

2010 TRANSMISSION**Automatic Transmission (RE0F08B) - Cube****CVT: RE0F08B****BASIC INSPECTION****DIAGNOSIS AND REPAIR WORK FLOW****Work Flow****BEFORE STARTING TROUBLE DIAGNOSIS**

- TCM receives signals from sensor, switch, and others to control gear shifting and lock-up with a solenoid. Therefore, input and output signals during CVT activation must be correct and stable. In addition, valves must be free from adhesion and solenoids must have no malfunctions for CVT system to operate normally.
- It is more difficult to diagnose intermittent malfunctions than continuous ones. These kinds of malfunctions often occur due to poor electrical connections or improper wiring. If this is the case, it is necessary to check the related circuit carefully and not to replace a normal part by mistake.
- When a visual check is not sufficient, connect CONSULT-III (or GST) and circuit tester according to "DETAILED FLOW" and perform "ROAD TEST". (Refer to "**DESCRIPTION**".)
- For a complaint regarding driveability, always take time to talk with the customer before starting trouble diagnoses. Helpful information, especially for diagnosing intermittent malfunctions, can be obtained from the customer.
- Use the attached "Diagnostic Work Sheet" to specifically find out what malfunction occurs under what conditions. (Refer to "**DIAGNOSTIC WORK SHEET**".)
- Starting with the inspection of basic items facilitates diagnoses of malfunctions in electrically controlled vehicle driveability.

DETAILED FLOW**1. OBTAIN INFORMATION ABOUT SYMPTOM**

1. Refer to "**DIAGNOSTIC WORK SHEET**" and interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred) as much as possible when the customer brings in the vehicle.
2. Check the following:
 - Service history
 - Harnesses and connectors malfunction. Refer to "**INTERMITTENT INCIDENT**".

GO TO 2.

2. CHECK DTC

1. Before checking the malfunction, check whether any DTC exists.

2. If DTC exists, perform the following operations.
 - Record the DTC and freeze frame data. (Print out the data using CONSULT-III and affix them to the Work Order Sheet.)
 - Erase DTCs.
 - Check the relationship between the cause that is clarified with DTC and the malfunction information described by the customer. "**SYMPTOM TABLE**" is effective.
3. Check the information of related service bulletins and others also.

Do malfunction information and DTC exist?

Malfunction information and DTC exist. GO TO 3.

Malfunction information exists, but not DTC. GO TO 4.

Malfunction information does not exist, but DTC does. GO TO 5.

3. REPRODUCE MALFUNCTION SYMPTOM

Check any malfunction described by a customer, except those with DTC on the vehicle.

Also investigate whether the symptom is a fail-safe or normal operation. Refer to "**FAIL-SAFE**".

When a malfunction symptom is reproduced, the question sheet is effective. Refer to "**DIAGNOSTIC WORK SHEET**".

Verify the relationship between the symptom and the conditions in which the malfunction described by the customer occurs.

GO TO 5.

4. REPRODUCE MALFUNCTION SYMPTOM

Check the malfunction described by the customer on the vehicle.

Also investigate whether the symptom is a fail-safe or normal operation. Refer to "**FAIL-SAFE**".

When a malfunction symptom is reproduced, the question sheet is effective. Refer to "**DIAGNOSTIC WORK SHEET**".

Verify the relationship between the symptom and the conditions in which the malfunction described by the customer occurs.

GO TO 6.

5. PERFORM "DTC CONFIRMATION PROCEDURE"

Perform "DTC CONFIRMATION PROCEDURE" of the appropriate DTC to check if DTC is detected again.

Refer to "**DTC INSPECTION PRIORITY CHART**" when multiple DTCs are detected, and then determine the order for performing the diagnosis.

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

Is any DTC detected?

YES: GO TO 7.

NO: Check according to "**INTERMITTENT INCIDENT**".

6. IDENTIFY MALFUNCTIONING SYSTEM WITH "DIAGNOSIS CHART BY SYMPTOM"

Use "**SYMPTOM TABLE**" from the symptom inspection result in step 4. Then identify where to start performing the diagnosis based on possible causes and symptoms.

GO TO 8.

7. REPAIR OR REPLACE THE MALFUNCTIONING PARTS

Repair or replace the detected malfunctioning parts.

Reconnect parts or connector after repairing or replacing, and then erase DTC if necessary.

GO TO 8.

8. FINAL CHECK

Perform "DTC CONFIRMATION PROCEDURE" again to make sure that the repair is correctly performed.

Check that malfunctions are not reproduced when obtaining the malfunction information from the customer, referring to the symptom inspection result in step 3 or 4.

Is DTC or malfunction symptom reproduced?

YES-1 (DTC is reproduced): GO TO 5.

YES-2 (Malfunction symptom is reproduced): GO TO 6.

NO: Before delivering the vehicle to the customer, make sure that DTC is erased.

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DESCRIPTION

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

In general, customers have their own criteria for a problem. Therefore, it is important to understand the symptom and status well enough by asking the customer about the concerns carefully. In order to systemize all the information for the diagnosis, prepare the question sheet referring to the question points.

KEY POINTS

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

SEF907L

Fig. 1: Diagnostic Worksheet Key Points
Courtesy of NISSAN MOTOR CO., U.S.A.

WORKSHEET SAMPLE

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| Question Sheet | | | | | | |
|----------------------|-------|---|---|---|--------------|--|
| Customer name | MR/MS | Registration number | | | Manuf. Date | |
| | | VIN | | | Model & Year | |
| In Service Date | | Engine | | | Mileage | |
| | | km / Mile | | | | |
| Symptoms | | <input type="checkbox"/> Vehicle does not move (<input type="checkbox"/> Any position <input type="checkbox"/> Particular position) | | | | |
| | | <input type="checkbox"/> No up-shift | | <input type="checkbox"/> No down-shift | | |
| | | <input type="checkbox"/> Lock-up malfunction | | | | |
| | | <input type="checkbox"/> Shift point too high | | <input type="checkbox"/> Shift point too low | | |
| | | <input type="checkbox"/> Shift shock (<input type="checkbox"/> N → D <input type="checkbox"/> N → R <input type="checkbox"/> Lock-up <input type="checkbox"/> R, D, L, Manual position) | | | | |
| | | <input type="checkbox"/> Slip (<input type="checkbox"/> N → D <input type="checkbox"/> N → R <input type="checkbox"/> Lock-up <input type="checkbox"/> R, D, L, Manual position) | | | | |
| | | <input type="checkbox"/> Noise | | <input type="checkbox"/> Vibration | | |
| | | <input type="checkbox"/> No pattern select | | | | |
| | | <input type="checkbox"/> Others | | | | |
| | | () | | | | |
| First occurrence | | <input type="checkbox"/> Recently (Indicate approximate month and year) | | | | |
| Frequency | | <input type="checkbox"/> All the time <input type="checkbox"/> Under certain conditions <input type="checkbox"/> Sometimes (times a day) | | | | |
| Weather conditions | | <input type="checkbox"/> Not affected | | | | |
| | | Weather | <input type="checkbox"/> Fine <input type="checkbox"/> Clouding <input type="checkbox"/> Raining <input type="checkbox"/> Snowing <input type="checkbox"/> Other () | | | |
| | | Temp. | <input type="checkbox"/> Hot <input type="checkbox"/> Warm <input type="checkbox"/> Cool <input type="checkbox"/> Cold <input type="checkbox"/> Temp. [Approx. °C (°F)] | | | |
| | | Humidity | <input type="checkbox"/> High <input type="checkbox"/> Middle <input type="checkbox"/> Low | | | |
| Transaxle conditions | | <input type="checkbox"/> Cold <input type="checkbox"/> During warm-up <input type="checkbox"/> After warm-up | | | | |
| | | <input type="checkbox"/> Engine speed (rpm) | | | | |
| Road conditions | | <input type="checkbox"/> In town <input type="checkbox"/> In suburbs <input type="checkbox"/> Freeway <input type="checkbox"/> Off road (Up / Down) | | | | |
| Driving conditions | | <input type="checkbox"/> Not affected | | | | |
| | | <input type="checkbox"/> At starting <input type="checkbox"/> While idling <input type="checkbox"/> While engine racing | | <input type="checkbox"/> At racing <input type="checkbox"/> While cruising | | |
| | | <input type="checkbox"/> While accelerating | | <input type="checkbox"/> While decelerating <input type="checkbox"/> While turning (Right / Left) | | |
| | | <input type="checkbox"/> Vehicle speed [km/h (MPH)] | | | | |
| Other conditions | | | | | | |

Fig. 2: Worksheet Sample Chart

Courtesy of NISSAN MOTOR CO., U.S.A.

INSPECTION AND ADJUSTMENT

TCM REPLACEMENT

TCM REPLACEMENT : Description

After replacing TCM, check that the replacement is successful.

CAUTION:

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

After replacement, perform "TCM REPLACEMENT: Special Repair Requirement". Refer to "TCM REPLACEMENT : SPECIAL REPAIR REQUIREMENT".

- When TCM is replaced in advance, perform **"TRANSAXLE ASSEMBLY REPLACEMENT: Special Repair Requirement"**. Refer to **"TRANSAXLE ASSEMBLY REPLACEMENT : SPECIAL REPAIR REQUIREMENT"**.

TCM REPLACEMENT : Special Repair Requirement

CAUTION: Immediately after TCM is replaced or after transaxle assembly is replaced (after TCM initialization is complete), self-diagnosis result of "P1701" may be displayed. In this case, erase self-diagnosis result using CONSULT-III. After erasing self-diagnosis result, perform DTC P1701 reproduction procedure and check that malfunction is not detected. Refer to **"DTC LOGIC"**.

1. CHECK AFTER WORK

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

NOTE: "P" is displayed approximately 1 to 2 seconds after tuning ignition switch ON.

Does shift position indicator display "P"?

YES: INSPECTION END

NO: Check the following.

- The harness between TCM and ROM ASSY in transaxle assembly is open or shorted.
- Terminals disconnected, loose, or bent from connector housing.

TRANSAXLE ASSEMBLY REPLACEMENT**TRANSAXLE ASSEMBLY REPLACEMENT : Description**

TCM enables more precise control by acquiring each solenoid's calibration data (individual characteristic values) stored in ROM assembly (built in control valve). Therefore, after TCM or transaxle assembly is replaced, it is necessary to perform TCM calibration.

- CAUTION:**
- When replacing TCM and transaxle assembly as a set, replace transaxle assembly first and then replace TCM.

After replacement, perform "TCM REPLACEMENT: Special Repair Requirement". Refer to "TCM REPLACEMENT : SPECIAL REPAIR

REQUIREMENT".

- When TCM is replaced in advance, perform **"TRANSAXLE ASSEMBLY REPLACEMENT: Special Repair Requirement"**. Refer to **"TRANSAXLE ASSEMBLY REPLACEMENT : SPECIAL REPAIR REQUIREMENT"**.

TRANSAXLE ASSEMBLY REPLACEMENT : Special Repair Requirement

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" may be displayed. In this case, erase self-diagnosis result using CONSULT-III. After erasing self-diagnosis result, perform DTC P1701 reproduction procedure and check that malfunction is not detected. Refer to **"DTC LOGIC"**.

1. PREPARATION BEFORE WORK

With CONSULT-III

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-III

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".
7. Turn ignition switch OFF while keeping the selector lever in "R" position.
8. Wait approximately 10 seconds.
9. Turn ignition switch ON while keeping the selector lever in "R" position.
10. Select "Special function" in "TRANSMISSION".
11. Select "CALIB DATA".
12. Check that "CALIB DATA" value is as shown as in the following table.

ITEM REFERENCE

| Item name | Display value | Item name | Display value |
|---------------|---------------|-------------|---------------|
| UNIT CLB ID 1 | 00 | GAIN PL | 256 |
| UNIT CLB ID 2 | 00 | OFFSET PL | 40 |
| UNIT CLB ID 3 | 00 | OFFSET2 PL | 0 |
| UNIT CLB ID 4 | 00 | MAP NO SEC | 32 |
| UNIT CLB ID 5 | 00 | GAIN SEC | 256 |
| UNIT CLB ID 6 | 00 | OFFSET SEC | 40 |
| MAP NO LU | 33 | OFFSET2 SEC | 0 |
| GAIN LU | 256 | MAP NO SL | 32 |
| OFFSET LU | 40 | GAIN SL | 256 |
| OFFSET2 LU | 0 | OFFSET SL | 40 |
| MAP NO PL | 32 | OFFSET2 SL | 0 |

Is "CALIB DATA" value it?

YES: GO TO 3.

NO: GO TO 1.

3. CHECK AFTER WORK

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 or 2 seconds after shifting the selector lever to "P" position.

Does shift position indicator display "P"?

YES: INSPECTION END

NO: Check the following.

- The harness between TCM and ROM ASSY in transaxle assembly is open or shorted.
- Terminals disconnected, loose, or bent from connector housing.
- Power supply and ground of TCM. (Refer to "**DIAGNOSIS PROCEDURE**".)

SYSTEM DESCRIPTION

CVT SYSTEM

System Diagram

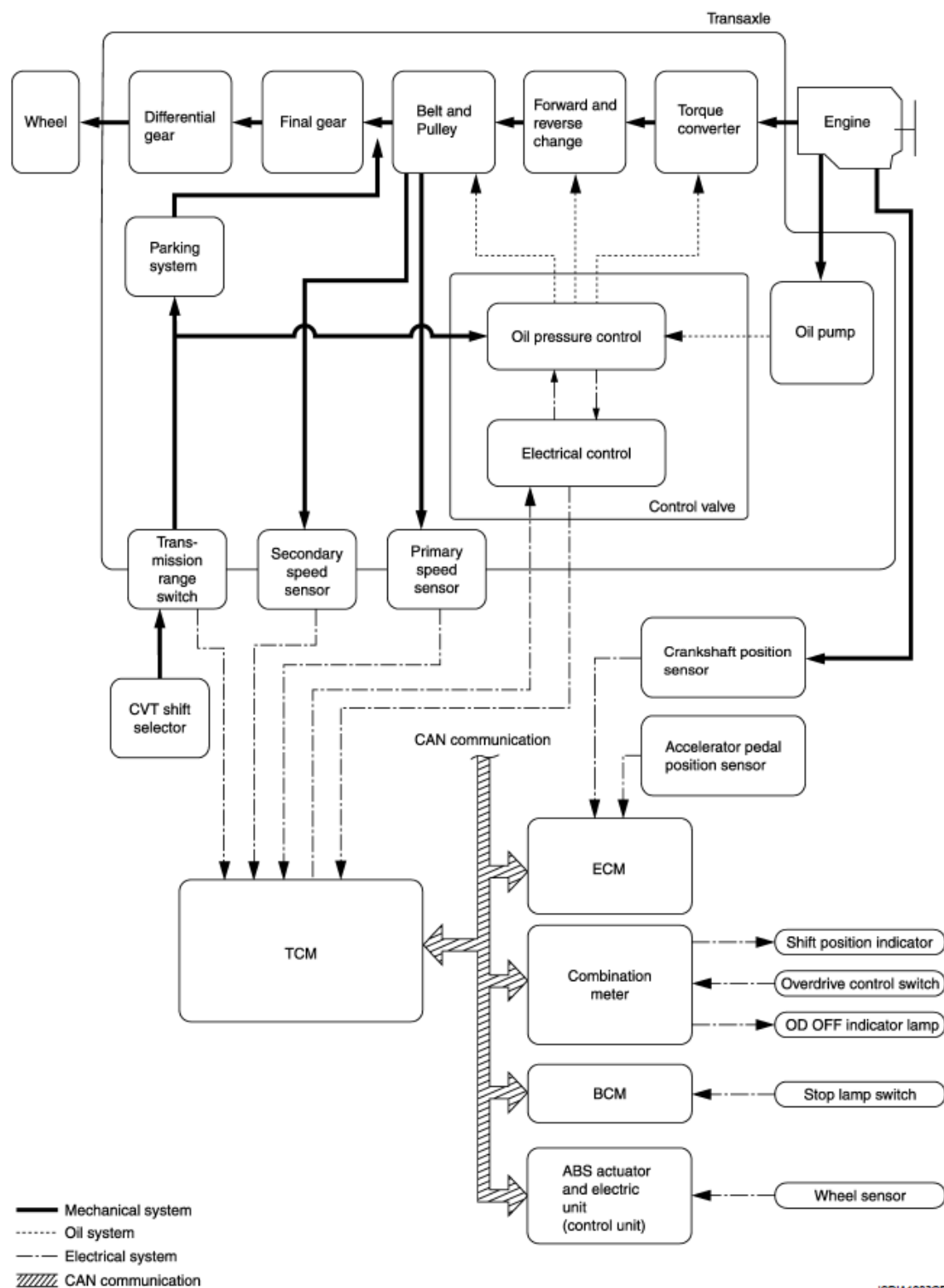
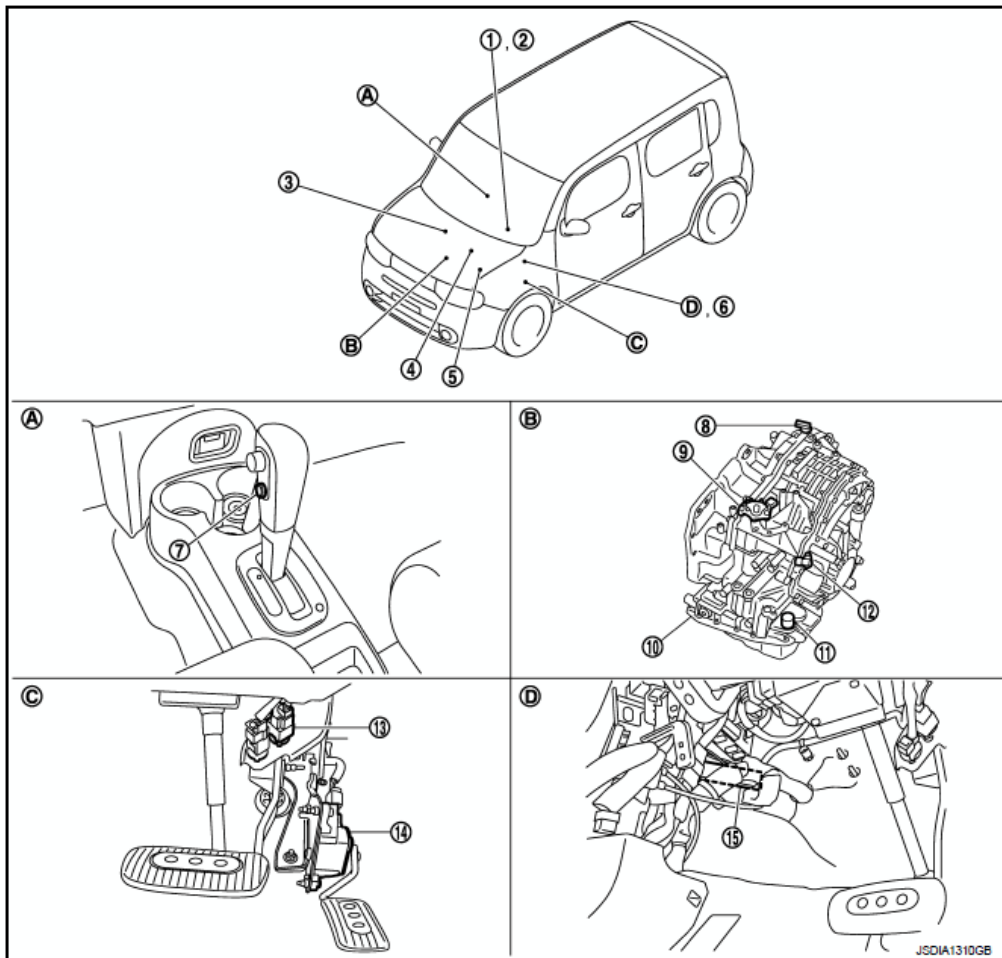


