEN TCM AND CVT UNIT (TORQUE CONVERTER CLUTCH SOLENOID VALVE) (PART 2)

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

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	38		Not existed

Is the inspection result normal?

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

4.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check torque converter clutch solenoid valve. Refer to [TM-68. "Component Inspection \(Torque Converter Clutch Solenoid Valve\)"](#).

Is the inspection result normal?

- YES >> GO TO 5.
 NO >> Replace transaxle assembly. Refer to [TM-188. "Exploded View"](#).

5.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168. "Exploded View"](#).
 NO >> Repair or replace damaged parts.

Component Inspection (Torque Converter Clutch Solenoid Valve)

INFOID:000000010113615

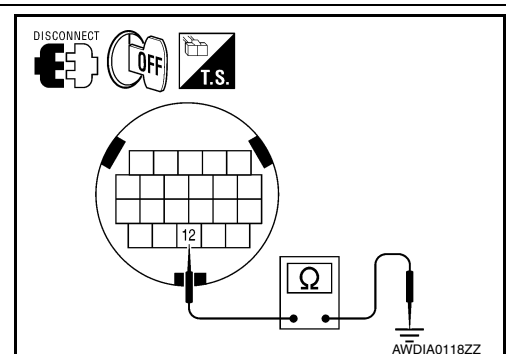
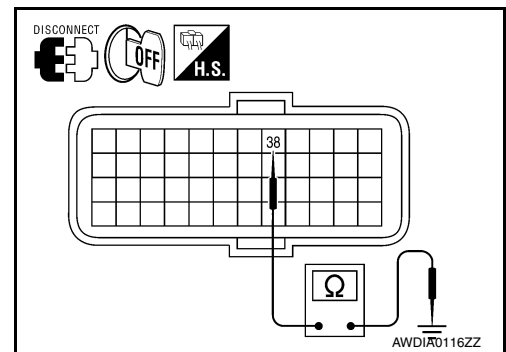
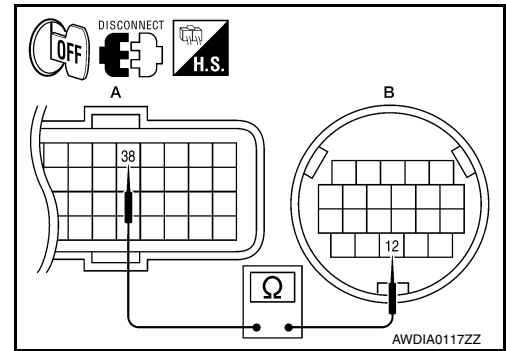
1.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit connector		Ground	Resistance (Approx.)
Connector	Terminal		
F46	12		3.0 – 9.0 Ω

Is the inspection result normal?

- YES >> INSPECTION END
 NO >> Replace transaxle assembly. Refer to [TM-188. "Exploded View"](#).



P0744 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0744 TORQUE CONVERTER

Description

INFOID:0000000010113616

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:0000000010113617

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0744	Torque Converter Clutch Circuit Intermittent	<ul style="list-style-type: none">• CVT cannot perform lock-up even if electrical circuit is good.• TCM detects as irregular by comparing difference value with slip rotation.• There is a big difference between engine speed and primary speed sensor when TCM lock-up signal is on.	<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.

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 ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Start engine and maintain the following condition for at least 30 seconds.

ACC PEDAL OPEN	: More than 1.0/8
RANGE	: "D" position
VEHICLE SPEED	: Constant speed of more than 40 km/h (25 MPH)

With GST

Follow the procedure "With CONSULT".

Is "P0744" detected?

- YES >> Go to [TM-69, "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010113618

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to [TM-162, "Inspection and Judgment"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace damaged parts. Refer to [TM-162, "Inspection and Judgment"](#).

2. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

1. Turn ignition switch OFF.
2. Disconnect CVT unit connector.
3. Check torque converter clutch solenoid valve. Refer to [TM-70, "Component Inspection \(Torque Converter Clutch Solenoid Valve\)"](#).

Is the inspection result normal?

- YES >> GO TO 3.

P0744 TORQUE CONVERTER

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).

3.CHECK LOCK-UP SELECT SOLENOID VALVE

Check lock-up select solenoid valve. Refer to [TM-70, "Component Inspection \(Lock-up Select Solenoid Valve\)"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).

4.CHECK SECONDARY SPEED SENSOR SYSTEM

Check secondary speed sensor system. Refer to [TM-60, "DTC Logic"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5.CHECK PRIMARY SPEED SENSOR SYSTEM

Check primary speed sensor system. Refer to [TM-57, "DTC Logic"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace damaged parts.

6.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).

NO >> Repair or replace damaged parts.

Component Inspection (Torque Converter Clutch Solenoid Valve)

INFOID:000000010113619

1.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

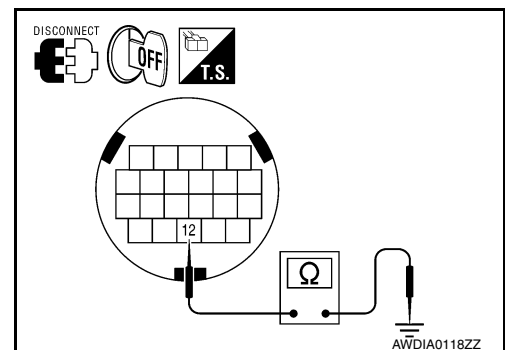
Check resistance between CVT unit connector terminal and ground.

CVT unit connector		Ground	Resistance (Approx.)
Connector	Terminal		
F46	12		3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).



Component Inspection (Lock-up Select Solenoid Valve)

INFOID:000000010113620

1.CHECK LOCK-UP SELECT SOLENOID VALVE

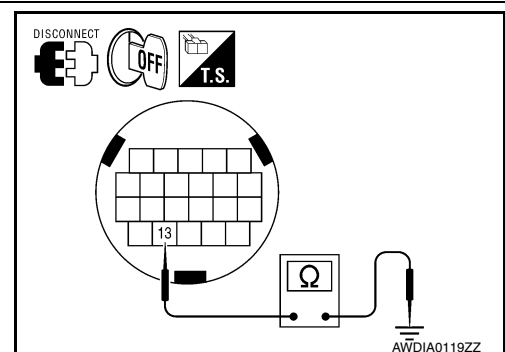
Check resistance between CVT unit connector terminal and ground.

CVT unit connector		Ground	Resistance (Approx.)
Connector	Terminal		
F46	13		6.0 – 19.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).



P0745 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0745 PRESSURE CONTROL SOLENOID A

Description

INFOID:0000000010113621

The line pressure solenoid valve regulates the oil pump discharge pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic

INFOID:0000000010113622

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0745	Pressure Control Solenoid A	<ul style="list-style-type: none"> Normal voltage is not applied to solenoid due to open or short circuit. TCM detects as irregular by comparing target value with monitor value. 	<ul style="list-style-type: none"> Harness or connectors (Solenoid circuit is open or shorted.) Line pressure solenoid 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

④ With CONSULT

- Turn ignition switch ON.
- Start engine and wait at least 5 seconds.
- Perform "Self Diagnostic Results" in "TRANSMISSION".

④ With GST

Follow the procedure "With CONSULT".

Is "P0745" detected?

- YES >> Go to [TM-71, "Diagnosis Procedure"](#).
 NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010113623

Regarding Wiring Diagram information, refer to [TM-126, "Wiring Diagram"](#).

1. CHECK LINE PRESSURE SOLENOID VALVE CIRCUIT

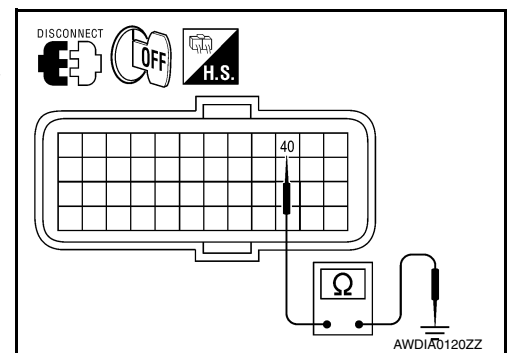
- Turn ignition switch OFF.
- Disconnect TCM connector.
- Check resistance between TCM vehicle side harness connector terminal and ground.

TCM vehicle side harness connector		Ground	Resistance (Approx.)
Connector	Terminal		
F15	40		3.0 – 9.0 Ω

Is the inspection result normal?

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

2. CHECK HARNESS BETWEEN TCM AND CVT UNIT (LINE PRESSURE SOLENOID VALVE) (PART 1)



P0745 PRESSURE CONTROL SOLENOID A

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

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

TCM vehicle side harness connector		CVT unit vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	40	F46 (B)	2	Existed

Is the inspection result normal?

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

3.CHECK HARNESS BETWEEN TCM AND CVT UNIT (LINE PRESSURE SOLENOID VALVE) (PART 2)

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

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	40		Not existed

Is the inspection result normal?

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

4.CHECK LINE PRESSURE SOLENOID VALVE

Check line pressure solenoid valve. Refer to [TM-72. "Component Inspection \(Line Pressure Solenoid Valve\)"](#)

Is the inspection result normal?

- YES >> GO TO 5.
 NO >> Replace transaxle assembly. Refer to [TM-188. "Exploded View"](#).

5.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168. "Exploded View"](#).
 NO >> Repair or replace damaged parts.

Component Inspection (Line Pressure Solenoid Valve)

INFOID:000000010113624

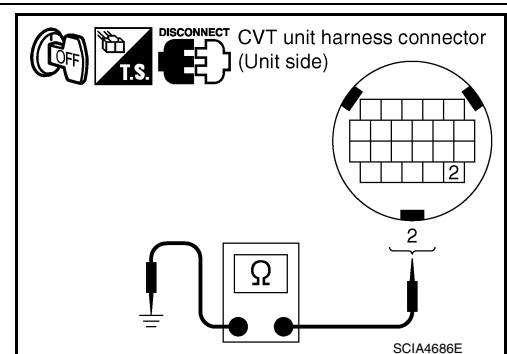
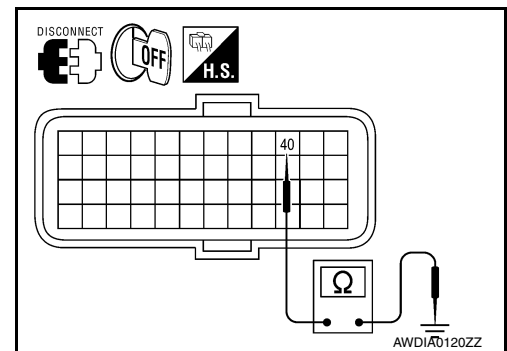
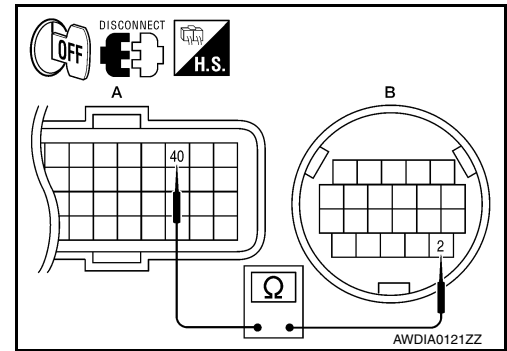
1.CHECK LINE PRESSURE SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit connector		Ground	Resistance (Approx.)
Connector	Terminal		
F46	2		3.0 – 9.0 Ω

Is the inspection result normal?

- YES >> INSPECTION END
 NO >> Replace transaxle assembly. Refer to [TM-188. "Exploded View"](#).



P0746 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0746 PRESSURE CONTROL SOLENOID A

Description

INFOID:000000010113625

The line pressure solenoid valve regulates the oil pump discharge pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic

INFOID:000000010113626

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0746	Pressure Control Solenoid A Performance/Stuck Off	Unexpected gear ratio was detected in the low side due to excessively low line pressure.	<ul style="list-style-type: none">Line pressure control systemSecondary speed sensorPrimary speed sensor

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

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

- Turn ignition switch ON.
- Select "Data Monitor" in "TRANSMISSION".
- Start engine and maintain the following conditions for at least 10 consecutive seconds. Test start from 0 km/h (0 MPH).

ATF TEMP SEN	: 1.0 – 2.0 V
ACC PEDAL OPEN	: More than 1.0/8
RANGE	: "D" position
VEHICLE SPEED	: 10 km/h (6 MPH) or more
Driving location	: Driving the vehicle uphill (increased engine load) will help maintain the driving conditions required for this test.

With GST

Follow the procedure "With CONSULT".

Is "P0746" detected?

- YES >> Go to [TM-73, "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000010113627

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to [TM-162, "Inspection and Judgment"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace damaged parts. Refer to [TM-162, "Inspection and Judgment"](#).

2. CHECK LINE PRESSURE SOLENOID VALVE

- Turn ignition switch OFF.
- Disconnect CVT unit connector.
- Check line pressure solenoid valve. Refer to [TM-74, "Component Inspection \(Line Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).

P0746 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

3. CHECK SECONDARY SPEED SENSOR SYSTEM

Check secondary speed sensor system. Refer to [TM-60, "DTC Logic"](#).

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-57, "DTC Logic"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).

NO >> Repair or replace damaged parts.

Component Inspection (Line Pressure Solenoid Valve)

INFOID:000000010113628

1. CHECK LINE PRESSURE SOLENOID VALVE

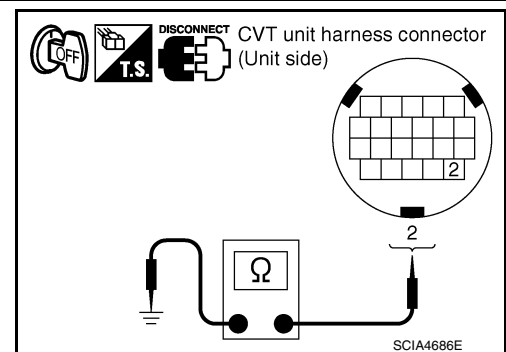
Check resistance between CVT unit connector terminal and ground.

CVT unit connector		Ground	Resistance (Approx.)
Connector	Terminal		
F46	2		3.0 – 9.0 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).



P0776 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0776 PRESSURE CONTROL SOLENOID B

Description

INFOID:0000000010113629

The secondary pressure solenoid valve regulates the secondary pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic

INFOID:0000000010113630

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0776	Pressure Control Solenoid B Performance/Stuck Off	Secondary pressure is too high or too low compared with the commanded value while driving.	<ul style="list-style-type: none">• Harness or connectors (Solenoid circuit is open or shorted.)• Secondary pressure solenoid valve system• Secondary pressure sensor• Line pressure control system

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

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 ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Start engine and maintain the following conditions for at least 30 consecutive seconds.

ATF TEMP SEN	: 1.0 – 2.0 V
ACC PEDAL OPEN	: More than 1.0/8
RANGE	: "D" position
VEHICLE SPEED	: 10 km/h (6 MPH) or more
Driving location	: Driving the vehicle uphill (increased engine load) will help maintain the driving conditions required for this test.

With GST

Follow the procedure "With CONSULT".

Is "P0776" detected?

- YES >> Go to [TM-75. "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010113631

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to [TM-162. "Inspection and Judgment"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace damaged parts. Refer to [TM-162. "Inspection and Judgment"](#).

2. CHECK SECONDARY PRESSURE SOLENOID VALVE

1. Turn ignition switch OFF.
2. Disconnect CVT unit connector.
3. Check secondary pressure solenoid valve. Refer to [TM-76. "Component Inspection \(Secondary Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

P0776 PRESSURE CONTROL SOLENOID B

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 3.
- NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).

3.CHECK LINE PRESSURE SOLENOID VALVE

Check line pressure solenoid valve. Refer to [TM-76, "Component Inspection \(Line Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).

4.CHECK SECONDARY PRESSURE SENSOR SYSTEM

Check secondary pressure sensor system. Refer to [TM-85, "DTC Logic"](#).

Is the inspection result normal?

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

5.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-188, "Exploded View"](#).
- NO >> Repair or replace damaged parts.

Component Inspection (Line Pressure Solenoid Valve)

INFOID:000000010113632

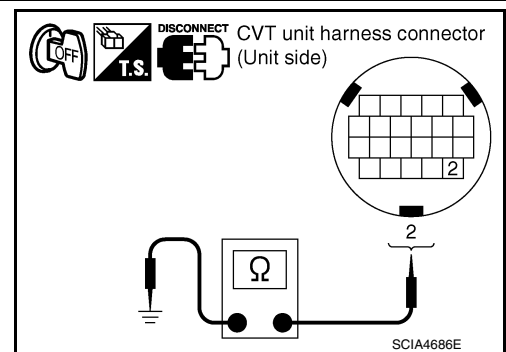
1.CHECK LINE PRESSURE SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit connector		Ground	Resistance (Approx.)
Connector	Terminal		
F46	2		3.0 – 9.0 Ω

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).



Component Inspection (Secondary Pressure Solenoid Valve)

INFOID:000000010113633

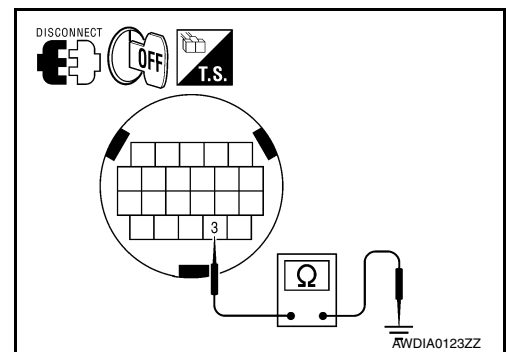
1.CHECK SECONDARY PRESSURE SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit connector		Ground	Resistance (Approx.)
Connector	Terminal		
F46	3		3.0 – 9.0 Ω

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).



P0778 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0778 PRESSURE CONTROL SOLENOID B

Description

INFOID:000000010113634

The secondary pressure solenoid valve regulates the oil pump discharge pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic

INFOID:000000010113635

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0778	Pressure Control Solenoid B Electrical	<ul style="list-style-type: none"> Normal voltage is not applied to solenoid due to cut line, short, etc. TCM detects as irregular by comparing target value with monitor value. 	<ul style="list-style-type: none"> Harness or connectors (Solenoid circuit is open or shorted.) Secondary pressure solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

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

④ With CONSULT

- Start engine.
- Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.
- Perform "Self Diagnostic Results" in "TRANSMISSION".

④ With GST

Follow the procedure "With CONSULT".

Is "P0778" detected?

- YES >> Go to [TM-77, "Diagnosis Procedure"](#).
- NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000010113636

Regarding Wiring Diagram information, refer to [TM-126, "Wiring Diagram"](#).

1. CHECK SECONDARY PRESSURE SOLENOID VALVE CIRCUIT

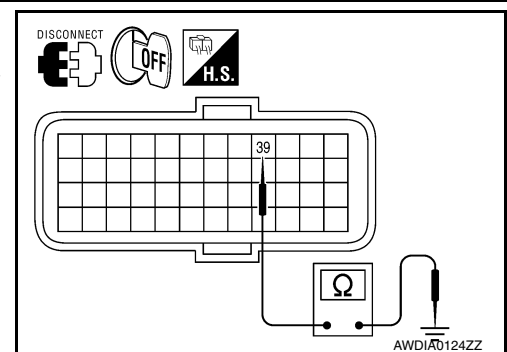
- Turn ignition switch OFF.
- Disconnect TCM connector.
- Check resistance between TCM vehicle side harness connector terminal and ground.

TCM vehicle side harness connector		Ground	Resistance (Approx.)
Connector	Terminal		
F15	39		3.0 – 9.0 Ω

Is the inspection result normal?

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

2. CHECK HARNESS BETWEEN TCM AND SECONDARY PRESSURE SOLENOID VALVE (PART 1)



P0778 PRESSURE CONTROL SOLENOID B

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

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

TCM vehicle side harness connector		CVT unit vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	39	F46 (B)	3	Existed

Is the inspection result normal?

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

3.CHECK HARNESS BETWEEN TCM AND SECONDARY PRESSURE SOLENOID VALVE (PART 2)

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

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	39		Not existed

Is the inspection result normal?

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

4.CHECK SECONDARY PRESSURE SOLENOID VALVE

Check secondary pressure solenoid valve. Refer to [TM-78. "Component Inspection \(Secondary Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

- YES >> GO TO 5.
 NO >> Replace transaxle assembly. Refer to [TM-188. "Exploded View"](#).

5.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168. "Exploded View"](#).
 NO >> Repair or replace damaged parts.

Component Inspection (Secondary Pressure Solenoid Valve)

INFOID:000000010113637

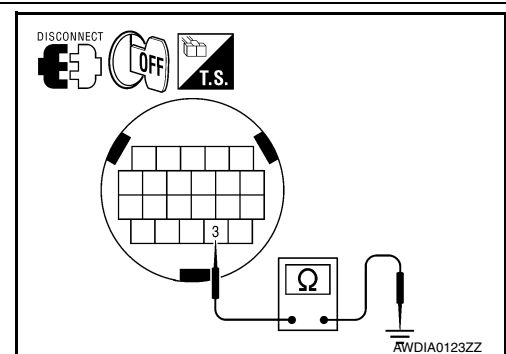
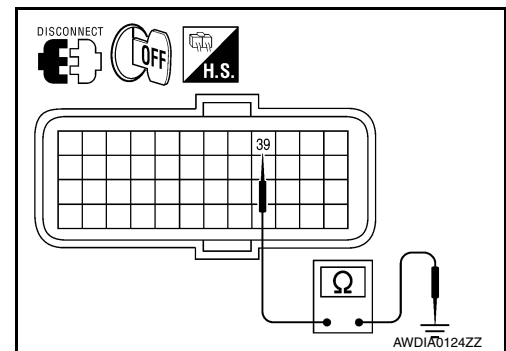
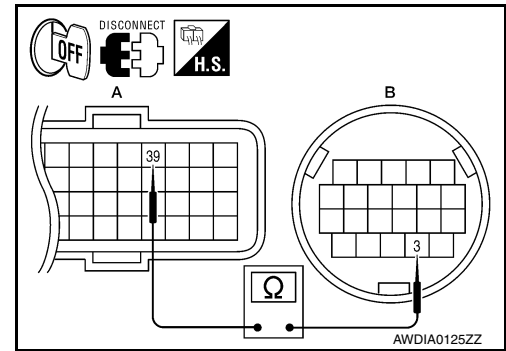
1.CHECK SECONDARY PRESSURE SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit connector		Ground	Resistance (Approx.)
Connector	Terminal		
F46	3		3.0 – 9.0 Ω

Is the inspection result normal?

- YES >> INSPECTION END
 NO >> Replace transaxle assembly. Refer to [TM-188. "Exploded View"](#).



P0826 UP AND DOWN SHIFT SW

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0826 UP AND DOWN SHIFT SW

Description

INFOID:0000000010113638

Manual mode switch is installed in CVT shift selector.

Manual mode switch transmits signals (manual mode, not manual mode, shift up and shift down) to combination meter.

Paddle shifter transmits signals (shift up and shift down) to combination meter. (With paddle shifter)

Combination meter transmits signals (manual mode, not manual mode, shift up and shift down) to TCM with CAN communication signal.

DTC Logic

INFOID:0000000010113639

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0826	Up and Down Shift Switch Circuit	<ul style="list-style-type: none"> When an impossible pattern of switch signals is detected, a malfunction is detected. When shift up/down signal of paddle shifter continuously remains ON for 60 seconds. 	<ul style="list-style-type: none"> Harness or connectors (The circuit of these switches are open or shorted.) (TCM, and combination meter circuit are open or shorted.) (CAN communication line is open or shorted.) Manual mode select switch (Built into CVT shift selector) Manual mode position select switch (Built into CVT shift selector) Paddle shifter

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK DTC DETECTION

④ With CONSULT

- Turn ignition switch ON.
- Select "Data Monitor" in "TRANSMISSION".
- Drive vehicle and maintain the following conditions for at least 2 consecutive seconds.

MMODE : On

Is "P0826" detected?

- YES >> Go to [TM-79, "Diagnosis Procedure"](#).
- NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010113640

Regarding Wiring Diagram information, refer to [TM-126, "Wiring Diagram"](#).

1. CHECK MANUAL MODE SWITCH SIGNALS

④ With CONSULT

- Turn ignition switch ON.
- Select "Data Monitor" in "TRANSMISSION".
- Check the On/Off operations of each monitor item.

P0826 UP AND DOWN SHIFT SW

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

Item name	Monitor item	Condition	Status
Manual mode switch	MMODE	Manual shift gate position	On
		Other than the above	Off
	NONMMODE	Manual shift gate position	Off
		Other than the above	On
	UPLVR	Selector lever: UP (+ side)	On
		Other than the above	Off
	DOWNLVR	Selector lever: DOWN (- side)	On
		Other than the above	Off
Paddle shifter*	STRDWNSW	Pressed paddle shifter (shift-down)	On
		Released paddle shifter	Off
	STRUPSW	Pressed paddle shifter (shift-up)	On
		Released paddle shifter	Off

*: With paddle shifter

⊗ Without CONSULT

Drive vehicle in the manual mode, and confirm that the actual gear position and the meter's indication of the position mutually coincide when the selector lever and paddle shifter* are shifted to the “+ (up)” or “- (down)” side (1st ↔ 6th gear).

*: With paddle shifter

Is the inspection result normal?

YES >> GO TO 13.

NO-1 (Manual mode switch is abnormal)>>GO TO 2.

NO-2 (Paddle shifter is abnormal)>>GO TO 7.

2.CHECK MANUAL MODE SWITCH

1. Turn ignition switch OFF.
2. Disconnect CVT shift selector connector.
3. Check manual mode switch. Refer to [TM-83. "Component Inspection \(Manual Mode Switch\)".](#)

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3.CHECK GROUND CIRCUIT (PART 1)

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

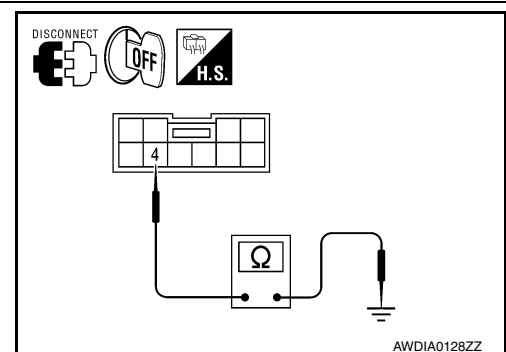
CVT shift selector vehicle side harness connector		Ground	Continuity
Connector	Terminal		
M78	4		Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4.CHECK GROUND CIRCUIT (PART 2)



P0826 UP AND DOWN SHIFT SW

< DTC/CIRCUIT DIAGNOSIS >

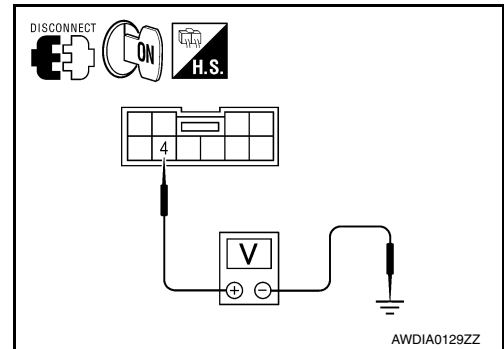
[CVT: RE0F09B]

Check voltage between CVT shift selector vehicle side harness connector terminal and ground.

CVT shift selector vehicle side harness connector		Ground	Voltage (Approx.)
Connector	Terminal		
M78	4		0 V

Is the inspection result normal?

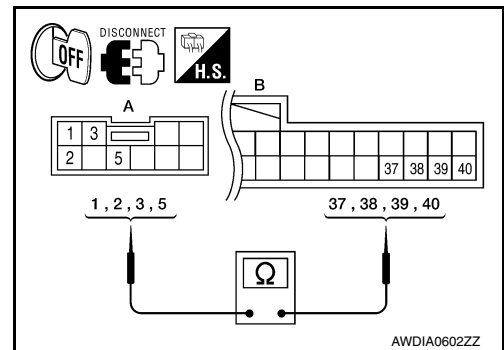
- YES >> GO TO 5.
- NO >> Repair or replace damaged parts.



5. CHECK HARNESS BETWEEN CVT SHIFT SELECTOR AND COMBINATION METER (PART 1)

1. Disconnect combination meter connector.
2. Check continuity between CVT shift selector vehicle side harness connector terminals and combination meter vehicle side harness connector terminals.

CVT shift selector vehicle side harness connector		Combination meter vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
M78 (A)	1	M24 (B)	40	Existed
	2		38	
	3		39	
	5		37	



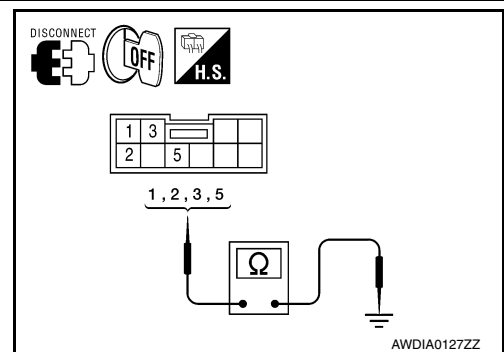
Is the inspection result normal?

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

6. CHECK HARNESS BETWEEN CVT SHIFT SELECTOR AND COMBINATION METER (PART 2)

Check continuity between CVT shift selector vehicle side harness connector terminals and ground.

CVT shift selector vehicle side harness connector		Ground	Continuity
Connector	Terminal		
M78	1		Not existed
	2		
	3		
	5		



Is the inspection result normal?

- YES >> GO TO 12.
- NO >> Repair or replace damaged parts.

7. CHECK PADDLE SHIFTER

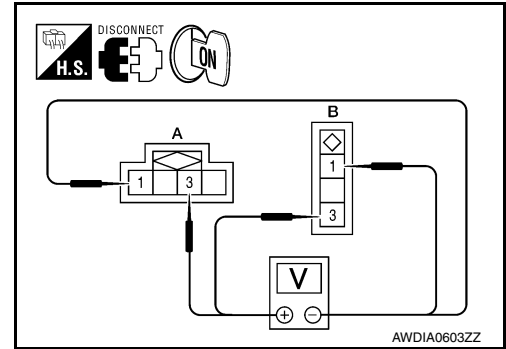
P0826 UP AND DOWN SHIFT SW

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

1. Turn ignition switch OFF.
2. Disconnect paddle shifter connector.
3. Turn ignition switch ON.
4. Check voltage between paddle shifter side harness connector terminals.

Paddle shifter vehicle side harness connector			Voltage (Approx.)
Connector	Terminal		
M82 (A)	3	1	Battery voltage
M83 (B)	3	1	



Is the inspection result normal?

- YES >> GO TO 8.
 NO >> GO TO 10.

8.CHECK PADDLE SHIFTER

Check paddle shifter. Refer to [TM-84, "Component Inspection \(Paddle Shifter\)"](#).

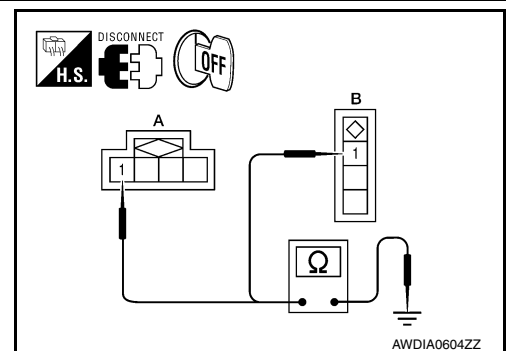
Is the inspection result normal?

- YES >> GO TO 9.
 NO >> Repair or replace damaged parts.

9.CHECK GROUND CIRCUIT

Check continuity between paddle shifter vehicle side harness connector terminal and ground.

Paddle shifter vehicle side harness connector		Ground	Continuity
Connector	Terminal		Existed
M82 (A)	1		Existed
M83 (B)	1		



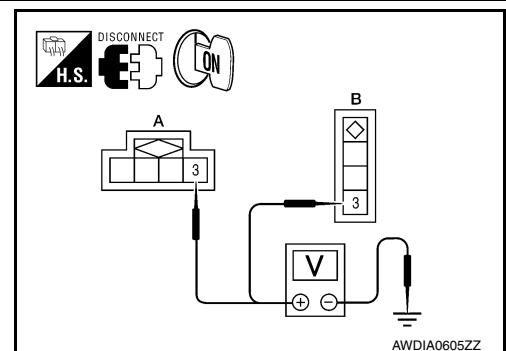
Is the inspection result normal?

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

10.CHECK POWER SOURCE CIRCUIT

Check voltage between paddle shifter vehicle side harness connector terminal and ground.

Paddle shifter vehicle side harness connector		Ground	Voltage (Approx.)
Connector	Terminal		0 V
M82 (A)	3		0 V
M83 (B)	3		



Is the inspection result normal?

- YES >> GO TO 11.
 NO >> Repair or replace damaged parts.