Fig. 3: CVT System Diagram

Courtesy of NISSAN MOTOR CO., U.S.A.

Component Parts Location



- | | | |
|---|--|-------------------------------|
| 1. Shift position indicator (On the combination meter) | 2. OD OFF indicator lamp (On the combination meter) | 3. Crankshaft position sensor |
| 4. ECM | 5. IPDM E/R | 6. BCM |
| 7. Overdrive control switch | 8. Secondary speed sensor | 9. Transmission range switch |
| 10. Control valve assembly* | 11. CVT unit connector | 12. Primary speed sensor |
| 13. Stop lamp switch | 14. Accelerator pedal position sensor | 15. TCM |
| A. Center console | B. Transaxle assembly | C. Accelerator pedal, upper |
| D. Brake pedal, left side | | |

Fig. 4: Identifying Control System, CVT System, Hydraulic Control System, Lock-Up And Select Control, And Shift Control Component Parts Location
Courtesy of NISSAN MOTOR CO., U.S.A.

For ECM (4.), refer to **COMPONENT PARTS LOCATION** .

For IPDM E/R (5.):

- With Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

- Without Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

For BCM (6.):

- With Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

- Without Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

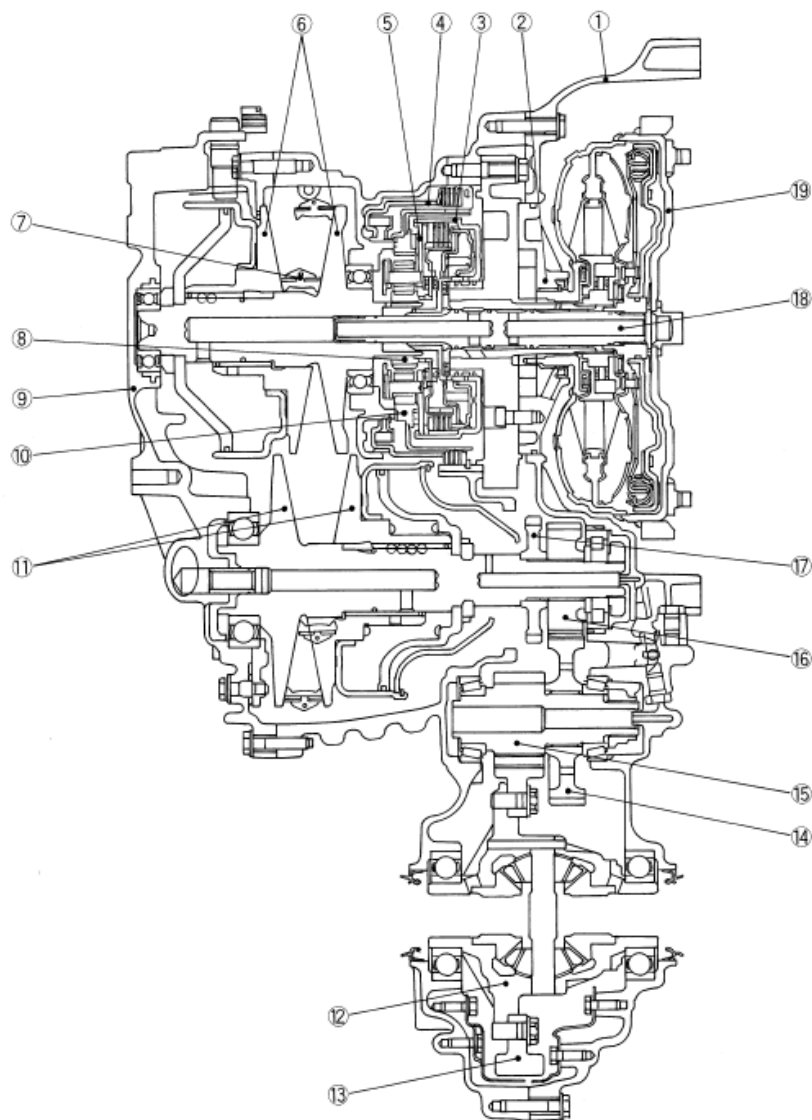
NOTE: **The following components are included in control valve assembly.**

- **CVT fluid temperature sensor**
- **Torque converter clutch solenoid valve**
- **Lock-up select solenoid valve**
- **Line pressure solenoid valve**
- **Secondary pressure solenoid valve**
- **Secondary pressure sensor**
- **Step motor**
- **ROM assembly**

*: Control valve assembly is included in transaxle assembly.

MECHANICAL SYSTEM

Cross-Sectional View



SCIA8333J

- | | | |
|----------------------|----------------------|-----------------------|
| 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. Differential case |
| 13. Final gear | 14. Idler gear | 15. Reduction gear |
| 16. Output gear | 17. Parking gear | 18. Input shaft |
| 19. Torque converter | | |

Fig. 5: Mechanical System Of Cross-Sectional View
 Courtesy of NISSAN MOTOR CO., U.S.A.

System Diagram

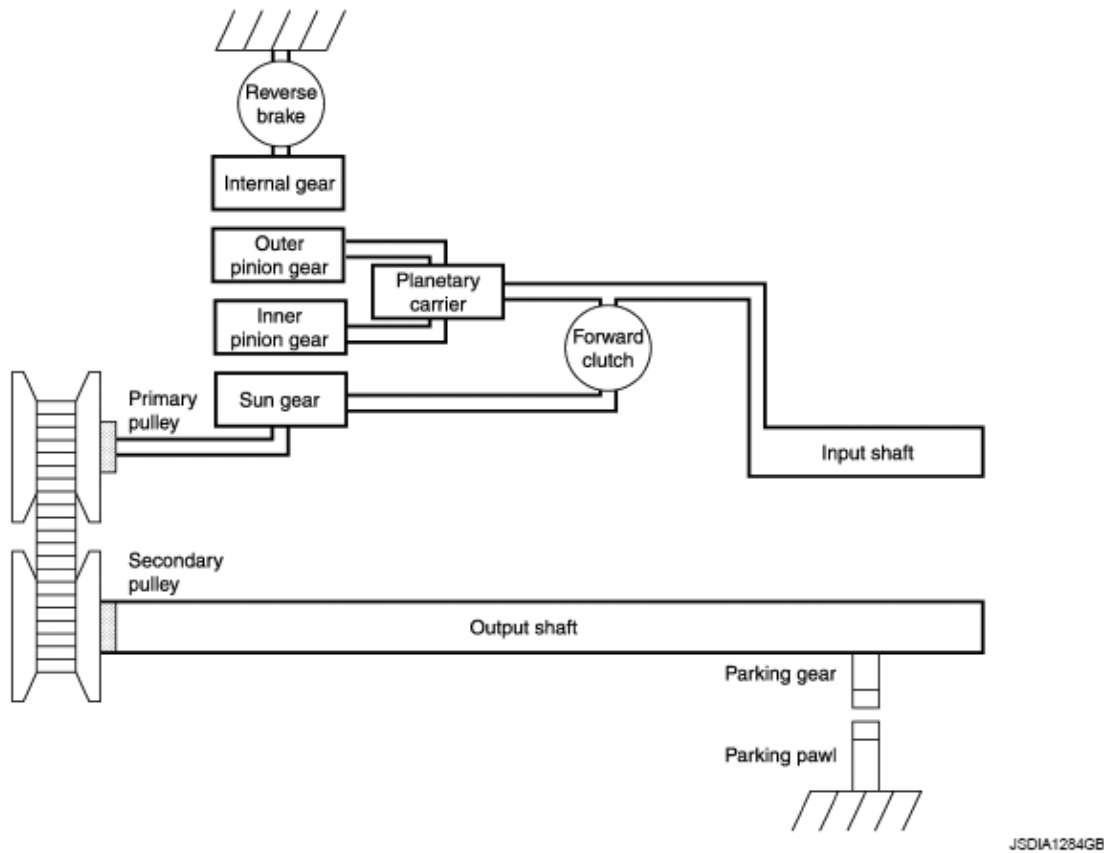


Fig. 6: Mechanical System Diagram
Courtesy of NISSAN MOTOR CO., U.S.A.

System Description

Driving force of engine is transmitted to wheels via torque converter, planetary gear, belt & pulley, differential gear, and others. In addition, with mounting of parking mechanism, secondary pulley is mechanically fixed by shifting the selector lever to "P" position.

Activation state according to each gear shifting

o: Activation

SELECTOR LEVER POSITION CHART

| Selector lever position | Secondary oil pressure sensor | Solenoid valve | | | | Step motor |
|-------------------------|-------------------------------|----------------|--------------------|---------|--------------------------|------------|
| | | Line pressure | Secondary pressure | Lock-up | Lock-up/select switching | |
| P | o | o | o | | o | |
| R | o | o | o | | o | o |
| N | o | o | o | | o | o |
| D (Low) | o | o | o | o | | o |
| D (High) | o | o | o | o | | o |

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| | | | | | |
|-------------|---|---|---|---|---|
| D (Lock-up) | o | o | o | o | o |
| L | o | o | o | o | o |

Power transmission of each position

"P" position

- Driving force from input shaft is not transmitted to primary pulley because of idling caused by poor engagement of forward clutch and reverse brake.
- Since the parking pole interlocked with the selector lever becomes into engagement with the parking gear integral with the output shaft to mechanically fix the output shaft, torque from wheel is not transmitted to secondary pulley.

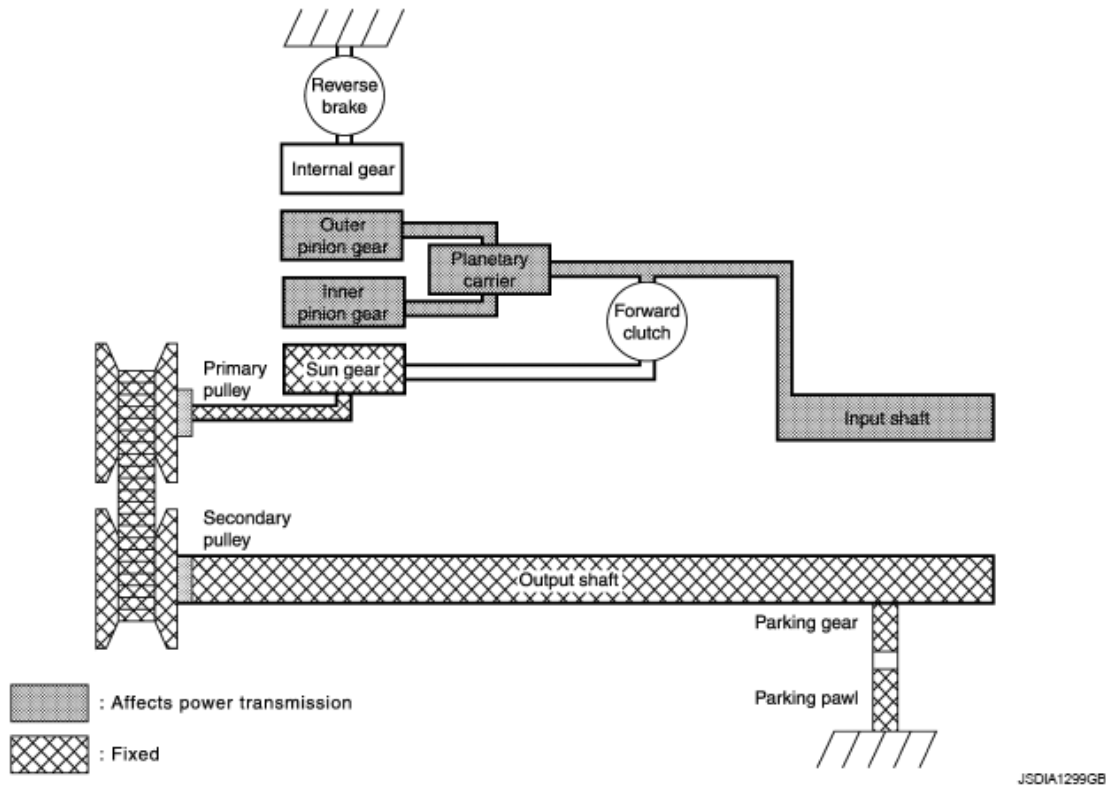


Fig. 7: Mechanical System Diagram (Affects Power Transmission)
Courtesy of NISSAN MOTOR CO., U.S.A.

Planet gear

PLANET GEAR DESCRIPTION

| Description | Sun gear | Planetary carrier | Internal gear |
|--------------------|----------|-------------------|---------------------------|
| Condition | Fixed | Input | - |
| Rotating direction | - | Idle | In the positive direction |

"R" position

- Driving force from input shaft rotates sun gear in opposite direction of input shaft rotation because reverse brake is engaged and internal gear is fixed.
- Therefore primary pulley rotates in opposite direction of input shaft rotation and driving force output is in opposite direction rotation.

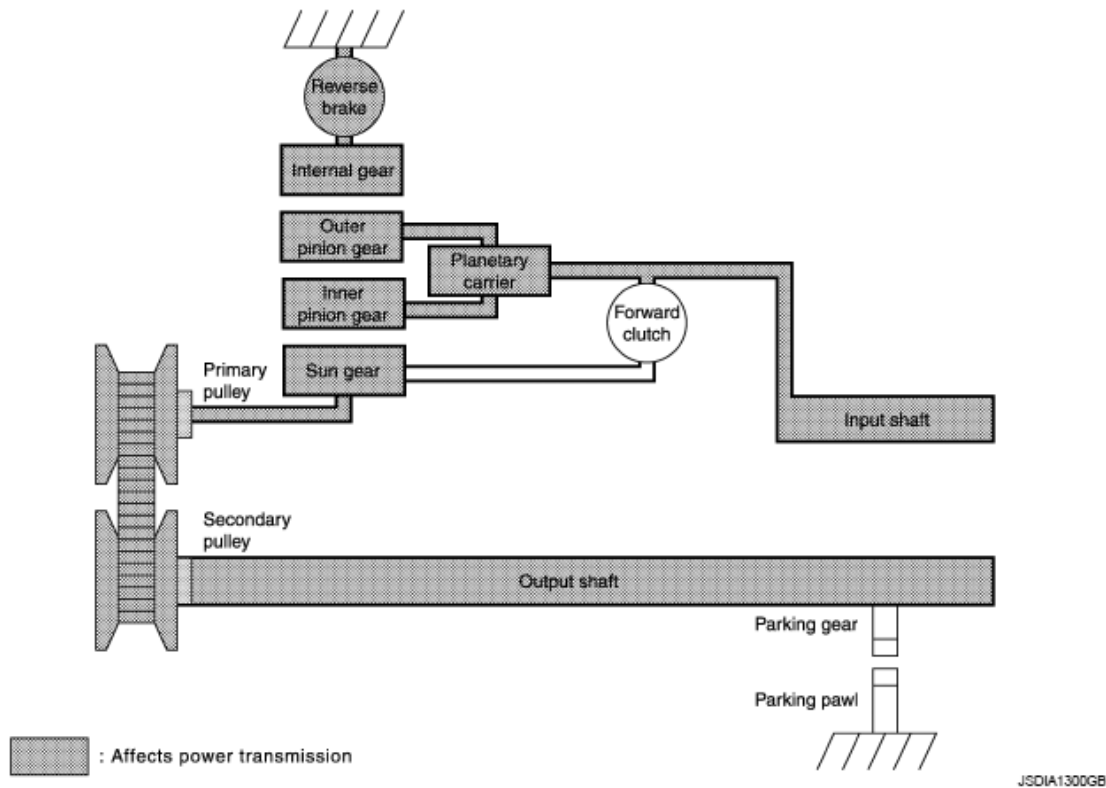


Fig. 8: Mechanical System Diagram (Affects Power Transmission)
 Courtesy of NISSAN MOTOR CO., U.S.A.

Planet gear

PLANET GEAR DESCRIPTION

| Description | Sun gear | Planetary carrier | Internal gear |
|--------------------|---------------------------|---------------------------|---------------|
| Condition | Output | Input | Fixed |
| Rotating direction | In the positive direction | In the positive direction | - |

"N" position

- Driving force from input shaft is not transmitted to primary pulley because of idling caused by poor engagement of forward clutch and reverse brake.
- Torque from wheel is not transmitted to input shaft because of idling of planetary carrier caused by poor engagement of forward clutch and reverse brake.

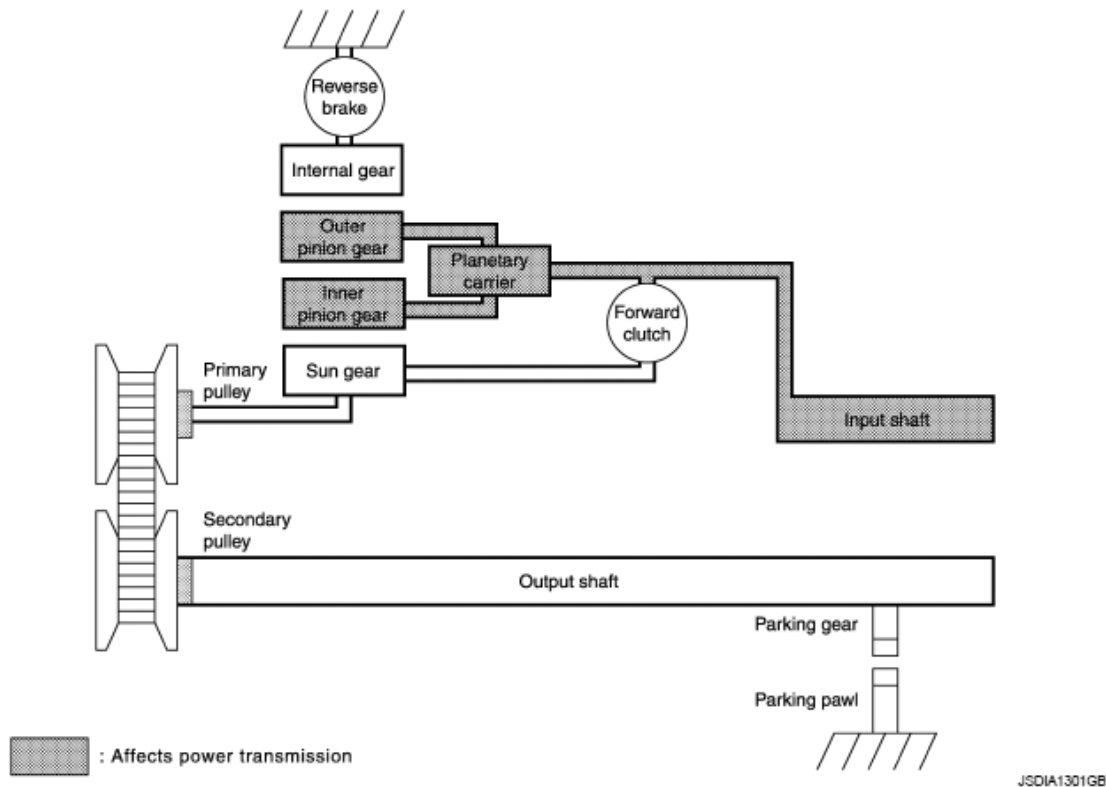


Fig. 9: Mechanical System Diagram (Affects Power Transmission)
 Courtesy of NISSAN MOTOR CO., U.S.A.

Planet gear

PLANET GEAR DESCRIPTION

| Description | Sun gear | Planetary carrier | Internal gear |
|--------------------|----------|-------------------|---------------------------|
| Condition | - | Input | - |
| Rotating direction | Stopped | Idle | In the positive direction |

"D" and "L" positions

- Since the Forward clutch is engaged, driving force from Input shaft rotates Sun gear in the positive direction via Forward clutch.
- Therefore primary pulley rotates in the positive direction, and driving force is outputted in the forward direction.

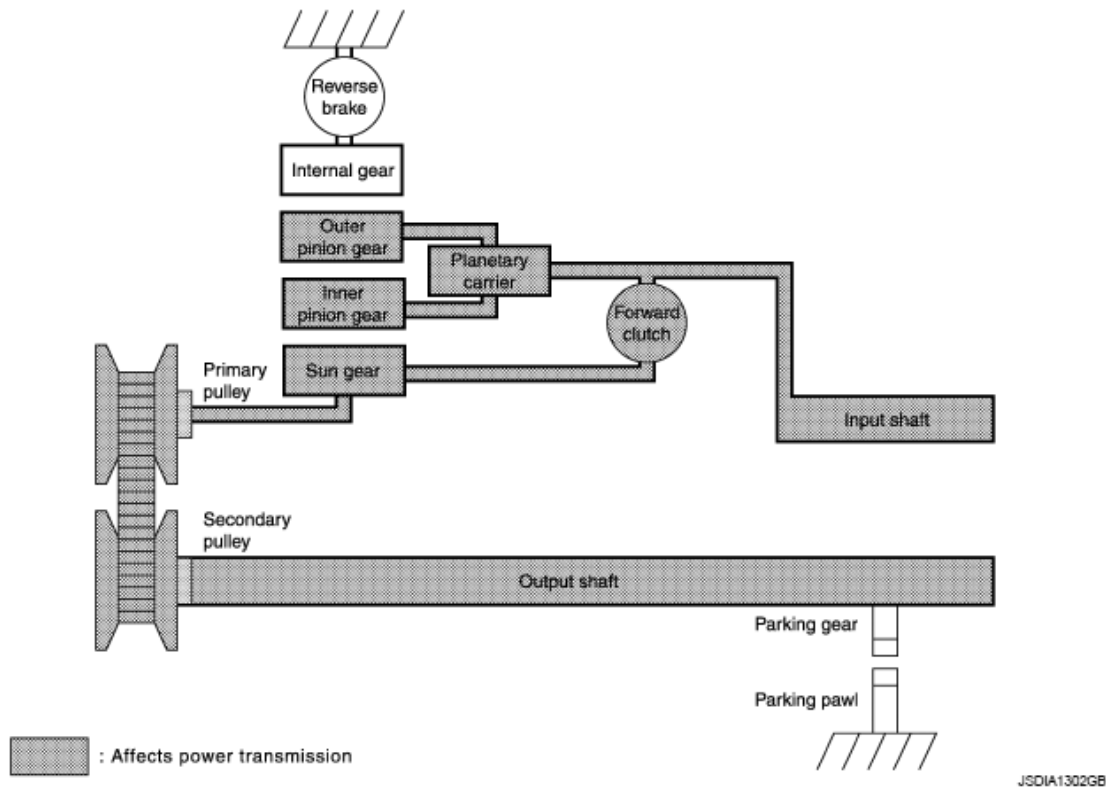


Fig. 10: Mechanical System Diagram (Affects Power Transmission)
Courtesy of NISSAN MOTOR CO., U.S.A.

Planet gear

PLANET GEAR DESCRIPTION

| Description | Sun gear | Planetary carrier | Internal gear |
|--------------------|---------------------------|---------------------------|---------------|
| Condition | Input/Output | Input | - |
| Rotating direction | In the positive direction | In the positive direction | Idle |

Component Parts Location

Refer to "**CROSS-SECTIONAL VIEW**".

Component Description

ITEM FUNCTION CHART

| Item | Function |
|------------------|--|
| Torque converter | The torque converter is the device that increases the engine torque as well as the conventional CVT and transmits it to the transaxle. |
| Oil pump | This is a trochoid type oil pump directly driven by the engine. Discharged oil from oil pump is conveyed to control valve to be used for operating oil for primary and secondary pulleys, clutch, and for lubricant for each part. |
| | The forward clutch is wet and multiple plate type clutch that consists of clutch drum, piston, |

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| | |
|-------------------|---|
| Forward clutch | drive plate, and driven plate. It is a clutch to move the vehicle forward by activating piston hydraulically, engaging plates, and directly connecting sun gear and input shaft. |
| Reverse brake | The reverse brake is a wet and multiple plate type brake that consists of transaxle case, piston, drive plate, and driven plate. It is a brake to move the vehicle in reverse by activating piston hydraulically, engaging plates, and fixing internal gear. |
| Internal gear | The internal gear is directly connected to reverse brake drum. It is a gear that moves the outer edge of outer pinion gear of planetary carrier. It performs switching of forwards, reverse and others by fixing or releasing internal gear. |
| Planetary carrier | The planetary carrier consists of carrier, inner pinion gear, outer pinion gear, and pinion shaft. It transmits traction force to move the vehicle in reverse when internal gear is fixed. |
| Sun gear | Sun gear is a set part of planetary carrier and internal gear. It transmits transmitted traction force to primary fix pulley (FIX). It rotates in same or opposite direction according to activation of either forward clutch or reverse brake. |
| Input shaft | The input shaft is directly connected to forward clutch drum and transmits traction force from torque converter. In shaft center, there are holes for hydraulic distribution to primary pulley and hydraulic distribution for lock-up ON/OFF. |
| Primary pulley | It is composed of a pair of pulleys (the groove width is changed freely in the axial direction) and the steel belt (the steel 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 | |
| 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 | |
| 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 | |

HYDRAULIC CONTROL SYSTEM

System Diagram

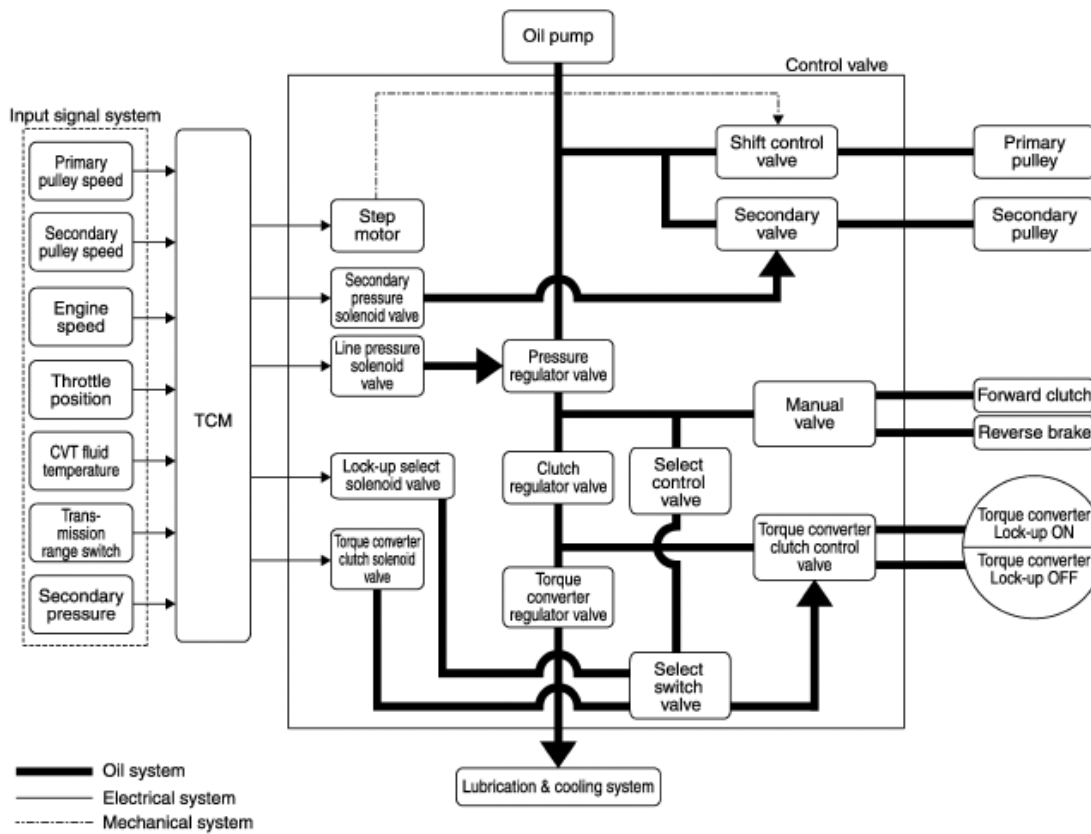


Fig. 11: Hydraulic Control System Diagram
Courtesy of NISSAN MOTOR CO., U.S.A.

System Description

Hydraulic control mechanism consists of trochoid type oil pump directly driven by the engine, hydraulic control valve controlling line pressure and gear shifting, and input signals.

LINE PRESSURE AND SECONDARY PRESSURE CONTROL

When an input torque signal corresponding to engine driving force is transmitted from ECM to TCM, TCM controls line pressure solenoid valve and secondary pressure solenoid valve to adjust to a correct oil pressure.