11.CHECK HARNESS BETWEEN PADDLE SHIFTER AND COMBINATION METER (PART 1)

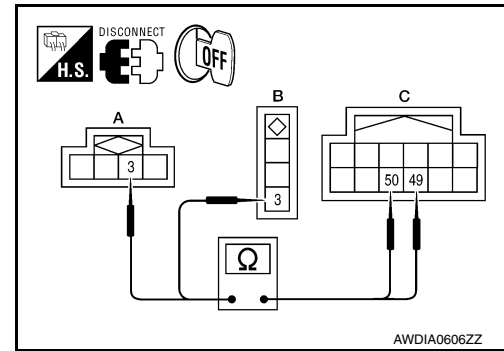
P0826 UP AND DOWN SHIFT SW

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

1. Disconnect combination meter connector.
2. Check continuity between paddle shifter vehicle side harness connector terminals and combination meter vehicle side harness connector terminals.

Paddle shifter vehicle side harness connector		Combination meter vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
M82 (A)	3	M23 (C)	50	Existed
M83 (B)	3		49	



Is the inspection result normal?

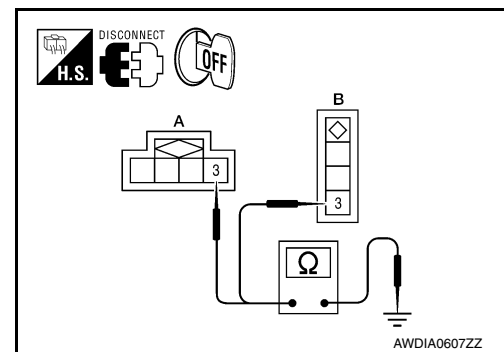
YES >> GO TO 12.

NO >> Repair or replace damaged parts.

12. CHECK HARNESS BETWEEN PADDLE SHIFTER AND COMBINATION METER (PART 2)

Check continuity between paddle shifter vehicle side harness connector terminals and ground.

Paddle shifter vehicle side harness connector		Ground	Continuity
Connector	Terminal		
M82 (A)	3		Not existed
M83 (B)	3		



Is the inspection result normal?

YES >> GO TO 13.

NO >> Repair or replace damaged parts.

13. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to [TM-168. "Exploded View"](#).

NO >> Repair or replace damaged parts.

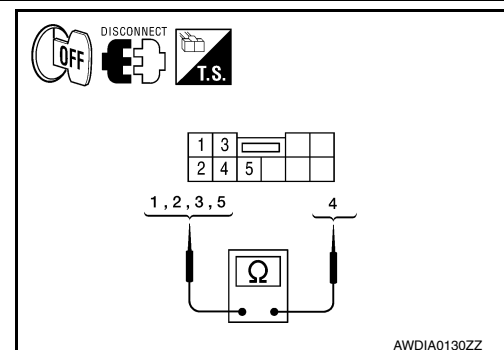
Component Inspection (Manual Mode Switch)

INFOID:000000010113641

1. CHECK MANUAL MODE SWITCH

Check continuity between CVT shift selector connector terminals.

CVT shift selector connector		Condition	Continuity	
Connector	Terminal			
M78	5	4	Manual shift gate position	Not existed
			Other than the above	Existed
	1	4	Manual shift gate position (neutral)	Existed
			Other than the above	Not existed
	3	4	Selector lever: UP (+ side)	Existed
			Other than the above	Not existed
2	4	Selector lever: DOWN (- side)	Existed	
		Other than the above	Not existed	



Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace damaged parts.

P0826 UP AND DOWN SHIFT SW

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

Component Inspection (Paddle Shifter)

INFOID:000000010113642

1. CHECK PADDLE SHIFTER

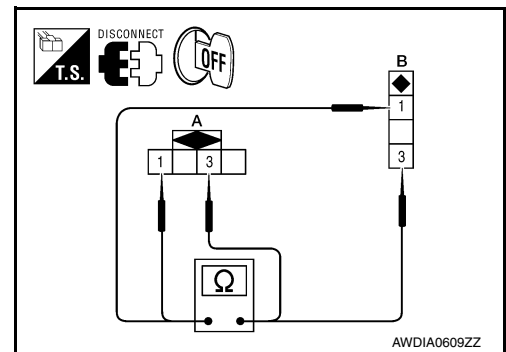
Check continuity between paddle shifter connector terminals.

Paddle shifter connector			Condition	Continuity
Connector	Terminal			
M82 (A)	1	3	Pressed paddle shifter (shift-up)	Existed
			Released paddle shifter	Not existed
M83 (B)	1	3	Pressed paddle shifter (shift-down)	Existed
			Released paddle shifter	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace damaged parts.



P0840 TRANSMISSION FLUID PRESSURE SEN/SW A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0840 TRANSMISSION FLUID PRESSURE SEN/SW A

Description

INFOID:000000010113643

The secondary pressure sensor detects secondary pressure of CVT and sends a signal to the TCM.

DTC Logic

INFOID:000000010113644

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0840	Transmission Fluid Pressure Sensor/Switch A Circuit	Signal voltage of the secondary pressure sensor is too high or too low while driving.	<ul style="list-style-type: none"> • Harness or connectors (Sensor circuit is open or shorted.) • Secondary pressure sensor

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 ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Check that output voltage of CVT fluid temperature sensor is within the range below.

ATF TEMP SEN : 1.0 – 2.0 V

If it is out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

4. Start engine and wait for at least 5 consecutive seconds.

With GST

Follow the procedure "With CONSULT".

Is "P0840" detected?

- YES >> Go to [TM-85. "Diagnosis Procedure"](#).
 NO >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000010113645

Regarding Wiring Diagram information, refer to [TM-126. "Wiring Diagram"](#).

1. CHECK INPUT SIGNAL

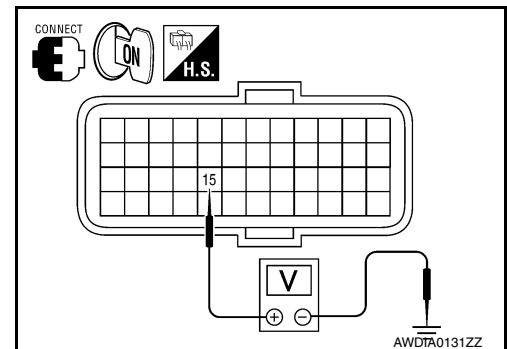
1. Start engine.
2. Check voltage between TCM connector terminal and ground.

TCM connector		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
F15	15		"N" position idle	1.0 – 1.5 V

Is the inspection result normal?

- YES >> GO TO 8.
 NO >> GO TO 2.

2. CHECK POWER AND SENSOR GROUND



P0840 TRANSMISSION FLUID PRESSURE SEN/SW A

< DTC/CIRCUIT DIAGNOSIS >

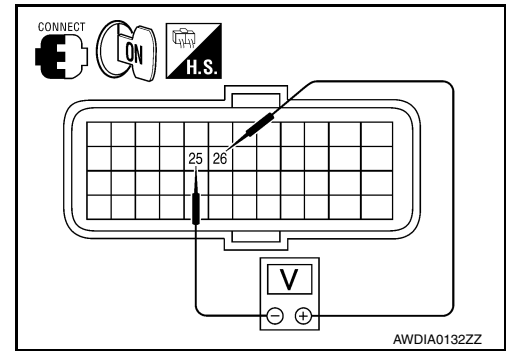
[CVT: RE0F09B]

Check voltage between TCM terminals.

TCM connector			Voltage (Approx.)
Connector	Terminal		
F15	25	26	4.75 – 5.25 V

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> GO TO 5.



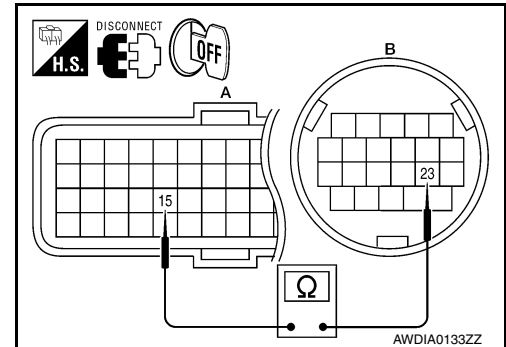
3. CHECK HARNESS BETWEEN TCM AND CVT UNIT (SECONDARY PRESSURE SENSOR) (PART 1)

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

TCM vehicle side harness connector		CVT unit vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	15	F46 (B)	23	Existed

Is the inspection result normal?

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



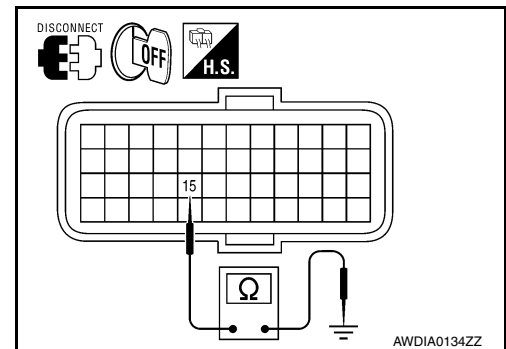
4. CHECK HARNESS BETWEEN TCM AND CVT UNIT (SECONDARY PRESSURE SENSOR) (PART 2)

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

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	15		Not existed

Is the inspection result normal?

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



5. CHECK HARNESS BETWEEN TCM AND CVT UNIT (SENSOR POWER AND SENSOR GROUND) (PART 1)

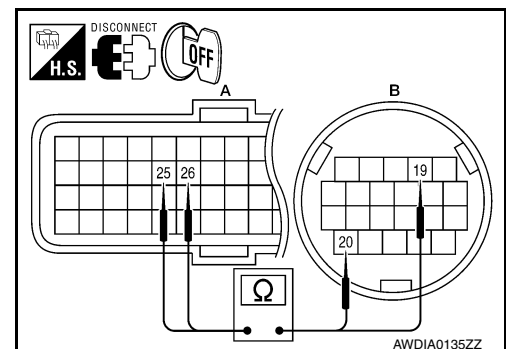
- Turn ignition switch OFF.
- Disconnect TCM connector and CVT unit connector.
- Check continuity between TCM vehicle side harness connector terminals and CVT unit vehicle side harness connector terminals.

TCM vehicle side harness connector		CVT unit vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	25	F46 (B)	19	Existed
	26		20	

Is the inspection result normal?

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

6. CHECK HARNESS BETWEEN TCM AND CVT UNIT (SENSOR POWER AND SENSOR GROUND) (PART 2)



P0840 TRANSMISSION FLUID PRESSURE SEN/SW A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

2)

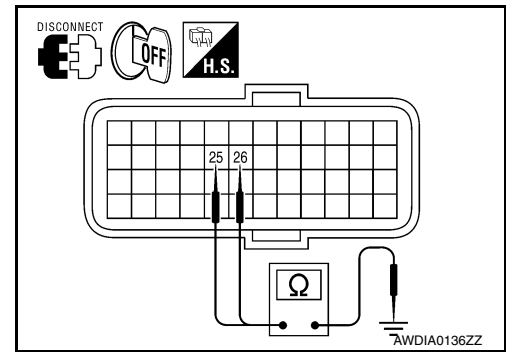
Check continuity between TCM vehicle side harness connector terminals and ground.

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	25		Not existed
	26		

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.



7. CHECK TCM

1. Replace with the same type of TCM. Refer to [TM-168, "Exploded View"](#).
2. Connect each connector.
3. Perform "DTC CONFIRMATION PROCEDURE". Refer to [TM-85, "DTC Logic"](#).

Is "P0840" detected?

YES >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).

NO >> Replace TCM. Refer to [TM-168, "Exploded View"](#).

8. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).

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:000000010113646

Using the engine load (throttle position), the primary pulley revolution speed, and the secondary pulley revolution speed as input signals, TCM changes the operating pressure of the primary pulley and the secondary pulley and changes the groove width of the pulley to control the gear ratio.

DTC Logic

INFOID:000000010113647

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0841	Transmission Fluid Pressure Sensor/Switch A Circuit Range/Performance	Correlation between the values of the transmission fluid pressure sensor A (secondary pressure sensor) and the transmission fluid pressure sensor B (primary pressure sensor) is out of specification.	<ul style="list-style-type: none">• Harness or connectors (Sensor circuit is open or shorted.)• Secondary pressure sensor• Primary pressure sensor

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

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 ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Start engine and maintain the following conditions for at least 12 consecutive seconds.

VEHICLE SPEED : 40 km/h (25 MPH) or more

RANGE : "D" position

Is "P0841" detected?

YES >> Go to [TM-88, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000010113648

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to [TM-162, "Inspection and Judgment"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts. Refer to [TM-162, "Inspection and Judgment"](#).

2. CHECK SECONDARY PRESSURE SENSOR SYSTEM

Check secondary pressure sensor system. Refer to [TM-85, "Description"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3. CHECK PRIMARY PRESSURE SENSOR SYSTEM

Check primary pressure sensor system. Refer to [TM-90, "Description"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

P0841 TRANSMISSION FLUID PRESSURE SEN/SW A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

4. CHECK LINE PRESSURE SOLENOID VALVE

1. Turn ignition switch OFF.
2. Disconnect CVT unit connector.
3. Check line pressure solenoid valve. Refer to [TM-89, "Component Inspection \(Line Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

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

5. CHECK SECONDARY PRESSURE SOLENOID VALVE

Check secondary pressure solenoid valve. Refer to [TM-89, "Component Inspection \(Secondary Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

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

6. CHECK STEP MOTOR SYSTEM

Check step motor system. Refer to [TM-109, "Description"](#).

Is the inspection result normal?

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

7. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).
NO >> Repair or replace damaged parts.

Component Inspection (Line Pressure Solenoid Valve)

INFOID:000000010113649

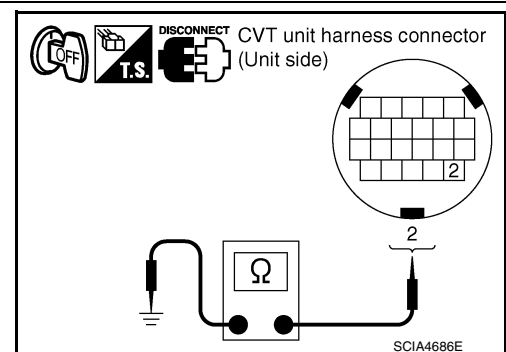
1. CHECK LINE PRESSURE SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit connector		Ground	Resistance (Approx.)
Connector	Terminal		
F46	2		3.0 – 9.0 Ω

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).



Component Inspection (Secondary Pressure Solenoid Valve)

INFOID:000000010113650

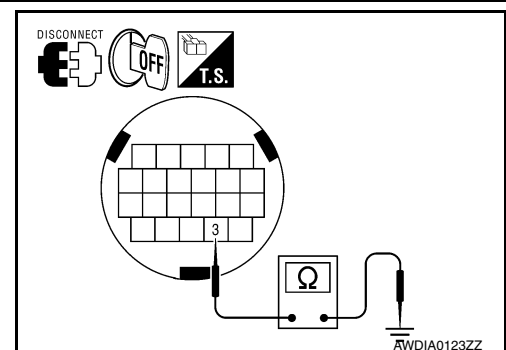
1. CHECK SECONDARY PRESSURE SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit connector		Ground	Resistance (Approx.)
Connector	Terminal		
F46	3		3.0 – 9.0 Ω

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).



P0845 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0845 TRANSMISSION FLUID PRESSURE SEN/SW B

Description

INFOID:000000010113651

The primary pressure sensor detects primary pressure of CVT and sends a signal to the TCM.

DTC Logic

INFOID:000000010113652

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0845	Transmission Fluid Pressure Sensor/Switch B Circuit	Signal voltage of the primary pressure sensor is too high or too low while driving.	<ul style="list-style-type: none"> • Harness or connectors (Sensor circuit is open or shorted.) • Primary pressure sensor

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 ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Check that output voltage of line temperature sensor is within the range below.

ATF TEMP SEN : 1.0 – 2.0 V

If it is out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

4. Start engine and wait for at least 5 consecutive seconds.

Ⓢ With GST

Follow the procedure "With CONSULT".

Is "P0845" detected?

- YES >> Go to [TM-90. "Diagnosis Procedure"](#).
 NO >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000010113653

Regarding Wiring Diagram information, refer to [TM-126. "Wiring Diagram"](#).

1. CHECK INPUT SIGNAL

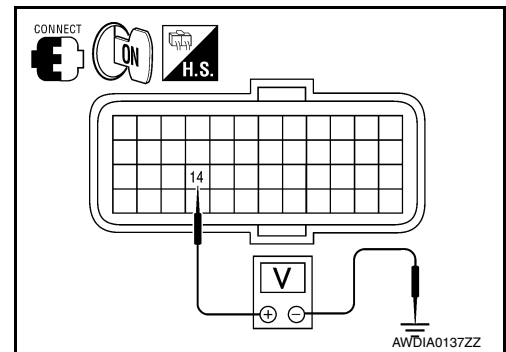
1. Start engine.
2. Check voltage between TCM connector terminal and ground.

TCM connector		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
F15	14		"N" position idle	0.5 – 0.8 V

Is the inspection result normal?

- YES >> GO TO 8.
 NO >> GO TO 2.

2. CHECK SENSOR POWER AND SENSOR GROUND



P0845 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

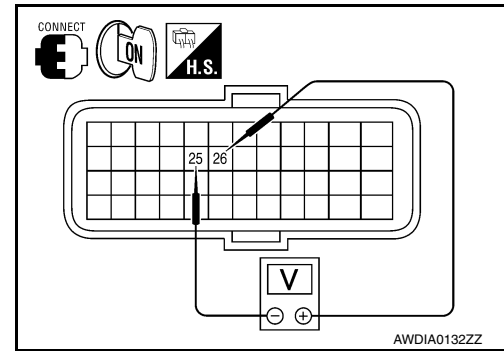
[CVT: RE0F09B]

Check voltage between TCM connector terminals.

TCM connector			Voltage (Approx.)
Connector	Terminal		
F15	25	26	4.75 – 5.25 V

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> GO TO 5.



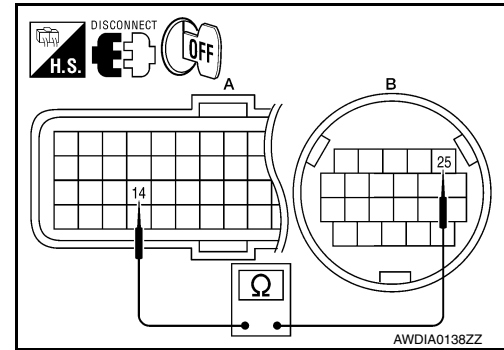
3. CHECK HARNESS BETWEEN TCM AND CVT UNIT (PRIMARY PRESSURE SENSOR) (PART 1)

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

TCM vehicle side harness connector		CVT unit vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	14	F46 (B)	25	Existed

Is the inspection result normal?

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



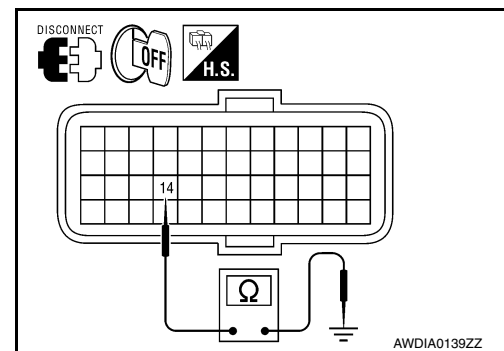
4. CHECK HARNESS BETWEEN TCM AND CVT UNIT (PRIMARY PRESSURE SENSOR) (PART 2)

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

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	14		Not existed

Is the inspection result normal?

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



5. CHECK HARNESS BETWEEN TCM AND CVT UNIT (SENSOR POWER AND SENSOR GROUND) (PART 1)

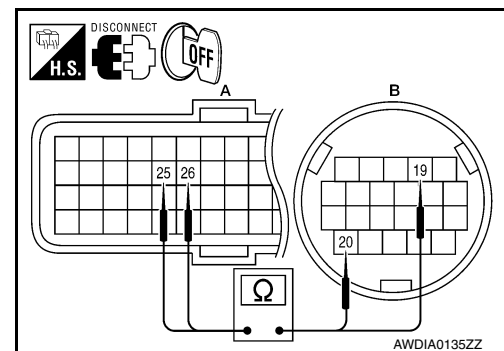
- Turn ignition switch OFF.
- Disconnect TCM connector and CVT unit connector.
- Check continuity between TCM vehicle side harness connector terminal and CVT unit vehicle side harness connector terminals.

TCM vehicle side harness connector		CVT unit vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	25	F46 (B)	19	Existed
	26		20	

Is the inspection result normal?

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

6. CHECK HARNESS BETWEEN TCM AND CVT UNIT (SENSOR POWER AND SENSOR GROUND) (PART 2)



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P0845 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

2)

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

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	25		Not existed
	26		

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.

7. CHECK TCM

1. Replace with the same type of TCM. Refer to [TM-168, "Exploded View"](#).

2. Connect each connector.

3. Perform "DTC CONFIRMATION PROCEDURE". Refer to [TM-90, "DTC Logic"](#).

Is "P0845" detected?

YES >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).

NO >> Replace TCM. Refer to [TM-168, "Exploded View"](#).

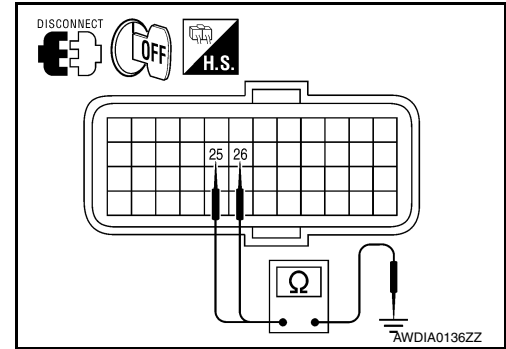
8. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).

NO >> Repair or replace damaged parts.



P0868 TRANSMISSION FLUID PRESSURE

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P0868 TRANSMISSION FLUID PRESSURE

Description

INFOID:000000010113654

The secondary pressure solenoid valve regulates the secondary pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic

INFOID:000000010113655

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P0868	Transmission Fluid Pressure Low	Secondary fluid pressure is too low compared with the commanded value while driving.	<ul style="list-style-type: none">• Harness or connectors (Solenoid circuit is open or shorted.)• Secondary pressure solenoid valve system• Secondary pressure sensor• Line pressure control system

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

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 ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Check that output voltage of CVT fluid temperature sensor is within the range below.

ATF TEMP SEN : 1.0 – 2.0 V

If it is out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

4. Start engine and maintain the following conditions for at least 10 consecutive seconds.

VEHICLE SPEED (accelerate slowly) : 0 → 50 km/h (31 MPH)

ACC PEDAL OPEN : 0.5/8 – 1.0/8

RANGE : "D" position

Is "P0868" detected?

YES >> Go to [TM-93, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000010113656

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to [TM-162, "Inspection and Judgment"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts. Refer to [TM-162, "Inspection and Judgment"](#).

2. CHECK SECONDARY PRESSURE SOLENOID VALVE

1. Turn ignition switch OFF.
2. Disconnect CVT unit connector.
3. Check secondary pressure solenoid valve. Refer to [TM-94, "Component Inspection \(Secondary Pressure Solenoid Valve\)"](#).

P0868 TRANSMISSION FLUID PRESSURE

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

Is the inspection result normal?

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

3.CHECK LINE PRESSURE SOLENOID VALVE

Check line pressure solenoid valve. Refer to [TM-94. "Component Inspection \(Line Pressure Solenoid Valve\)".](#)

Is the inspection result normal?

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

4.CHECK SECONDARY PRESSURE SENSOR SYSTEM

Check secondary pressure sensor system. Refer to [TM-85. "DTC Logic".](#)

Is the inspection result normal?

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

5.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168. "Exploded View".](#)
- NO >> Repair or replace damaged parts.

Component Inspection (Line Pressure Solenoid Valve)

INFOID:000000010113657

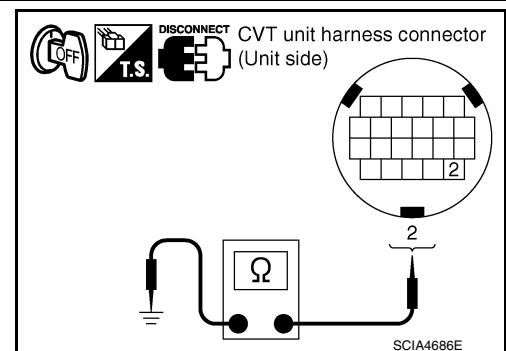
1.CHECK LINE PRESSURE SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit connector		Ground	Resistance (Approx.)
Connector	Terminal		
F15	2		3.0 – 9.0 Ω

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace transaxle assembly. Refer to [TM-188. "Exploded View".](#)



Component Inspection (Secondary Pressure Solenoid Valve)

INFOID:000000010113658

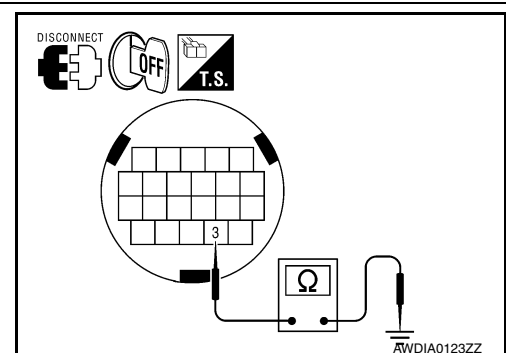
1.CHECK SECONDARY PRESSURE SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit connector		Ground	Resistance (Approx.)
Connector	Terminal		
F15	3		3.0 – 9.0 Ω

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace transaxle assembly. Refer to [TM-188. "Exploded View".](#)



P1701 TCM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1701 TCM

Description

INFOID:000000010113659

When the power supply to the TCM is cut off, for example because the battery is removed, and the self-diagnosis memory function stops, a malfunction is detected.

NOTE:

Since "P1701" is indicated when replacing TCM, perform diagnosis after erasing "Self Diagnostic Results".

DTC Logic

INFOID:000000010113660

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P1701	Power Supply Circuit	<ul style="list-style-type: none"> When the power supply to the TCM is cut off, for example because the battery is removed, and the self-diagnosis memory function stops. This is not a malfunction message (Whenever shutting off a power supply to the TCM, this message appears on the screen). 	Harness or connectors (Battery or ignition switch and TCM circuit is open or shorted.)

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

- Turn ignition switch ON.
- Wait for at least 2 consecutive seconds.
- Perform "Self Diagnostic Results" in "TRANSMISSION".

Is "P1701" detected?

- YES >> Go to [TM-95, "Diagnosis Procedure"](#).
- NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

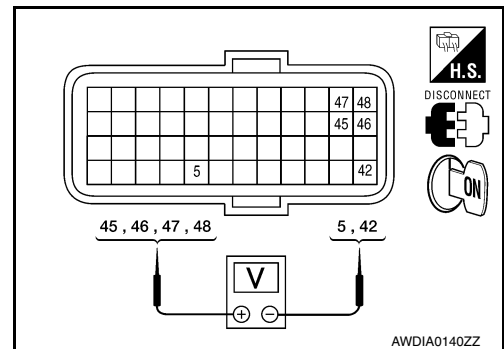
INFOID:000000010113661

Regarding Wiring Diagram information, refer to [TM-126, "Wiring Diagram"](#).

1. CHECK TCM POWER SOURCE

- Turn ignition switch OFF.
- Disconnect TCM connector.
- Check voltage between TCM vehicle side harness connector terminals.

TCM vehicle side harness connector		Condition	Voltage (Approx.)
Connector	Terminal		



P1701 TCM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

F15	46	5, 42	Ignition switch ON	Battery voltage
			Ignition switch OFF	0 V
	48		Ignition switch ON	Battery voltage
			Ignition switch OFF	0 V
	45		Always	Battery voltage
	47			

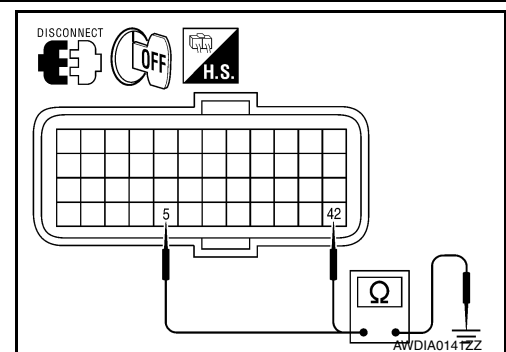
Is the inspection result normal?

- YES >> GO TO 6.
- NO >> GO TO 2.

2. CHECK TCM GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between TCM vehicle side harness connector terminals and ground.

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	5		Existed
	42		



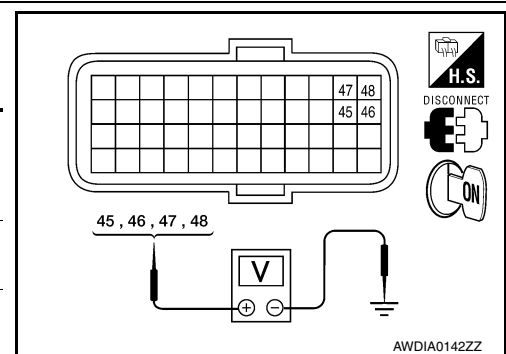
Is the inspection result normal?

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

3. CHECK TCM POWER CIRCUIT

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

TCM vehicle side harness connector		Condition	Voltage (Approx.)
Connector	Terminal		
F15	46	Ignition switch ON	Battery voltage
		Ignition switch OFF	0 V
	48	Ignition switch ON	Battery voltage
		Ignition switch OFF	0 V
	45	Always	Battery voltage
	47		



Is the inspection result normal?

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

4. CHECK HARNESS BETWEEN TCM AND IPDM E/R AND BETWEEN TCM AND BATTERY (PART 1)

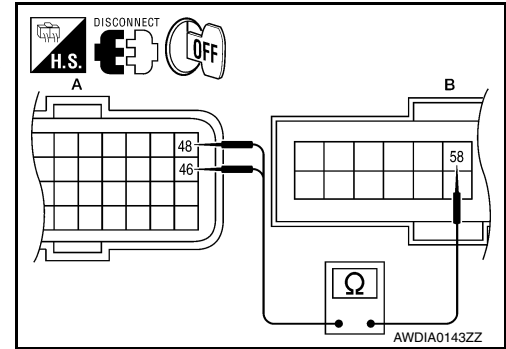
P1701 TCM

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

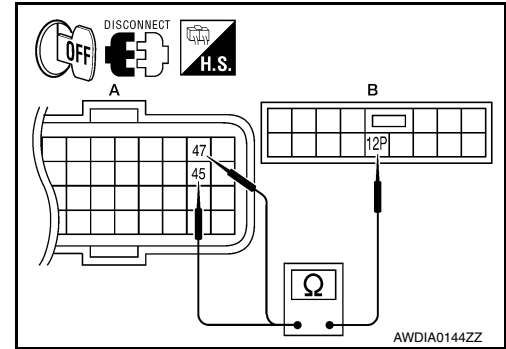
1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between TCM vehicle side harness connector terminals and IPDM E/R vehicle side harness connector terminal.

TCM vehicle side harness connector		IPDM E/R vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	46	F10 (B)	58	Existed
	48			



4. Disconnect fuse block (J/B) connector.
5. Check continuity between TCM vehicle side harness connector terminals and fuse block (J/B) vehicle side harness connector terminal.

TCM vehicle side harness connector		Fuse block (J/B) vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	45	E6 (B)	12P	Existed
	47			



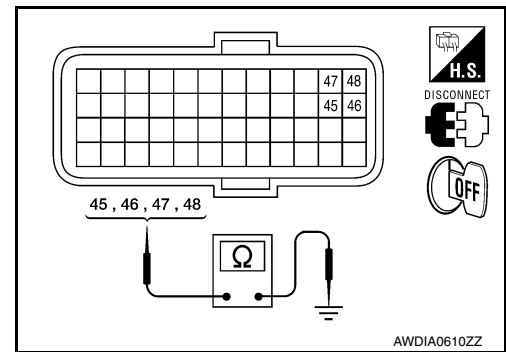
Is the inspection result normal?

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

5. CHECK HARNESS BETWEEN TCM AND IPDM E/R AND BETWEEN TCM AND BATTERY (PART 2)

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

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	45	Ground	Not existed
	46		
	47		
	48		



Is the inspection result normal?

- YES >> Check the following. If NG, repair or replace damaged parts.
- 10A fuse (No. 34, located in IPDM E/R)
 - 10A fuse [No. 11, located in fuse block (J/B)]
 - Ignition switch. Refer to [PG-6, "Wiring Diagram — Battery Power Supply —"](#).
- NO >> Repair or replace damaged parts.

6. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).
 NO >> Repair or replace damaged parts.

P1705 TP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1705 TP SENSOR

Description

INFOID:000000010113662

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:000000010113663

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P1705	Accelerator Pedal Position Sensor Signal Circuit	TCM does not receive the proper accelerator pedal position signals (input via CAN communication) from ECM.	<ul style="list-style-type: none">• ECM• Harness or connectors (CAN communication line is open or shorted.)

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

④With CONSULT

1. Turn ignition switch ON.
2. Depress accelerator pedal fully and release it, then wait for 5 seconds.
3. Perform "Self Diagnostic Results" in "TRANSMISSION".

Is "P1705" detected?

- YES >> Go to [TM-98, "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000010113664

1.CHECK DTC WITH ECM

④With CONSULT

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

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Check DTC Detected Item. Refer to [EC-542, "DTC Index"](#).

2.CHECK DTC WITH TCM

④With CONSULT

Perform "Self Diagnostic Results" in "TRANSMISSION".

Is "P1705" detected?

- YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).
NO >> GO TO 3.

3.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).
NO >> Repair or replace damaged parts.

P1709 INCOMPLETED DATA WRITING

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1709 INCOMPLETED DATA WRITING

Description

INFOID:0000000010113665

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:0000000010113666

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-99, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000010113667

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	
F15	8	F46	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		
F15	8	Ground	Not existed
	9		
	10		
	25		
	26		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-95. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. REPLACE TCM

1. Replace the TCM. Refer to [TM-168. "Exploded View"](#).

2. Perform "DTC CONFIRMATION PROCEDURE". Refer to [TM-99. "DTC Logic"](#).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the control valve assembly. Refer to [TM-179. "Exploded View"](#).

P1722 VEHICLE SPEED

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1722 VEHICLE SPEED

Description

INFOID:0000000010113668

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

DTC Logic

INFOID:0000000010113669

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P1722	Vehicle Speed Signal Circuit	<ul style="list-style-type: none">CAN communication with the ABS actuator and the electric unit (control unit) is malfunctioning.There is a big difference between the vehicle speed signal from the ABS actuator and the electric unit (control unit), and the vehicle speed sensor signal.	<ul style="list-style-type: none">Harness or connectors (Sensor circuit is open or shorted.)ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

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

④ With CONSULT

- Turn ignition switch ON.
- Select "Data Monitor" in "TRANSMISSION".
- Start engine and maintain the following conditions for at least 5 consecutive seconds.

ACC PEDAL OPEN	: 1.0/8 or less
VEHICLE SPEED	: 30 km/h (19 MPH) or more

Is "P1722" detected?

- YES >> Go to [TM-101, "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010113670

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

④ With CONSULT

Perform "Self Diagnostic Results" in "ABS".

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Check DTC detected item. Refer to [BRC-82, "DTC No. Index"](#) (VDC/TCS/ABS).

2. CHECK DTC WITH TCM

④ With CONSULT

Perform "Self Diagnostic Results" in "TRANSMISSION".

Is "P1722" detected?

- YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).
NO >> GO TO 3.

3. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

P1722 VEHICLE SPEED

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

- YES >> Replace TCM. Refer to [TM-168. "Exploded View"](#).
- NO >> Repair or replace damaged parts.

P1723 SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1723 SPEED SENSOR

Description

INFOID:0000000010113671

The secondary speed sensor detects the revolution of parking gear and generates a pulse signal. The pulse signal is sent to the TCM, which converts it into vehicle speed.

The primary speed sensor detects the primary pulley revolution speed and sends a signal to the TCM.

DTC Logic

INFOID:0000000010113672

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P1723	Speed Sensor Circuit	A rotation sensor error is detected because the gear does not change in accordance with the position of the stepping motor. CAUTION: One of the "P0720", the "P0715" or the "P0725" is displayed with the DTC at the same time.	<ul style="list-style-type: none">• Harness or connectors (Sensor circuit is open or shorted.)• Secondary speed sensor• Primary speed sensor• Engine speed signal system

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

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 ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Start engine and maintain the following conditions for at least 5 consecutive seconds.

VEHICLE SPEED	: 10 km/h (6 MPH) or more
ACC PEDAL OPEN	: More than 1.0/8
RANGE	: "D" position
ENG SPEED	: 450 rpm or more
Driving location	: Driving the vehicle uphill (increased engine load) will help maintain the driving conditions required for this test.

Is "P1723" detected?

- YES >> Go to [TM-103, "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010113673

1. CHECK STEP MOTOR FUNCTION

Perform "Self Diagnostic Results" in "TRANSMISSION".

Is "P1778" detected?

- YES >> Repair or replace damaged parts. Refer to [TM-112, "DTC Logic"](#).
NO >> GO TO 2.

2. CHECK SECONDARY SPEED SENSOR SYSTEM

Check secondary speed sensor system. Refer to [TM-60, "DTC Logic"](#).

Is the inspection result normal?

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

P1723 SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

3.CHECK PRIMARY SPEED SENSOR SYSTEM

Check primary speed sensor system. Refer to [TM-57, "DTC Logic"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4.CHECK ENGINE SPEED SIGNAL SYSTEM

Check engine speed signal system. Refer to [TM-64, "DTC Logic"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).

NO >> Repair or replace damaged parts.

P1726 THROTTLE CONTROL SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1726 THROTTLE CONTROL SIGNAL

Description

INFOID:0000000010113674

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:0000000010113675

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P1726	Throttle Control Signal Circuit	The electronically controlled throttle for ECM is malfunctioning.	Harness or connectors (Sensor circuit is open or shorted.)

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. Start engine and let it idle for 5 seconds.
2. Perform "Self Diagnostic Results" in "TRANSMISSION".

Is "P1726" detected?

- YES >> Go to [TM-105, "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010113676

1. CHECK DTC WITH ECM

Ⓜ With CONSULT

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

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Check DTC Detected Item. Refer to [EC-542, "DTC Index"](#).

2. CHECK DTC WITH TCM

Ⓜ With CONSULT

Perform "Self Diagnostic Results" in "TRANSMISSION".

Is "P1726" detected?

- YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).
NO >> GO TO 3.

3. DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).
NO >> Repair or replace damaged parts.

P1740 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1740 SELECT SOLENOID

Description

INFOID:000000010113677

- The lock-up select solenoid valve controls lock-up clutch pressure or forward clutch pressure (reverse brake pressure).
- When controlling lock-up clutch, the valve is turned OFF. When controlling forward clutch, it is turned ON.

DTC Logic

INFOID:000000010113678

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P1740	Lock-up Select Solenoid Valve Circuit	<ul style="list-style-type: none"> • Normal voltage is not applied to solenoid due to cut line, short, etc. • TCM detects as irregular by comparing target value with monitor value. 	<ul style="list-style-type: none"> • Harness or connectors (Solenoid circuit is open or shorted.) • Lock-up select solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

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 ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Start engine and maintain the following conditions for at least 5 consecutive seconds.

RANGE : "D" and "N" position
(At each time, wait for 5 seconds.)

With GST

Follow the procedure "With CONSULT".

Is "P1740" detected?

- YES >> Go to [TM-106, "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000010113679

Regarding Wiring Diagram information, refer to [TM-126, "Wiring Diagram"](#).

1. CHECK LOCK-UP SELECT SOLENOID VALVE CIRCUIT

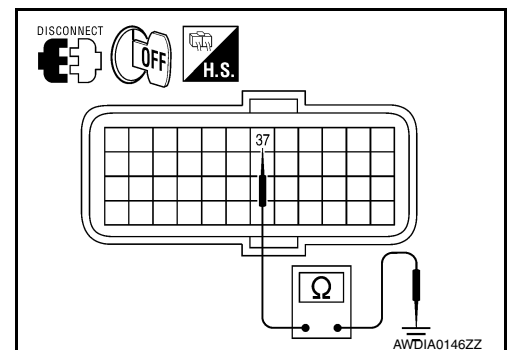
1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check resistance between TCM vehicle side harness connector terminal and ground.

TCM vehicle side harness connector		Ground	Resistance (Approx.)
Connector	Terminal		
F15	37		6.0 – 19.0 Ω

Is the inspection result normal?

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

2. CHECK HARNESS BETWEEN TCM AND CVT UNIT (LOCK-UP SELECT SOLENOID VALVE) (PART 1)



P1740 SELECT SOLENOID

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

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

TCM vehicle side harness connector		CVT unit vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	37	F46 (B)	13	Existed

Is the inspection result normal?

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

3.CHECK HARNESS BETWEEN TCM AND CVT UNIT (LOCK-UP SELECT SOLENOID VALVE) (PART 2)

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

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	37		Not existed

Is the inspection result normal?

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

4.CHECK LOCK-UP SELECT SOLENOID VALVE

Check lock-up select solenoid valve. Refer to [TM-107, "Component Inspection \(Lock-up Select Solenoid Valve\)"](#).

Is the inspection result normal?

- YES >> GO TO 5.
 NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).

5.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).
 NO >> Repair or replace damaged parts.

Component Inspection (Lock-up Select Solenoid Valve)

INFOID:000000010113680

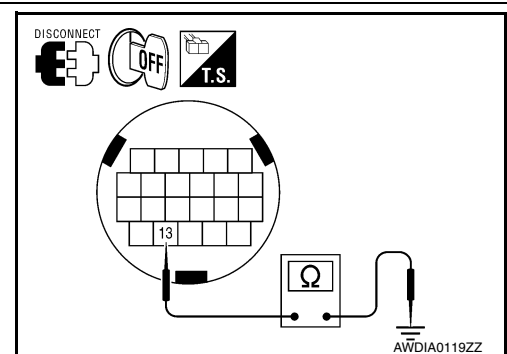
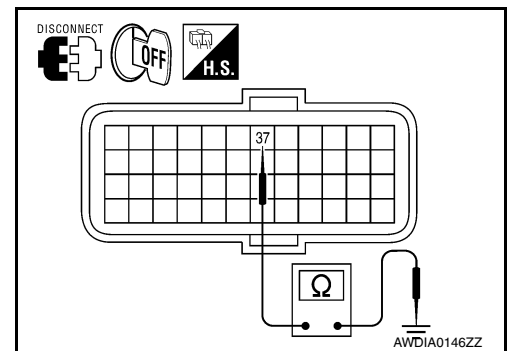
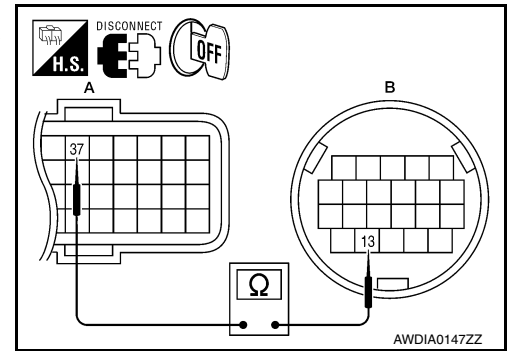
1.CHECK LOCK-UP SELECT SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit connector		Ground	Resistance (Approx.)
Connector	Terminal		
F46	13		6.0 – 19.0 Ω

Is the inspection result normal?

- YES >> INSPECTION END
 NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).



P1745 LINE PRESSURE CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1745 LINE PRESSURE CONTROL

Description

INFOID:000000010113681

The line pressure solenoid valve regulates the oil pump discharge pressure to suit the driving condition in response to a signal sent from the TCM.

DTC Logic

INFOID:000000010113682

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P1745	Line Pressure Control Circuit	TCM detects the unexpected line pressure.	TCM

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 ON
2. Select "Data Monitor" in "TRANSMISSION".
3. Check that output voltage of CVT fluid temperature sensor is within the range below.

ATF TEMP SEN : 1.0 – 2.0 V

If out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

Is "P1745" detected?

- YES >> Go to [TM-108, "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000010113683

1.CHECK DTC

Ⓜ With CONSULT

1. Start engine.
2. Perform "Self Diagnostic Results" in "TRANSMISSION".

Is "P1745" detected?

- YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).
NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

P1777 STEP MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1777 STEP MOTOR

Description

INFOID:0000000010113684

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.

DTC Logic

INFOID:0000000010113685

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P1777	Step Motor Circuit	Each coil of the step motor is not energized properly due to an open or a short.	<ul style="list-style-type: none"> • Harness or connectors (Step motor circuit is open or shorted.) • Step motor

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

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

④ With CONSULT

1. Start engine.
2. Drive vehicle for at least 5 consecutive seconds.
3. Perform "Self Diagnostic Results" in "TRANSMISSION".

④ With GST

Follow the procedure "With CONSULT".

Is "P1777" detected?

- YES >> Go to [TM-109, "Diagnosis Procedure"](#).
 NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

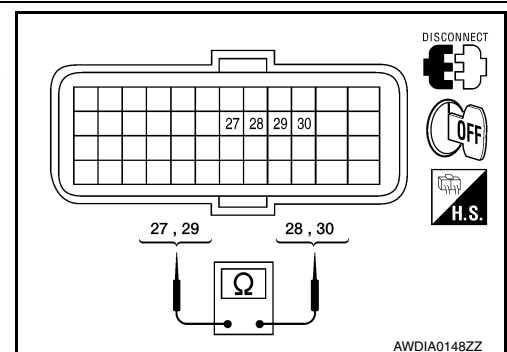
INFOID:0000000010113686

Regarding Wiring Diagram information, refer to [TM-126, "Wiring Diagram"](#).

1. CHECK STEP MOTOR CIRCUIT

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

TCM vehicle side harness connector			Resistance (Approx.)
Connector	Terminal		
F15	27	28	30.0 Ω
	29	30	



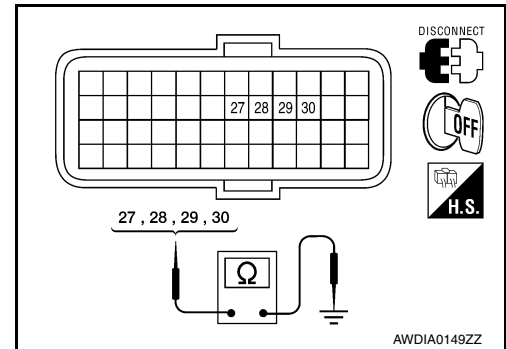
P1777 STEP MOTOR

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

4. Check resistance between TCM vehicle side harness connector terminals and ground.

TCM vehicle side harness connector		Ground	Resistance (Approx.)
Connector	Terminal		
F15	27	Ground	15.0 Ω
	28		
	29		
	30		



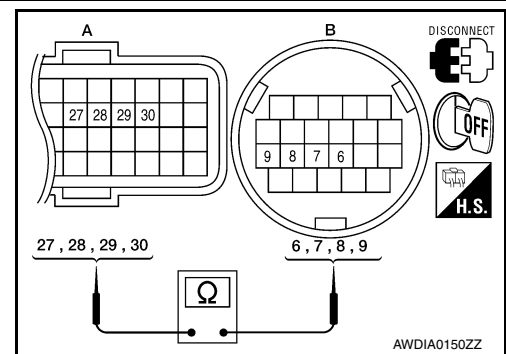
Is the inspection result normal?

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

2.CHECK HARNESS BETWEEN TCM AND CVT UNIT (STEP MOTOR) (PART 1)

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

TCM vehicle side harness connector		CVT unit vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F15 (A)	27	F46 (B)	9	Existed
	28		8	
	29		7	
	30		6	



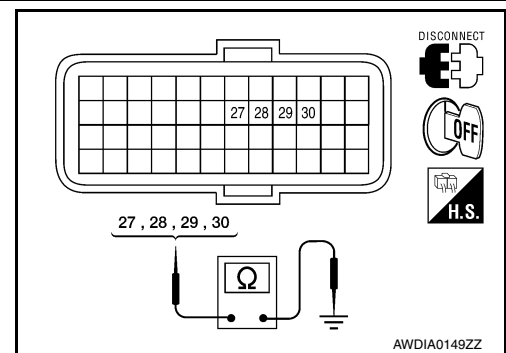
Is the inspection result normal?

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

3.CHECK HARNESS BETWEEN TCM AND CVT UNIT (STEP MOTOR) (PART 2)

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

TCM vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F15	27	Ground	Not existed
	28		
	29		
	30		



Is the inspection result normal?

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

4.CHECK STEP MOTOR

Check step motor. Refer to [TM-111. "Component Inspection \(Step Motor\)"](#).

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Replace transaxle assembly. Refer to [TM-188. "Exploded View"](#).

5.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

P1777 STEP MOTOR

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> Replace TCM. Refer to [TM-168, "Exploded View"](#).

NO >> Repair or replace damaged parts.

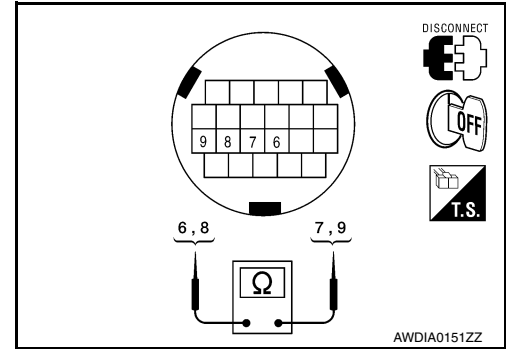
Component Inspection (Step Motor)

INFOID:000000010113687

1. CHECK STEP MOTOR

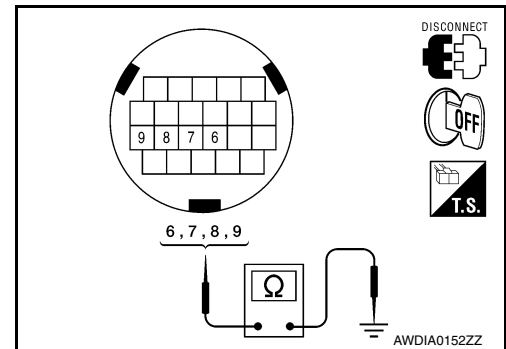
1. Check resistance between CVT unit connector terminals.

CVT unit connector		Resistance (Approx.)
Connector	Terminals	
F46	6 7	30.0 Ω
	8 9	



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

CVT unit connector		Resistance (Approx.)
Connector	terminal	
F46	6	15.0 Ω
	7	
	8	
	9	



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace transaxle assembly. Refer to [TM-188, "Exploded View"](#).

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P1778 STEP MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

P1778 STEP MOTOR

Description

INFOID:000000010113688

- 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:000000010113689

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC is detected if...	Possible cause
P1778	Step Motor Circuit Intermittent	There is a big difference between the number of steps for the stepping motor and for the actual gear ratio.	Step motor

DTC CONFIRMATION PROCEDURE

CAUTION:

- Always drive vehicle at a safe speed.
- Before starting "DTC CONFIRMATION PROCEDURE", confirm "Hi" or "Mid" or "Low" fixation by "PRI SPEED" and "VEHICLE SPEED" in "Data Monitor".
- If hi-gear fixation occurred, go to [TM-112, "Diagnosis 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 ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Check that output voltage of CVT fluid temperature sensor is within the range below.

ATF TEMP SEN : 1.0 – 2.0 V

If it is out of range, drive the vehicle to decrease the voltage (warm up the fluid) or stop engine to increase the voltage (cool down the fluid)

4. Start engine and maintain the following conditions for at least 30 consecutive seconds.

Start test from 0 km/h (0 MPH)
Constant acceleration : Keep 30 seconds or more
VEHICLE SPEED : 10 km/h (6 MPH) or more
ACC PEDAL OPEN : More than 1.0/8
RANGE : "D" position
ENG SPEED : 450 rpm or more

Ⓔ With GST

Follow the procedure "With CONSULT".

Is "P1778" detected?

- YES >> Go to [TM-112, "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000010113690

1. CHECK STEP MOTOR SYSTEM

Check step motor system. Refer to [TM-109, "DTC Logic"](#).

Is the inspection result normal?

P1778 STEP MOTOR

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

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

2.CHECK PRIMARY SPEED SENSOR SYSTEM

Check primary speed sensor system. Refer to [TM-57. "DTC Logic"](#).

Is the inspection result normal?

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

3.CHECK SECONDARY SPEED SENSOR SYSTEM

Check secondary speed sensor system. Refer to [TM-60. "DTC Logic"](#).

Is the inspection result normal?

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

4.DETECT MALFUNCTIONING ITEMS

Check TCM connector pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-168. "Exploded View"](#).
- NO >> Repair or replace damaged parts.

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SHIFT POSITION INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

SHIFT POSITION INDICATOR CIRCUIT

Description

INFOID:000000010113691

- TCM sends position indicator signals to combination meter via CAN communication line.
- The selector lever position is indicated on the shift position indicator.

Component Function Check

INFOID:000000010113692

1. CHECK SHIFT POSITION INDICATOR

CAUTION:

Always drive vehicle at a safe speed.

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

Is the inspection result normal?

YES >> INSPECTION END

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

Diagnosis Procedure

INFOID:000000010113693

1. CHECK INPUT SIGNALS

Ⓟ With CONSULT

1. Start engine.
2. Select "RANGE" in "Data Monitor" and read out the value.
3. Check that correct selector lever position ("P", "R", "N", "D") is displayed as selector lever is moved into each position.
4. Drive vehicle in the manual mode, and confirm that the actual gear position and the meter's indication of the position mutually coincide when the selector lever is shifted to the "UP (+ side)" or "DOWN (- side)" side (1st ⇔ 6th gear).

Is the inspection result normal?

YES >> INSPECTION END

NO-1 [The actual gear position does not change, or shifting into the manual mode is not possible (no gear shifting in the manual mode possible). Or the shift position indicator is not indicated.]>>Check the following.

- Check manual mode switch. Refer to [TM-83, "Component Inspection \(Manual Mode Switch\)"](#).
- Check CVT main system (Fail-safe function actuated).
- Perform "Self Diagnostic Results" in "TRANSMISSION".

NO-2 (The actual gear position changes, but the shift position indicator is not indicated.)>>Perform "Self Diagnostic Results" in "TRANSMISSION".

NO-3 (The actual gear position and the indication on the shift position indicator do not coincide.)>>Perform "Self Diagnostic Results" in "TRANSMISSION".

NO-4 (Only a specific position or positions is/are not indicated on the shift position indicator.)>>Check the combination meter. Refer to [MWI-29, "CONSULT Function \(METER/M&A\)"](#).

SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F09B]

SHIFT LOCK SYSTEM

Description

INFOID:000000009469162

The selector lever cannot be shifted from "P" position to any other position unless the ignition switch is in the ON position and the brake pedal is depressed.

Component Function Check

INFOID:000000009469163

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-115. "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-115. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009469164

Regarding Wiring Diagram information, refer to [TM-134. "Wiring Diagram"](#).

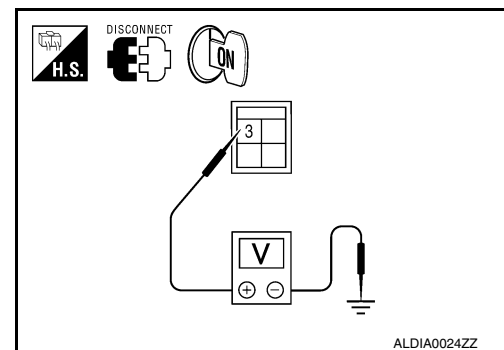
1. CHECK POWER SOURCE (STOP LAMP SWITCH)

1. Turn ignition switch OFF.
2. Disconnect stop lamp switch connector.
3. Check voltage between stop lamp switch connector E38 terminal 3 and ground.

Stop lamp switch		Ground	Voltage (Approx.)
Connector	Terminal		Battery voltage
E38	3		

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Check the following:
- Harness for short or open between fuse block (J/B) and stop lamp switch
 - 10A fuse (No. 7, located in fuse block [J/B])



2. CHECK STOP LAMP SWITCH

Check stop lamp switch. Refer to [TM-118. "Component Inspection \(Stop Lamp Switch\)"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace stop lamp switch. Refer to [BR-18. "Exploded View"](#).

3. CHECK GROUND CIRCUIT (SHIFT LOCK RELAY)

SHIFT LOCK SYSTEM

[CVT: RE0F09B]

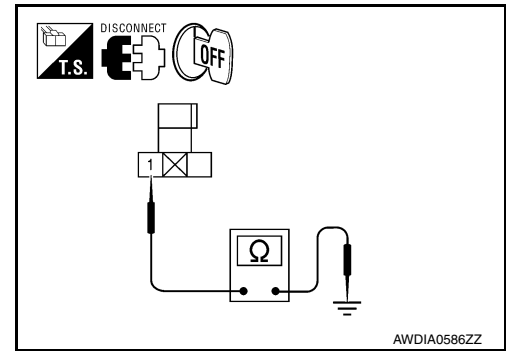
< DTC/CIRCUIT DIAGNOSIS >

1. Remove shift lock relay.
2. Check continuity between shift lock relay connector E27 terminal 1 and ground.

Shift lock relay		Ground	Continuity
Connector	Terminal (+)		
E27	1		Yes

Is the inspection result normal?

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



AWDIA0586ZZ

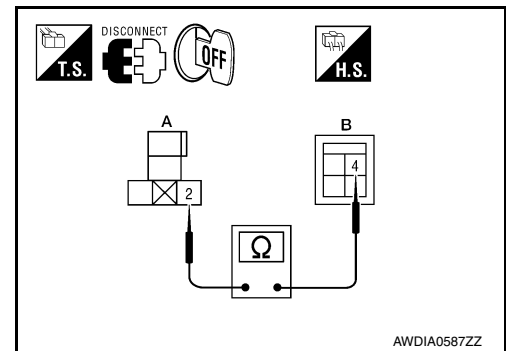
4.CHECK HARNESS BETWEEN SHIFT LOCK RELAY AND STOP LAMP SWITCH FOR OPEN

Check continuity between shift lock relay connector E27 (A) terminal 2 and stop lamp switch connector E38 (B) terminal 4.

Shift lock relay		stop lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
E27 (A)	2	E38 (B)	4	Yes

Is the inspection result normal?

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



AWDIA0587ZZ

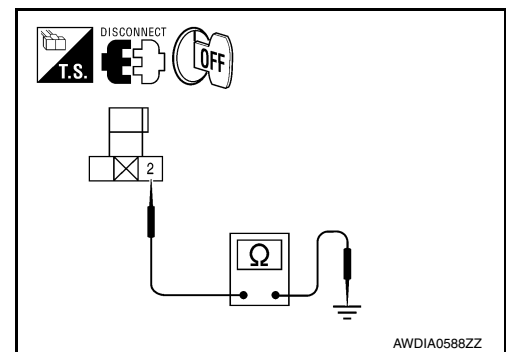
5.CHECK HARNESS BETWEEN SHIFT LOCK RELAY AND STOP LAMP SWITCH FOR SHORT CIRCUIT

Check continuity between shift lock relay connector E27 terminal 2 and ground.

Shift lock relay		Ground	Continuity
Connector	Terminal		
E27	2		No

Is the inspection result normal?

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



AWDIA0588ZZ

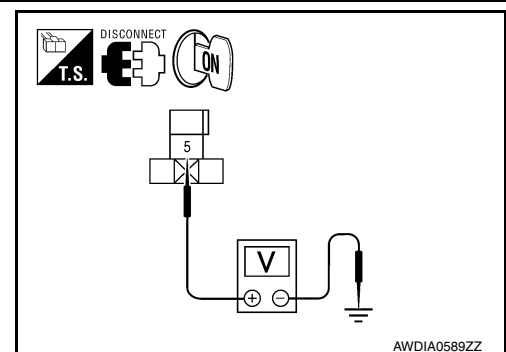
6.CHECK POWER SOURCE (SHIFT LOCK RELAY)

1. Turn ignition switch ON.
2. Check voltage between shift lock relay connector E27 terminal 5 and ground.

Shift lock relay		Ground	Voltage (Approx.)
Connector	Terminal		
E27	5		Battery voltage

Is the inspection result normal?

- YES >> GO TO 9.
NO >> GO TO 7.



AWDIA0589ZZ

7.CHECK HARNESS BETWEEN FUSE BLOCK (J/B) AND SHIFT LOCK RELAY FOR OPEN

1. Turn ignition switch OFF.

SHIFT LOCK SYSTEM

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

- Disconnect fuse block (J/B).
- Check continuity between fuse block (J/B) connector E6 (A) terminal 4P and shift lock relay connector E27 (B) terminal 5.

Fuse block (J/B)		Shift lock relay		Continuity
Connector	Terminal	Connector	Terminal	
E6 (A)	4P	E27 (B)	5	Yes

Is the inspection result normal?

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

8. CHECK HARNESS BETWEEN FUSE BLOCK (J/B) AND SHIFT LOCK RELAY FOR SHORT CIRCUIT

Check continuity between shift lock relay connector E27 terminal 5 and ground.

Shift lock relay		Ground	Continuity
Connector	Terminal		
E27	5		No

Is the inspection result normal?

- YES >> Check the following. If NG, repair or replace damaged parts.
- 10A (No. 3, located in fuse block [J/B])
 - Ignition switch
- NO >> Repair or replace damaged parts.

9. CHECK HARNESS BETWEEN SHIFT LOCK RELAY AND CVT SHIFT SELECTOR FOR OPEN

- Disconnect CVT shift selector connector.
- Check continuity between shift lock relay connector E27 (A) terminal 3 and CVT shift selector connector M78 (B) terminal 6.

Shift lock relay		CVT shift selector		Continuity
Connector	Terminal	Connector	Terminal	
E27 (A)	3	M78 (B)	6	Yes

Is the inspection result normal?

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

10. CHECK HARNESS BETWEEN SHIFT LOCK RELAY AND CVT SHIFT SELECTOR FOR SHORT CIRCUIT

Check continuity between shift lock relay connector E27 terminal 3 and ground.

Shift lock relay		Ground	Continuity
Connector	Terminal		
E27	3		No

Is the inspection result normal?

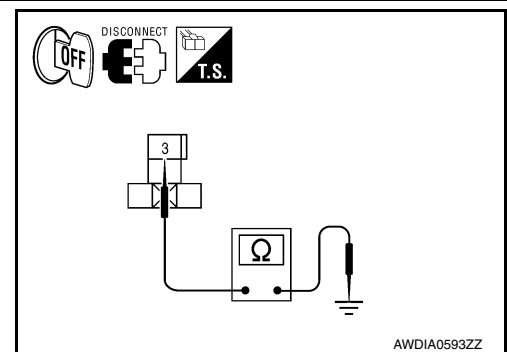
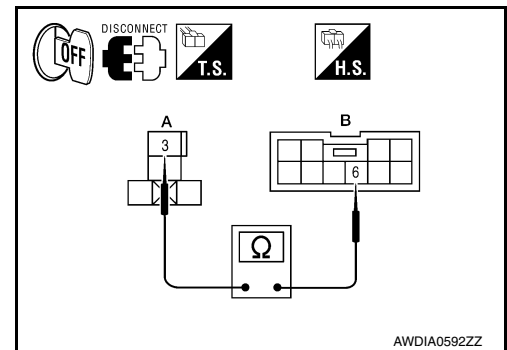
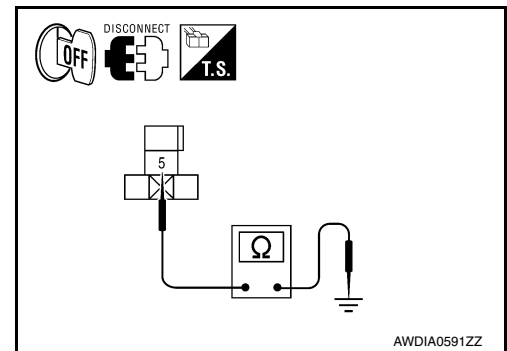
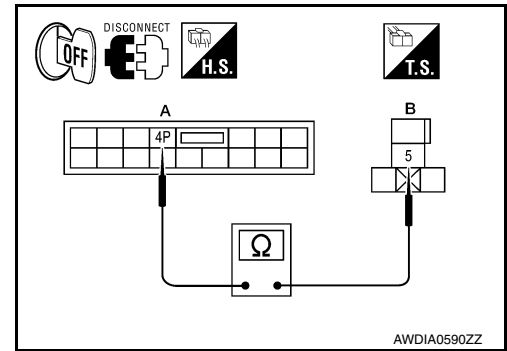
- YES >> GO TO 11.
 NO >> Repair or replace damaged parts.

11. CHECK SHIFT LOCK RELAY

Check shift lock relay. Refer to [TM-118, "Component Inspection \(Shift Lock Relay\)"](#).

Is the inspection result normal?

- YES >> GO TO 12.



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SHIFT LOCK SYSTEM

[CVT: RE0F09B]

< DTC/CIRCUIT DIAGNOSIS >

NO >> Replace shift lock relay.