Normal Control

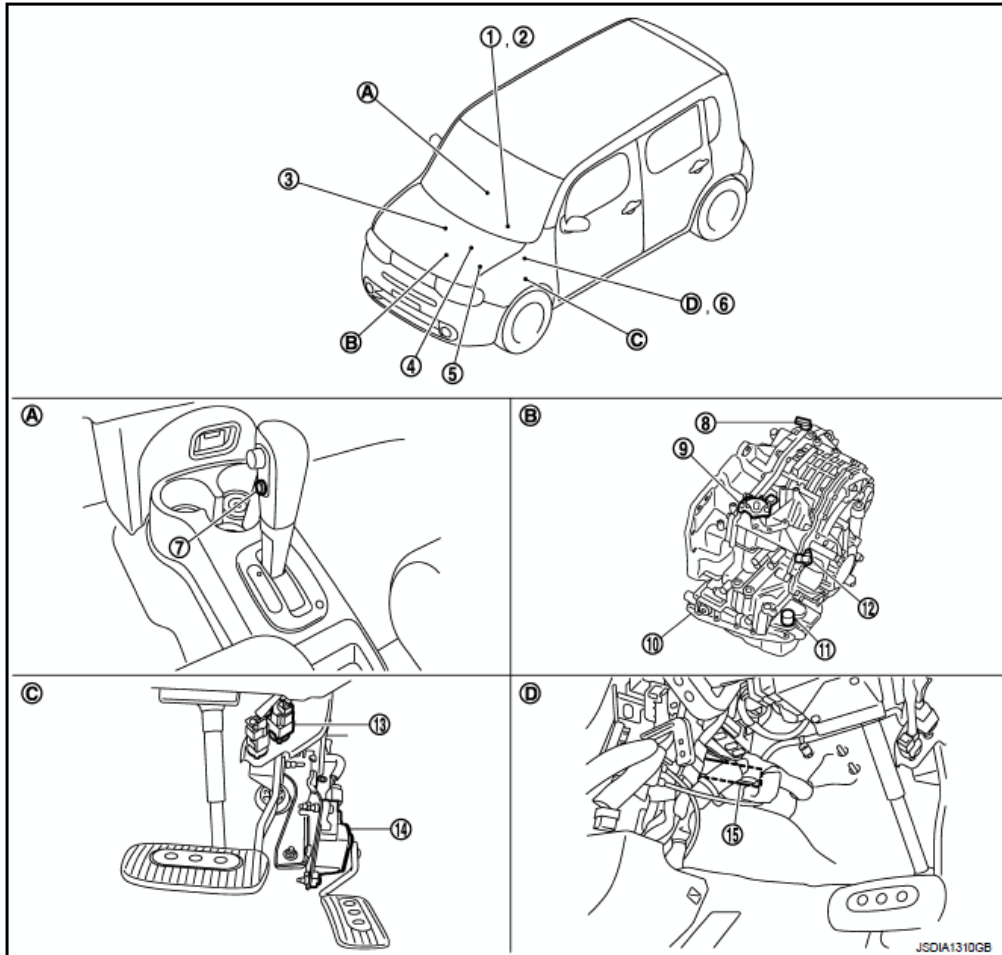
Optimize the line pressure and secondary pressure, depending on driving conditions, on the basis of the throttle position, the engine speed, the primary pulley (input) revolution speed, the secondary pulley (output) revolution speed, the brake signal, the transmission range switch signal, the lock-up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

Component Parts Location



- | | | |
|---|--|-------------------------------|
| 1. Shift position indicator (On the combination meter) | 2. OD OFF indicator lamp (On the combination meter) | 3. Crankshaft position sensor |
| 4. ECM | 5. IPDM E/R | 6. BCM |
| 7. Overdrive control switch | 8. Secondary speed sensor | 9. Transmission range switch |
| 10. Control valve assembly* | 11. CVT unit connector | 12. Primary speed sensor |
| 13. Stop lamp switch | 14. Accelerator pedal position sensor | 15. TCM |
| A. Center console | B. Transaxle assembly | C. Accelerator pedal, upper |
| D. Brake pedal, left side | | |

Fig. 12: Identifying Control System, CVT System, Hydraulic Control System, Lock-Up And Select Control, And Shift Control Component Parts Location
Courtesy of NISSAN MOTOR CO., U.S.A.

For ECM (4.), refer to **COMPONENT PARTS LOCATION** .

For IPDM E/R (5.):

- With Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

- Without Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

For BCM (6.):

- With Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

- Without Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

NOTE: The following components are included in control valve assembly.

- CVT fluid temperature sensor
- Torque converter clutch solenoid valve
- Lock-up select solenoid valve
- Line pressure solenoid valve
- Secondary pressure solenoid valve
- Secondary pressure sensor
- Step motor
- ROM assembly

*: Control valve assembly is included in transaxle assembly.

Component Description

COMPONENT FUNCTION CHART

| 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. |

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| | |
|-----------------------------------|---|
| 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 | " <u>DESCRIPTION</u> " |
| Secondary pressure solenoid valve | " <u>DESCRIPTION</u> " |
| Line pressure solenoid valve | " <u>DESCRIPTION</u> " |
| Step motor | " <u>DESCRIPTION</u> " |
| Lock-up select solenoid valve | " <u>DESCRIPTION</u> " |
| Primary speed sensor | " <u>DESCRIPTION</u> " |
| Secondary speed sensor | " <u>DESCRIPTION</u> " |
| Transmission range switch | " <u>DESCRIPTION</u> " |
| Primary pulley | "<u>COMPONENT DESCRIPTION</u>" |
| Secondary pulley | |
| Forward clutch | |
| Torque converter | |
| TCM | Judges the vehicle driving status according to the signal from each sensor and controls the non-step transmission mechanism properly. |
| Accelerator pedal position sensor | " <u>DESCRIPTION</u> " |

CONTROL SYSTEM**System Diagram**

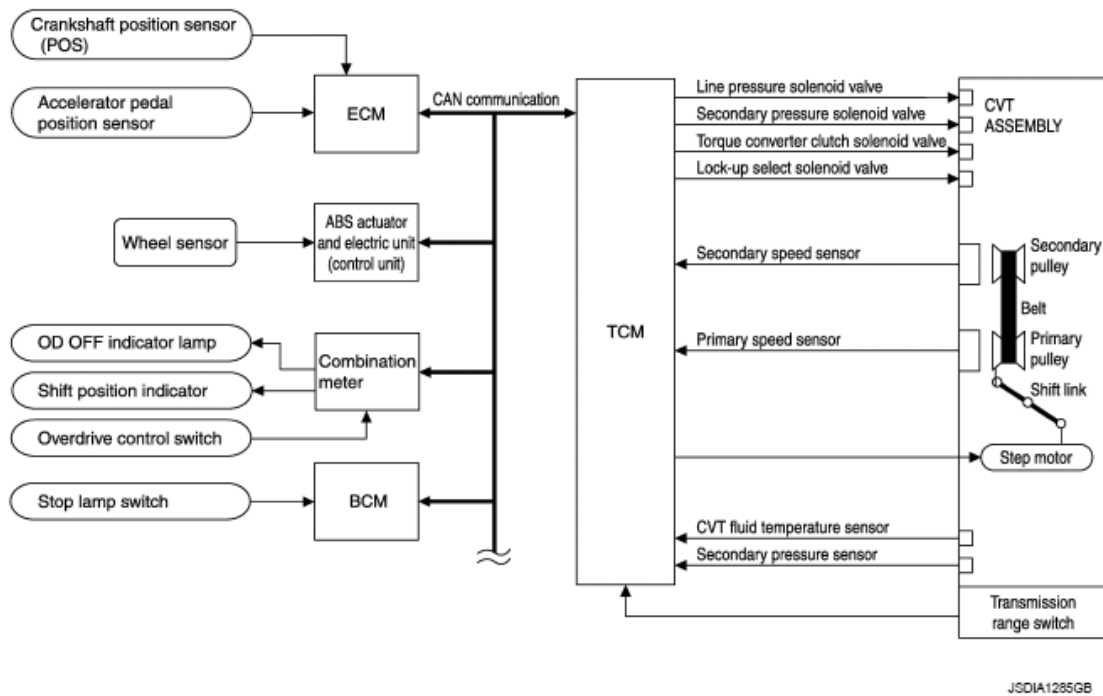


Fig. 13: Control System Diagram
Courtesy of NISSAN MOTOR CO., U.S.A.

System Description

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.

TCM FUNCTION CHART

| SENSORS (or SIGNALS) | TCM | ACTUATORS |
|-----------------------------------|----------------------------|--|
| Transmission range switch | Shift control | |
| CVT fluid temperature sensor | Line pressure control | |
| Secondary pressure sensor | Primary pressure control | |
| Primary speed sensor | Secondary pressure control | -- Line pressure solenoid valve |
| Secondary speed sensor | Lock-up control | > Secondary pressure solenoid valve |
| Engine speed signal | Engine brake control | Torque converter clutch solenoid valve |
| Accelerator pedal position signal | Vehicle speed control | Lock-up select solenoid valve |
| | Fail-safe control | Step motor |
| | Self-diagnosis | |

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| | | |
|---------------------------------|--------------------------------|--------------------------|
| Closed throttle position signal | CONSULT-III communication line | Shift position indicator |
| Stop lamp switch signal | Duet-EA control | OD OFF indicator lamp |
| Overdrive control switch signal | CAN system | |
| Vehicle speed signal | On board diagnosis | |

INPUT/OUTPUT SIGNAL OF TCM

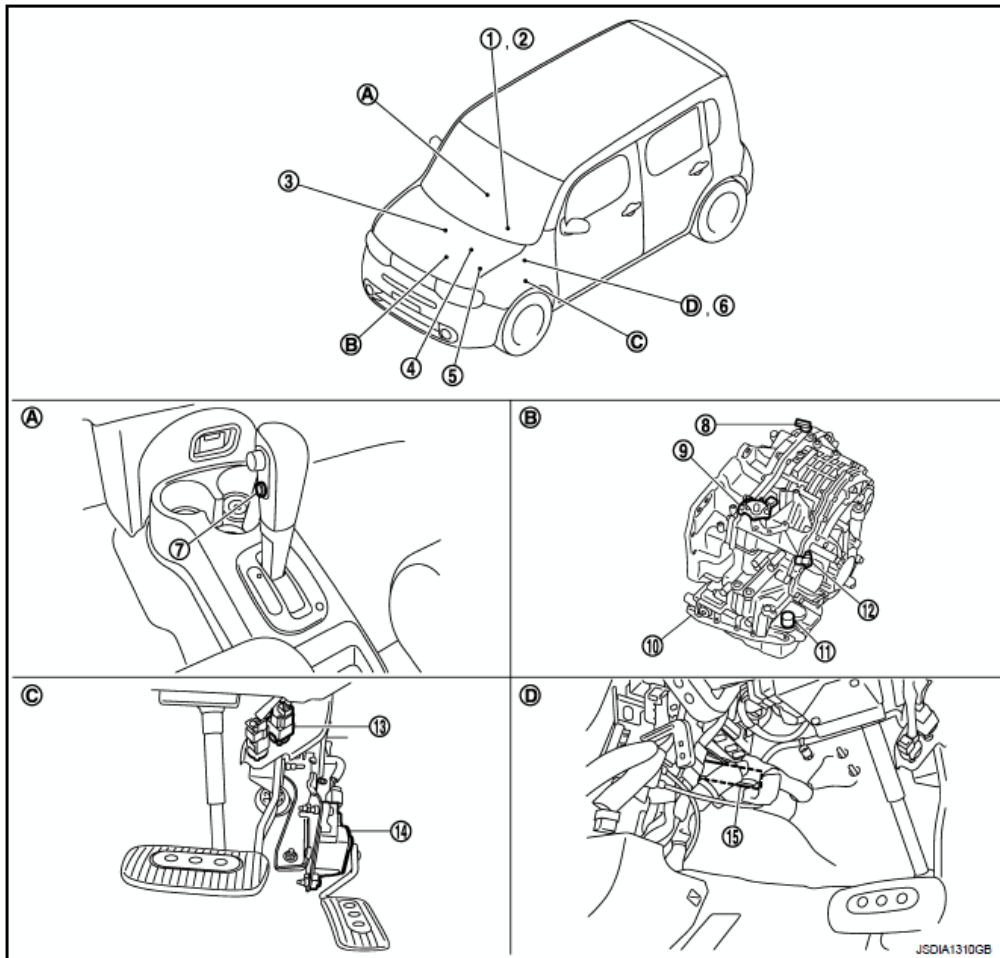
FAIL-SAFE FUNCTION CHART

| 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 |
| | CVT fluid temperature sensor | X | X | X | X | | X |
| | Secondary pressure sensor | X | | | | | X |
| | Primary speed sensor | X | X | X | X | | X |
| | Secondary speed sensor | X | X | X | X | | X |
| | Engine speed signal ⁽¹⁾ | 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 | |
| | Stop lamp switch signal ⁽¹⁾ | X | X | | X | X | |
| | Overdrive control switch signal ⁽¹⁾ | | X | X | X | X | |
| Output | TCM power supply voltage signal | X | X | X | X | X | X |
| | Line pressure solenoid valve | X | | X | | | X |
| | Secondary pressure solenoid valve | X | | | | | X |
| | TCC solenoid valve | | | X | X | | X |
| | Lock-up select solenoid valve | | | X | X | | X |
| | Step motor | | X | | | | X |

(1) Input via CAN communications.

(2) If these input and output signals are different, the TCM triggers the fail-safe function.

Component Parts Location



- | | | |
|---|--|-------------------------------|
| 1. Shift position indicator (On the combination meter) | 2. OD OFF indicator lamp (On the combination meter) | 3. Crankshaft position sensor |
| 4. ECM | 5. IPDM E/R | 6. BCM |
| 7. Overdrive control switch | 8. Secondary speed sensor | 9. Transmission range switch |
| 10. Control valve assembly* | 11. CVT unit connector | 12. Primary speed sensor |
| 13. Stop lamp switch | 14. Accelerator pedal position sensor | 15. TCM |
| A. Center console | B. Transaxle assembly | C. Accelerator pedal, upper |
| D. Brake pedal, left side | | |

Fig. 14: Identifying Control System, CVT System, Hydraulic Control System, Lock-Up And Select Control, And Shift Control Component Parts Location
Courtesy of NISSAN MOTOR CO., U.S.A.

For ECM (4.), refer to COMPONENT PARTS LOCATION .

For IPDM E/R (5.):

- With Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

- Without Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

For BCM (6.):

- With Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

- Without Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

NOTE: The following components are included in control valve assembly.

- CVT fluid temperature sensor
- Torque converter clutch solenoid valve
- Lock-up select solenoid valve
- Line pressure solenoid valve
- Secondary pressure solenoid valve
- Secondary pressure sensor
- Step motor
- ROM assembly

*: Control valve assembly is included in transaxle assembly.

Component Description

COMPONENT FUNCTION CHART

| Name | Function |
|-----------------------------------|-------------------------------|
| Transmission range switch | " <u>DESCRIPTION</u> " |
| CVT fluid temperature sensor | " <u>DESCRIPTION</u> " |
| Secondary pressure sensor | " <u>DESCRIPTION</u> " |
| Primary speed sensor | " <u>DESCRIPTION</u> " |
| Secondary speed sensor | " <u>DESCRIPTION</u> " |
| Line pressure solenoid valve | " <u>DESCRIPTION</u> " |
| Secondary pressure solenoid valve | " <u>DESCRIPTION</u> " |

| | |
|-----------------------------------|--------------------------------|
| TCC solenoid valve | <u>"DESCRIPTION"</u> |
| Lock-up select solenoid valve | <u>"DESCRIPTION"</u> |
| Step motor | <u>"DESCRIPTION"</u> |
| TCM | <u>"COMPONENT DESCRIPTION"</u> |
| Accelerator pedal position sensor | <u>"DESCRIPTION"</u> |
| Stop lamp switch | <u>"DESCRIPTION"</u> |
| Overdrive control switch | <u>"DESCRIPTION"</u> |

LOCK-UP AND SELECT CONTROL SYSTEM

System Diagram

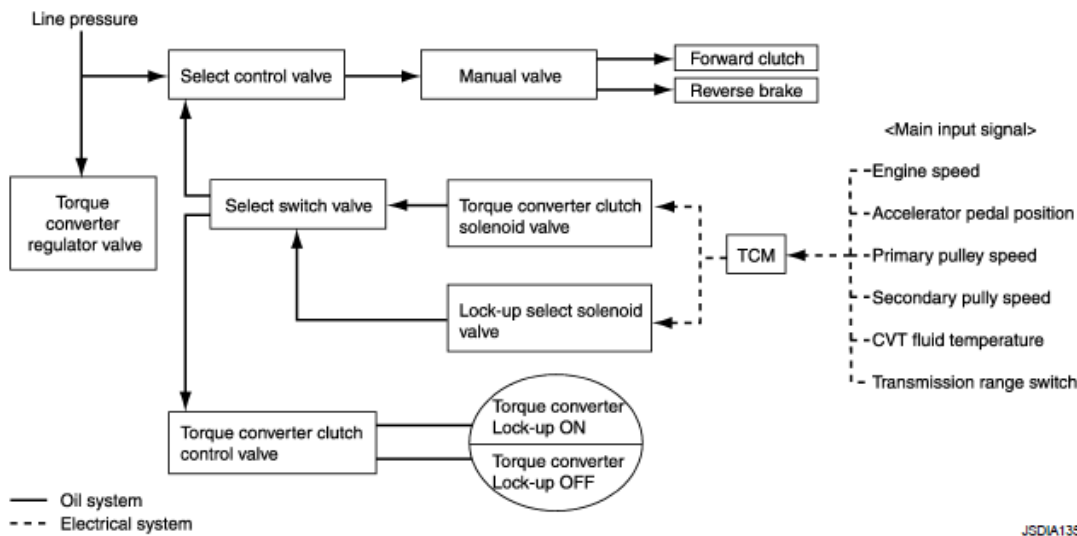


Fig. 15: Lock-Up And Select Control - System Diagram
 Courtesy of NISSAN MOTOR CO., U.S.A.