12. CHECK GROUND CIRCUIT (CVT SHIFT SELECTOR)

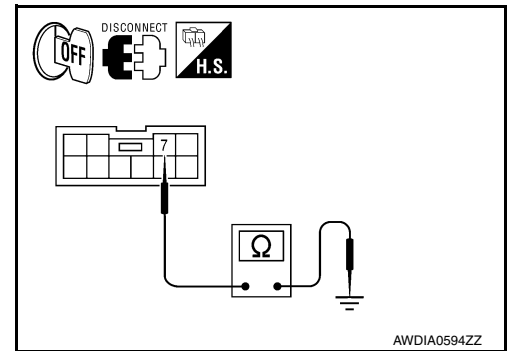
Check continuity between CVT shift selector connector M78 terminal 7 and ground.

CVT shift selector		Ground	Continuity
Connector	Terminal		
M78	7		Yes

Is the inspection result normal?

YES >> Replace shift lock solenoid. Refer to [TM-170. "Exploded View"](#).

NO >> Repair or replace damaged parts.



INFOID:000000009469165

Component Inspection (Stop Lamp Switch)

1. CHECK STOP LAMP SWITCH

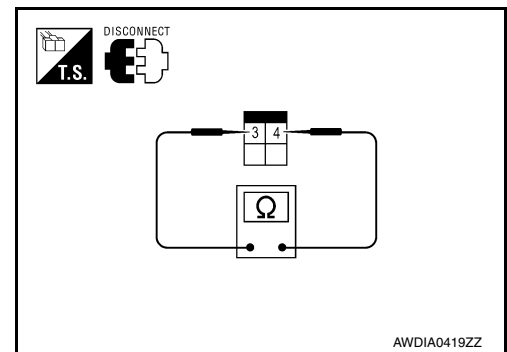
Check continuity between stop lamp switch terminals.

Stop lamp switch terminals		Condition	Continuity
3	4	Brake pedal depressed	Yes
		Brake pedal released	No

Is the inspection result normal?

YES >> Inspection End

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



INFOID:000000009469166

Component Inspection (Shift Lock Relay)

1. CHECK SHIFT LOCK RELAY

1. Apply battery voltage between terminals 2 and 1 of the shift lock relay.

CAUTION:

Connect a fuse between the terminals when applying battery voltage.

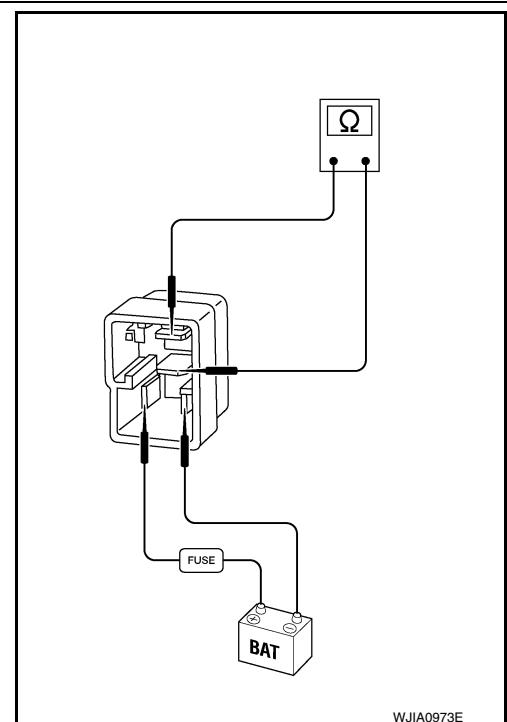
2. Check continuity between shift lock relay terminals 5 and 3.

Shift lock relay terminals	Condition	Continuity
5 and 3	Battery voltage applied between terminals 2 and 1.	Yes

Is the inspection result normal?

YES >> Inspection End

NO >> Replace shift lock relay.



ECU DIAGNOSIS INFORMATION

TCM

Reference Value

INFOID:000000010113944

VALUES ON THE DIAGNOSIS TOOL

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	0.5 – 0.8 V
PRI HYDR SEN	"N" position idle	1.0 – 1.5 V
ATFTEMP COUNT*1	When CVT fluid temperature is 20°C (68°F).	47
	When CVT fluid temperature is 80°C (176°F).	161
VIGN SEN	Ignition switch: ON	Battery voltage
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	45 X Approximately matches the speedometer reading.
ENG SPEED	Engine running	Closely matches the tachometer reading.
GEAR RATIO	During driving	2.37 – 0.43
ACC PEDAL OPEN	Released accelerator pedal - Fully depressed accelerator pedal	0.0/8 – 8.0/8
SEC PRESS	"N" position idle	0.5 – 0.9 MPa
PRI PRESS	"N" position idle	0.3 – 0.9 MPa
STM STEP	During driving	-20 step – 190 step
ISOLT1	Lock-up OFF	0.0 A
	Lock-up ON	0.7 A
ISOLT2	Release your foot from the accelerator pedal	0.8 A
	Press the accelerator pedal all the way down	0.0 A
ISOLT3	Secondary pressure low - Secondary pressure high.	0.8 – 0.0 A
SOLMON1	Lock-up OFF	0.0 A
	Lock-up ON	0.6 – 0.7 A
SOLMON2	"N" position idle	0.8 A
	When stalled	0.3 – 0.6 A
SOLMON3	"N" position idle	0.6 – 0.7 A
	When stalled	0.4 – 0.6 A
RANGE SW 3M	Selector lever in "D" position	On
	Selector lever in "P", "R" and "N" positions	Off
RANGE SW 4	Selector lever in "R" and "D" positions	On
	Selector lever in "P" and "N" positions	Off
RANGE SW 3	Selector lever in "D" position	On
	Selector lever in "P", "R" and "N" positions	Off

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F09B]

Item name	Condition	Display value (Approx.)
RANGE SW 2	Selector lever in "N" and "D" positions	On
	Selector lever in "P" and "R" positions	Off
RANGE SW 1	Selector lever in "R", "N" and "D" positions	On
	Selector lever in "P" position	Off
BRAKESW	Depressed brake pedal	On
	Released brake pedal	Off
FULL SW	Fully depressed accelerator pedal	On
	Released accelerator pedal	Off
IDLE SW	Released accelerator pedal	On
	Fully depressed accelerator pedal	Off
DOWNLVR	Selector lever: DOWN (- side)	On
	Other than the above	Off
UPLVR	Selector lever: UP (+ side)	On
	Other than the above	Off
NONMMODE	Manual shift gate position	Off
	Other than the above	On
MMODE	Manual shift gate position (neutral)	On
	Other than the above	Off
STRDWNSW*2	Pressed paddle shifter (shift-up)	On
	Released paddle shifter	Off
STRUPSW*2	Pressed paddle shifter (shift-down)	On
	Released paddle shifter	Off
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
INDPRNG	Selector lever in "P" position	On
	Selector lever in other positions	Off
MMODE IND	When manual mode	On
	Other conditions	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" and "D" 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" and "D" positions	Off
STRTR RLY OUT	Selector lever in "P" and "N" positions	On
	Selector lever in other positions	Off

TCM

< ECU DIAGNOSIS INFORMATION >

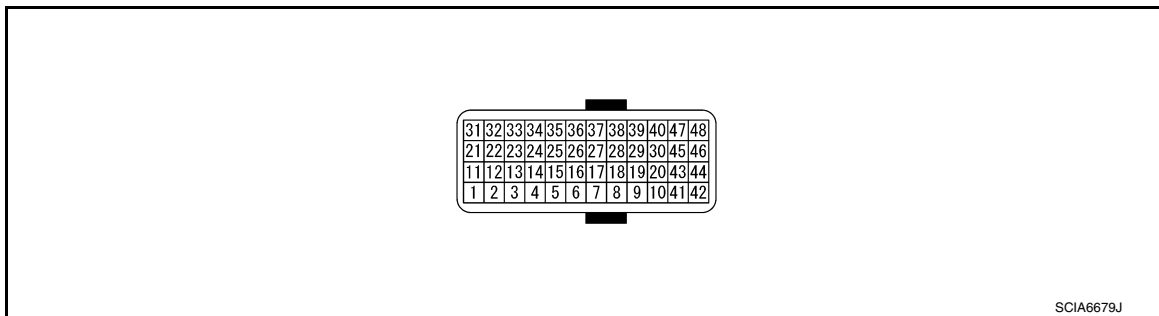
[CVT: RE0F09B]

Item name	Condition	Display value (Approx.)
STRTR RLY MON	Selector lever in "P" and "N" positions	On
	Selector lever in other 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
RANGE	Selector lever in "N" and "P" positions	N·P
	Selector lever in "R" position	R
	Selector lever in "D" position	D
M GEAR POS	During driving	1, 2, 3, 4, 5, 6

*1 Means CVT fluid temperature. Actual oil temperature °C (°F) cannot be checked unless a numeric value is converted. Refer to [TM-152, "ATFTEMP COUNT Conversion Table"](#).

*2: With paddle shifter

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" and "D" positions	0 V
				Selector lever in other positions	10.0 V – Battery voltage
2 (P/L)	Ground	Transmission range switch 3	Input	Selector lever in "D" position	0 V
				Selector lever in other positions	10.0 V – Battery voltage
3 (G/O)	Ground	Transmission range switch 4	Input	Selector lever in "R" and "D" positions	0 V
				Selector lever in other positions	10.0 V – Battery voltage
4 (GR)	Ground	Transmission range switch 3 (monitor)	Input	Selector lever in "D" position	0 V
				Selector lever in other positions	10.0 V – Battery voltage

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F09B]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/Output			
5 (B)	Ground	Ground	Output	Always		0 V
6 (O)	Ground	K-LINE	Input/Output	—		—
7 (W)	Ground	Sensor ground	Output	Always		0 V
8 (G/W)	—	CLOCK (SEL2)	—	—		—
9 (L/R)	—	CHIP SELECT (SEL1)	—	—		—
10 (BR/R)	—	DATA I/O (SEL3)	—	—		—
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 positions	Battery voltage
13 (V)	Ground	CVT fluid temperature sensor	Input	Ignition switch ON	When CVT fluid temperature is 20°C (68°F)	1.9 – 2.2 V
					When CVT fluid temperature is 80°C (176°F)	0.8 – 1.1 V
14 (R/W)	Ground	Primary pressure sensor	Input	"N" position idle		0.5 – 0.8 V
15 (V/W)	Ground	Secondary pressure sensor	Input			1.0 – 1.5 V
19 (G/B)	Ground	Reverse lamp relay	Output	Ignition switch ON	Selector lever in "R" position	0 V
					Selector lever in other positions	Battery voltage
20 (R/B)	Ground	Starter relay	Output	Ignition switch ON	Selector lever in "N", "P" positions	Battery voltage
					Selector lever in other positions	0 V
25 (W/R)	Ground	Sensor ground	Output	Always		0 V
26 (L/O)	Ground	Sensor power	Output	Ignition switch ON	—	4.75 – 5.25 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 ["M1" position, 20 km/h (12 MPH)]		695 Hz

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)]		390 Hz
37 (V/R)	Ground	Lock-up select solenoid valve	Output	Ignition switch ON	Selector lever in "P" and "N" positions	Battery voltage
					Wait at least for 5 seconds with the selector lever in "R" and "D" positions.	0 V
38 (L/W)	Ground	Torque converter clutch solenoid valve	Output	When vehicle drive in "D" position	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	"N" positions idle	Release your foot from the accelerator pedal.	5.0 – 7.0 V
					Press the accelerator pedal all the way down.	3.0 – 4.0 V
40 (R/Y)	Ground	Line pressure solenoid valve	Output		Release your foot from the accelerator pedal.	5.0 – 7.0 V
					Press the accelerator pedal all the way down.	1.0 – 3.0 V
42 (B)	Ground	Ground	Output	Always		0 V
45 (L/R)	Ground	Power supply (memory back-up)	Input	Always		Battery voltage
46 (Y)	Ground	Power supply	Output	Ignition switch ON	—	Battery voltage
				Ignition switch OFF	—	0 V
47 (L/R)	Ground	Power supply (memory back-up)	Input	Always		Battery voltage
48 (Y)	Ground	Power supply	Output	Ignition switch ON	—	Battery voltage
				Ignition switch OFF	—	0 V

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

Fail-safe

INFOID:000000010113945

The TCM has an electrical fail-safe mode. In this mode TCM operates even if there is an error in a main electronic control input/output signal circuit.

FAIL-SAFE FUNCTION

If any malfunction occurs in a sensor or solenoid valve, this function controls the CVT to make driving possible.

Secondary Speed Sensor

The shift pattern is changed in accordance with the throttle position when an unexpected signal is sent from the secondary speed sensor to the TCM. The manual mode and "DS" mode are inhibited, and the transaxle is put in "D".

Primary Speed Sensor

The shift pattern is changed in accordance with the throttle position and secondary speed (vehicle speed) when an unexpected signal is sent from the primary speed sensor to the TCM. The manual mode and "DS" mode are inhibited, and the transaxle is put in "D".

Transmission Range Switch

If an unexpected signal is sent from the transmission range switch to the TCM, the transaxle is put in "D".

CVT Fluid Temperature Sensor

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F09B]

If an unexpected signal is sent from the CVT fluid temperature sensor to the TCM, the gear ratio in use before receiving the unexpected signal is maintained or the gear ratio is controlled to keep engine speed under 5,000 rpm.

Secondary Pressure Sensor

- If an unexpected signal is sent from the secondary pressure sensor to the TCM, the secondary pressure feedback control is stopped and the offset value obtained before the non-standard condition occurs is used to control line pressure.
- If secondary pressure sensor error signal is inputted to the TCM, secondary pressure feedback control stops, but line pressure is controlled normally.

Line Pressure Solenoid Valve

If an unexpected signal is sent from the solenoid valve to the TCM, the line pressure solenoid valve is turned OFF to achieve the maximum fluid pressure.

Secondary Pressure Solenoid Valve

If an unexpected signal is sent from the solenoid valve to the TCM, the secondary pressure solenoid valve is turned OFF to achieve the maximum fluid pressure.

Torque Converter Clutch Solenoid Valve

If an unexpected signal is sent from the solenoid valve to the TCM, the torque converter clutch solenoid valve is turned OFF to cancel the lock-up.

Step Motor

If an unexpected signal is sent from the step motor to the TCM, the step motor coil phases “A” through “D” are all turned OFF to hold the gear ratio used just before the non-standard condition occurred.

Lock-up Select Solenoid Valve

If an unexpected signal is sent from the solenoid valve to the TCM, the lock-up select solenoid valve is turned OFF to cancel the lock-up.

TCM Power Supply (Memory Back-up)

Transaxle assembly is protected by limiting the engine torque when the memory back-up power supply (for controlling) from the battery is not supplied to the TCM. Normal status is restored when turning the ignition switch OFF to ON after the normal power supply.

DTC Inspection Priority Chart

INFOID:000000010113946

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

NOTE:

If DTC “U0100/U1000/U1010/P1709” is indicated with other DTCs, start from a diagnosis for DTC “U0100/U1000/U1010/P1709”. Refer to [TM-42](#) (U0100), [TM-43](#) (U1000), [TM-44](#) (U1010), [TM-99](#) (P1709).

Priority	Detected items (DTC)
1	<ul style="list-style-type: none"> • U0100 • U1000 • U1010 • P1709
2	Except above

DTC Index

INFOID:000000010113947

NOTE:

If DTC “U0100/U1000/U1010/P1709” is indicated with other DTCs, start from a diagnosis for DTC “U0100/U1000/U1010/P1709”. Refer to [TM-42](#) (U0100), [TM-43](#) (U1000), [TM-44](#) (U1010), [TM-99](#) (P1709).

DTC*1		Items (CONSULT screen terms)	Reference
“TRANSMISSION” with CONSULT	MIL*2, “ENGINE” with CON- SULT or GST		
P0615	—	STARTER RELAY	TM-45
P0703	—	BRAKE SWITCH B	TM-47

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F09B]

DTC*1		Items (CONSULT screen terms)	Reference
"TRANSMISSION" with CONSULT	MIL*2, "ENGINE" with CON- SULT or GST		
P0705	P0705	T/M RANGE SENSOR A	TM-50
P0710	P0710	FLUID TEMP SENSOR A	TM-53
P0715	P0715	INPUT SPEED SENSOR A	TM-57
P0720	P0720	OUTPUT SPEED SENSOR	TM-60
P0725	—	ENGINE SPEED	TM-64
P0730	—	INCORRECT GR RATIO	TM-65
P0740	P0740	TORQUE CONVERTER	TM-67
P0744	P0744	TORQUE CONVERTER	TM-69
P0745	P0745	PC SOLENOID A	TM-71
P0746	P0746	PC SOLENOID A	TM-73
P0776	P0776	PC SOLENOID B	TM-75
P0778	P0778	PC SOLENOID B	TM-77
P0826	—	UP/DOWN SHIFT SWITCH	TM-79
P0840	P0840	FLUID PRESS SEN/SW A	TM-85
P0841	—	FLUID PRESS SEN/SW A	TM-88
P0845	P0845	FLUID PRESS SEN/SW B	TM-90
P0868	—	FLUID PRESS LOW	TM-93
P1701	—	TCM	TM-95
P1705	—	TP SENSOR	TM-98
P1709	—	INCOMPLETED DATA WRITING	TM-99
P1722	—	VEHICLE SPEED	TM-101
P1723	—	SPEED SENSOR	TM-103
P1726	—	THROTTLE CONTROL SIG	TM-105
P1740	P1740	SLCT SOLENOID	TM-106
P1745	—	LINE PRESS CONTROL	TM-108
P1777	P1777	STEP MOTOR	TM-109
P1778	P1778	STEP MOTOR	TM-112
U0100	U0100	LOST COMM (ECM A)	TM-42
U1000	U1000	CAN COMM CIRCUIT	TM-43
U1010	—	CONTROL UNIT (CAN)	TM-44

- *1: These numbers are prescribed by SAE J2012.
- *2: Refer to [TM-36](#). "Diagnosis Description".

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CVT CONTROL SYSTEM

[CVT: RE0F09B]

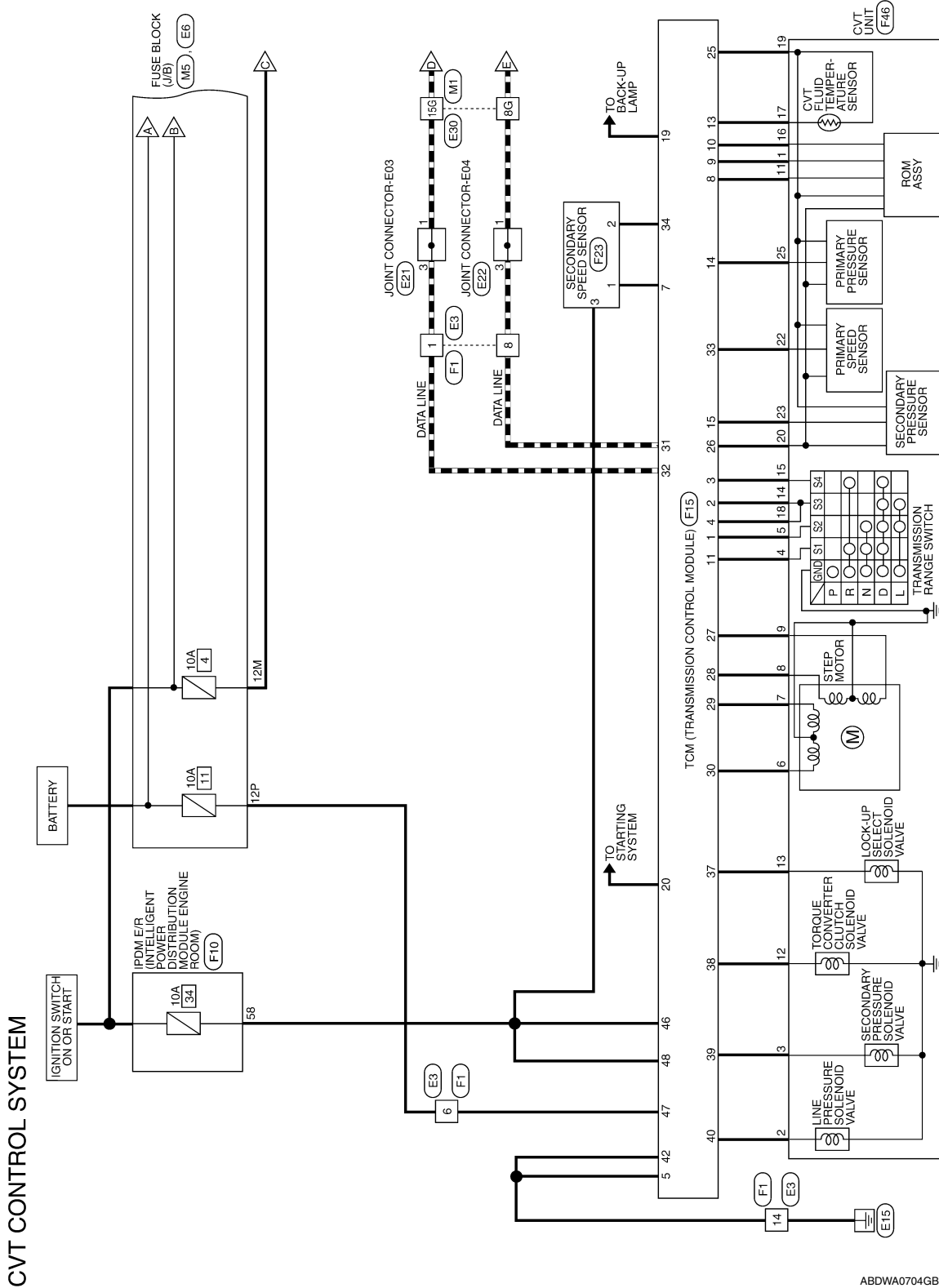
< WIRING DIAGRAM >

WIRING DIAGRAM

CVT CONTROL SYSTEM

Wiring Diagram

INFOID:000000009469171



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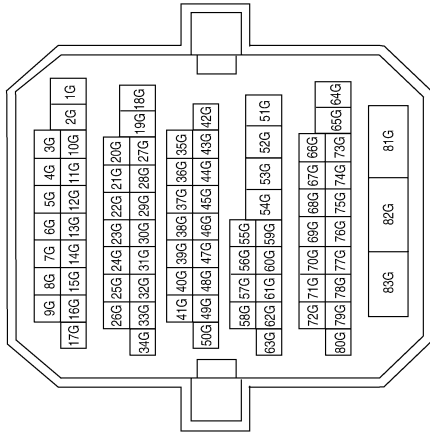
CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F09B]

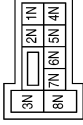
CVT CONTROL SYSTEM CONNECTORS

Connector No.	M1
Connector Name	WIRE TO WIRE
Connector Color	WHITE



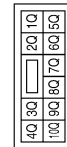
Terminal No.	Color of Wire	Signal Name
8G	P	-
15G	L	-

Connector No.	M3
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



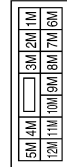
Terminal No.	Color of Wire	Signal Name
2N	G	-

Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



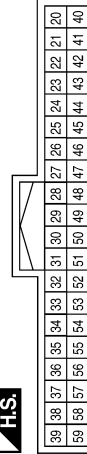
Terminal No.	Color of Wire	Signal Name
3Q	O/L	-
6Q	Y/R	-

Connector No.	M5
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
12M	O	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



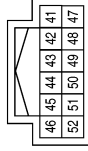
Terminal No.	Color of Wire	Signal Name
26	O/L	BRAKE SW2

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

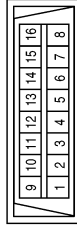
[CVT: RE0F09B]

Connector No.	M23
Connector Name	COMBINATION METER
Connector Color	WHITE



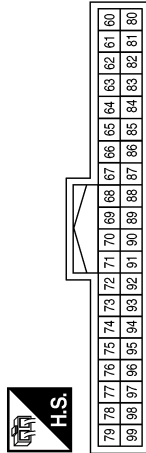
Terminal No.	Color of Wire	Signal Name
49	G	PADDLE SHIFT (SHIFT DOWN)
50	O	PADDLE SHIFT (SHIFT UP)

Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Color	WHITE



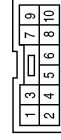
Terminal No.	Color of Wire	Signal Name
4	B	-
5	B	-
6	L	-
8	G	-
14	P	-
16	Y/R	-

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
78	P	CAN-L
79	L	CAN-H

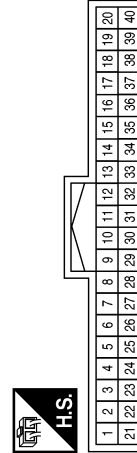
Connector No.	M78
Connector Name	CVT SHIFT SELECTOR
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LG/R	-
2	BR	-
3	W	-
4	B	-
5	G	-

Terminal No.	Color of Wire	Signal Name
21	L	CAN-H
22	P	CAN-L
23	B	GND (CIRCUIT)
37	G	NOT M RANGE
38	BR	AT SHIFT DOWN
39	W	AT SHIFT UP
40	LG/R	M RANGE

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	Y/R	BAT
2	O	IGN
3	B	GND (POWER)

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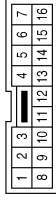
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CVT CONTROL SYSTEM

< WIRING DIAGRAM >

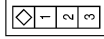
[CVT: RE0F09B]

Connector No.	E3
Connector Name	WIRE TO WIRE
Connector Color	WHITE



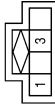
Terminal No.	Color of Wire	Signal Name
1	L	-
6	V	-
8	P	-
14	B	-

Connector No.	M83
Connector Name	PADDLE SHIFTER (SHIFT DOWN)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
3	G	-

Connector No.	M82
Connector Name	PADDLE SHIFTER (SHIFT UP)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
3	O	-

Connector No.	E22
Connector Name	JOINT CONNECTOR-E04
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	P	-
3	P	-

Connector No.	E21
Connector Name	JOINT CONNECTOR-E03
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	-
3	L	-

Connector No.	E6
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2P	LG	-
8P	R	-
12P	V	-

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CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F09B]

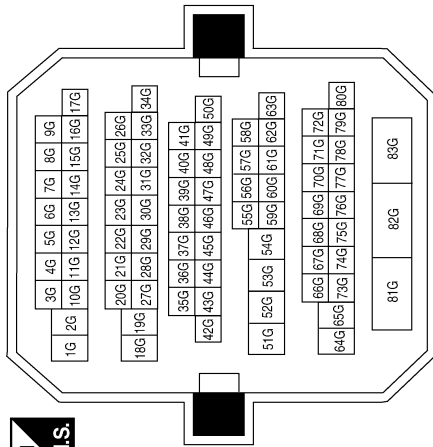
Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	R	-
4	LG	-

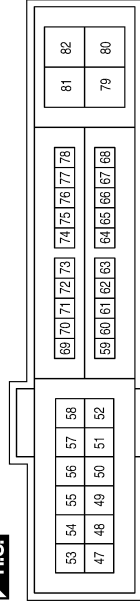
Terminal No.	Color of Wire	Signal Name
8G	P	-
15G	L	-

Connector No.	E30
Connector Name	WIRE TO WIRE
Connector Color	WHITE

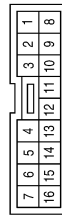


Terminal No.	58	Color of Wire	Y	Signal Name	AT ECU
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Connector No.	F10
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



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



Terminal No.	Color of Wire	Signal Name
1	L	-
6	L/R	-
8	P	-
14	B	-

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CVT CONTROL SYSTEM

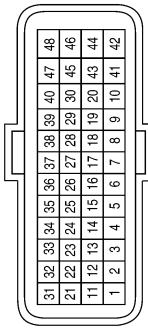
< WIRING DIAGRAM >

[CVT: RE0F09B]

Terminal No.	Color of Wire	Signal Name
31	P	CAN-L
32	L	CAN-H
33	LG	PRI SPEED SENSOR
34	LG/R	SEC SPEED SENSOR
35	-	-
36	-	-
37	V/R	L/U & SELECT SOL
38	L/W	TCC SOL
39	W/B	SEC PRESS SOL
40	R/Y	LINE PRESS SOL
41	-	-
42	B	GND
43	-	-
44	-	-
45	-	-
46	Y	VIGN
47	L/R	BATT
48	Y	VIGN

Terminal No.	Color of Wire	Signal Name
11	BR/W	P RANGE SW
12	-	-
13	V	CVT FLUID TEMP SENS
14	R/W	PRI OIL PRESS SENS
15	V/W	SEC OIL PRESS SENS
16	-	-
17	-	-
18	-	-
19	G/B	REV LAMP RLY
20	R/B	ST RLY
21	-	-
22	-	-
23	-	-
24	-	-
25	W/R	SENSOR GND
26	L/O	SENS POWER SOURCE
27	R/G	S/M-D
28	R	S/M-C
29	O/B	S/M-B
30	G/R	S/M-A

Connector No.	F15
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	P/B	R RANGE SW
2	P/L	N RANGE SW
3	G/O	D RANGE SW
4	GR	L RANGE SW
5	B	GND
6	-	-
7	W	SENSOR GND
8	G/W	CLOCK (SEL2)
9	L/R	CHIP SELECT (SEL1)
10	BR/R	DATA I/O (SEL1)

Terminal No.	Color of Wire	Signal Name
1	W	-
2	LG/R	-
3	Y	-

Connector No.	F23
Connector Name	SECONDARY SPEED SENSOR
Connector Color	BLACK



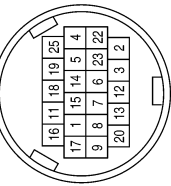
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CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F09B]

Connector No.	F46
Connector Name	CVT UNIT
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	L/R	-
2	R/Y	-
3	W/B	-
4	BR/W	-
5	P/B	-
6	G/R	-
7	O/B	-
8	R	-
9	R/G	-
11	G/W	-
12	L/W	-
13	V/R	-
14	P/L	-
15	G/O	-
16	BR/R	-
17	V	-
18	GR	-
19	W/R	-
20	L/O	-
22	LG	-
23	V/W	-
25	R/W	-

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CVT SHIFT LOCK SYSTEM

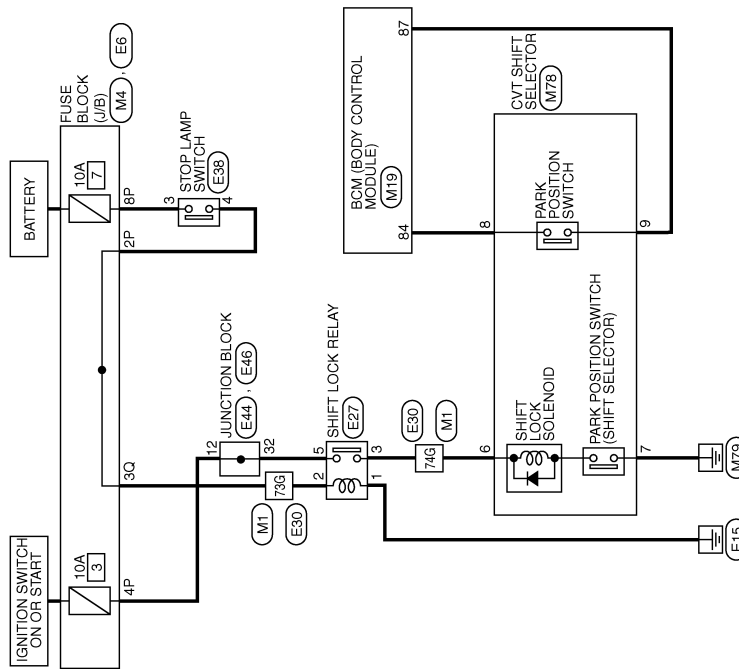
< WIRING DIAGRAM >

[CVT: RE0F09B]

CVT SHIFT LOCK SYSTEM

Wiring Diagram

INFOID:000000009469172



CVT SHIFT LOCK SYSTEM

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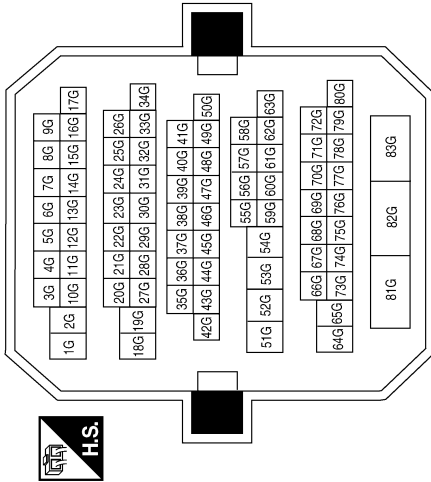
CVT SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F09B]

Terminal No.	Color of Wire	Signal Name
73G	BR	-
74G	Y	-

Connector No.	E30
Connector Name	WIRE TO WIRE
Connector Color	WHITE

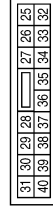


Connector No.	E27
Connector Name	SHIFT LOCK RELAY
Connector Color	BLUE

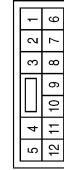


Terminal No.	Color of Wire	Signal Name
1	B	-
2	BR	-
3	Y	-
5	G	-

Connector No.	E46
Connector Name	JUNCTION BLOCK
Connector Color	WHITE



Connector No.	E44
Connector Name	JUNCTION BLOCK
Connector Color	BROWN



Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
32	G	-

Terminal No.	Color of Wire	Signal Name
12	P	-

Terminal No.	Color of Wire	Signal Name
3	R	-
4	LG	-

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SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F09B]