System Description

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

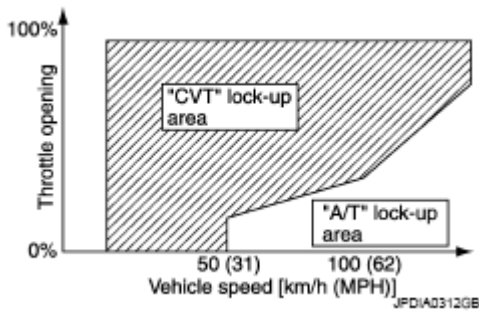


Fig. 16: Throttle Opening Graph

Courtesy of NISSAN MOTOR CO., U.S.A.

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

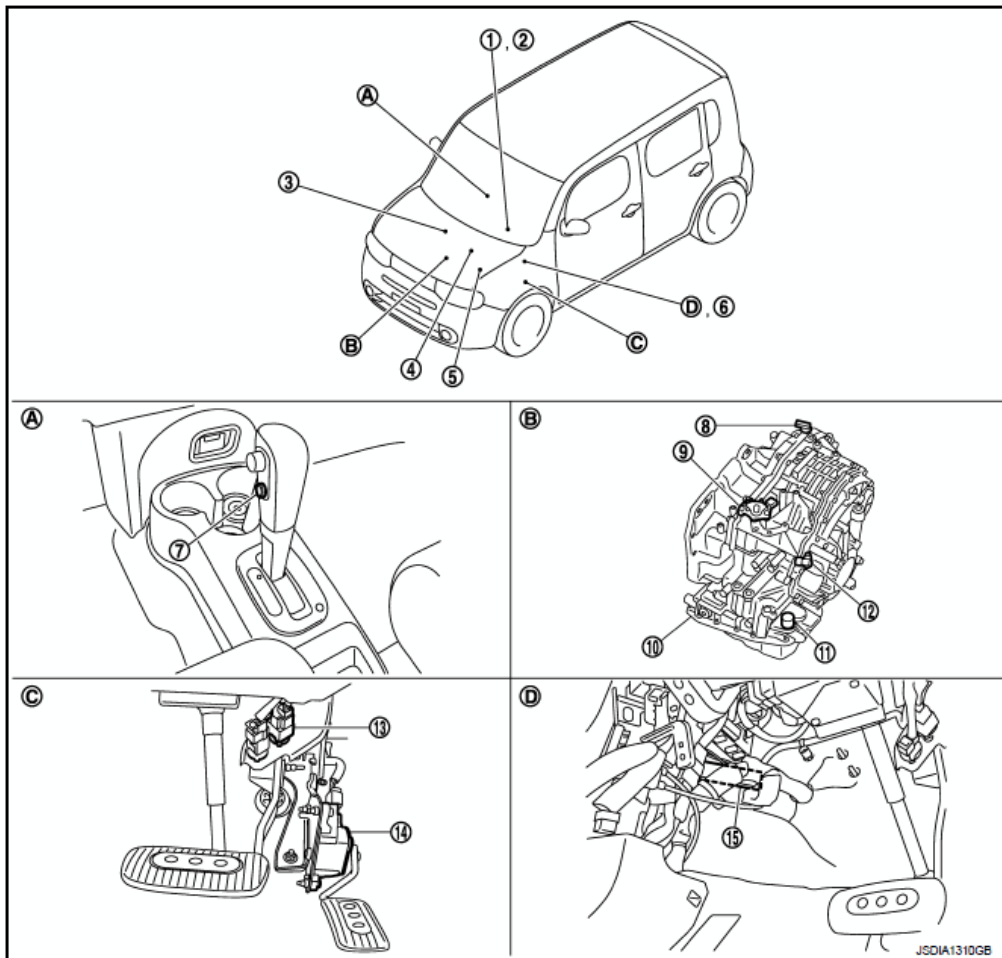
In the lock-up applied state, the torque converter clutch control valve is set into the locked state by the torque converter clutch solenoid valve and lock-up apply pressure is generated.

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.

Component Parts Location



- | | | |
|---|--|-------------------------------|
| 1. Shift position indicator (On the combination meter) | 2. OD OFF indicator lamp (On the combination meter) | 3. Crankshaft position sensor |
| 4. ECM | 5. IPDM E/R | 6. BCM |
| 7. Overdrive control switch | 8. Secondary speed sensor | 9. Transmission range switch |
| 10. Control valve assembly* | 11. CVT unit connector | 12. Primary speed sensor |
| 13. Stop lamp switch | 14. Accelerator pedal position sensor | 15. TCM |
| A. Center console | B. Transaxle assembly | C. Accelerator pedal, upper |
| D. Brake pedal, left side | | |

Fig. 17: Identifying Control System, CVT System, Hydraulic Control System, Lock-Up And Select Control, And Shift Control Component Parts Location
 Courtesy of NISSAN MOTOR CO., U.S.A.

For ECM (4.), refer to **COMPONENT PARTS LOCATION** .

For IPDM E/R (5.):

- With Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

- Without Intelligent Key System:

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Refer to **COMPONENT PARTS LOCATION**

For BCM (6.):

- With Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

- Without Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

NOTE: The following components are included in control valve assembly.

- CVT fluid temperature sensor
- Torque converter clutch solenoid valve
- Lock-up select solenoid valve
- Line pressure solenoid valve
- Secondary pressure solenoid valve
- Secondary pressure sensor
- Step motor
- ROM assembly

*: Control valve assembly is included in transaxle assembly.

Component Description

COMPONENT FUNCTION CHART

| Name | Function |
|----------------------------------|---|
| Transmission range switch | " <u>DESCRIPTION</u> " |
| CVT fluid temperature sensor | " <u>DESCRIPTION</u> " |
| Primary speed sensor | " <u>DESCRIPTION</u> " |
| Secondary speed sensor | " <u>DESCRIPTION</u> " |
| TCC solenoid valve | " <u>DESCRIPTION</u> " |
| Lock-up select solenoid valve | " <u>DESCRIPTION</u> " |
| Select switch valve | " <u>COMPONENT DESCRIPTION</u> " |
| TCC control valve | |
| Torque converter regulator valve | |
| Select control valve | |
| Manual valve | |
| Forward clutch | " <u>COMPONENT DESCRIPTION</u> " |
| Reverse brake | |
| Torque converter | |

| | |
|-----------------------------------|-------------------------|
| TCM | "COMPONENT DESCRIPTION" |
| Accelerator pedal position sensor | "DESCRIPTION" |

SHIFT CONTROL SYSTEM

System Diagram

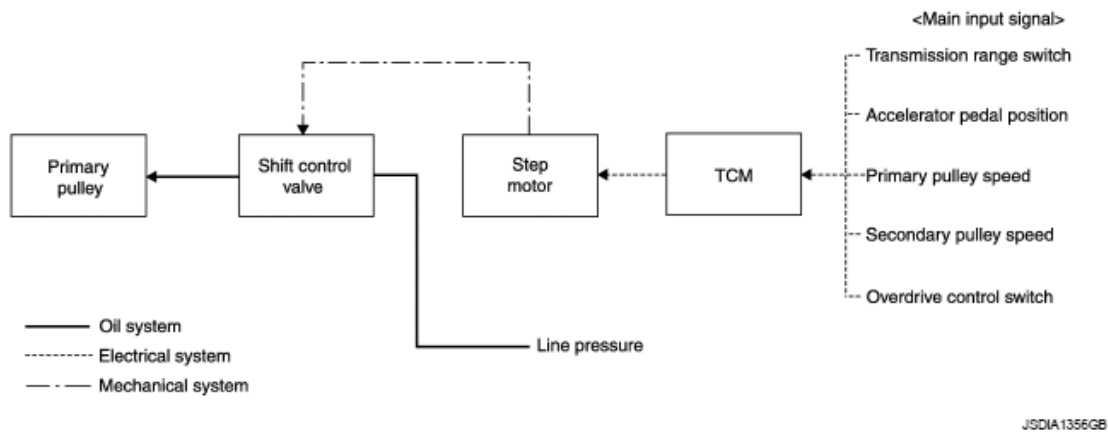


Fig. 18: Shift Control System - System Diagram
Courtesy of NISSAN MOTOR CO., U.S.A.

NOTE: The gear ratio is set for each position separately.

System Description

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 and 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.

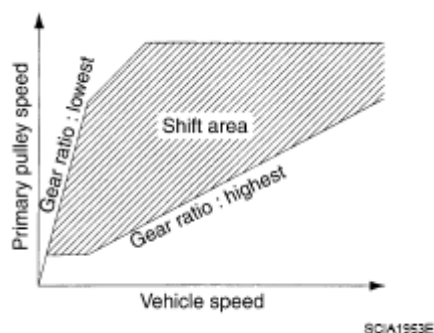
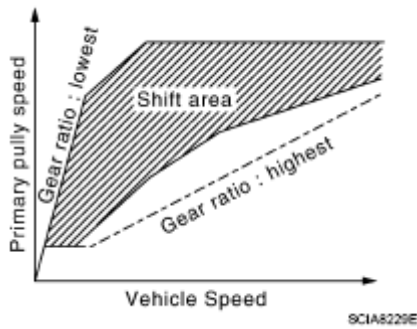


Fig. 19: Vehicle Speed Graph

Courtesy of NISSAN MOTOR CO., U.S.A.

OVERDRIVE OFF CONDITION

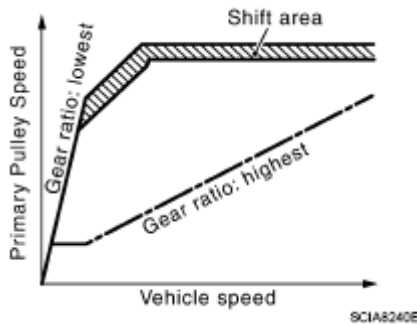
Use this position for the improved engine braking.

**Fig. 20: Vehicle Speed Graph**

Courtesy of NISSAN MOTOR CO., U.S.A.

"L" POSITION

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

**Fig. 21: Vehicle Speed Graph**

Courtesy of NISSAN MOTOR CO., U.S.A.

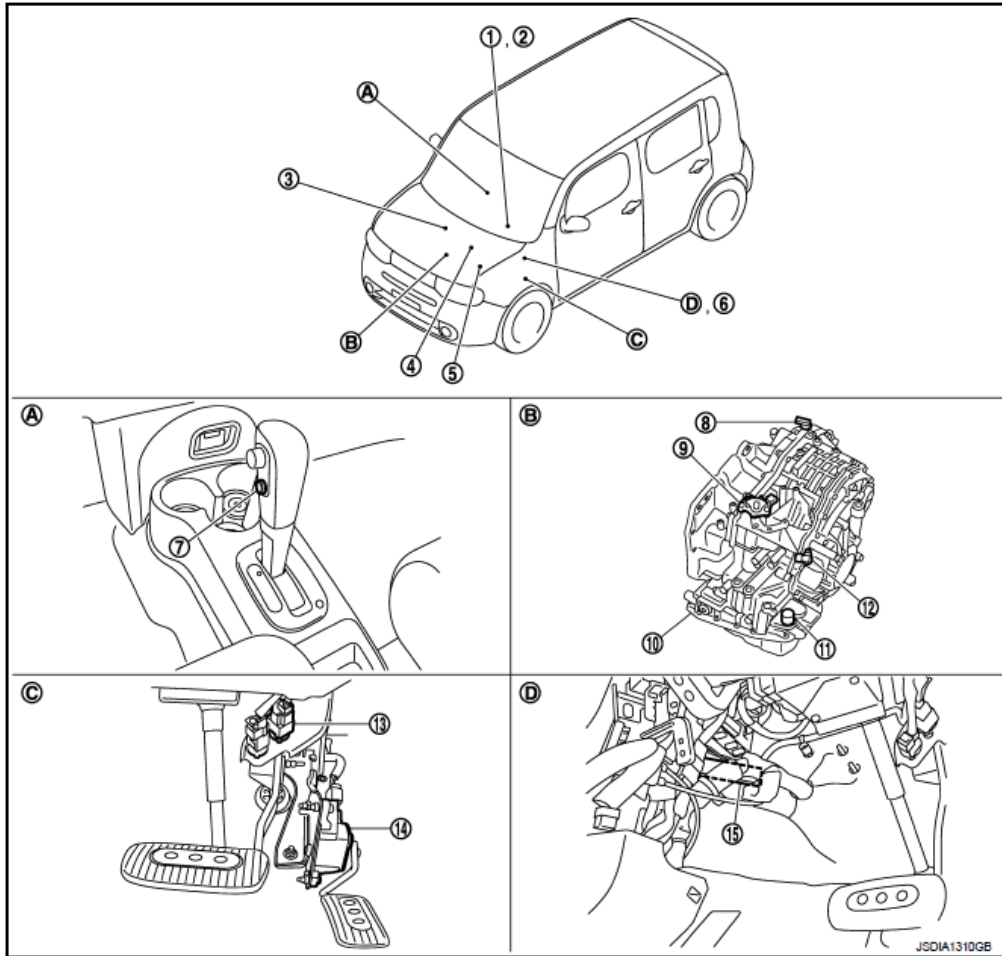
DOWNHILL ENGINE BRAKE CONTROL (AUTO ENGINE BRAKE CONTROL)

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

ACCELERATION CONTROL

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

Component Parts Location



- | | | |
|---|--|-------------------------------|
| 1. Shift position indicator (On the combination meter) | 2. OD OFF indicator lamp (On the combination meter) | 3. Crankshaft position sensor |
| 4. ECM | 5. IPDM E/R | 6. BCM |
| 7. Overdrive control switch | 8. Secondary speed sensor | 9. Transmission range switch |
| 10. Control valve assembly* | 11. CVT unit connector | 12. Primary speed sensor |
| 13. Stop lamp switch | 14. Accelerator pedal position sensor | 15. TCM |
| A. Center console | B. Transaxle assembly | C. Accelerator pedal, upper |
| D. Brake pedal, left side | | |

Fig. 22: Identifying Control System, CVT System, Hydraulic Control System, Lock-Up And Select Control, And Shift Control Component Parts Location
Courtesy of NISSAN MOTOR CO., U.S.A.

For ECM (4.), refer to COMPONENT PARTS LOCATION .

For IPDM E/R (5.):

- With Intelligent Key System:

Refer to COMPONENT PARTS LOCATION

- Without Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

For BCM (6.):

- With Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

- Without Intelligent Key System:

Refer to **COMPONENT PARTS LOCATION**

NOTE: The following components are included in control valve assembly.

- CVT fluid temperature sensor
- Torque converter clutch solenoid valve
- Lock-up select solenoid valve
- Line pressure solenoid valve
- Secondary pressure solenoid valve
- Secondary pressure sensor
- Step motor
- ROM assembly

*: Control valve assembly is included in transaxle assembly.

Component Description

ITEM FUNCTION CHART

| Item | Function |
|-----------------------------------|---|
| Transmission range switch | " <u>DESCRIPTION</u> " |
| Primary speed sensor | " <u>DESCRIPTION</u> " |
| Secondary speed sensor | " <u>DESCRIPTION</u> " |
| Step motor | " <u>DESCRIPTION</u> " |
| Shift control valve | " <u>COMPONENT DESCRIPTION</u> " |
| Primary pulley | " <u>COMPONENT DESCRIPTION</u> " |
| Secondary pulley | |
| TCM | " <u>COMPONENT DESCRIPTION</u> " |
| Accelerator pedal position sensor | " <u>DESCRIPTION</u> " |
| Overdrive control switch | " <u>DESCRIPTION</u> " |

SHIFT LOCK SYSTEM

WITH INTELLIGENT KEY SYSTEM**WITH INTELLIGENT KEY SYSTEM : System Description**

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

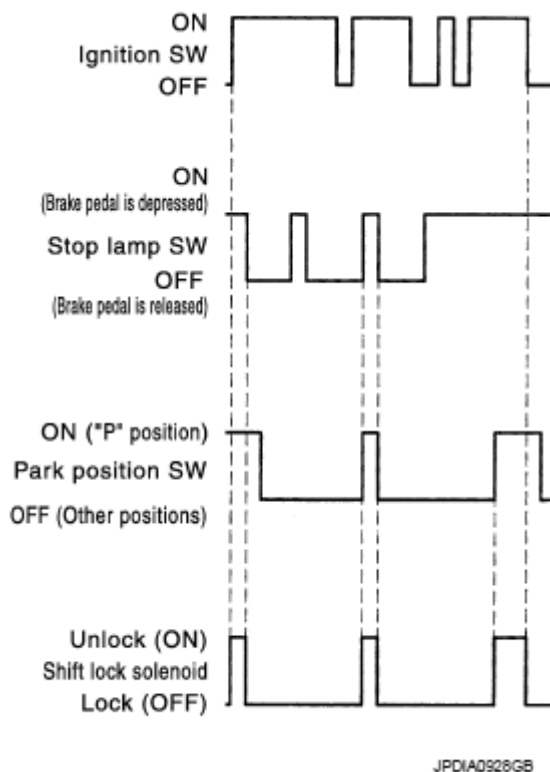


Fig. 23: Intelligent Key System Diagram
 Courtesy of NISSAN MOTOR CO., U.S.A.