SYMPTOM DIAGNOSIS

SYSTEM SYMPTOM

Symptom Table

INFOID:0000000010113948

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-19
				2. Engine speed signal	TM-64
				3. Accelerator pedal position sensor	TM-98
				4. CVT position	TM-171
				5. CVT fluid temperature sensor	TM-53
				6. CAN communication line	TM-43
				7. CVT fluid level and state	TM-155
				8. Line pressure test	TM-162
				9. Torque converter clutch solenoid valve	TM-67
				10. Lock-up select solenoid valve	TM-106
				11. Transmission range switch	TM-50
			OFF vehicle	12. Forward clutch	TM-188
				13. Control valve	
2	Shift Shock	Large shock. ("N"→ "R" position)	ON vehicle	1. Engine idle speed	EC-19
				2. Engine speed signal	TM-64
				3. Accelerator pedal position sensor	TM-98
				4. CVT position	TM-171
				5. CVT fluid temperature sensor	TM-53
				6. CAN communication line	TM-43
				7. CVT fluid level and state	TM-155
				8. Line pressure test	TM-162
				9. Torque converter clutch solenoid valve	TM-67
				10. Lock-up select solenoid valve	TM-106
				11. Transmission range switch	TM-50
			OFF vehicle	12. Reverse brake	TM-188
				13. Control valve	
3	Shift Shock	Shock is too large for lock-up.	ON vehicle	1. CVT position	TM-171
				2. Engine speed signal	TM-64
				3. CAN communication line	TM-43
				4. CVT fluid level and state	TM-155
			OFF vehicle	5. Torque converter	TM-192
				6. Control valve	TM-188

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-155
				2. CVT position	TM-171
				3. CAN communication line	TM-43
				4. Line pressure test	TM-162
				5. Stall test	TM-160
				6. Step motor	TM-109
				7. Primary speed sensor	TM-57
				8. Secondary speed sensor	TM-60
				9. Accelerator pedal position sensor	TM-98
				10. CVT fluid temperature sensor	TM-53
				11. Secondary pressure sensor	TM-85
				12. TCM power supply and ground	TM-95
			OFF vehicle	13. Oil pump assembly	TM-188
				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-155
				2. CVT position	TM-171
				3. CAN communication line	TM-43
				4. Line pressure test	TM-162
				5. Stall test	TM-160
				6. Step motor	TM-109
				7. Primary speed sensor	TM-57
				8. Secondary speed sensor	TM-60
				9. Accelerator pedal position sensor	TM-98
				10. CVT fluid temperature sensor	TM-53
				11. Secondary pressure sensor	TM-85
				12. TCM power supply and ground	TM-95
			OFF vehicle	13. Oil pump assembly	TM-188
				14. Reverse brake	
				15. Control valve	
				16. Parking components	

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F09B]

No.	Item	Symptom	Condition	Diagnostic item	Reference
6	Slips/Will Not Engage	Does not lock-up.	ON vehicle	1. CVT fluid level and state	TM-155
				2. Line pressure test	TM-162
				3. Engine speed signal	TM-64
				4. Primary speed sensor	TM-57
				5. Torque converter clutch solenoid valve	TM-67
				6. CAN communication line	TM-43
				7. Stall test	TM-160
				8. Step motor	TM-109
				9. Transmission range switch	TM-50
				10. Lock-up select solenoid valve	TM-106
				11. CVT fluid temperature sensor	TM-53
				12. Secondary speed sensor	TM-60
				13. Secondary pressure sensor	TM-85
			OFF vehicle	14. Torque converter	TM-192
				15. Oil pump assembly	TM-188
				16. Control valve	
7	Slips/Will Not Engage	Does not hold lock-up condition.	ON vehicle	1. CVT fluid level and state	TM-155
				2. Line pressure test	TM-162
				3. Engine speed signal	TM-64
				4. Primary speed sensor	TM-57
				5. Torque converter clutch solenoid valve	TM-67
				6. CAN communication line	TM-43
				7. Stall test	TM-160
				8. Step motor	TM-109
				9. Transmission range switch	TM-50
				10. Lock-up select solenoid valve	TM-106
				11. CVT fluid temperature sensor	TM-53
				12. Secondary speed sensor	TM-60
				13. Secondary pressure sensor	TM-85
			OFF vehicle	14. Torque converter	TM-192
				15. Oil pump assembly	TM-188
				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-155
				2. Line pressure test	TM-162
				3. Engine speed signal	TM-64
				4. Primary speed sensor	TM-57
				5. Torque converter clutch solenoid valve	TM-67
				6. CAN communication line	TM-43
				7. Stall test	TM-160
			OFF vehicle	8. Torque converter	TM-192
				9. Oil pump assembly	TM-188
				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-155
				2. Line pressure test	TM-162
				3. Stall test	TM-160
				4. Accelerator pedal position sensor	TM-98
				5. CAN communication line	TM-43
				6. Transmission range switch	TM-50
				7. CVT position	TM-171
				8. Step motor	TM-109
				9. Primary speed sensor	TM-57
				10. Secondary speed sensor	TM-60
				11. Accelerator pedal position sensor	TM-98
				12. Primary pressure sensor	TM-90
				13. Secondary pressure sensor	TM-85
				14. CVT fluid temperature sensor	TM-53
				15. TCM power supply and ground	TM-95
			OFF vehicle	16. Torque converter	TM-192
				17. Oil pump assembly	TM-188
				18. Forward clutch	
				19. 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-155	A
				2. Line pressure test	TM-162	
				3. Stall test	TM-160	B
				4. Accelerator pedal position sensor	TM-98	
				5. CAN communication line	TM-43	C
				6. Transmission range switch	TM-50	
				7. CVT position	TM-171	
				8. Step motor	TM-109	TM
				9. Primary speed sensor	TM-57	
				10. Secondary speed sensor	TM-60	
				11. Accelerator pedal position sensor	TM-98	E
				12. Primary pressure sensor	TM-90	
				13. Secondary pressure sensor	TM-85	F
				14. CVT fluid temperature sensor	TM-53	
				15. TCM power supply and ground	TM-95	
			OFF vehicle	16. Torque converter	TM-192	G
				17. Oil pump assembly	TM-188	
				18. Reverse brake		
				19. Control valve		H
11	Slips at lock-up.		ON vehicle	1. CVT fluid level and state	TM-155	I
				2. Line pressure test	TM-162	
				3. Engine speed signal	TM-64	
				4. Primary speed sensor	TM-57	J
				5. Torque converter clutch solenoid valve	TM-67	
				6. CAN communication line	TM-43	
				7. Stall test	TM-160	K
				8. Step motor	TM-109	
				9. Transmission range switch	TM-50	
				10. Lock-up select solenoid valve	TM-106	L
				11. CVT fluid temperature sensor	TM-53	
				12. Secondary speed sensor	TM-60	M
				13. Secondary pressure sensor	TM-85	
			OFF vehicle	14. Torque converter	TM-192	
				15. Oil pump assembly	TM-188	N
				16. Control valve		

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-155
				2. Line pressure test	TM-162
				3. Accelerator pedal position sensor	TM-98
				4. Transmission range switch	TM-50
				5. CAN communication line	TM-43
				6. Stall test	TM-160
				7. CVT position	TM-171
				8. Step motor	TM-109
				9. Primary speed sensor	TM-57
				10. Secondary speed sensor	TM-60
				11. Accelerator pedal position sensor	TM-98
				12. CVT fluid temperature sensor	TM-53
				13. Primary pressure sensor	TM-90
				14. Secondary pressure sensor	TM-85
				15. TCM power supply and ground	TM-95
			OFF vehicle	16. Torque converter	TM-192
				17. Oil pump assembly	TM-188
				18. Gear system	
				19. Forward clutch	
				20. Reverse brake	
				21. 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-155
				2. Line pressure test	TM-162
				3. Transmission range switch	TM-50
				4. Stall test	TM-160
				5. CVT position	TM-171
				6. Step motor	TM-109
				7. Primary speed sensor	TM-57
				8. Secondary speed sensor	TM-60
				9. Accelerator pedal position sensor	TM-98
				10. CVT fluid temperature sensor	TM-53
				11. Secondary pressure sensor	TM-85
				12. TCM power supply and ground	TM-95
			OFF vehicle	13. Torque converter	TM-192
				14. Oil pump assembly	TM-188
				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-162
				3. Transmission range switch	TM-50
				4. Stall test	TM-160
				5. CVT position	TM-171
				6. Step motor	TM-109
				7. Primary speed sensor	TM-57
				8. Secondary speed sensor	TM-60
				9. Accelerator pedal position sensor	TM-98
				10. CVT fluid temperature sensor	TM-53
				11. Secondary pressure sensor	TM-85
				12. TCM power supply and ground	TM-95
			OFF vehicle	13. Torque converter	TM-192
				14. Oil pump assembly	TM-188
				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-155
				2. Line pressure test	TM-162
				3. Transmission range switch	TM-50
				4. Stall test	TM-160
				5. CVT position	TM-171
				6. Step motor	TM-109
				7. Primary speed sensor	TM-57
				8. Secondary speed sensor	TM-60
				9. Accelerator pedal position sensor	TM-98
				10. CVT fluid temperature sensor	TM-53
				11. Secondary pressure sensor	TM-85
				12. TCM power supply and ground	TM-95
			OFF vehicle	13. Torque converter	TM-192
				14. Oil pump assembly	TM-188
				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-64
				3. Primary speed sensor	TM-57
				4. Secondary speed sensor	TM-60
				5. Accelerator pedal position sensor	TM-98
				6. CAN communication line	TM-43
				7. Torque converter clutch solenoid valve	TM-67
			OFF vehicle	8. Torque converter	TM-192
				9. Control valve	TM-188
17	Others	Strange noise in "D" position.	ON vehicle	1. CVT fluid level and state	TM-155
				2. Engine speed signal	TM-64
				3. CAN communication line	TM-43
			OFF vehicle	4. Torque converter	TM-192
				5. Oil pump assembly	TM-188
				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-155
				2. Engine speed signal	TM-64
				3. CAN communication line	TM-43
			OFF vehicle	4. Torque converter	TM-192
				5. Oil pump assembly	TM-188
				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-155
				2. Engine speed signal	TM-64
				3. CAN communication line	TM-43
			OFF vehicle	4. Torque converter	TM-192
				5. Oil pump assembly	TM-188
				6. Gear system	
				7. Control valve	
20	Others	Vehicle does not decelerate by engine brake.	ON vehicle	1. CVT fluid level and state	TM-155
				2. CVT position	TM-171
				3. CAN communication line	TM-43
				4. Step motor	TM-109
				5. Primary speed sensor	TM-57
				6. Secondary speed sensor	TM-60
				7. Line pressure test	TM-162
				8. Engine speed signal	TM-64
				9. Accelerator pedal position sensor	TM-98
			OFF vehicle	10. Control valve	TM-188

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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-155
				2. Line pressure test	TM-162
				3. Accelerator pedal position sensor	TM-98
				4. CAN communication line	TM-43
				5. Stall test	TM-160
				6. Step motor	TM-109
				7. Primary speed sensor	TM-57
				8. Secondary speed sensor	TM-60
				9. Primary pressure sensor	TM-90
				10. Secondary pressure sensor	TM-85
				11. CVT fluid temperature sensor	TM-53
			OFF vehicle	12. Torque converter	TM-192
				13. Oil pump assembly	TM-188
				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-50
				2. CVT position	TM-171
			OFF vehicle	3. Parking components	TM-188
23		Vehicle drives with CVT in "P" position.	ON vehicle	1. Transmission range switch	TM-50
				2. CVT fluid level and state	TM-155
				3. CVT position	TM-171
			OFF vehicle	4. Parking components	TM-188
				5. Gear system	
				6. Control valve	
24		Vehicle drives with CVT in "N" position.	ON vehicle	1. Transmission range switch	TM-50
				2. CVT fluid level and state	TM-155
				3. CVT position	TM-171
			OFF vehicle	4. Gear system	TM-188
				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-155
				2. Engine speed signal	TM-64
				3. Primary speed sensor	TM-57
				4. Torque converter clutch solenoid valve	TM-67
				5. CAN communication line	TM-43
				6. Stall test	TM-160
				7. Secondary pressure sensor	TM-85
			OFF vehicle	8. Torque converter	TM-192
				9. Control valve	TM-188
26		Engine stalls when selector lever is shifted "N"→"D"or "R".	ON vehicle	1. CVT fluid level and state	TM-155
				2. Engine speed signal	TM-64
				3. Primary speed sensor	TM-57
				4. Torque converter clutch solenoid valve	TM-67
				5. CAN communication line	TM-43
				6. Stall test	TM-160
			OFF vehicle	7. Torque converter	TM-192
				8. Control valve	TM-188
27	Others	Engine speed does not return to idle.	ON vehicle	1. CVT fluid level and state	TM-155
				2. Accelerator pedal position sensor	TM-98
				3. Secondary speed sensor	TM-60
				4. CAN communication line	TM-43
			OFF vehicle	5. Control valve	TM-188
28		CVT does not shift	ON vehicle	1. CVT fluid level and state	TM-155
				2. CVT position	TM-171
				3. Line pressure test	TM-162
				4. Engine speed signal	TM-64
				5. Accelerator pedal position sensor	TM-98
				6. CAN communication line	TM-43
				7. Primary speed sensor	TM-57
				8. Secondary speed sensor	TM-60
				9. Step motor	TM-109
			OFF vehicle	10. Control valve	TM-188
				11. Oil pump assembly	
29		Engine does not start in "N" or "P" position.	ON vehicle	1. Ignition switch and starter	PG-16, ST-3
				2. CVT position	TM-171
				3. Transmission range switch	TM-50

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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	PG-16, ST-3
				2. CVT position	TM-171
				3. Transmission range switch	TM-50
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-115
				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-115
				2. Shift lock solenoid	
				3. CVT shift selector	
33		Cannot be changed to manual mode.	ON vehicle	1. Manual mode switch	TM-79
				2. CAN communication line	TM-43
				3. Combination meter	MWI-37
33		Cannot be changed to "DS" mode.	ON vehicle	1. Manual mode switch	TM-79
				2. CAN communication line	TM-43
				3. Combination meter	MWI-37

PRECAUTION

PRECAUTIONS

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

INFOID:000000009469174

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

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

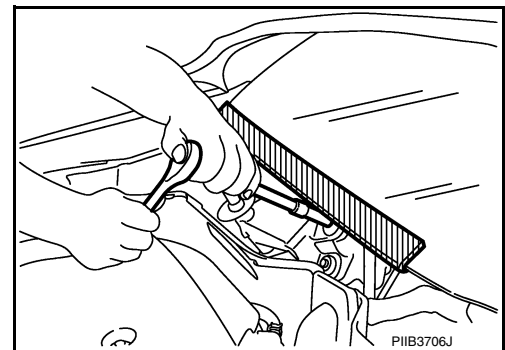
WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least 3 minutes before performing any service.

Precaution for Procedure without Cowl Top Cover

INFOID:000000009469175

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



Precaution for Work

INFOID:000000009761404

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:

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PRECAUTIONS

[CVT: RE0F09B]

< PRECAUTION >

- Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
- Then rub with a soft, dry cloth.
- Oily dirt:
- Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
- Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
- Then rub with a soft, dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

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

INFOID:000000010113949

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

CAUTION:

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

Precaution for TCM or Transaxle Assembly Replacement

INFOID:000000010113950

CAUTION:

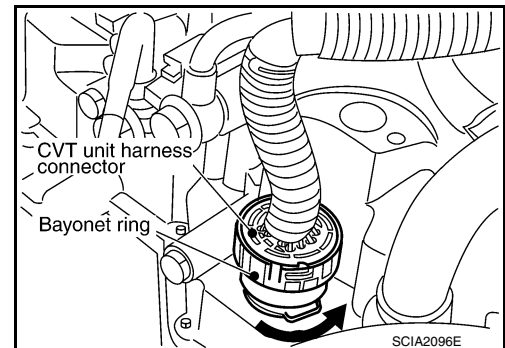
- To replace TCM, refer to [TM-8, "Description"](#).
- To replace transaxle assembly, refer to [TM-10, "Description"](#).

Removal and Installation Procedure for CVT Unit Connector

INFOID:000000010113951

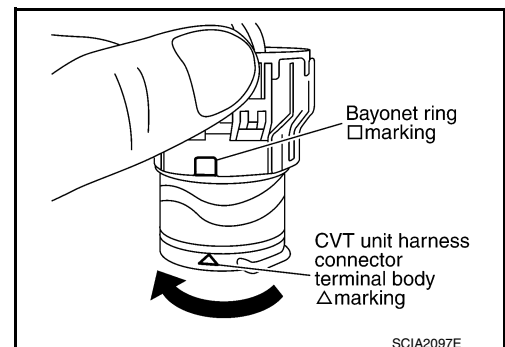
REMOVAL

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



INSTALLATION

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.

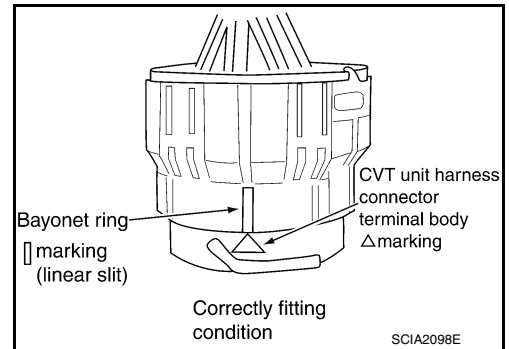


PRECAUTIONS

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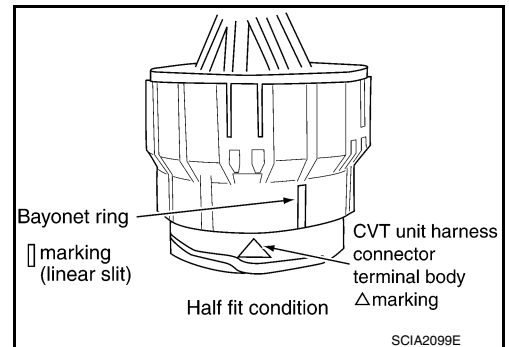
[CVT: RE0F09B]

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:

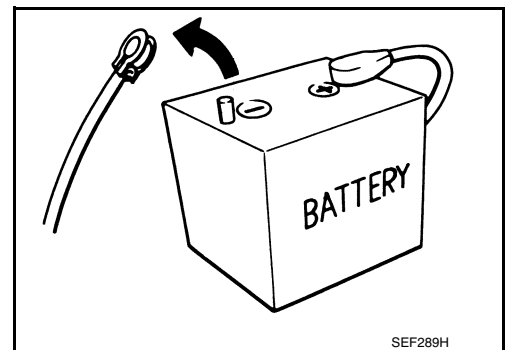
- Securely align Δ marking on CVT unit harness connector terminal body with bayonet ring slit. Then, be careful not to make a half fit condition as shown in the figure.
- Never mistake the slit of bayonet ring for other dent portion.



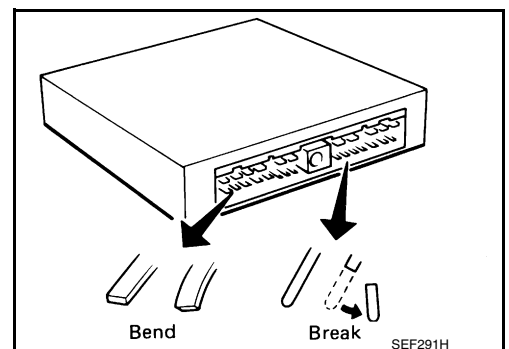
Precaution

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- 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.



- 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.



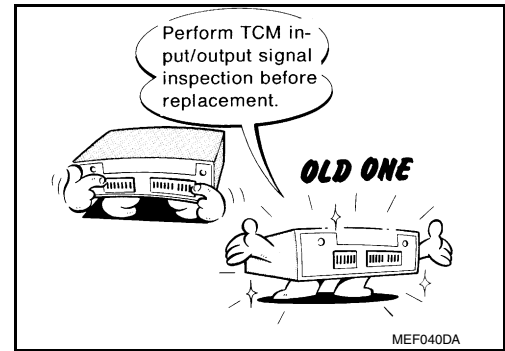
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PRECAUTIONS

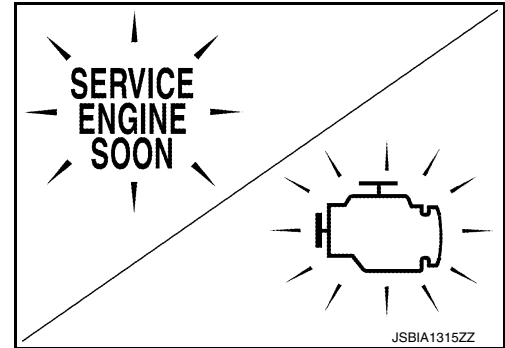
< PRECAUTION >

[CVT: RE0F09B]

- Perform TCM input/output signal inspection and check whether TCM functions normally or not before replacing TCM. [TM-119. "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-15. "FOR USA AND CANADA : Fluids and Lubricants"](#) (For United States and Canada), [MA-16. "FOR MEXICO : Fluids and Lubricants"](#) (For Mexico).
- 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:000000010113953

CVT FLUID COOLER SERVICE

If CVT fluid contains friction material (clutches, brakes, etc.), or if a CVT is replaced, inspect and clean the CVT fluid cooler mounted in the radiator or replace the radiator. Flush cooler lines using cleaning solvent and compressed air after repair. For CVT fluid cooler cleaning procedure, refer to [TM-157. "Cleaning"](#). For radiator replacement, refer to [CO-14. "Removal and Installation"](#).

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-38. "CONSULT Function"](#) for the indicator used to display each self diagnostic results.
- The self diagnostic results indicated by the MIL are automatically stored in both the ECM and TCM memories.

Always perform the procedure on [TM-36. "Diagnosis Description"](#) to complete the repair and avoid unnecessary blinking of the MIL.

For details of OBD-II, refer to [EC-127. "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-57](#).**

ATFTEMP COUNT Conversion Table

INFOID:000000010113954

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)

PRECAUTIONS

< PRECAUTION >

[CVT: RE0F09B]

ATFTEMP COUNT	Temperature °C (°F)	ATFTEMP COUNT	Temperature °C (°F)
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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PREPARATION

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[CVT: RE0F09B]

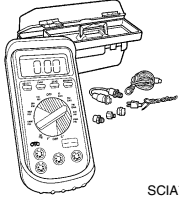
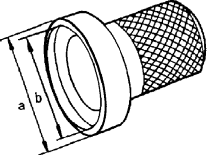
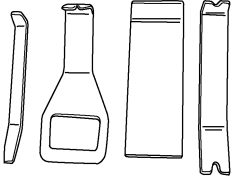
PREPARATION

PREPARATION

Special Service Tools

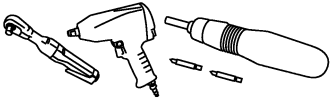
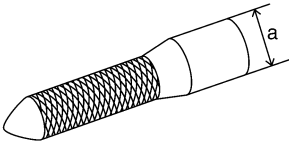
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The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
<p>— (OTC3492) Oil pressure gauge set</p>  <p style="text-align: right;">SCIA7531E</p>	Measuring line pressure
<p>ST33400001 (J-26082) Drift a: 60 mm (2.36 in) dia. b: 47 mm (1.85 in) dia.</p>  <p style="text-align: right;">ZZA0814D</p>	Installing differential side oil seal
<p>— (J-46534) Trim Tool Set</p>  <p style="text-align: right;">AWJIA0483ZZ</p>	Removing trim components

Commercial Service Tools

INFOID:000000010113956

Tool name	Description
<p>Power tool</p>  <p style="text-align: right;">PIIB1407E</p>	Loosening nuts, screws and bolts
<p>31197CA000 Drive plate location guide a: 14 mm (0.55 in) dia.</p>  <p style="text-align: right;">SCIA2013E</p>	Installing transaxle assembly

PERIODIC MAINTENANCE

CVT FLUID

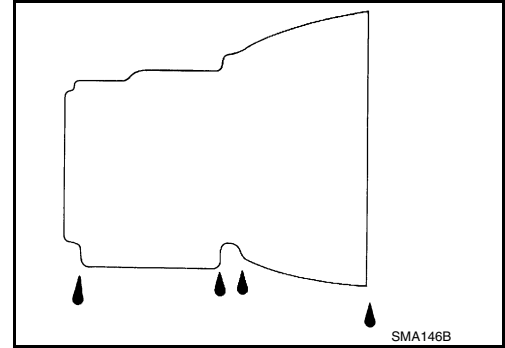
Inspection

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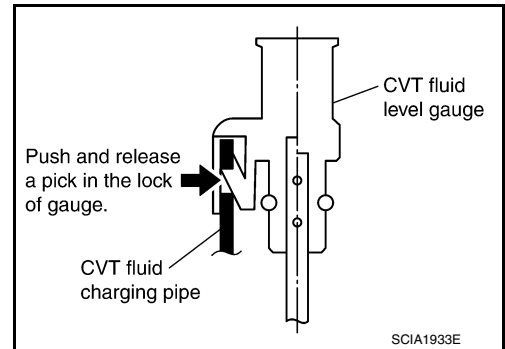
CHECKING CVT FLUID

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.



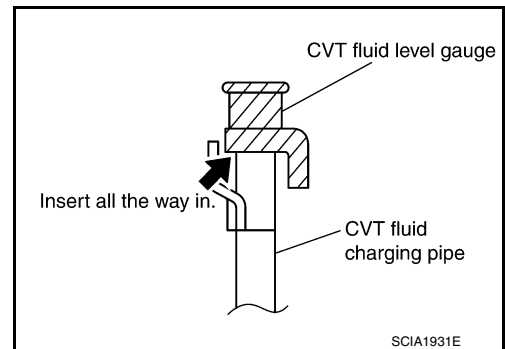
6. Pull out the CVT fluid level gauge from the CVT fluid charging pipe after pressing the tab on the CVT fluid level gauge to release the lock.



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:

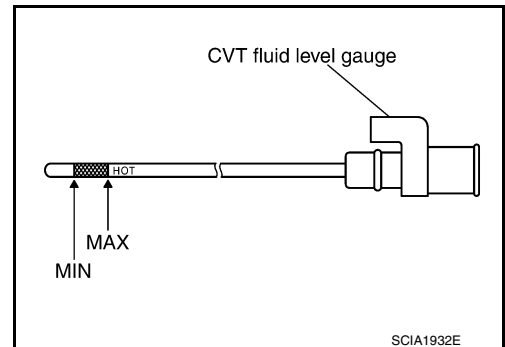
When wiping away the CVT fluid level gauge, always use lint-free paper, not a cloth rag.



8. Place the shift selector in "P" or "N" position 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

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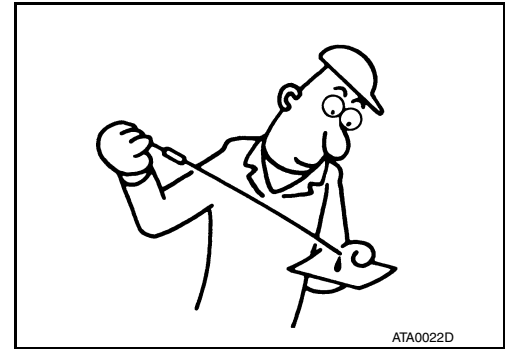
CVT FLUID

< 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.), inspect and clean the CVT fluid cooler mounted in the radiator and flush cooler line using cleaning solvent and compressed air after repair of CVT. Refer to [TM-157, "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:000000010113958

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 and discard the O-ring.
3. Install a new O-ring on drain plug.

CAUTION:

Never reuse O-ring.

4. Install drain plug in oil pan. Refer to [TM-177, "Exploded View"](#).
5. Fill CVT fluid from CVT fluid charging pipe to the specified level.

CVT fluid : Refer to [TM-194, "General Specification"](#).

Fluid capacity : Refer to [TM-194, "General Specification"](#).

CAUTION:

- Use only Genuine NISSAN CVT Fluid NS-2. Never mix with other fluid.
- Using CVT fluid other than Genuine NISSAN CVT Fluid NS-2 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-38, "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

Cleaning

INFOID:0000000010113959

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.

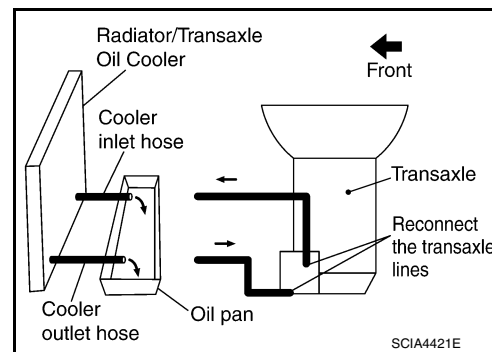
CVT FLUID COOLER CLEANING PROCEDURE

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.

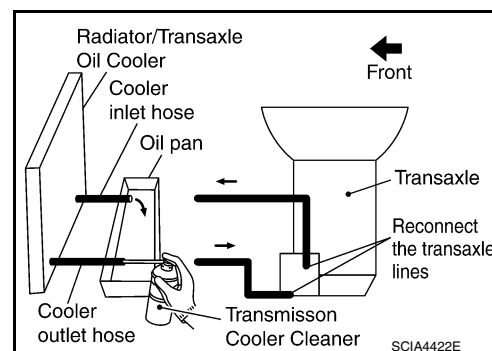


5. Insert the extension adapter hose of a can of Transmission Cooler Cleaner (Nissan P/N 999MP-AM006) into the cooler outlet hose.

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.

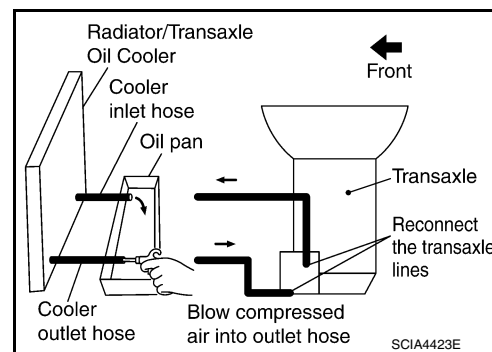
12. Remove the banjo bolts.

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:

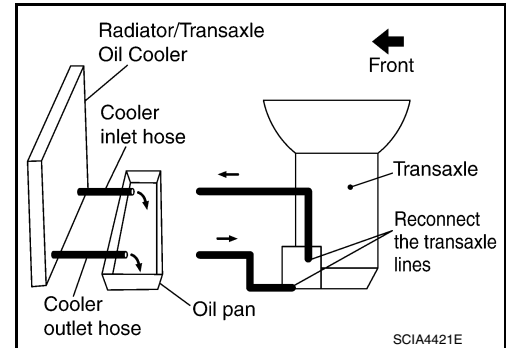
Insufficient cleaning of the cooler inlet hose exterior may lead to inaccurate debris identification.

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.

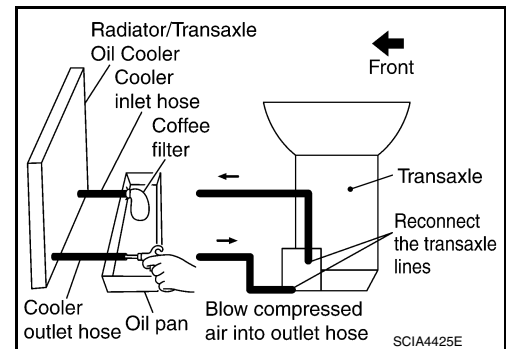
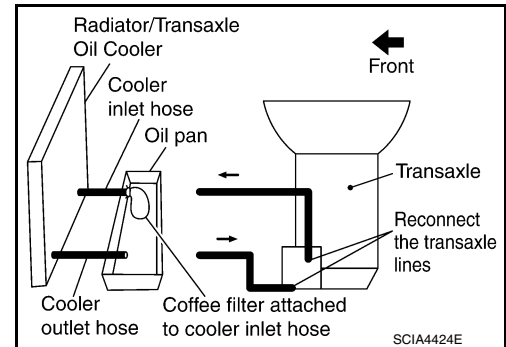
CAUTION:

- 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.

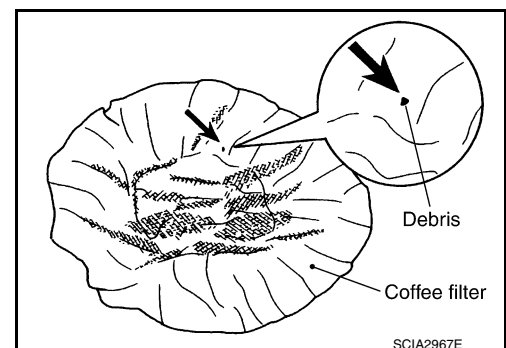


6. Insert the tip of an air gun into the end of the cooler outlet hose.
7. Wrap a shop rag around the air gun tip and end of cooler outlet hose.
8. Blow compressed air regulated to 5 to 9 kg/cm² (70 to 130 psi) through the cooler outlet hose to force any remaining CVT fluid into the coffee filter.
9. 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.