SHIFT LOCK OPERATION AT "P" POSITION**When Brake Pedal Is Not Depressed (No Selector Operation Allowed)**

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

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

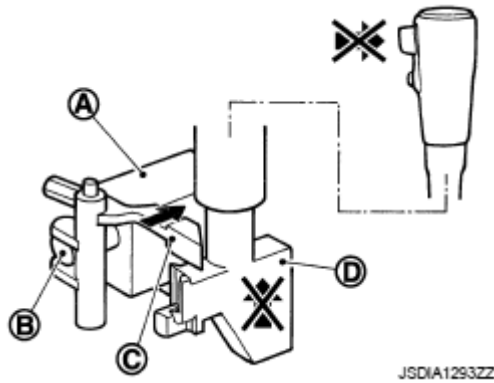


Fig. 24: Identifying Shift Lock Operation "P"
Courtesy of NISSAN MOTOR CO., U.S.A.

When Brake Pedal Is Depressed (Shift Operation Allowed)

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

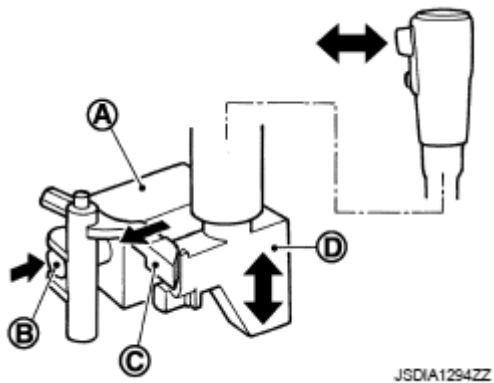


Fig. 25: Identifying Shift Lock Solenoid, Solenoid Rod And Connecting Lock Lever
Courtesy of NISSAN MOTOR CO., U.S.A.

"P" POSITION HOLD MECHANISM (IGNITION SWITCH LOCK)

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

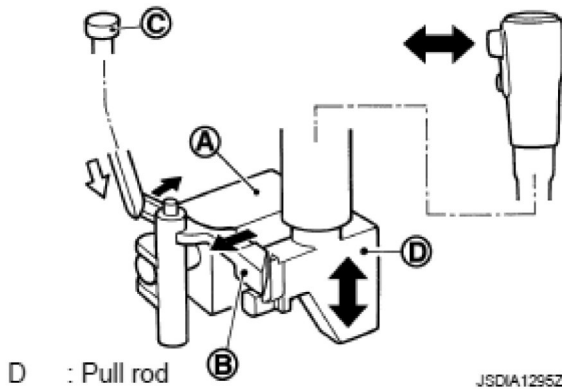
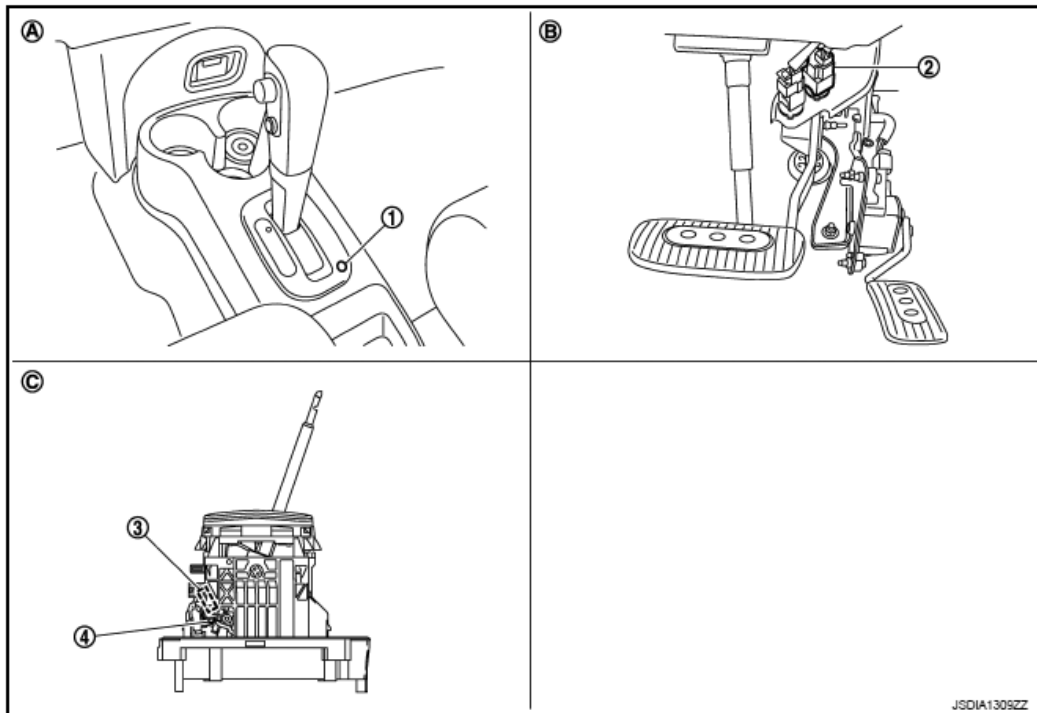


Fig. 26: Identifying Shift Lock Solenoid, Lock Lever, Pull Rod, And Shift Lock Release Button
Courtesy of NISSAN MOTOR CO., U.S.A.

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

WITH INTELLIGENT KEY SYSTEM : Component Parts Location



- | | | |
|------------------------------|-----------------------|-------------------------|
| 1. Shift lock release button | 2. Stop lamp switch | 3. Park position switch |
| 4. Shift lock solenoid | | |
| A. Center console | B. Brake pedal, upper | C. CVT shift selector |

Fig. 27: Identifying Intelligent Key System Component Parts Location
Courtesy of NISSAN MOTOR CO., U.S.A.

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WITH INTELLIGENT KEY SYSTEM : Component Description

SHIFT LOCK

SHIFT LOCK COMPONENT FUNCTION CHART

| Component | Function |
|---------------------------|--|
| Shift lock solenoid | It operates according to the signal from the stop lamp switch and moves the lock lever. |
| Lock lever | It moves according to the operation of the shift lock solenoid and performs the release of the shift lock. |
| Pull rod | It links with the selector button and restricts the selector lever movement. |
| Park position switch | It detects that the selector lever is in "P" position. |
| Shift lock release button | It moves the lock lever forcibly. |

WITHOUT INTELLIGENT KEY SYSTEM

WITHOUT INTELLIGENT KEY SYSTEM : System Description

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

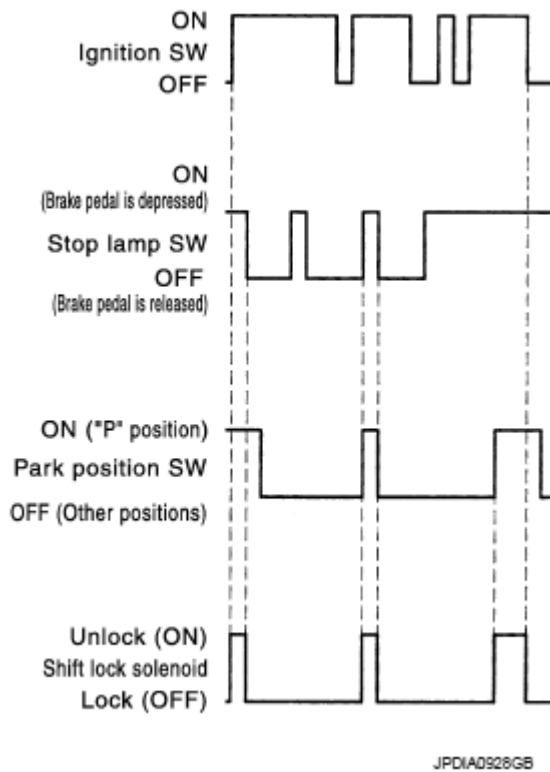


Fig. 28: Intelligent Key System Diagram
Courtesy of NISSAN MOTOR CO., U.S.A.

SHIFT LOCK OPERATION AT "P" POSITION

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

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

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

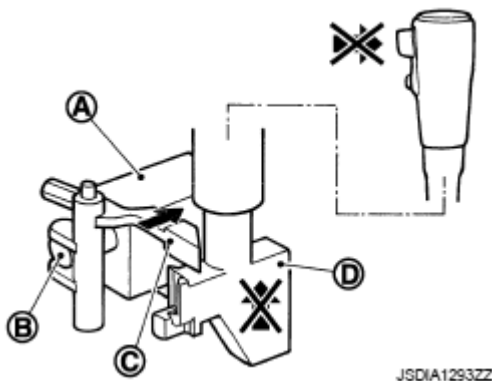
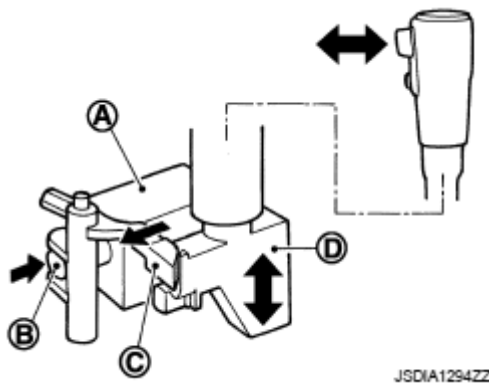


Fig. 29: Identifying Shift Lock Operation "P"

Courtesy of NISSAN MOTOR CO., U.S.A.

When Brake Pedal Is Depressed (Shift Operation Allowed)

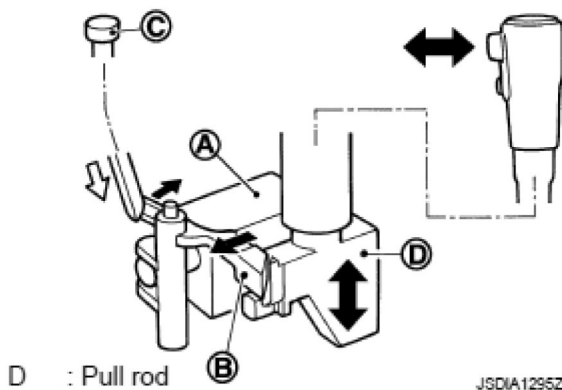
The shift lock solenoid (A) is turned ON (energized) when the brake pedal is depressed with the ignition switch ON. The solenoid rod (B) is compressed by the electromagnetic force. The connecting lock lever (C) rotates when the solenoid is activated. Therefore, the pull rod (D) can be moved. For these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

**Fig. 30: Identifying Shift Lock Solenoid, Solenoid Rod And Connecting Lock Lever**

Courtesy of NISSAN MOTOR CO., U.S.A.

"P" POSITION HOLD MECHANISM (IGNITION SWITCH LOCK)

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

**Fig. 31: Identifying Shift Lock Solenoid, Lock Lever, Pull Rod, And Shift Lock Release Button**

Courtesy of NISSAN MOTOR CO., U.S.A.

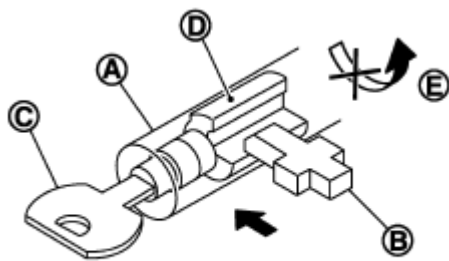
CAUTION: Use the shift lock release button only when the selector lever cannot be operated even if the brake pedal is depressed with the ignition switch ON.

KEY LOCK MECHANISM

The key cannot be set to LOCK when the selector lever is not selected to "P" position. This prevents the key from being removed from the key cylinder.

Key Lock Status

The slider (B) in the key cylinder (A) is moved to the left side of the figure when the selector lever is in any positions other than "P" position. The rotator (D) that rotates together with the key (C) cannot be rotated for this reason. The key cannot be removed from the key cylinder because it cannot be turned to LOCK (E).



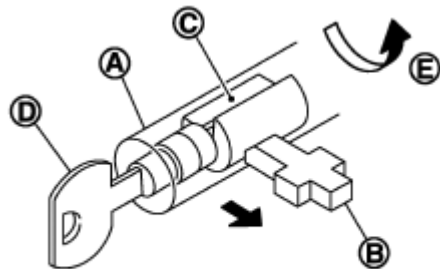
JPDIA0108ZZ

Fig. 32: Identifying Key Lock Status

Courtesy of NISSAN MOTOR CO., U.S.A.

Key Unlock Status

The slider (B) in the key cylinder (A) is moved to the right side of the figure when the selector lever is in "P" position and the finger is removed from the selector button. The rotator (C) can be rotated for this reason. The key (D) can be removed from the key cylinder because it can be turned to LOCK (E).

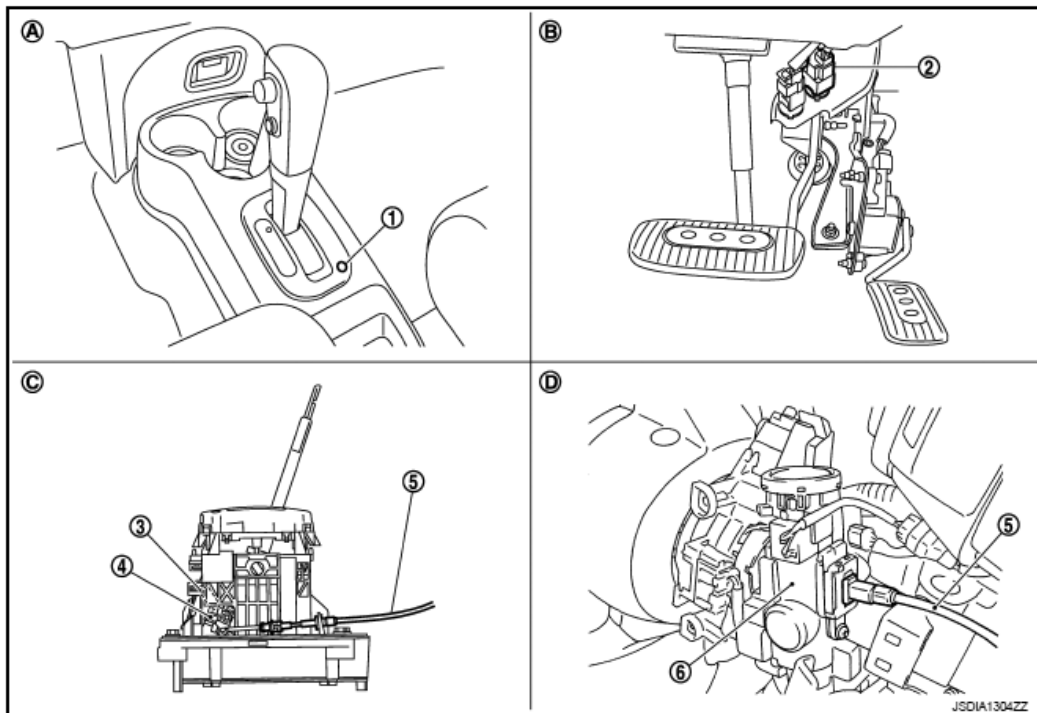


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Fig. 33: Identifying Key Unlock Status

Courtesy of NISSAN MOTOR CO., U.S.A.

WITHOUT INTELLIGENT KEY SYSTEM : Component Parts Location



- | | | |
|------------------------------|------------------------|-------------------------|
| 1. Shift lock release button | 2. Stop lamp switch | 3. Park position switch |
| 4. Shift lock solenoid | 5. Key interlock cable | 6. Key cylinder |
| A. Center console | B. Brake pedal, upper | C. CVT shift selector |
| D. Key cylinder | | |

Fig. 34: Identifying Intelligent Key System Component Parts Location
 Courtesy of NISSAN MOTOR CO., U.S.A.