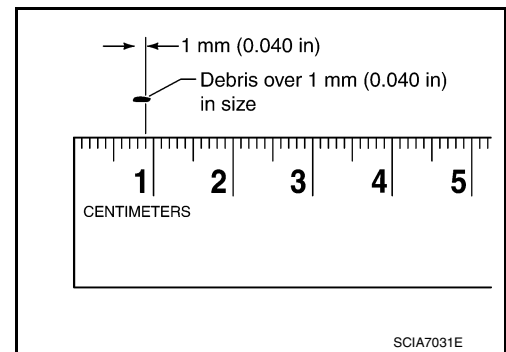


CVT FLUID COOLER SYSTEM

< 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. Refer to [CO-14, "Removal and Installation"](#).



CVT FLUID COOLER FINAL INSPECTION

After performing all procedures, ensure that all remaining oil is cleaned from all components.

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STALL TEST

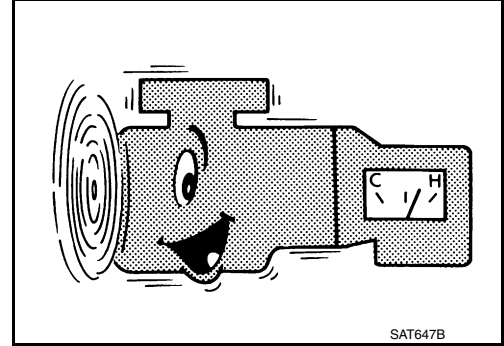
STALL TEST

Inspection and Judgment

INFOID:000000010113960

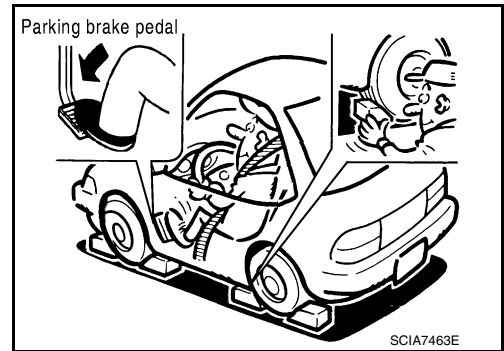
INSPECTION

1. Inspect the amount of engine oil. Replenish the engine oil if necessary.
2. 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). Inspect the amount of CVT fluid. Replenish if necessary.



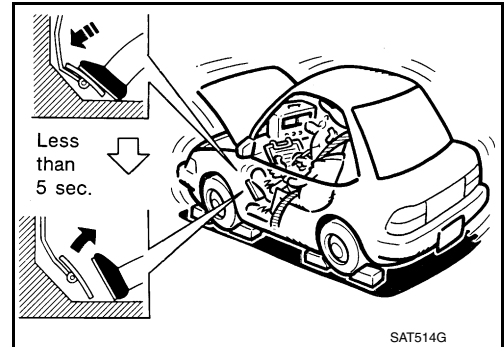
3. Securely engage parking brake so that the tires do not turn.
4. Install a tachometer where it can be seen by driver during test.

NOTE:
It is good practice to mark the point of specified engine rpm on indicator.
5. Start engine, apply foot brake, and move selector lever to "D" position.



6. Gradually press down accelerator pedal while holding down the foot brake.
7. Quickly read off the stall speed, and then quickly remove your foot from accelerator pedal.

CAUTION:
Never hold down accelerator pedal for more than 5 seconds during this test.



Stall speed : Refer to [TM-194, "Stall Speed"](#).

8. Move selector lever to "N" position.
9. Cool down the CVT fluid.

CAUTION:
Run the engine at idle for at least 1 minute.
10. Repeat steps 6 through 9 with selector lever in "R" position.

JUDGMENT

	Selector lever position		Expected problem location
	"D"	"R"	
Stall rotation	H	O	• Forward clutch
	O	H	• Reverse brake
	L	L	• Engine and torque converter one-way clutch
	H	H	• Line pressure low • Primary pulley • Secondary pulley • Steel belt

STALL TEST

[CVT: RE0F09B]

< PERIODIC MAINTENANCE >

O: Stall speed within standard value position.

H: Stall speed is higher than standard value.

L: Stall speed is lower than standard value.

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LINE PRESSURE TEST

< PERIODIC MAINTENANCE >

[CVT: RE0F09B]

LINE PRESSURE TEST

Inspection and Judgment

INFOID:000000010113961

INSPECTION

Line Pressure Test Procedure

1. Inspect the amount of engine oil and replenish if necessary.
2. Drive the car for about 10 minutes to warm it up so that the CVT fluid reaches in the range of 50 to 80°C (122 to 176°F). Then inspect the amount of CVT fluid and replenish if necessary.

NOTE:

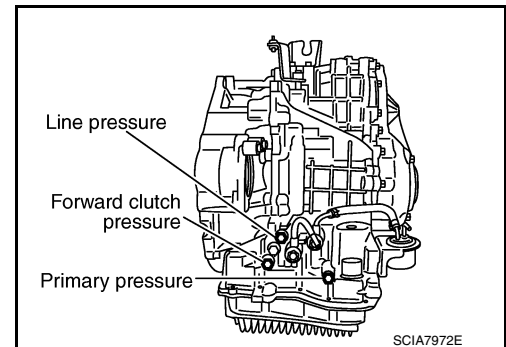
The CVT fluid temperature rises in the range of 50 to 80°C (122 to 176°F) during 10 minutes of driving.

3. After warming up transaxle assembly, remove oil pressure detection plug and install Tool.

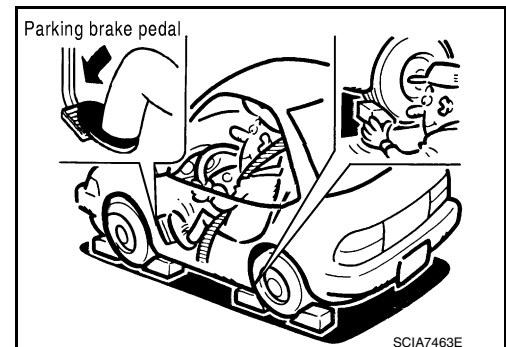
Tool number : — (OTC3492)

CAUTION:

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



4. Securely engage parking brake so that the tires do not turn.



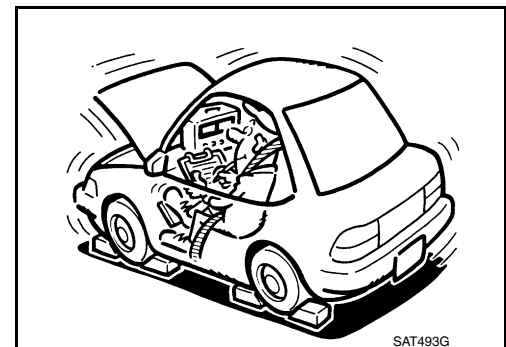
5. Start the engine, and then measure the line pressure at both idle and the stall speed.

CAUTION:

- Keep brake pedal pressed all the way down during measurement.
- When measuring the line pressure at the stall speed. Refer to [TM-160, "Inspection and Judgment"](#).

Line pressure : Refer to [TM-194, "Line Pressure"](#).

6. Install oil pressure detection plug and tighten to the specified torque below after the measurements are complete.



Oil pressure detection plug : 7.5 N·m (0.77 kg-m, 66 in-lb)

CAUTION:

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

JUDGMENT

LINE PRESSURE TEST

< PERIODIC MAINTENANCE >

[CVT: RE0F09B]

Judgment		Possible cause	
Idle speed	Low for all positions ("P", "R", "N", "D")	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 	A
	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.	B
	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 • Pressure control solenoid A (line pressure solenoid) malfunction (sticking in OFF state, filter clog, cut line) • Pressure regulator valve or plug sticking 	C
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"> • Accelerator pedal position signal malfunction • TCM malfunction • Pressure control solenoid A (line pressure solenoid) malfunction (shorting, sticking in ON state) • Pressure regulator valve or plug sticking 	TM
	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"> • Accelerator pedal position signal malfunction • Pressure control solenoid A (line pressure solenoid) malfunction (sticking, filter clog) • Pressure regulator valve or plug sticking 	E
	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.	F
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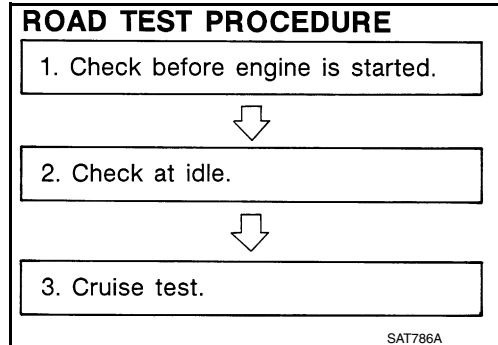
ROAD TEST

Description

INFOID:000000010113962

DESCRIPTION

- 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. "Check Before Engine Is Started"[TM-164](#).
 2. "Check at Idle"[TM-165](#).
 3. "Cruise Test"[TM-166](#).



- 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.



CONSULT SETTING PROCEDURE

- Using CONSULT, perform a cruise test and record the result.
 - Print the result and ensure that shifts and lock-ups take place as per Shift Schedule.
1. Touch "Data Monitor" in "Direct Diagnostic Mode" screen.
 2. Touch "MAIN SIGNALS" to set recording condition.
 3. See "Numerical Display", "Bar chart Display" or "Line Graph Display".
 4. Touch "START".
 5. When performing cruise test. Refer to [TM-166. "Cruise Test"](#).
 6. After finishing cruise test part, touch "RECORD".
 7. Touch "STORE".
 8. Touch "BACK".
 9. Touch "DISPLAY".
 10. Touch "PRINT".
 11. Check the monitor data printed out.

Check before Engine Is Started

INFOID:000000010113963

1. CHECK SHIFT POSITION INDICATOR

1. Park vehicle on flat surface.
2. Move selector lever to "P" position.
3. Turn ignition switch OFF. Wait at least 5 seconds.
4. Turn ignition switch ON. (Do not start engine.)

Has shift position indicator been turned ON for about 2 seconds?

- YES >> 1. Turn ignition switch OFF.
2. Perform self-diagnosis and note NG items. Refer to [TM-124. "DTC Index"](#).
3. Go to [TM-165. "Check at Idle"](#).
- NO >> Stop "Road Test". Refer to [TM-137. "Symptom Table"](#).

ROAD TEST

< PERIODIC MAINTENANCE >

[CVT: RE0F09B]

INFOID:000000010113964

Check at Idle

1. CHECK STARTING THE ENGINE (PART 1)

1. Park vehicle on flat surface.
2. Move selector lever to "P" or "N" position.
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 ON.
2. Move selector lever to "D", "M", "DS" or "R" position.
3. 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. Move 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

1. Start engine.
2. Move 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. Move 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 when foot brake is released?

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

7. CHECK "D" POSITION FUNCTION

Move selector lever to "D", "DS" and "M" position and check if vehicle creeps forward.

Does vehicle creep forward in all positions?

- YES >> Go to [TM-166, "Cruise Test"](#).
NO >> Stop "Road Test". Refer to [TM-137, "Symptom Table"](#).

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Cruise Test

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. Move selector lever to “P” position.
4. Start engine.
5. Move selector lever to “D” position.
6. Accelerate vehicle at 2/8 throttle opening and check “Vehicle Speed When Shifting Gears”.

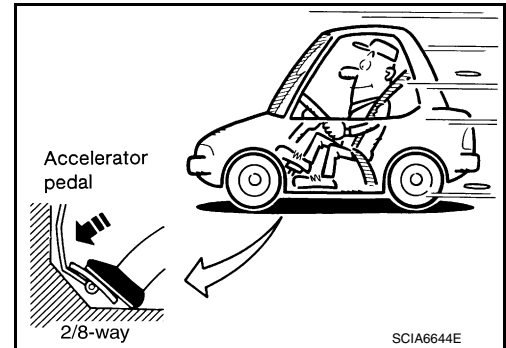
Ⓟ With CONSULT

- Read vehicle speed and engine speed. Refer to [TM-194. "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. Park vehicle on flat surface.
2. Move selector lever to “D” position.
3. Accelerate vehicle at 8/8 throttle opening and check “Vehicle Speed When Shifting Gears”.

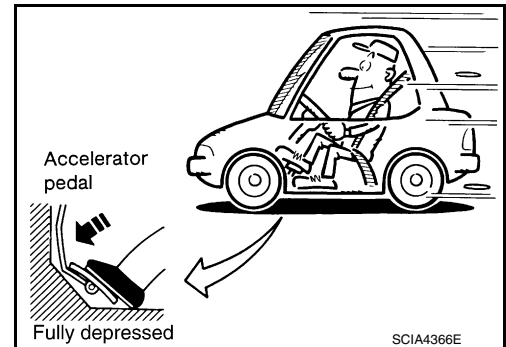
Ⓟ With CONSULT

- Read vehicle speed and engine speed. Refer to [TM-194. "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 DS MODE FUNCTION

Move to “DS” mode from “D” position.

Does it switch to “DS” mode?

YES >> GO TO 4.

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

4. CHECK MANUAL MODE FUNCTION

Move to manual mode from “DS” position.

Does it switch to manual mode?

YES >> GO TO 5.

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

5. CHECK SHIFT UP FUNCTION

During manual mode driving, is upshift from M1 → M2 → M3 → M4 → M5 → M6 performed?

Ⓟ With CONSULT

- Read vehicle speed and engine speed. Refer to [TM-38. "CONSULT Function"](#).

Is upshifting correctly performed?

YES >> GO TO 6.

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

ROAD TEST

< PERIODIC MAINTENANCE >

[CVT: RE0F09B]

6. CHECK SHIFT DOWN FUNCTION

During manual mode driving, is downshift from M6 → M5 → M4 → M3 → M2 → M1 performed?

④ With CONSULT

- Read vehicle speed and engine speed. Refer to [TM-38. "CONSULT Function"](#).

Is downshifting correctly performed?

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 "M1" position?

YES >> 1. Stop the vehicle.

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

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

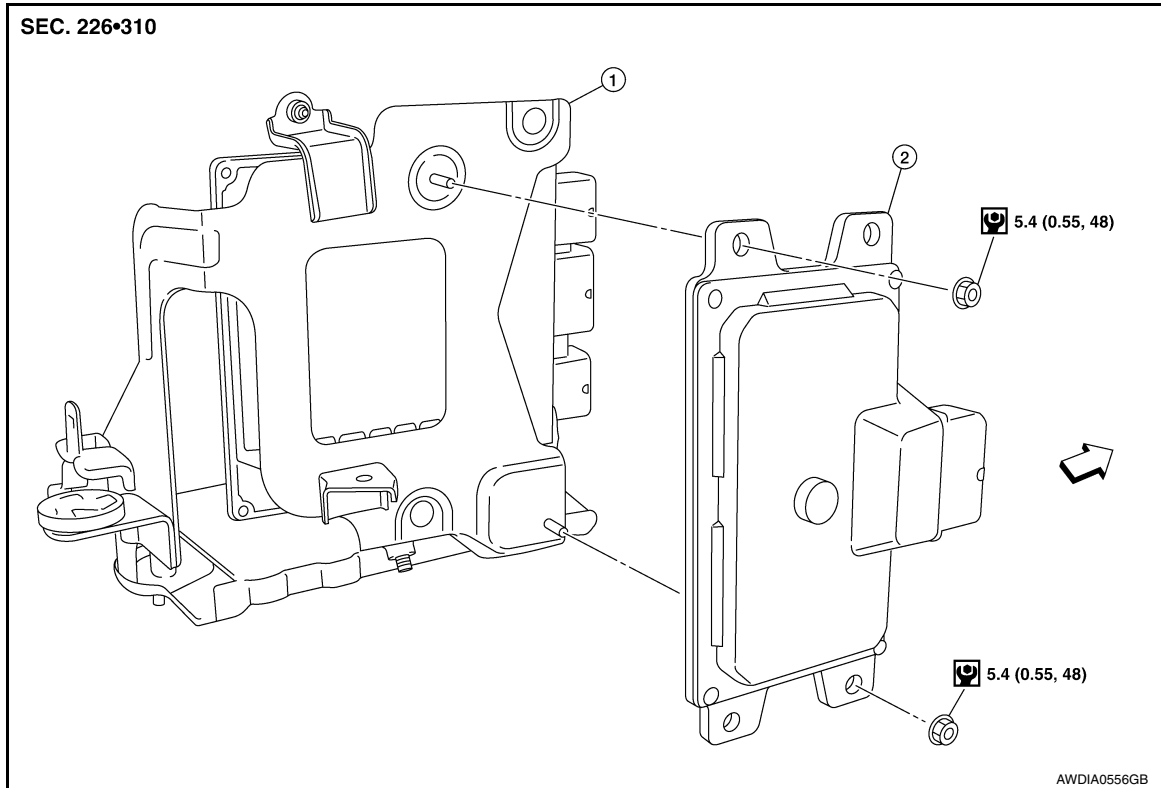
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REMOVAL AND INSTALLATION

TCM

Exploded View

INFOID:000000010114017



1. Bracket

2. TCM

⇐ Vehicle front

Removal and Installation

INFOID:000000009469195

CAUTION:

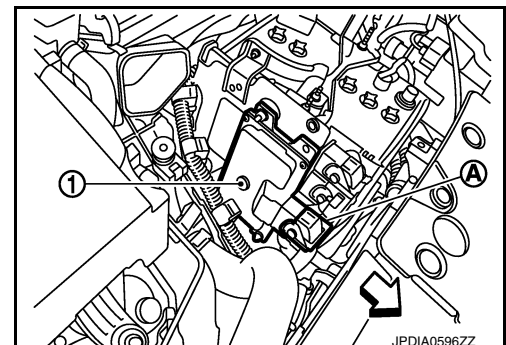
- Do not impact the TCM when removing or installing TCM.
- When replacing TCM and transaxle assembly as a set, replace transaxle assembly first and then replace TCM. Refer to [TM-8, "Description"](#).

REMOVAL

1. Disconnect the battery negative terminal. Refer to [PG-67, "Removal and Installation \(Battery\)"](#).
2. Remove front air duct. Refer to [EM-24, "Removal and Installation"](#).
3. Disconnect TCM harness connector (A).

⇐ : Front

4. Remove TCM nuts and TCM (1) from bracket.



INSTALLATION

Installation is in the reverse order of removal.

Adjustment

INFOID:000000010114018

ADJUSTMENT AFTER INSTALLATION

Perform "ADDITIONAL SERVICE WHEN REPLACING TCM". Refer to [TM-8. "Description"](#).

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CVT SHIFT SELECTOR

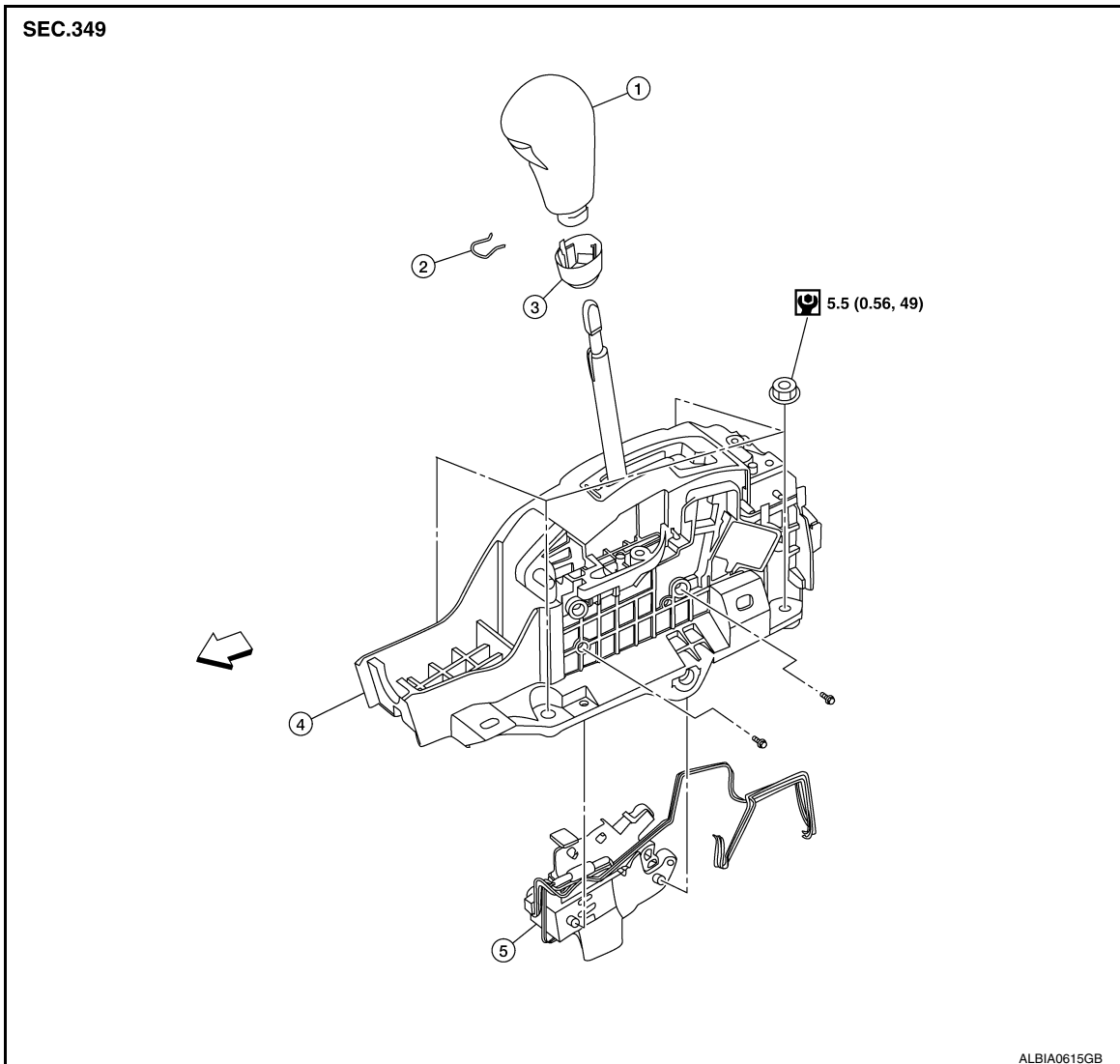
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

CVT SHIFT SELECTOR

Exploded View

INFOID:000000009469197



- | | | |
|--------------------------------|-------------------------------|--------------------------------|
| 1. CVT shift selector handle | 2. Shift selector handle clip | 3. Shift selector handle cover |
| 4. CVT shift selector assembly | 5. Shift lock unit | ← Front |

Removal and Installation

INFOID:000000009469198

REMOVAL

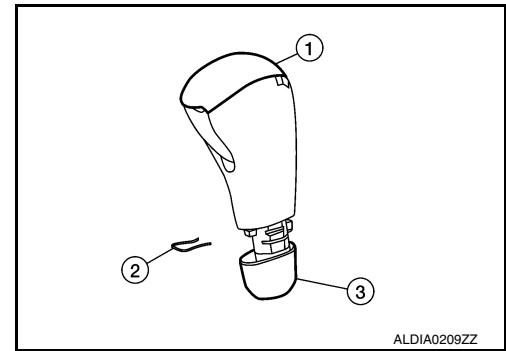
1. Disconnect the battery negative terminal. Refer to [PG-67, "Exploded View"](#).
2. Move CVT shift selector to "N" position.

CVT SHIFT SELECTOR

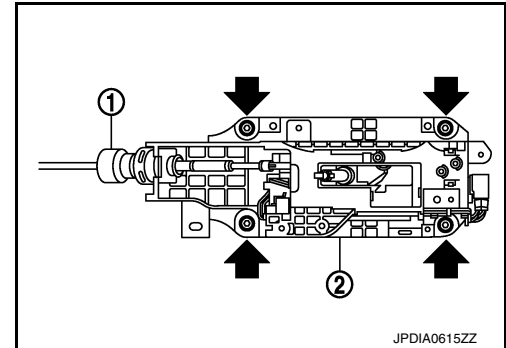
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

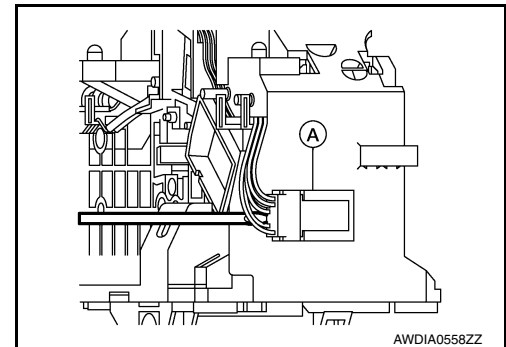
- Slide shift selector handle cover (3) downward.
CAUTION:
Be careful not to damage shift selector handle cover.
- Pull shift selector handle clip (2) out of CVT shift selector handle (1).
- Remove CVT shift selector handle and shift selector handle cover.
- Remove center console assembly. Refer to [IP-11, "Removal and Installation"](#).
- Move CVT shift selector to "P" position.
- Remove control cable (1) from CVT shift selector assembly. Refer to [TM-173, "Exploded View"](#).
- Remove CVT shift selector assembly (2).



← : Nut



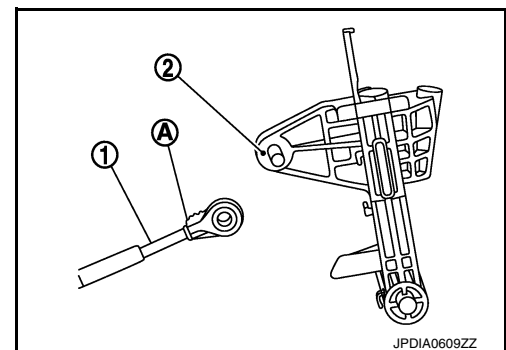
- Disconnect CVT shift selector harness connector (A) using a suitable tool.
- Remove shift lock unit from CVT shift selector assembly.



INSTALLATION

Installation is 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 surface (A) facing upward.



Inspection and Adjustment

INFOID:000000009469199

INSPECTION

- Move CVT shift selector to "P" position, and turn ignition switch ON (engine stop).
- Check that CVT shift selector can be moved from "P" position when brake pedal is depressed. Also check that CVT shift selector can be moved from "P" position only when brake pedal is depressed.
- Move CVT shift selector and check for excessive effort, sticking, noise or rattle.

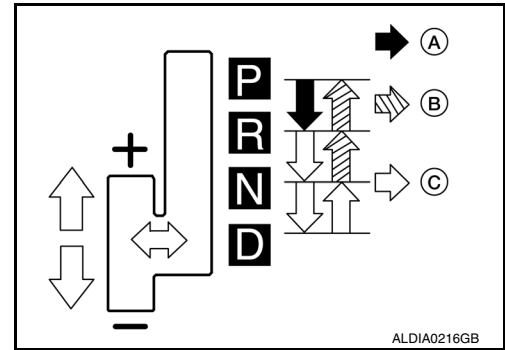
CVT SHIFT SELECTOR

< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

4. Check that CVT shift selector stops at each position with the feel of engagement when it is moved through all the positions. Check that the actual position of CVT shift selector matches the position shown by shift position indicator and manual lever on the transaxle.
5. The method of operating CVT shift selector to individual positions correctly should be as shown.
 - (A): Press shift selector handle button to operate CVT shift selector, while depressing the brake pedal.
 - (B): Press shift selector handle button to operate CVT shift selector.
 - (C): CVT shift selector can be operated without pressing shift selector handle button.
6. When shift selector handle button is pressed in "P", "R", "N" or "D" position without applying forward/backward force to CVT shift selector, check shift selector handle button operation for sticking.
7. Check that back-up lamps illuminate only when CVT shift selector is placed in the "R" position.
8. Check that back-up lamps do not illuminate when CVT shift selector is pushed toward the "R" position when in the "P" or "N" position.

CAUTION:
Check the lighting without pressing shift selector handle button.
9. Check that the engine can only be started with CVT shift selector in the "P" and "N" positions.
10. Check that transaxle is locked completely when CVT shift selector is in "P" position.
11. Check the operation of manual mode.
 1. When CVT shift selector is set to manual shift gate, make sure manual mode is displayed on combination meter.
 2. Shift CVT shift selector to "+" and "-" sides, and make sure set shift position changes.



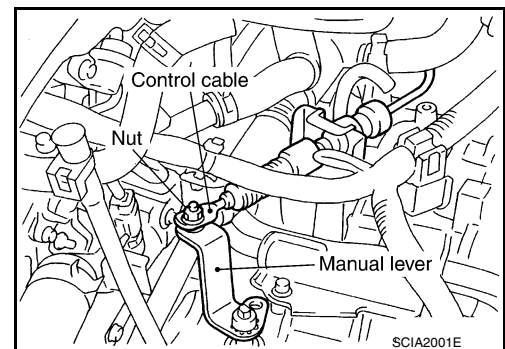
ADJUSTMENT

1. Set the park brake.

CAUTION:
Make sure the vehicle cannot move with parking brake set.
2. Loosen the control cable nut and place the manual lever in "P" position.
3. Place the CVT shift selector in "P" position.
4. Push the control cable in with a load of 9.8 N (approximately 1 kg, 2.2 lb). Release the cable and temporarily tighten the control cable nut.

NOTE:
Do not move the manual lever. Make sure the manual lever stays in the "P" position.
5. Tighten the control cable nut. Refer to [TM-173. "Exploded View"](#).

CAUTION:
Secure manual lever when tightening nut.
6. Check the operation of the CVT.



CONTROL CABLE

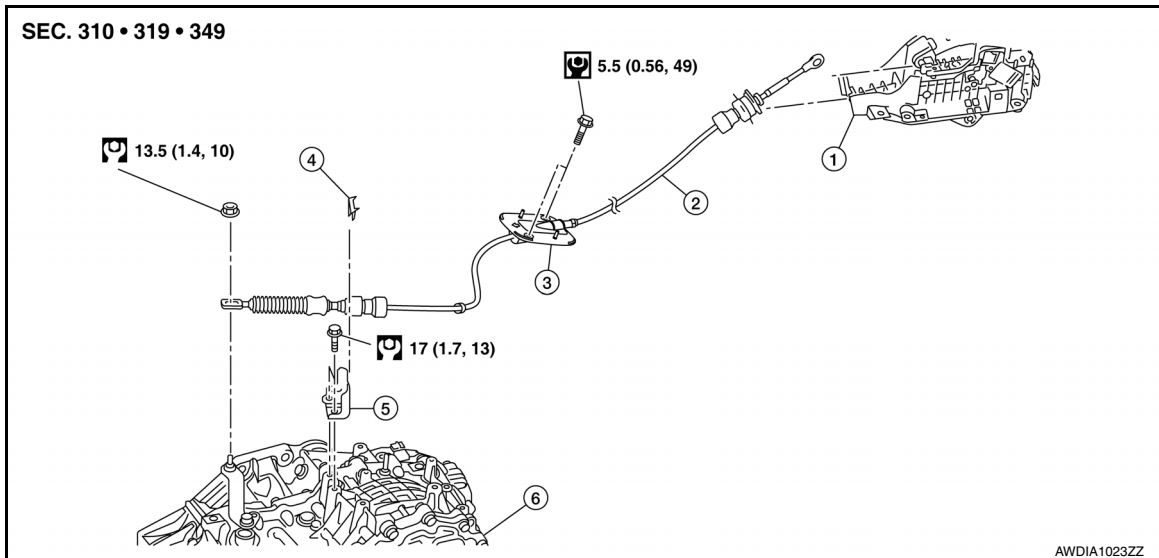
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

CONTROL CABLE

Exploded View

INFOID:000000009469200



- | | | |
|--------------------------------|------------------|-----------------------|
| 1. CVT shift selector assembly | 2. Control cable | 3. Retainer grommet |
| 4. Lock plate | 5. Bracket | 6. Transaxle assembly |

Removal and Installation

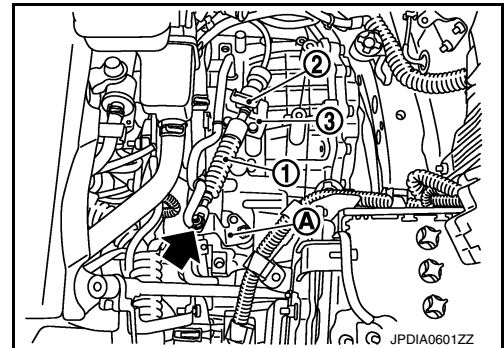
INFOID:000000009469201

REMOVAL

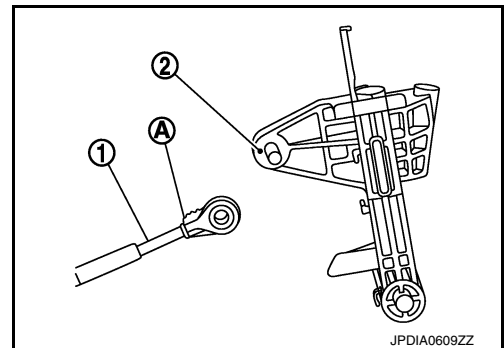
CAUTION:

Make sure that parking brake is applied before removal/installation.

1. Remove front air duct. Refer to [EM-24, "Removal and Installation"](#).
2. Remove air cleaner case assembly. Refer to [EM-24, "Removal and Installation"](#).
3. Remove control cable nut (←).
4. Remove control cable (1) from manual lever (A).
5. Remove lock plate (2) from control cable.
6. Remove control cable from bracket (3).
7. Remove center console. Refer to [IP-14, "Removal and Installation"](#).



8. Remove control cable (1) from CVT shift selector assembly (2).
 - (A): Ribbed surface

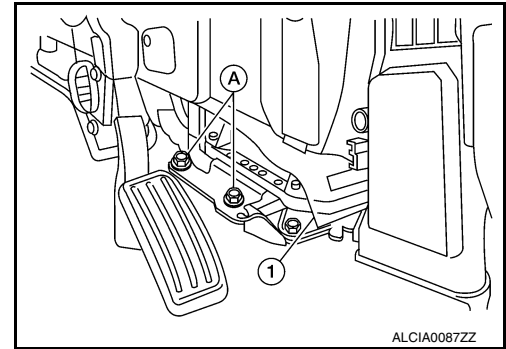


CONTROL CABLE

< REMOVAL AND INSTALLATION >

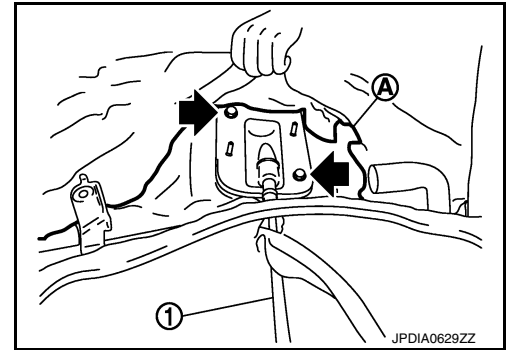
[CVT: RE0F09B]

9. Remove the bolts (A) from the support bracket (1) (if equipped).



10. Remove bracket covering the retainer grommet.
11. Remove the retainer grommet bolts (←) and the retainer grommet.
12. Remove the control cable (1) from the vehicle.

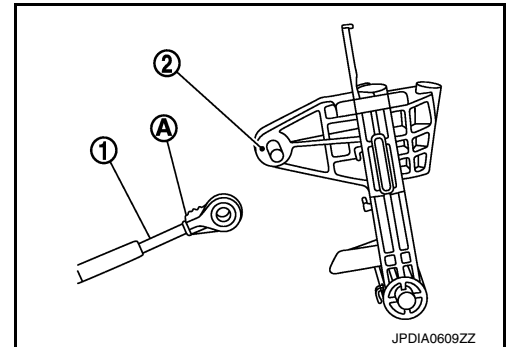
(A) : Dash trim



INSTALLATION

Installation is in the reverse order of removal.

- When installing control cable (1) to CVT shift selector assembly (2), make sure that control cable is fully pressed in with the ribbed surface (A) facing upward.



Inspection and Adjustment

INFOID:000000009469202

ADJUSTMENT AFTER INSTALLATION

Adjust the CVT positions after installing control cable. Refer to [TM-171. "Inspection and Adjustment"](#).

INSPECTION AFTER INSTALLATION

Check the CVT positions after adjusting the CVT positions. Refer to [TM-171. "Inspection and Adjustment"](#).

PADDLE SHIFTER

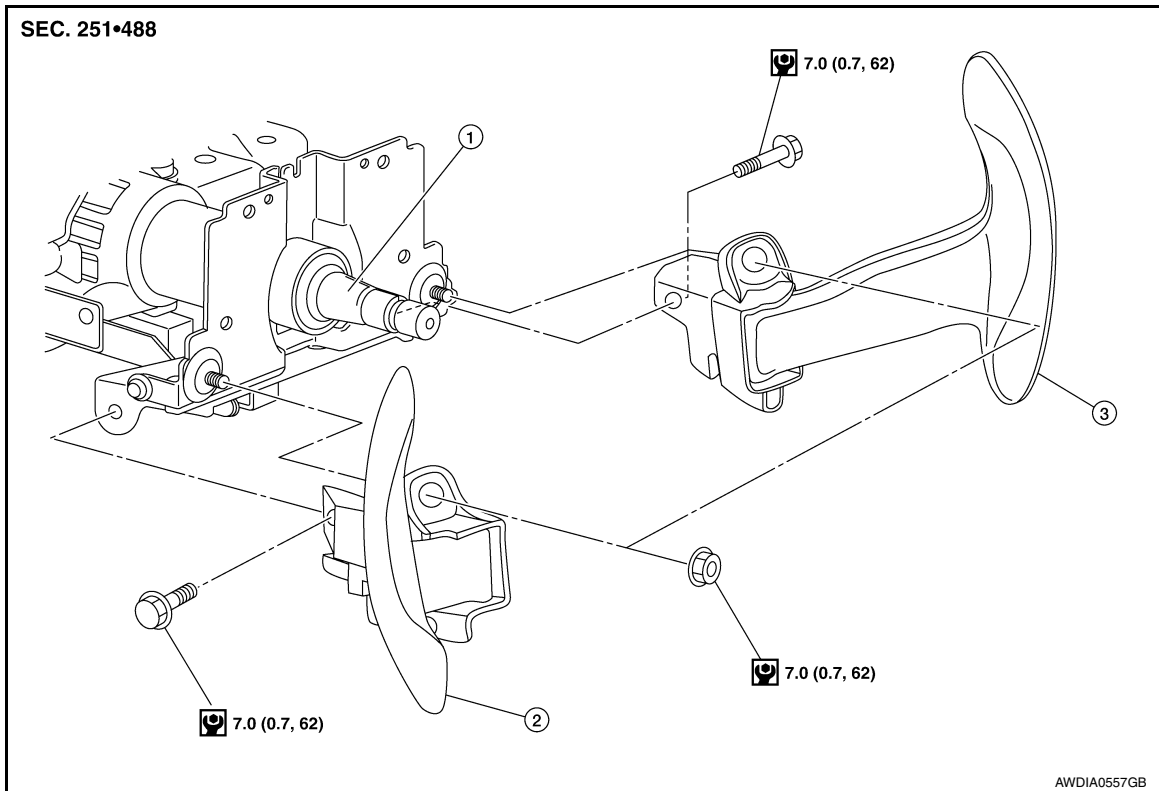
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

PADDLE SHIFTER

Exploded View

INFOID:000000009469203



1. Steering column assembly

2. Paddle shifter (shift-down)

3. Paddle shifter (shift-up)

Removal and Installation

INFOID:000000009469204

REMOVAL

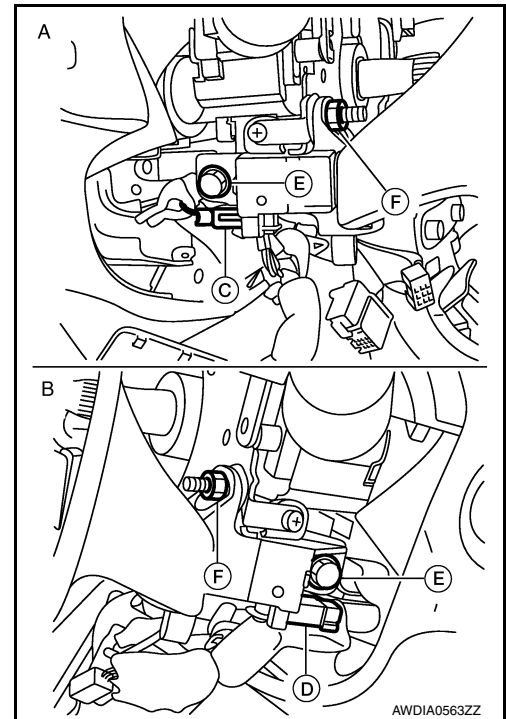
1. Park the vehicle on a level surface.
2. Remove the driver air bag module. Refer to [SR-12, "Exploded View"](#).
3. Remove the steering wheel. Refer to [ST-17, "Removal and Installation"](#).
4. Remove the column cover. Refer to [IP-13, "Removal and Installation"](#).

PADDLE SHIFTER

[CVT: RE0F09B]

< REMOVAL AND INSTALLATION >

5. Remove the vehicle harness connector (C) and (D) from paddle shifter.
 - (A) : Side of paddle shifter (shift-down)
 - (B) : Side of paddle shifter (shift-up)
6. Remove the paddle shifter bolts (E) and nuts (F).
7. Remove the paddle shifter from the steering column assembly.



INSTALLATION

Installation is in the reverse order of removal.

OIL PAN

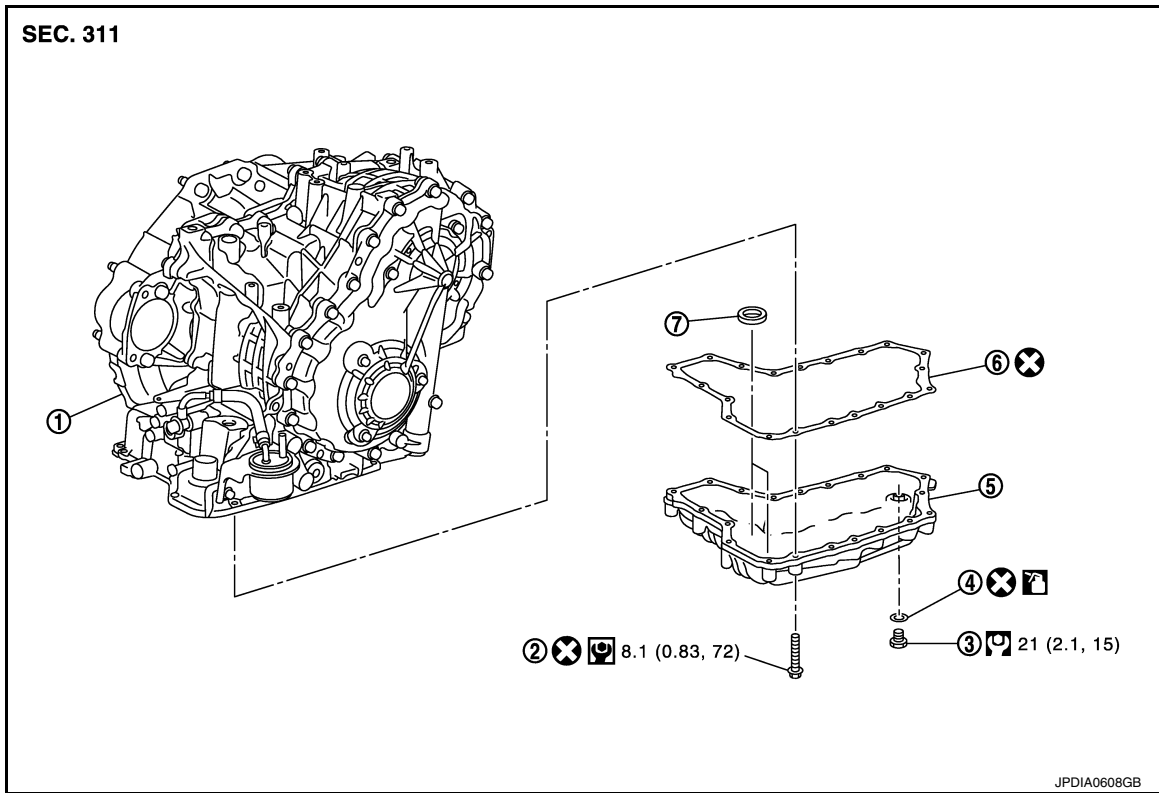
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]


OIL PAN

Exploded View

INFOID:000000010114019



- 1. Transaxle assembly
- 4. O-ring
- 7. Magnet

- 2. Oil pan bolt
- 5. Oil pan
-  Apply CVT Fluid NS-2

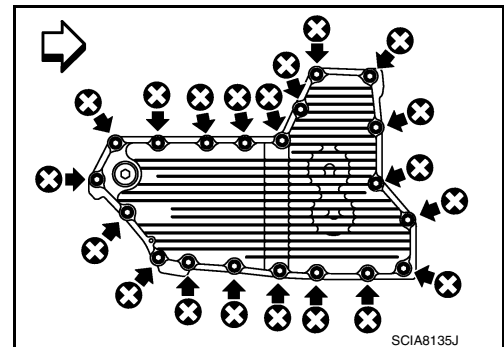
- 3. Drain plug
- 6. Oil pan gasket

Removal and Installation

INFOID:000000009469206

REMOVAL

1. Drain CVT fluid from CVT. Refer to [TM-156, "Changing"](#).
2. Remove O-ring from drain plug.
3. Remove oil pan bolts (←).
 - ←: Front
4. Remove oil pan.

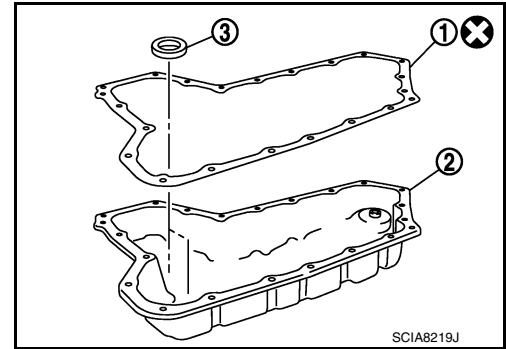


OIL PAN

< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

5. Remove oil pan gasket (1) from oil pan (2).
6. Remove magnet (3) from oil pan.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- **Completely remove all moisture, oil and old gasket, etc. from the oil pan gasket mating surface of transaxle case and oil pan.**
- **Do not reuse oil pan gasket, O-ring and oil pan bolts.**
- **Apply CVT fluid to O-ring.**
- Install the oil pan assembly to the transaxle case with the following procedure.
- Install the oil pan assembly to the transaxle case, and then temporarily tighten the oil pan bolts.

CAUTION:

Do not reuse oil pan bolts.

- Tighten the oil pan bolts in a criss cross pattern to the specified torque.
- Tighten the oil pan bolts again clockwise to the specified torque.

Inspection

INFOID:000000010114020

Check foreign materials in oil pan to help determine causes of malfunction. If the CVT fluid is very dark, smells burned, or contains foreign particles, frictional material (clutches) may need replacement. A tacky film that will not wipe clean indicates varnish build up. Varnish can cause valves and clutches to stick and can inhibit pump pressure.

INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage and check CVT fluid level. Refer to [TM-155. "Inspection"](#).

CONTROL VALVE

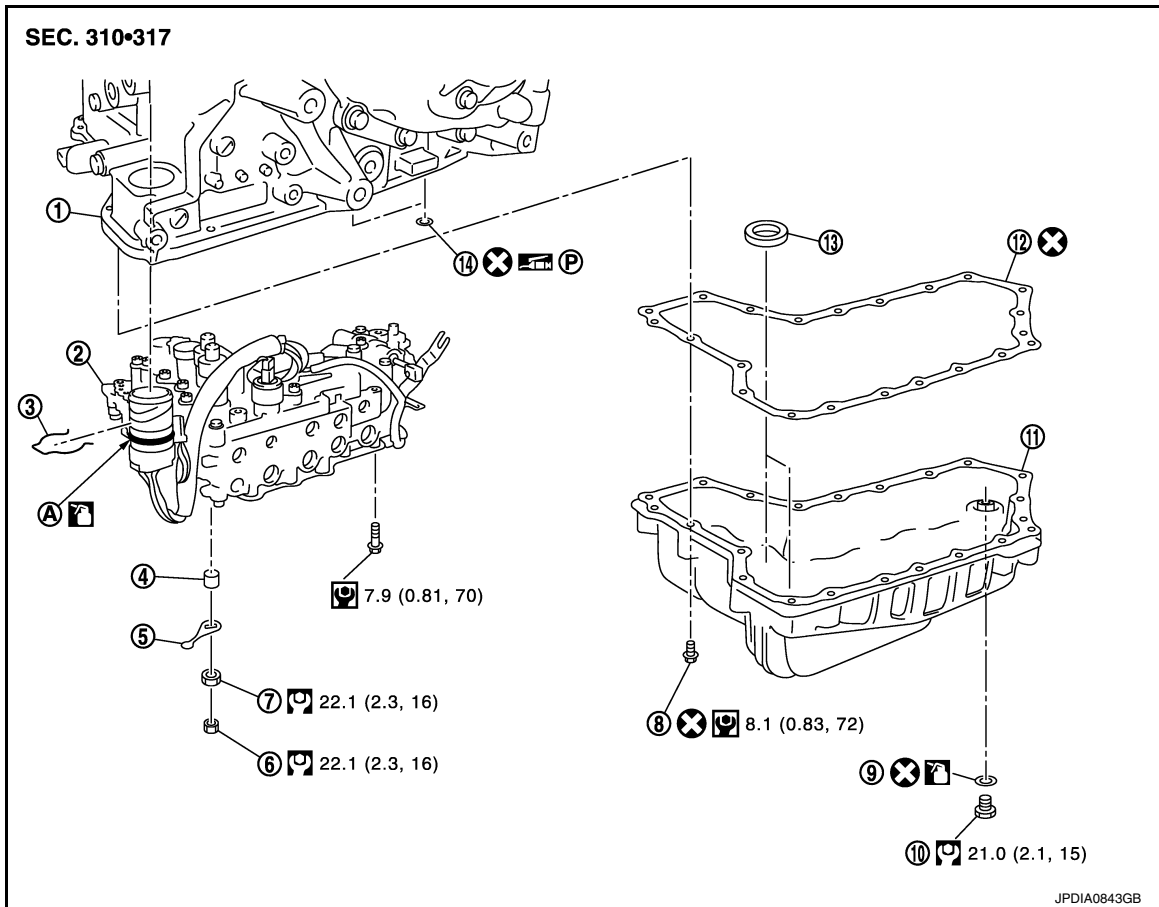
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

CONTROL VALVE

Exploded View

INFOID:000000010114021



- | | | |
|-----------------------|------------------|--------------------|
| 1. Transaxle assembly | 2. Control valve | 3. Snap ring |
| 4. Collar | 5. Manual plate | 6. Lock nut |
| 7. Lock nut | 8. Oil pan bolt | 9. O-ring |
| 10. Drain plug | 11. Oil pan | 12. Oil pan gasket |
| 13. Magnet | 14. Lip seal | |

A. O-ring
: NISSAN CVT Fluid NS-2

Removal and Installation

INFOID:000000009469209

REMOVAL

1. Disconnect battery negative terminal. Refer to [PG-67. "Removal and Installation \(Battery\)"](#).
2. Remove the front fender protector side cover, Refer to [EXT-24. "Removal and Installation"](#).
3. Disconnect the CVT unit harness connector. Refer to [TM-150. "Removal and Installation Procedure for CVT Unit Connector"](#).
4. Remove the oil pan. Refer to [TM-177. "Removal and Installation"](#).
5. Remove oil strainer.

CONTROL VALVE

< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

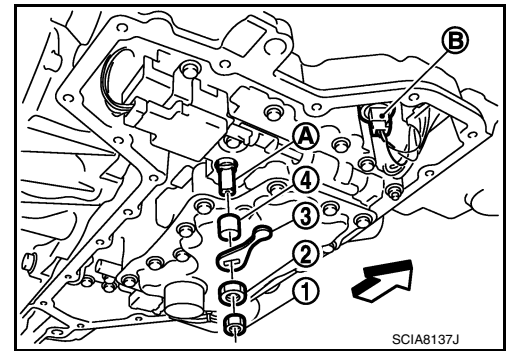
6. Remove the lock nut (1) and (2), and then remove manual plate (3).

⇐ : Front

7. Remove the collar (4) from the manual shaft (A).

CAUTION:
Do not drop the collar.

8. Disconnect the primary pressure sensor harness connector (B).

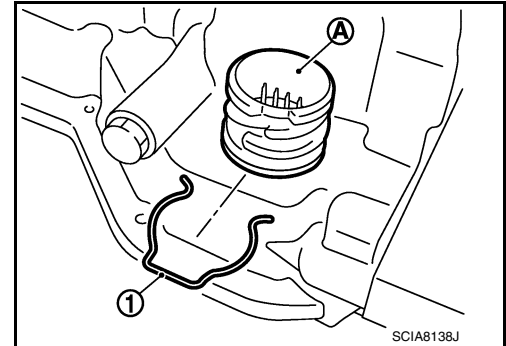


9. Remove the snap ring (1) from the CVT unit harness connector (A).

10. Press the CVT unit harness connector (A) into the transaxle case.

CAUTION:
Do not damage the CVT unit harness connector.

NOTE:
Clean around the CVT unit harness connector to prevent foreign materials from entering into the transaxle case.

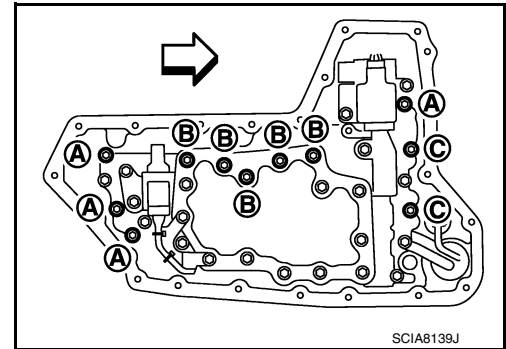


11. Remove the control valve bolts (A), (B) and (C), and then remove the control valve from the transaxle case.

⇐ : Front

CAUTION:

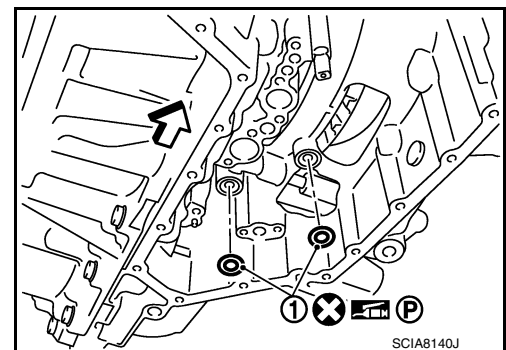
- Do not drop the control valve, ratio control valve and manual shaft.
- Confirm position of the shift link for ease of installation.



12. Remove the lip seal (1) from the transaxle case.

CAUTION:
Do not reuse lip seal.

⇐ : Front



INSTALLATION

CONTROL VALVE

< REMOVAL AND INSTALLATION >

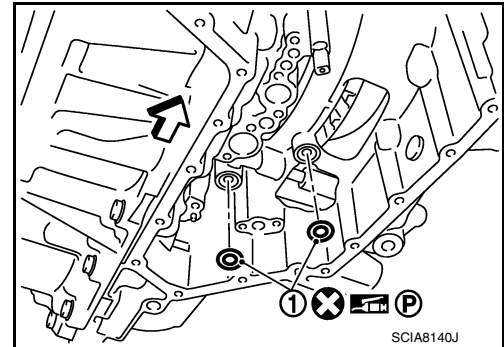
[CVT: RE0F09B]

1. Install the lip seal (1) to the transaxle case.

CAUTION:

Do not reuse lip seal.

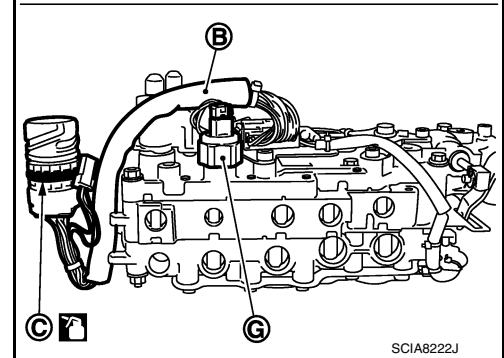
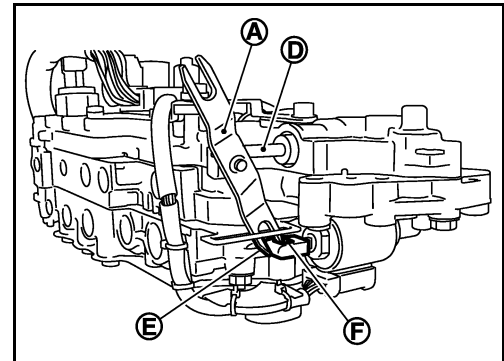
← : Front



2. Check the harness connector (B), O-ring (C), and the orientation of shift link (A) on the control valve.

CAUTION:

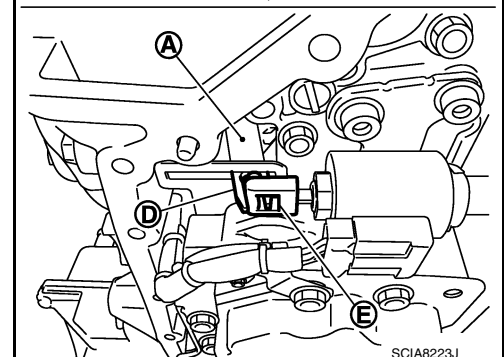
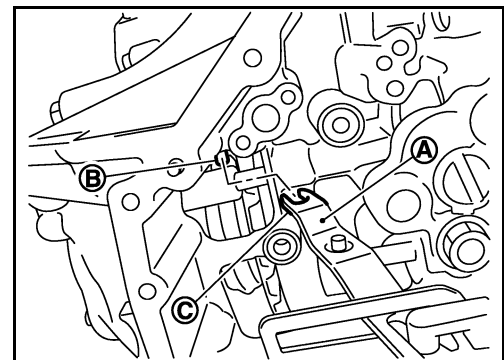
- Do not touch or wipe out the control valve mating surface.
- Be careful not to drop the ratio control valve (D), because the return spring in ratio control valve may push out the ratio control valve.
- Be sure shift link (A) is in the proper position prior to installation.
- Do not reuse O-ring.
- Be sure to apply CVT fluid to O-ring (C).
- Check that a notch (E) of shift link engages with the step motor and that a bracket of shift link engages with a hole (F) of step motor.
- Place the harness connector on the secondary pressure sensor (G).



3. Temporarily tighten the control valve with 2 control valve bolts, while adjusting the shift link (A) to engage the notch (C) of shift link with the pin (B) of pulley sensor.

CAUTION:

- Do not pinch the harness into between the control valve and the transaxle case.
- Do not damage the control valve while installing.
- Check that the notch (C) at one end of shift link (A) engages with the pin (B) of pulley sensor. Check that the notch (D) at the other end of shift link (A) engages with step motor and that the bracket of shift link (A) engages with the hole (E) of step motor.



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CONTROL VALVE

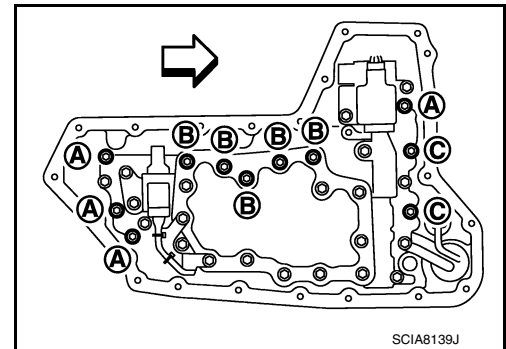
[CVT: RE0F09B]

< REMOVAL AND INSTALLATION >

4. Install the control valve bolts (A), (B), and (C).

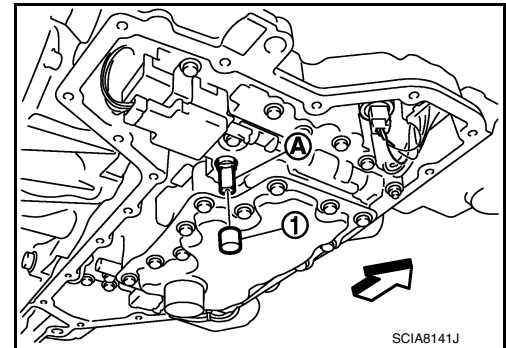
⇐ : Front

Bolt	Bolt length (mm)	Number of bolts
A	30	4
B	70	5
C	53	2



5. Install the collar (1) to the manual shaft (A).

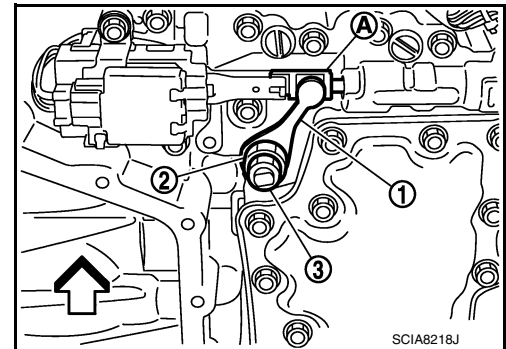
⇐ : Front



6. Install the manual plate (1) while aligning with the groove (A) of the manual valve.

⇐ : Front

7. Install the lock-nut (2), and then the lock-nut (3).



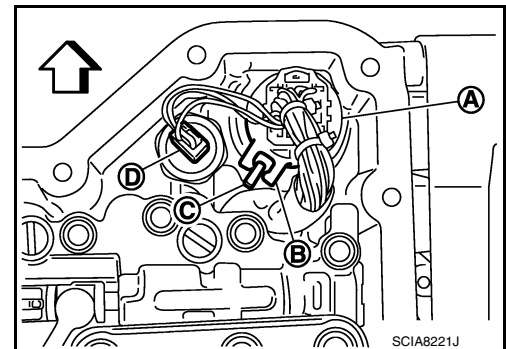
8. Install the CVT unit harness connector (A) to the transaxle case.

⇐ : Front

CAUTION:

Engage the notch (B) of CVT unit harness connector with the protrusion (C) of transaxle case.

9. Install the primary pressure sensor harness connector (D)

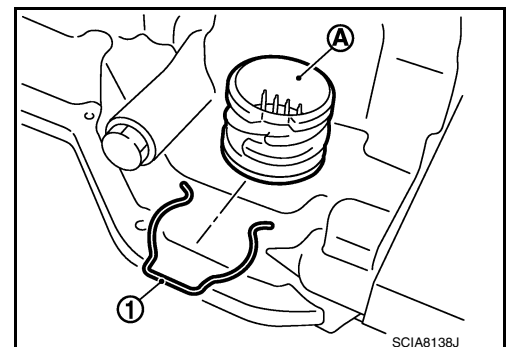


10. Install the snap ring (1) to the CVT unit harness connector (A).

11. Install the magnet while aligning it with the convex side of oil pan.

CAUTION:

Completely eliminate the iron powder from the magnet area of oil pan and the magnet.



CONTROL VALVE

< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

12. Install the oil pan. Refer to [TM-177, "Removal and Installation"](#).
13. Connect the CVT unit harness connector. Refer to [TM-150, "Removal and Installation Procedure for CVT Unit Connector"](#).
14. Fill CVT fluid from CVT fluid charging pipe to the specified level.

CVT fluid : Refer to [TM-194, "General Specification"](#).

Fluid capacity : Refer to [TM-194, "General Specification"](#).

CAUTION:

- Use only Genuine NISSAN CVT Fluid NS-2. Do not mix with other fluid.
- Using CVT fluid other than Genuine NISSAN CVT Fluid NS-2 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 spill on 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-38, "CONSULT Function"](#).

15. Install the front fender side protector. Refer to [EXT-24, "Removal and Installation"](#).
16. Connect battery negative terminal. Refer to [PG-67, "Removal and Installation \(Battery\)"](#).
17. Perform the following procedures. Refer to [TM-183, "Inspection and Adjustment"](#).
 1. Adjustment after installation.
 2. Inspection after installation.

Inspection and Adjustment

INFOID:000000010114022

INSPECTION AFTER REMOVAL

Check oil pan for foreign material.

- 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.

ADJUSTMENT AFTER INSTALLATION

Erase the CVT fluid deterioration data. Refer to [TM-38, "CONSULT Function"](#).

INSPECTION AFTER INSTALLATION

Check the CVT fluid level, condition and leakage. Refer to [TM-155, "Inspection"](#).