WITHOUT INTELLIGENT KEY SYSTEM : Component Description

SHIFT LOCK

SHIFT LOCK FUNCTION CHART

| Component | Function |
|---|--|
| Shift lock solenoid | It operates according to the signal from the stop lamp switch and moves the lock lever. |
| Lock lever | It moves according to the operation of the shift lock solenoid and performs the release of the shift lock. |
| Pull rod | It links with the selector button and restricts the selector lever movement. |
| Park position switch | It detects that the selector lever is in "P" position. |
| Key interlock cable and key interlock rod | It transmits the lock lever operation to the slider in the key cylinder. |
| Shift lock release button | It moves the lock lever forcibly. |

KEY LOCK

KEY LOCK FUNCTION CHART

| Component | | Function |
|---|---------|--|
| Key cylinder | Rotator | It rotates together with the key and restricts the slider movement when the ignition switch is in LOCK position. |
| | Slider | It moves according to the rotation of the lock lever. |
| Key interlock cable and key interlock rod | | Actuation of lock lever is conveyed to slider in the key cylinder. |

ON BOARD DIAGNOSTIC (OBD) SYSTEM**Diagnosis Description****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 "**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. For details, refer to "**DIAGNOSIS DESCRIPTION**".

DIAGNOSIS SYSTEM (TCM)**CONSULT-III Function (TRANSMISSION)****FUNCTION**

CONSULT-III can display each diagnostic item using the diagnostic test modes shown in the following chart.

DIAGNOSTIC TEST MODE FUNCTION CHART

| Diagnostic test mode | Function |
|-----------------------------|---|
| Work Support | This mode enables a technician to adjust some devices faster and more accurately. |
| | |

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| | |
|-------------------------------|---|
| Self Diagnostic Results | Retrieve DTC from ECU and display diagnostic items. |
| Data Monitor | Monitor the input/output signal of the control unit in real time. |
| CAN Diagnosis | This mode displays a network diagnosis result about CAN by a diagram. |
| CAN Diagnosis Support Monitor | It monitors the status of CAN communication. |
| Function Test | This mode can show results of self-diagnosis of ECU with either "OK" or "NG". For engine, more practical tests regarding sensors/switches and/or actuators are available. |
| ECU Identification | Display the ECU identification number (part number etc.) of the selected system. |
| Special Function | Other results or histories, etc. that are recorded in ECU are displayed. |

SELF DIAGNOSTIC RESULTS MODE

Refer to "**DTC INDEX**".

DATA MONITOR MODE

Display Items List

X: Standard, -: Not applicable, delta: Option

MONITORED ITEM REFERENCE CHART

| Monitored item (Unit) | Monitor item selection | | | Remarks |
|-----------------------------|------------------------|--------------|---------------------|---|
| | ECU INPUT SIGNALS | MAIN SIGNALS | SELECTION FROM MENU | |
| VSP SENSOR (km/h or mph) | X | - | delta | - |
| ESTM VSP SIG (km/h or mph) | X | - | delta | - |
| PRI SPEED SEN (RPM) | X | - | delta | - |
| ENG SPEED SIG (RPM) | X | - | delta | Engine speed signal (Signal input via CAN communications) |
| SEC HYDR SEN (V) | X | - | delta | - |
| PRI HYDR SEN (V) | X | - | delta | Not mounted but displayed. |
| ATF TEMP SEN (V) | X | - | delta | CVT fluid temperature sensor |
| VIGN SEN (V) | X | - | delta | - |
| VEHICLE SPEED (km/h or mph) | - | X | delta | Vehicle speed recognized by the TCM. |
| PRI SPEED (RPM) | - | X | delta | Primary pulley speed |

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| | | | | |
|------------------------|---|---|-------|--|
| SEC SPEED (RPM) | - | - | delta | Secondary pulley speed |
| ENG SPEED (RPM) | - | X | delta | - |
| SLIP REV (RPM) | - | X | delta | Difference between engine speed and primary pulley speed. |
| GEAR RATIO | - | X | delta | - |
| G SPEED (G) | - | - | delta | - |
| ACC PEDAL OPEN (0.0/8) | X | X | delta | Degree of opening for accelerator recognized by the TCM. For fail-safe operation, the specific value used for control is displayed. |
| TRQ RTO | - | - | delta | - |
| SEC PRESS (MPa) | - | X | delta | - |
| PRI PRESS (MPa) | - | X | delta | Not mounted but displayed. |
| ATFTEMP COUNT | - | X | delta | Means CVT fluid temperature. Actual oil temperature °C (°F) numeric value is converted. Refer to <u>ATFTEMP COUNT CONVERSION TABLE</u> |
| DSR REV (RPM) | - | - | delta | - |
| DGEAR RATIO | - | - | delta | - |
| DSTM STEP (step) | - | - | delta | - |
| STM STEP (step) | - | X | delta | - |
| LU PRS (MPa) | - | - | delta | - |
| LINE PRS (MPa) | - | - | delta | - |
| TGT SEC PRESS (MPa) | - | - | delta | - |
| ISOLT1 (A) | - | X | delta | Torque converter clutch solenoid valve output current |
| ISOLT2 (A) | - | X | delta | Line pressure solenoid valve output current |
| ISOLT3 (A) | - | X | delta | Secondary pressure solenoid valve output current |
| SOLMON1 (A) | X | X | delta | Torque converter clutch solenoid valve monitor current |
| SOLMON2 (A) | X | X | delta | Line pressure solenoid valve monitor current |
| SOLMON3 (A) | X | X | delta | Secondary pressure solenoid valve monitor current |
| BRAKESW (On/Off) | X | X | delta | Stop lamp switch signal (Signal input via CAN communications) |
| FULL SW (On/Off) | X | X | delta | Full switch signal (Signal input via CAN communications) |
| IDLE SW (On/Off) | X | X | delta | Idle switch signal (Signal input via CAN communications) |

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| | | | | |
|-------------------------|---|-------|-------|--|
| SPORT MODE SW (On/Off) | X | X | delta | Overdrive control switch signal (Signal input via CAN communications) |
| STRDWSW (On/Off) | X | - | delta | Not mounted but displayed. |
| STRUPSW (On/Off) | X | - | delta | |
| DOWNLVR (On/Off) | X | - | delta | |
| UPLVR (On/Off) | X | - | delta | |
| NONMMODE (On/Off) | X | - | delta | |
| MMODE (On/Off) | X | - | delta | |
| INDLRNG (On/Off) | - | - | delta | "L" position indicator output |
| INDDRNG (On/Off) | - | - | delta | "D" position indicator output |
| INDNRNG (On/Off) | - | - | delta | "N" position indicator output |
| INDRRNG (On/Off) | - | - | delta | "R" position indicator output |
| INDPRNG (On/Off) | - | - | delta | "P" position indicator output |
| CVT LAMP (On/Off) | - | - | delta | - |
| SPORT MODE IND (On/Off) | - | - | delta | - |
| MMODE IND (On/Off) | - | - | delta | Not mounted but displayed. |
| SMCOIL D (On/Off) | - | - | delta | Step motor coil "D" energizing status |
| SMCOIL C (On/Off) | - | - | delta | Step motor coil "C" energizing status |
| SMCOIL B (On/Off) | - | - | delta | Step motor coil "B" energizing status |
| SMCOIL A (On/Off) | - | - | delta | Step motor coil "A" energizing status |
| LUSEL SOL OUT (On/Off) | - | - | delta | - |
| LUSEL SOL MON (On/Off) | - | - | delta | - |
| VDC ON (On/Off) | X | - | delta | - |
| TCS ON (On/Off) | X | - | delta | - |
| ABS ON (On/Off) | X | - | delta | - |
| ACC ON (On/Off) | X | - | delta | Not mounted but displayed. |
| RANGE | - | X | delta | Indicates position is recognized by TCM. Indicates a specific value required for control when fail-safe function is activated. |
| M GEAR POS | - | X | delta | - |
| D POSITION SW (On/Off) | X | delta | - | - |
| N POSITION SW (On/Off) | X | - | delta | - |

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| | | | | | |
|---------------|----------|---|---|-------|---|
| L POSITION SW | (On/Off) | X | - | delta | - |
| P POSITION SW | (On/Off) | X | - | delta | - |
| R POSITION SW | (On/Off) | X | - | delta | - |

WORK SUPPORT MODE

Display Item List

ITEM DESCRIPTION CHART

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

Engine Brake Adjustment

Under normal operating conditions of the transaxle main body and CVT system, if a customer indicates strangeness of involuntary application of the brake on a downhill run, engine brake is allowed to be released in accordance with "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-III screen. However, do not select mode other than "0" and "OFF". Selecting "+1" or "-1" or "-2" is selected, that may cause irregular driveability.

Conform CVTF Deterioration

- Check CVT fluid deterioration level when driving under severe conditions.

"CVTF DETERIORATION DATE"**More than 210000:****It is necessary to change CVT fluid.****Less than 210000:****It is not necessary to change CVT fluid.**

- How to Erase CVT Fluid Deterioration Date
 - Select "clear".

Calibration Data

After replacing transaxle assembly, it is necessary to initialize ROM data of TCM. Checking calibration data makes it possible to check that initialization is successful.

Diagnostic Tool Function

OBD-II SELF-DIAGNOSTIC PROCEDURE (WITH GST)

Refer to "**DIAGNOSIS TOOL FUNCTION**".

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

Real time communication is performed between each control unit such as TCM, ECM, combination meter, or others. Information is shared and linked between other control units. Each system is optimally controlled according to driving conditions of the vehicle.

In CAN (Controller Area Network) communication, 2 control units are connected via 2 communication lines (CAN-H and CAN-L) allowing a high rate of information transmission via less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC Logic

DTC DETECTION LOGIC

TROUBLE DIAGNOSIS REFERENCE

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|------------------------|--|---|
| U1000 | CAN communication line | TCM cannot transmit and receive CAN communication signals continuously for 2 seconds or more | <ul style="list-style-type: none"> • CAN communication line • Each control unit |

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Start the engine.
2. Maintain idling state for 2 seconds or more.
3. Select "Self Diagnostic Results" in "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "U1000" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

Go to "**CAN SYSTEM SPECIFICATION CHART**".

U1010 CONTROL UNIT (CAN)

Description

Real time communication is performed between each control unit such as TCM, ECM, combination meter, or others. Information is shared and linked between other control units. Each system is optimally controlled according to driving conditions of the vehicle.

In CAN (Controller Area Network) communication, 2 control units are connected via 2 communication lines (CAN-H and CAN-L) allowing a high rate of information transmission via less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC Logic

DTC DETECTION LOGIC

TROUBLE DIAGNOSIS REFERENCE

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|-------------------------------|---|----------------|
| U1010 | TCM Communication Malfunction | TCM detects a malfunction in CAN communication initial diagnosis (control unit malfunction) | TCM |

DTC CONFIRMATION PROCEDURE**1. PRECONDITIONING**

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Start the engine.
2. Maintain idling state for 6 seconds or more.
3. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "U1010" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure**1. CHECK INTERMITTENT INCIDENT**

Refer to "**INTERMITTENT INCIDENT**".

Is the inspection result normal?

YES: Replace TCM. Refer to "**EXPLODED VIEW**".

NO: Repair or replace damaged parts.

P0703 BRAKE SWITCH B**Description**

- Stop lamp switch is installed to upper part of brake pedal.
- Stop lamp switch detects that brake pedal is depressed.
- Stop lamp switch transmits a signal of brake pedal depression to BCM.
- TCM receives stop lamp switch signal (CAN signal) from BCM.

DTC Logic

DTC DETECTION LOGIC

TROUBLE DIAGNOSIS REFERENCE

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|------------------------|--|---|
| P0703 | Brake Switch B Circuit | <ul style="list-style-type: none"> • TCM detects malfunction in CAN communication between BCM • TCM detects a state that ON/OFF of stop lamp switch signal is not switched | <ul style="list-style-type: none"> • Harness or connectors (CAN communication line is open or shorted.) (Stop lamp switch circuit is open or shorted.) • Stop lamp switch • BCM |

DTC CONFIRMATION PROCEDURE

CAUTION: Always drive vehicle at a safe speed.

1. PRECONDITIONING

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

VEHICLE SPEED : More than 30 km/h (19 MPH)

6. Depress brake pedal and stop the vehicle.
7. Turn ignition switch OFF.

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8. Repeat the above steps 4 to 7 two times.
9. Turn ignition switch ON.
10. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "P0703" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK STOP LAMP SWITCH POWER CIRCUIT

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

VOLTAGE SPECIFICATION

| Stop lamp switch vehicle side harness connector | | Ground | Voltage (Approx.) |
|---|----------|--------|-------------------|
| Connector | Terminal | | |
| E115 | 1 | | Battery voltage |

Is the inspection result normal?

YES: GO TO 2.

NO: GO TO 7.

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

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

With intelligent key system

CONTINUITY CHART

| BCM vehicle side harness connector | | Stop lamp switch vehicle side harness connector | | Continuity |
|------------------------------------|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| M68 | 9 | E115 | 2 | Existed |

Without intelligent key system

CONTINUITY CHART

| BCM vehicle side harness connector | | Stop lamp switch vehicle side harness connector | | |
|------------------------------------|--|---|--|--|
|------------------------------------|--|---|--|--|

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| Connector | Terminal | Connector | Terminal | Continuity |
|-----------|----------|-----------|----------|------------|
| M65 | 9 | E115 | 2 | Existed |

Is the inspection result normal?

YES: GO TO 3.

NO: Repair or replace damaged parts.

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

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

With intelligent key system

CONTINUITY CHART

| BCM vehicle side harness connector | | Ground | Continuity |
|------------------------------------|----------|--------|-------------|
| Connector | Terminal | | |
| M68 | 9 | | Not existed |

Without intelligent key system

CONTINUITY CHART

| BCM vehicle side harness connector | | Ground | Continuity |
|------------------------------------|----------|--------|-------------|
| Connector | Terminal | | |
| M65 | 9 | | Not existed |

Is the inspection result normal?

YES: GO TO 4.

NO: Repair or replace damaged parts.

4. CHECK STOP LAMP SWITCH (PART 1)Check stop lamp switch. Refer to "**COMPONENT INSPECTION (STOP LAMP SWITCH)**".**Is the inspection result normal?**

YES: GO TO 7.

NO: GO TO 5.

5. PERFORM STOP LAMP SWITCH INSTALLATION POSITION ADJUSTMENT

Perform stop lamp switch installation position adjustment. Refer to "**INSPECTION AND ADJUSTMENT**".

GO TO 6.

6. CHECK STOP LAMP SWITCH (PART 2)

Check stop lamp switch. Refer to "**COMPONENT INSPECTION (STOP LAMP SWITCH)**".

Is the inspection result normal?

YES: INSPECTION END

NO: Replace stop lamp switch. Refer to "**EXPLODED VIEW**".

7. DETECT MALFUNCTIONING ITEMS

Check the following.

- 10A fuse (No. 7)
- Harness for short or open between battery and stop lamp switch (Refer to "**WIRING DIAGRAM - BATTERY POWER SUPPLY -**".)
- Battery

Is the inspection result normal?

YES: GO TO 8.

NO: Repair or replace damaged parts.

8. CHECK INTERMITTENT INCIDENT

Refer to "**INTERMITTENT INCIDENT**".

Is the inspection result normal?

YES: Replace BCM. Refer to "**EXPLODED VIEW**" (With intelligent key system), "**EXPLODED VIEW**" (Without intelligent key system).

NO: Repair or replace damaged parts.

Component Inspection (Stop Lamp Switch)

1. CHECK STOP LAMP SWITCH

Check continuity between stop lamp switch connector terminals.

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CONTINUITY CHART

| Stop lamp switch connector | | | Condition | Continuity |
|----------------------------|----------|---|---------------------------|-------------|
| Connector | Terminal | | | |
| E115 | 1 | 2 | Depressed brake pedal | Existed |
| | | | Brake pedal not depressed | Not existed |
| | 3 | 4 | Depressed brake pedal | Existed |
| | | | Brake pedal not depressed | Not existed |

Is the inspection result normal?

YES: INSPECTION END

NO: Replace stop lamp switch. Refer to "**EXPLODED VIEW**".**P0705 TRANSMISSION RANGE SWITCH A****Description**

- Transmission range switch is installed to upper part of transaxle case.
- Transmission range switch detects the selector lever position and transmits selector lever position signal to TCM.