SECONDARY SPEED SENSOR

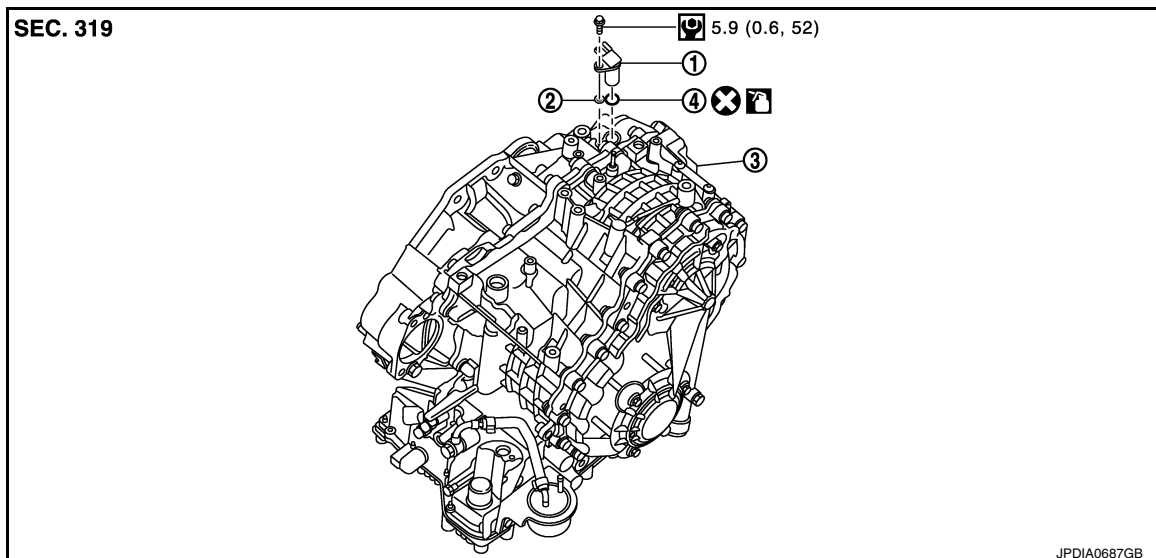
< REMOVAL AND INSTALLATION >


[CVT: RE0F09B]

SECONDARY SPEED SENSOR

Exploded View

INFOID:000000010114023



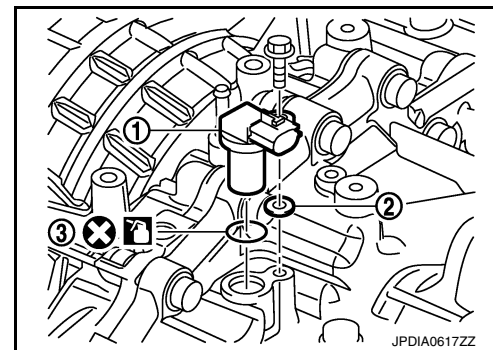
- | | | |
|---------------------------|--|-----------------------|
| 1. Secondary speed sensor | 2. Shim | 3. Transaxle assembly |
| 4. O-ring |  Apply CVT Fluid NS-2 | |

Removal and Installation

INFOID:000000009469212

REMOVAL

1. Disconnect the battery negative terminal. Refer to [PG-67, "Removal and Installation \(Battery\)"](#).
2. Remove hoodledge cover (LH).
3. Remove engine room cover.
4. Remove front air duct. Refer to [EM-24, "Removal and Installation"](#).
5. Remove air cleaner case assembly. Refer to [EM-24, "Removal and Installation"](#).
6. Disconnect secondary speed sensor harness connector.
7. Remove secondary speed sensor (1) and shim (2).
CAUTION:
Do not lose the shim.
8. Remove O-ring (3) from secondary speed sensor.
CAUTION:
Do not reuse O-ring.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse O-ring.
- Apply CVT fluid to O-ring.

Inspection

INFOID:000000010114024

Check for CVT fluid leakage and check CVT fluid level. Refer to [TM-155, "Inspection"](#).

DIFFERENTIAL SIDE OIL SEAL

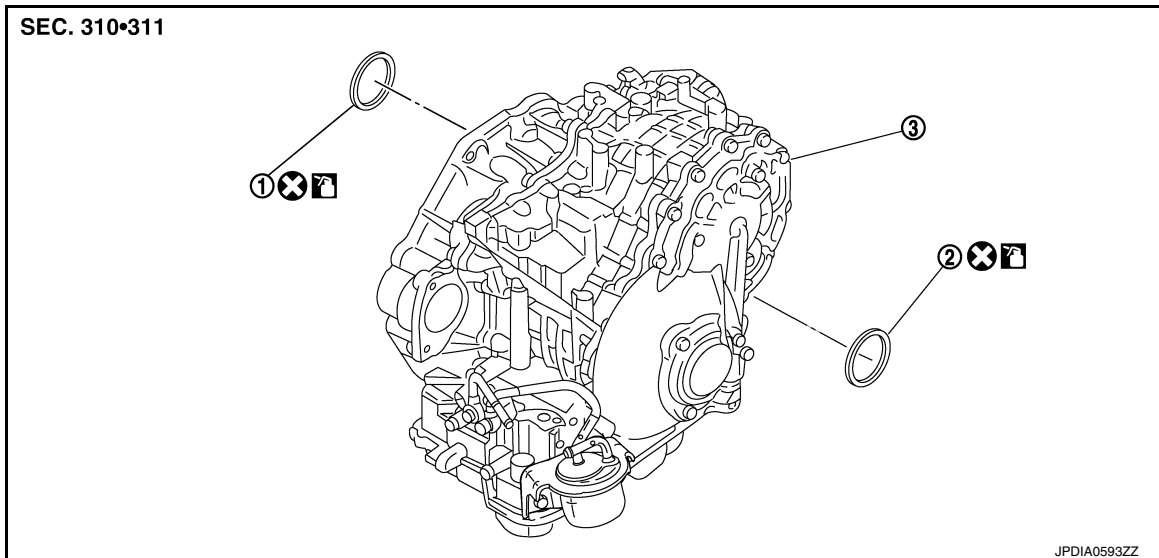
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

DIFFERENTIAL SIDE OIL SEAL

Exploded View

INFOID:000000010114211



- 1. RH differential side oil seal
- 2. LH differential side oil seal
- 3. Transaxle assembly

Apply CVT Fluid NS-2

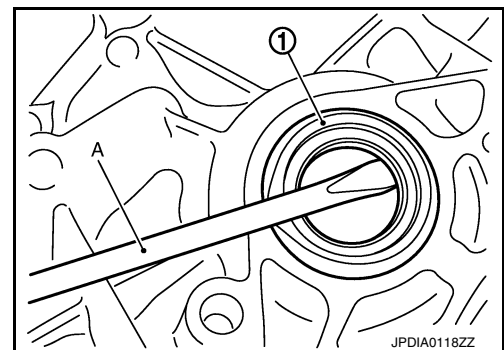
Removal and Installation

INFOID:000000009469215

REMOVAL

1. Remove front fender protector side cover. Refer to [EXT-16, "Removal and Installation"](#).
2. Remove front drive shafts. Refer to [FAX-9, "Removal and Installation \(LH\)"](#) (LH) and [FAX-10, "Removal and Installation \(RH\)"](#) (RH).
3. Remove differential side oil seals (1) using a suitable tool (A).

CAUTION:
Be careful not to scratch transaxle case and converter housing.



INSTALLATION

Installation is in the reverse order of removal.

- Install each differential side oil seal evenly using Tool so that differential side oil seal protrudes by the dimension (C) respectively.

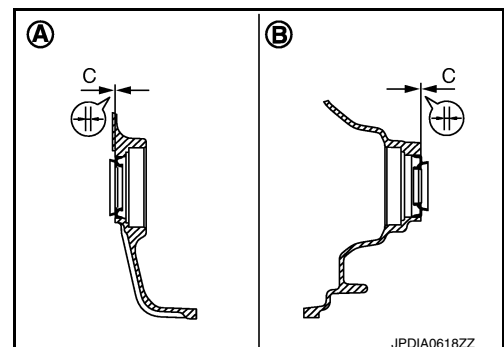
- (A) : Transaxle case side
- (B) : Converter housing side

Dimension (C) : 0 ± 0.5 mm (0 ± 0.020 in)

Tool number : ST33400001 (J-26082)

CAUTION:

- Do not reuse differential side oil seals.



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DIFFERENTIAL SIDE OIL SEAL

< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

- **Apply CVT fluid to differential side oil seals.**

NOTE:

Differential side oil seal removal direction is used as the reference.

Inspection

INFOID:000000010114212

Check for CVT fluid leakage and check CVT fluid level. Refer to [TM-155, "Inspection"](#).

AIR BREATHER HOSE

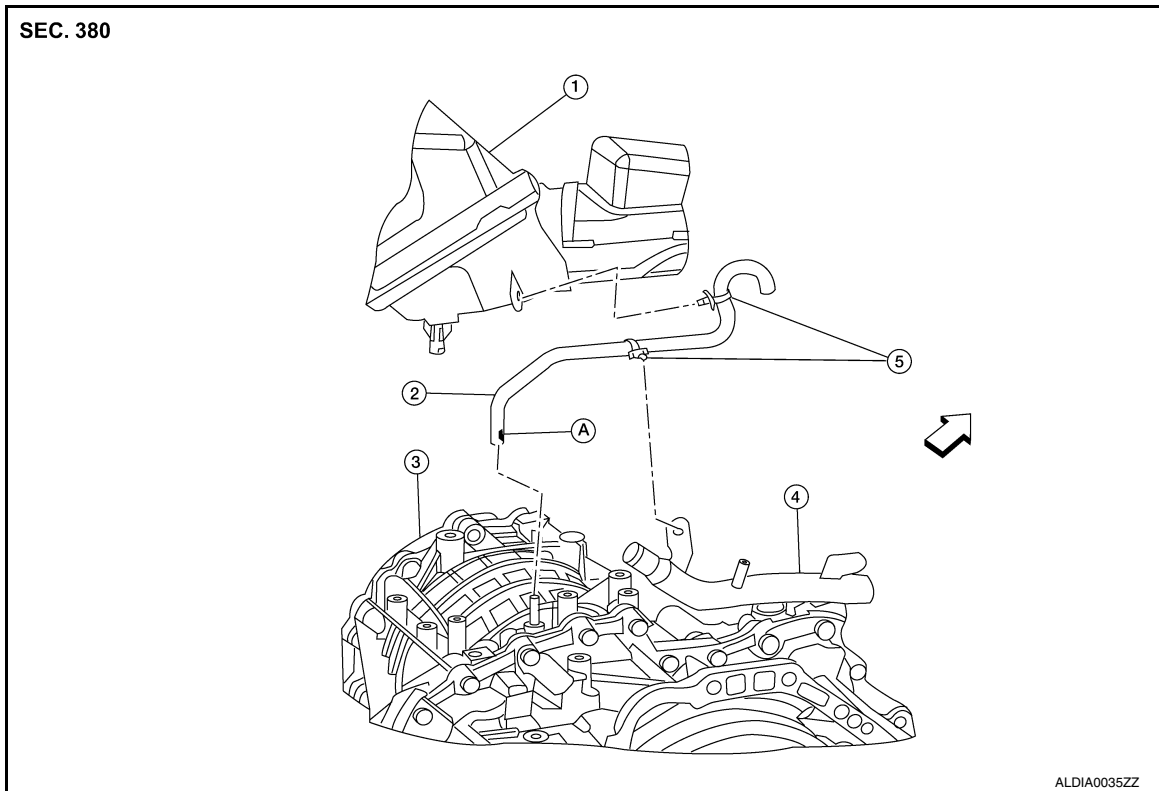
< REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

AIR BREATHER HOSE

Exploded View

INFOID:000000010114213



- | | | |
|---------------------|----------------------|-----------------------|
| 1. Air cleaner case | 2. Air breather hose | 3. Transaxle assembly |
| 4. Heater pipe | 5. Clip | A. Paint mark |

⇐ Front

Removal and Installation

INFOID:000000009469218

REMOVAL

1. Remove front air duct. Refer to [EM-24, "Removal and Installation"](#).
2. Remove air cleaner case assembly. Refer to [EM-24, "Removal and Installation"](#).
3. Remove air breather hose from transaxle assembly.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Install air breather hose with paint mark facing front.
- Insert air breather hose onto air breather tube until overlap area reaches the spool.
- Install air breather hose to heater pipe and air cleaner case assembly by fully inserting the clip.
- Make sure there are no pinched or restricted areas on air breather hose caused by bending or winding when installing it.

TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

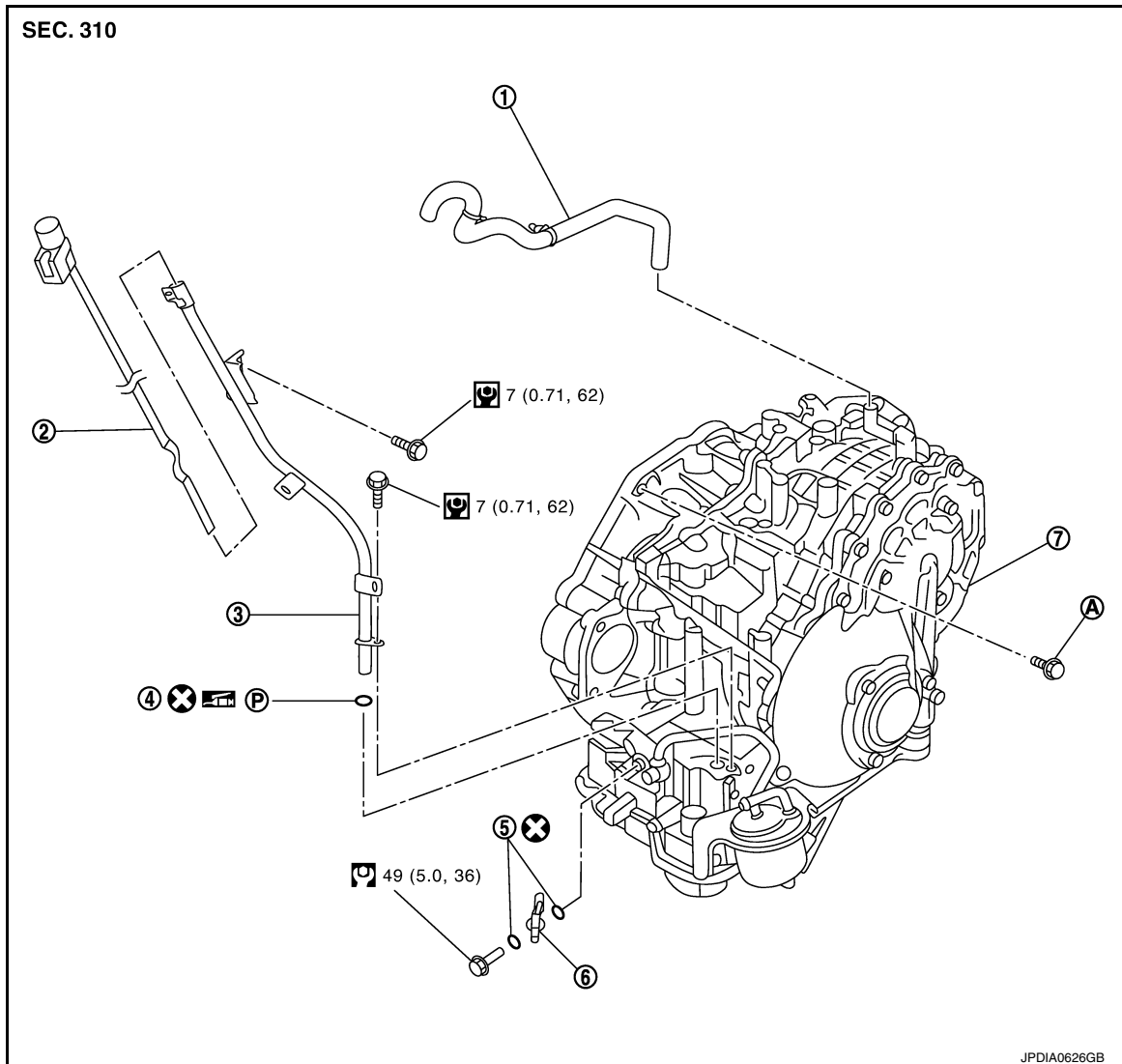
[CVT: RE0F09B]

UNIT REMOVAL AND INSTALLATION

TRANSAXLE ASSEMBLY

Exploded View

INFOID:000000010114257



- | | | |
|---------------------------|--------------------------|----------------------------|
| 1. Air breather hose | 2. CVT fluid level gauge | 3. CVT fluid charging pipe |
| 4. O-ring | 5. Copper sealing washer | 6. Fluid cooler tube |
| 7. Transaxle assembly | | |
| A. Refer to INSTALLATION. | | |

Removal and Installation

INFOID:000000009469220

WARNING:

Do not remove the reservoir tank cap when the engine is hot. Serious burns could occur from high-pressure engine coolant escaping from the reservoir tank. Wrap a thick cloth around the cap. Slowly turn a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.

CAUTION:

- Perform this step when the engine is cold.
- When replacing TCM and transaxle assembly as a set, replace transaxle assembly first and then replace TCM. Refer to [TM-8, "Description"](#).

TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

NOTE:

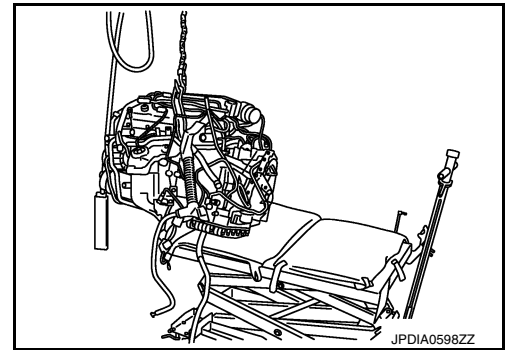
When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

REMOVAL

1. Remove the engine and transaxle assembly and front suspension member. Refer to [EM-103. "Removal and Installation"](#).
2. Lift with hoist and separate engine and transaxle assembly from front suspension member. Refer to [EM-103. "Removal and Installation"](#).
3. Disconnect secondary speed sensor harness connector. Refer to [TM-184. "Exploded View"](#).
4. Disconnect CVT unit harness connector.
5. Remove CVT fluid charging pipe from transaxle assembly.
6. Disconnect starter harness connectors.
7. Remove starter assembly. Refer to [STR-19. "Removal and Installation"](#).
8. Remove upper rear CVT gusset bolt.
9. Remove transaxle assembly bolts with power tool.
10. Remove transaxle assembly from engine assembly with a hoist.
11. Remove air breather hose. Refer to [TM-187. "Exploded View"](#).
12. Remove CVT fluid cooler tube from transaxle assembly.

CAUTION:

Do not reuse copper sealing washers.



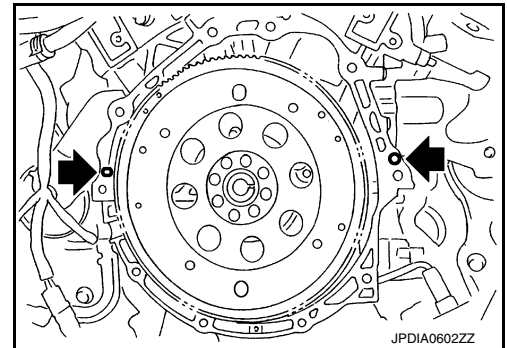
INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Check alignment of dowel pins when installing transaxle assembly to engine assembly.

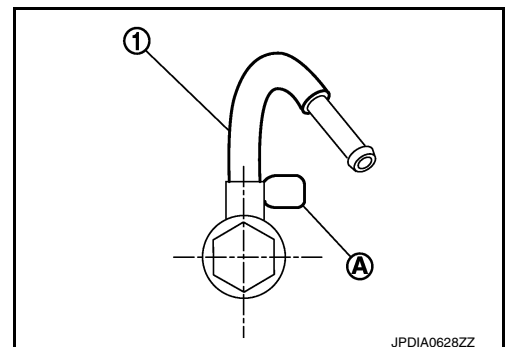
- ←: Dowel pins



- When installing CVT fluid cooler tube (1) to transaxle assembly:
- Contact CVT fluid cooler tube a boss portion (A) of the transaxle case.
- Tighten the bolt of CVT fluid cooler tube without moving the CVT fluid cooler tube.

CAUTION:

Do not reuse copper sealing washers.

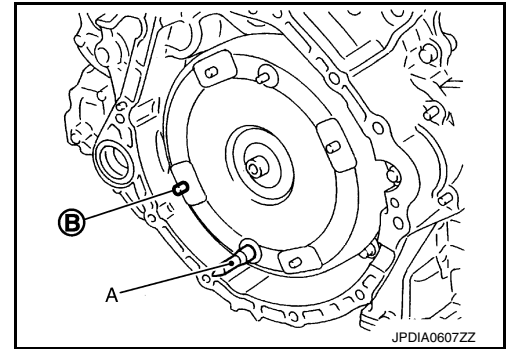


TRANSAXLE ASSEMBLY

[CVT: RE0F09B]

< UNIT REMOVAL AND INSTALLATION >

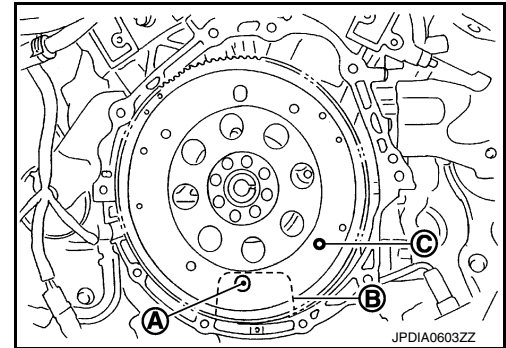
- Align the torque converter stud bolts (B) and drive plate holes.
- When using a suitable tool (A), set it to the alignment stud bolt which is used to align the torque converter to the drive plate.
- Rotate torque converter so that the alignment stud bolt aligns with the position of the service hole



- Rotate crankshaft so that the hole (A) for inserting alignment stud bolt of drive plate aligns with the service hole (B).
- When not using suitable tool for alignment, insert stud bolt of torque converter into the hole (C) of drive plate, aligning the drive plate hole position and torque converter stud bolts.

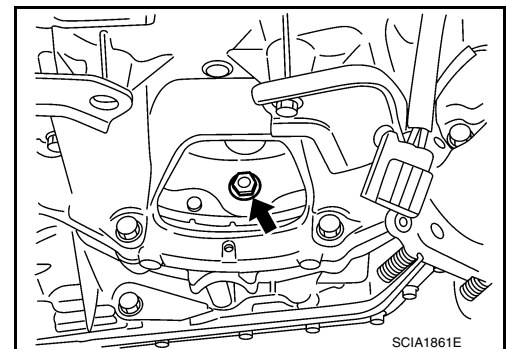
CAUTION:

Be careful not to strike the drive plate when installing the torque converter stud bolt.

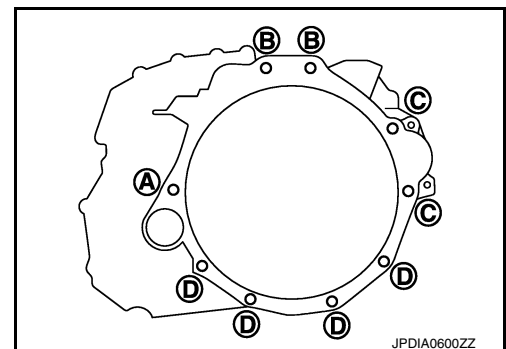


- When installing the torque converter nuts temporarily tighten the nuts. Then, after installing the engine and transaxle assembly bolts tighten the nuts to the specified torque.
- ←: Torque converter nuts

Torque converter nuts : 51 N·m (5.2 kg-m,38 ft-lb)



- When installing transaxle assembly to the engine assembly, install the bolts in accordance with the following.



Insertion direction	Transaxle assembly to engine assembly			Engine assembly to transaxle assembly
	A	B	C	D
Bolt position	A	B	C	D
Number of bolts	1	2	2	4
Bolt length mm (in)	55 (2.17)	39 (1.54)	108 (4.25)	45 (1.77)
Tightening torque N·m (kg-m, ft-lb)	74.5 (7.6, 55)			50 (5.1, 37)

CAUTION:

TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F09B]

- When turning crankshaft, turn it clockwise as viewed from the front of the engine.
- When tightening the nuts for the torque converter after installing the crankshaft pulley bolts, confirm the tightening torque of the crankshaft pulley bolts. Refer to [EM-54, "Removal and Installation"](#).
- Rotate crankshaft several turns and check that transaxle rotates freely without binding after converter is installed to drive plate.

Inspection and Adjustment

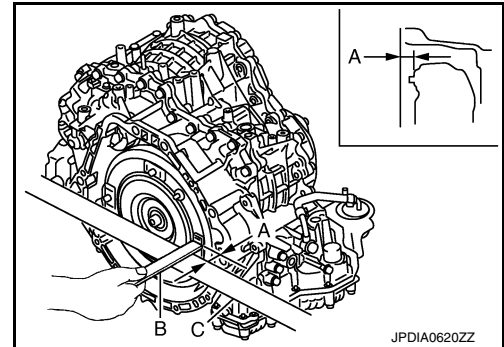
INFOID:000000010114258

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-195, "Torque Converter"](#).



INSPECTION AFTER INSTALLATION

Check the following.

- Check for CVT fluid leakage and check CVT fluid level. Refer to [TM-155, "Inspection"](#).
- Check CVT position. Refer to [TM-171, "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

Erase TCM data.

- Erase CVT fluid degradation level data. Refer to [TM-38, "CONSULT Function"](#).
- When replacing the transaxle assembly, erase EEPROM in TCM. Refer to [TM-10, "Description"](#).

TORQUE CONVERTER

< UNIT DISASSEMBLY AND ASSEMBLY >

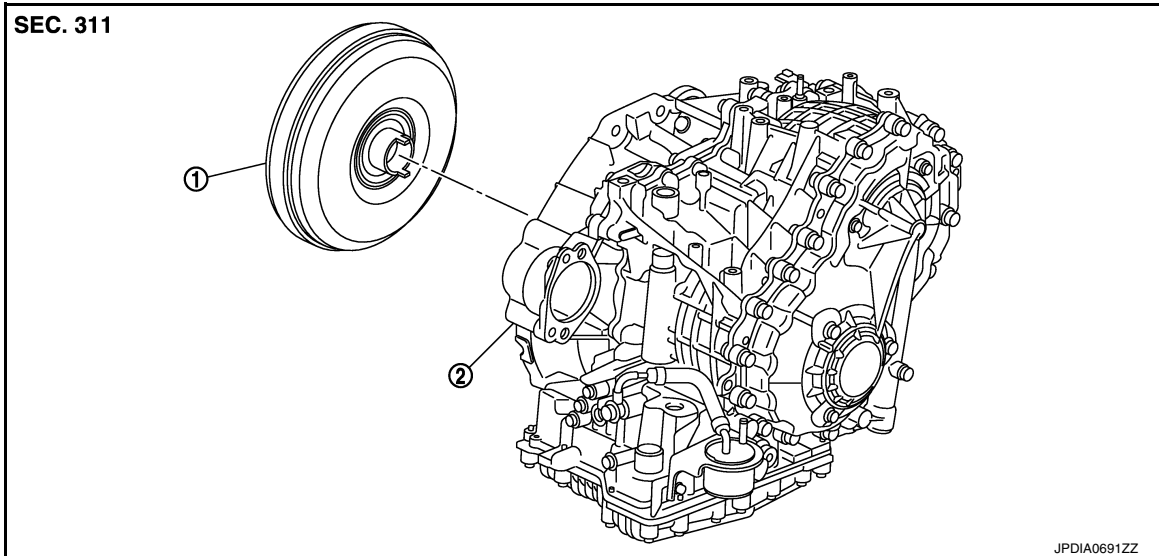
[CVT: RE0F09B]

UNIT DISASSEMBLY AND ASSEMBLY

TORQUE CONVERTER

Exploded View

INFOID:000000010114259



1. Torque converter

2. Transaxle assembly

Disassembly

INFOID:000000010114260

1. Remove transaxle assembly. Refer to [TM-188, "Exploded View"](#).
2. Remove torque converter from transaxle assembly.

Assembly

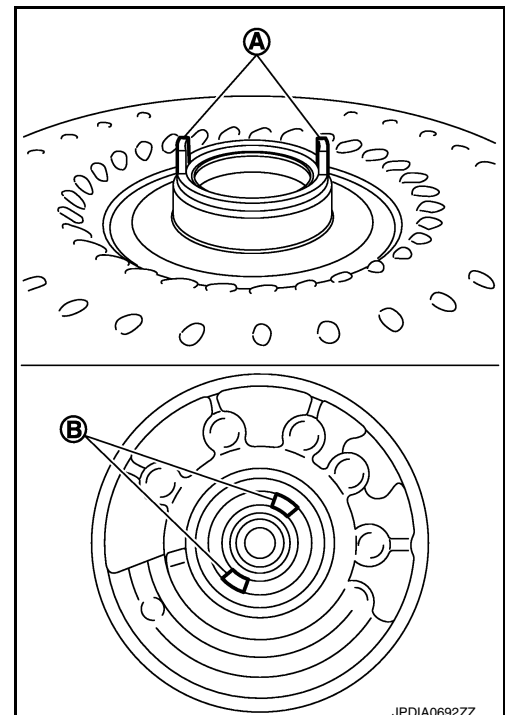
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Note the following, and install in the reverse order of removal.

- 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.



TORQUE CONVERTER

< UNIT DISASSEMBLY AND ASSEMBLY >

[CVT: RE0F09B]

Inspection

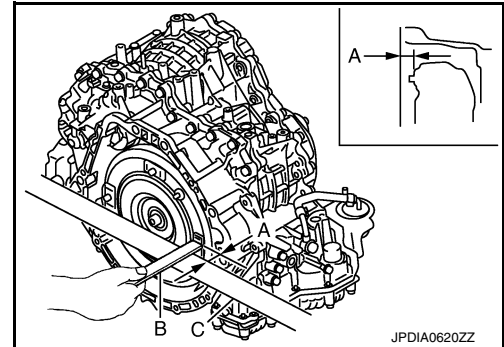
INFOID:000000010114262

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-195, "Torque Converter"](#).



A
B
C
TM
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O
P

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:0000000010114263

Applied model		VQ35DE
		2WD
CVT model		RE0F09B
CVT assembly	Model code number	1XE3E
Transmission gear ratio	D range	Variable
	Reverse	1.766
	Final drive	5.173
Recommended fluid		Genuine NISSAN CVT Fluid NS-2*1
Fluid capacity liter (US qt, Imp qt)		10.2 (10-3/4, 9)*2

CAUTION:

- Use only Genuine NISSAN CVT Fluid NS-2. Never mix with other fluid.
- Using CVT fluid other than Genuine NISSAN CVT Fluid NS-2 will deteriorate in driveability and CVT durability, and may damage the CVT, which is not covered by the NISSAN new vehicle limited warranty.

*1: Refer to [MA-15, "FOR USA AND CANADA : Fluids and Lubricants"](#) (For United States and Canada), [MA-16, "FOR MEXICO : Fluids and Lubricants"](#) (For Mexico).

*2: The fluid capacity is the reference value. Check the fluid level with CVT fluid level gauge.

Vehicle Speed When Shifting Gears

INFOID:0000000010114264

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	3,200 – 4,100	4,700 – 5,600
2/8	"D" position	1,100 – 3,100	1,200 – 3,700

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:0000000010114265

Stall speed	2,700 – 3,500 rpm
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Line Pressure

INFOID:0000000010114266

Unit: kPa (kg/cm², psi)

Engine speed	Line pressure
	"R" and "D" positions
At idle	700 (7.13, 101.5)
At stall	5,700 (58.14, 826.5)

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[CVT: RE0F09B]

Solenoid Valves

INFOID:0000000010114267

Name	Resistance (Approx.)
Pressure control solenoid valve B (secondary pressure solenoid valve)	3.0 – 9.0 Ω
Pressure control solenoid valve A (line pressure solenoid valve)	
Torque converter clutch solenoid valve	
Lock-up select solenoid valve	6.0 – 19.0 Ω

CVT Fluid Temperature Sensor

INFOID:0000000010114268

Name	Condition	CONSULT "DATA MONITOR" (Approx.)	Resistance (Approx.)
CVT fluid temperature sensor	When CVT fluid temperature is 20°C (68°F)	1.9 – 2.2 V	6.5 k Ω
	When CVT fluid temperature is 80°C (176°F)	0.8 – 1.1 V	0.9 k Ω

Primary Speed Sensor

INFOID:0000000010114269

Name	Condition	Data (Approx.)
Primary speed sensor	When driving ["M1" position, 20 km/h (12 MPH)]	695 Hz

Secondary Speed Sensor

INFOID:0000000010114270

Name	Condition	Data (Approx.)
Secondary speed sensor	When driving ["D" position, 20 km/h (12 MPH)]	390 Hz

Step Motor

INFOID:0000000010114271

Name	Resistance (Approx.)
Step motor A	15.0 Ω
Step motor B	15.0 Ω
Step motor C	15.0 Ω
Step motor D	15.0 Ω

Torque Converter

INFOID:0000000010114272

Dimension between end of converter housing and torque converter	14.0 mm (0.55 in)
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