DTC Logic**DTC DETECTION LOGIC****TROUBLE DIAGNOSIS REFERENCE**

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|---|---|--|
| P0705 | Transmission Range Sensor A Circuit (PRNDL Input) | <ul style="list-style-type: none">• Range signal is not transmitted to TCM• 2 or more range signals are transmitted to TCM | <ul style="list-style-type: none">• Harness or connectors <p>[Transmission range switch circuit is open or shorted.]</p> <ul style="list-style-type: none">• Transmission range switch |

DTC CONFIRMATION PROCEDURE**1. PRECONDITIONING**

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Start the engine.
2. Shift and hold selector lever to each position for 5 seconds or more.
3. Select "Self Diagnostic Results" in "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "P0705" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK TRANSMISSION RANGE SWITCH POWER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect transmission range switch connector.
3. Turn ignition switch ON.
4. Check voltage between transmission range switch vehicle side harness connector terminal and ground.

VOLTAGE SPECIFICATION

| Transmission range switch vehicle side harness connector | | Ground | Condition | Voltage (Approx.) |
|--|----------|--------|----------------------|-------------------|
| Connector | Terminal | | | |
| F21 | 3 | | Ignition switch: ON | Battery voltage |
| | | | Ignition switch: OFF | 0 V |

Is the inspection result normal?

YES: GO TO 2.

NO: GO TO 5.

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

1. Turn ignition switch OFF.
2. Disconnect TCM connector.

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3. Check continuity between TCM vehicle side harness connector terminals and transmission range switch vehicle side harness connector terminals.

CONTINUITY CHART

| TCM vehicle side harness connector | | Transmission range switch vehicle side harness connector | | Continuity |
|------------------------------------|----------|--|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| E18 | 18 | F21 | 4 | Existed |
| | 22 | | 5 | |
| E19 | 26 | | 6 | |
| | 43 | | 7 | |
| | 44 | | 8 | |

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 terminal and ground.

CONTINUITY CHART

| TCM vehicle side harness connector | | | Continuity |
|------------------------------------|----------|--------|-------------|
| Connector | Terminal | | |
| E18 | 18 | Ground | Not Existed |
| | 22 | | |
| E19 | 26 | | |
| | 43 | | |
| | 44 | | |

Is the inspection result normal?

YES: GO TO 4.

NO: Repair or replace damaged parts.

4. CHECK TRANSMISSION RANGE SWITCH

1. Remove control cable from manual lever. Refer to "**EXPLODED VIEW**".
2. Check transmission range switch. Refer to "**COMPONENT INSPECTION (PARK/NEUTRAL POSITION SWITCH)**".

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Transmission range switch is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

5. CHECK HARNESS BETWEEN TRANSMISSION RANGE SWITCH AND IPDM E/R (PART 1)

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

CONTINUITY CHART

| Transmission range switch vehicle side harness connector | | IPDM E/R vehicle side harness connector | | Continuity |
|--|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| F21 | 3 | E15 | 58 | Existed |

Is the inspection result normal?

YES: GO TO 6.

NO: Repair or replace damaged parts.

6. CHECK HARNESS BETWEEN TRANSMISSION RANGE SWITCH AND IPDM E/R (PART 2)

Check continuity between transmission range switch vehicle side harness connector terminal and ground.

CONTINUITY CHART

| Transmission range switch vehicle side harness connector | | Ground | Continuity |
|--|----------|--------|-------------|
| Connector | Terminal | | |
| F21 | 3 | | Not existed |

Is the inspection result normal?

YES: GO TO 7.

NO: Repair or replace damaged parts.

7. DETECT MALFUNCTIONING ITEMS

Check the following.

- IPDM E/R
- 10A fuse (No. 55, located in the IPDM E/R)
- Harness for short or open between IPDM E/R and ignition switch (Refer to "**WIRING DIAGRAM**".)

- IGNITION POWER SUPPLY - ".)

- Ignition switch

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Repair or replace damaged parts.

Component Inspection (Park/Neutral Position Switch)

1. CHECK TRANSMISSION RANGE SWITCH

Check continuity of transmission range switch connector terminals.

CONTINUITY CHART

| Transmission range switch connector | | | Condition | Continuity |
|-------------------------------------|---|----------|-------------------------------------|-------------|
| Connector | | Terminal | | |
| F21 | 1 | 2 | Manual lever: "P" and "N" positions | Existed |
| | | | Other than the above | Not existed |
| | 3 | 4 | Manual lever: "P" position | Existed |
| | | | Other than the above | Not existed |
| | 3 | 5 | Manual lever: "R" position | Existed |
| | | | Other than the above | Not existed |
| | 3 | 6 | Manual lever: "N" position | Existed |
| | | | Other than the above | Not existed |
| | 3 | 7 | Manual lever: "D" position | Existed |
| | | | Other than the above | Not existed |
| | 3 | 8 | Manual lever: "L" position | Existed |
| | | | Other than the above | Not existed |

Is the inspection result normal?

YES: INSPECTION END

NO: Transmission range switch is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A

Description

- CVT fluid temperature sensor is installed to control valve.
- CVT fluid temperature sensor detects CVT fluid temperature in oil pan.
- The CVT fluid temperature sensor converts CVT fluid temperature into output voltage and transmits the

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signal to TCM.

- The CVT fluid temperature sensor uses a thermistor and its electrical resistance varies as the temperature varies. The electrical resistance decreases as the temperature increases.

DTC Logic

DTC DETECTION LOGIC

TROUBLE DIAGNOSIS REFERENCE

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|---|--|--|
| P0710 | Transmission Fluid Temperature Sensor A Circuit | <ul style="list-style-type: none">• CVT fluid temperature does not rise to the specified temperature after driving for a certain period of time with the TCM-received oil temperature sensor value between -39°C (-38.2°F) and 20°C (-68°F)• CVT fluid temperature sensor value that TCM receives is more than 180°C (356°F)• TCM-received CVT fluid temperature sensor value while driving is less than -40°C (-40°F) | <ul style="list-style-type: none">• Harness or connectors (CVT fluid temperature sensor circuit is open or shorted.)• CVT fluid temperature sensor |

DTC CONFIRMATION PROCEDURE

CAUTION: Always drive vehicle at a safe speed.

1. PRECONDITIONING (PART 1)

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PRECONDITIONING (PART 2)

With CONSULT-III

1. Turn ignition switch ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "ATF TEMP SEN".

Is "ATF TEMP SEN" value within 2.03 - 0.16 V?

YES: INSPECTION END

NO-1 ("ATF TEMP SEN" indicates 0.15 V or less.): Go to "**DIAGNOSIS PROCEDURE**".

NO-2 ("ATF TEMP SEN" indicates 2.04 V or more.): GO TO 3.

3. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "RANGE" and "VEHICLE SPEED".
4. Drive the vehicle.
5. Maintain the following conditions for 14 minutes or more.

RANGE : D

VEHICLE SPEED : More than 10 km/h (7 MPH)

6. Stop the vehicle.
7. Select "Self Diagnostic Results" in "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "P0710" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK CVT FLUID TEMPERATURE SENSOR CIRCUIT (PART 1)

1. Turn ignition switch ON.
2. Check resistance between TCM vehicle side harness connector terminals.

RESISTANCE REFERENCE

| TCM connector | | | Condition | Resistance (Approx.) |
|---------------|----------|----|-------------------------------------|----------------------|
| Connector | Terminal | | | |
| E19 | 47 | 42 | CVT fluid temperature: 20°C (68°F) | 6.83 - 6.29 kohms |
| | | | CVT fluid temperature: 50°C (122°F) | 2.25 - 2.10 kohms |
| | | | CVT fluid temperature: 80°C (176°F) | 0.90 - 0.85 kohms |

Is the inspection result normal?

YES: GO TO 2.

NO: GO TO 3.

2. CHECK CVT FLUID TEMPERATURE SENSOR CIRCUIT (PART 2)

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

CONTINUITY CHART

| TCM vehicle side harness connector | | Ground | Continuity |
|------------------------------------|----------|--------|-------------|
| Connector | Terminal | | |
| E19 | 47 | | Not existed |

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: GO TO 3.

3. CHECK CVT FLUID TEMPERATURE SENSOR

1. Turn ignition switch OFF.
2. Disconnect CVT unit connector.
3. Check CVT fluid temperature sensor. Refer to "**COMPONENT INSPECTION (CVT FLUID TEMPERATURE SENSOR)**".

Is the inspection result normal?

YES: GO TO 4.

NO: CVT fluid temperature sensor is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

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

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

CONTINUITY CHART

| TCM vehicle side harness connector | | CVT unit vehicle side harness connector | | Continuity |
|------------------------------------|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| E19 | 42 | F24 | 19 | Existed |

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Is the inspection result normal?

YES: GO TO 5.

NO: Repair or replace damaged parts.

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

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

CONTINUITY CHART

| TCM vehicle side harness connector | | Ground | Continuity |
|------------------------------------|----------|--------|-------------|
| Connector | Terminal | | |
| E19 | 42 | | Not Existed |
| | 47 | | |

Is the inspection result normal?YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Repair or replace damaged parts.

Component Inspection (CVT Fluid Temperature Sensor)**1. CHECK CVT FLUID TEMPERATURE SENSOR (PART 1)**

Check resistance between CVT unit harness connector terminals.

RESISTANCE REFERENCE

| CVT unit harness connector | | | Condition | Resistance (Approx.) |
|----------------------------|----------|----|-------------------------------------|----------------------|
| Connector | Terminal | | | |
| F24 | 17 | 19 | CVT fluid temperature: 20°C (68°F) | 6.83 - 6.29 kohms |
| | | | CVT fluid temperature: 50°C (122°F) | 2.25 - 2.10 kohms |
| | | | CVT fluid temperature: 80°C (176°F) | 0.90 - 0.85 kohms |

Is the inspection result normal?

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YES: GO TO 2.

NO: CVT fluid temperature sensor is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

2. CHECK CVT FLUID TEMPERATURE SENSOR (PART 2)

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

CONTINUITY CHART

| CVT unit harness connector | | Ground | Continuity |
|----------------------------|----------|--------|-------------|
| Connector | Terminal | | |
| F24 | 17 | | Not existed |

Is the inspection result normal?

YES: INSPECTION END

NO: CVT fluid temperature sensor is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

P0715 INPUT SPEED SENSOR A

Description

- Primary speed sensor is installed to the front side of transaxle case.
- Primary speed sensor detects primary pulley speed.
- Primary speed sensor converts primary pulley speed to pulse signal and transmits the signal to TCM.

DTC Logic

DTC DETECTION LOGIC

TROUBLE DIAGNOSIS REFERENCE

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|--------------------------------------|---|--|
| P0715 | Input/Turbine Speed Sensor A Circuit | <ul style="list-style-type: none">• Primary speed sensor signal is not transmitted to TCM• Primary speed sensor value is less than 150 RPM while secondary pulley speed is more than 500 RPM | <ul style="list-style-type: none">• Harness or connectors (Primary speed sensor circuit is open or shorted.)• Primary speed sensor |

DTC CONFIRMATION PROCEDURE

CAUTION: Always drive vehicle at a safe speed.

1. PRECONDITIONING

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

SEC SPEED : More than 500 RPM

VEHICLE SPEED : More than 10 km/h (7 MPH)

6. Stop the vehicle.
7. Select "Self Diagnostic Results" in "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "P0715" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK PRIMARY SPEED SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect primary speed sensor connector.
3. Turn ignition switch ON.

4. Check voltage between primary speed sensor vehicle side harness connector terminal and ground.

VOLTAGE SPECIFICATION

| Primary speed sensor vehicle side harness connector | | Ground | Voltage (Approx.) |
|---|----------|--------|-------------------|
| Connector | Terminal | | |
| F55 | 3 | | Battery voltage |

Is the inspection result normal?

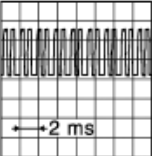
YES: GO TO 2.

NO: GO TO 6.

2. CHECK TCM INPUT SIGNAL

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

CONNECTOR TERMINAL REFERENCE

| TCM connector | | | Condition | Data (Approx.) |
|---------------|----------|----|--|--|
| Connector | Terminal | | | |
| E19 | 38 | 42 | <ul style="list-style-type: none">• Selector lever: "L" position• While driving at 20 km/h (12 MPH) | <div>1275 Hz</div> <div>(V) </div> <div>JSDIA1306GB</div> |

Is the inspection result normal?

YES: GO TO 9.

NO: GO TO 3.

3. CHECK HARNESS BETWEEN TCM AND PRIMARY SPEED SENSOR (PART 1)

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

CONTINUITY CHART

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| TCM vehicle side harness connector | | Primary speed sensor vehicle side harness connector | | Continuity |
|------------------------------------|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| E19 | 38 | F55 | 2 | Existed |
| | 42 | | 1 | |

Is the inspection result normal?

YES: GO TO 4.

NO: Repair or replace damaged parts.

4. CHECK HARNESS BETWEEN TCM AND PRIMARY SPEED SENSOR (PART 2)

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

CONTINUITY CHART

| TCM vehicle side harness connector | | Ground | Continuity |
|------------------------------------|----------|--------|-------------|
| Connector | Terminal | | |
| E19 | 38 | | Not Existed |
| | 42 | | |

Is the inspection result normal?

YES: GO TO 5.

NO: Repair or replace damaged parts.

5. CHECK CVT UNIT CIRCUIT

1. Disconnect CVT unit connector.
2. Check continuity between CVT unit connector terminal and ground.

CONTINUITY CHART

| CVT unit connector | | Ground | Continuity |
|--------------------|----------|--------|-------------|
| Connector | Terminal | | |
| F24 | 19 | | Not existed |

Is the inspection result normal?

YES: GO TO 9.

NO: Repair or replace damaged parts.

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

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

CONTINUITY CHART

| Primary speed sensor vehicle side harness connector | | IPDM E/R vehicle side harness connector | | Continuity |
|---|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| F55 | 3 | E15 | 58 | Existed |

Is the inspection result normal?

YES: GO TO 7.

NO: Repair or replace damaged parts.

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

Check continuity between primary speed sensor vehicle side harness connector terminal and ground.

CONTINUITY CHART

| Primary speed sensor vehicle side harness connector | | Ground | Continuity |
|---|----------|--------|-------------|
| Connector | Terminal | | |
| F55 | 3 | | Not existed |

Is the inspection result normal?

YES: GO TO 8.

NO: Repair or replace damaged parts.

8. DETECT MALFUNCTIONING ITEMS

Check the following.

- IPDM E/R
- 10A fuse (No. 55, located in the IPDM E/R)
- Harness for short or open between IPDM E/R and ignition switch (Refer to "**WIRING DIAGRAM - IGNITION POWER SUPPLY -**".)
- Ignition switch

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT** "

NO: Repair or replace damaged parts.

9. CHECK INTERMITTENT INCIDENT

Refer to "**INTERMITTENT INCIDENT** ".

Is the inspection result normal?

YES: Replace primary speed sensor. Refer to "**EXPLODED VIEW**".

NO: Repair or replace damaged parts.

P0720 OUTPUT SPEED SENSOR

Description

- Secondary speed sensor is installed to the upper side of converter housing.
- Secondary speed sensor detects secondary pulley speed.
- Secondary speed sensor converts secondary pulley speed to pulse signal and transmits the signal to TCM.
- TCM converts pulse signal to vehicle speed.

DTC Logic

DTC DETECTION LOGIC

TROUBLE DIAGNOSIS REFERENCE

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|-----------------------------|--|--|
| P0720 | Output Speed Sensor Circuit | <ul style="list-style-type: none"> • Secondary speed sensor signal is not transmitted to TCM • Secondary speed sensor value is less than 150 RPM while primary pulley speed is more than 1,000 RPM | <ul style="list-style-type: none"> • Harness or connectors (Secondary speed sensor circuit is open or shorted.) • Secondary speed sensor |

DTC CONFIRMATION PROCEDURE

CAUTION: Always drive vehicle at a safe speed.

1. PRECONDITIONING

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch

OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

PRI SPEED : More than 1,000 RPM

VEHICLE SPEED : More than 10 km/h (7 MPH)

6. Stop the vehicle.
7. Select "Self Diagnostic Results" in "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "P0720" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK SECONDARY SPEED SENSOR POWER CIRCUIT

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 terminal and ground.

VOLTAGE SPECIFICATION

| Secondary speed sensor vehicle side harness connector | | Ground | Voltage (Approx.) |
|---|----------|--------|-------------------|
| Connector | Terminal | | |

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F19

3

Battery voltage

Is the inspection result normal?

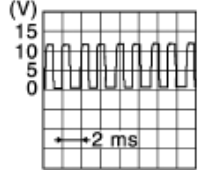
YES: GO TO 2.

NO: GO TO 5.

2. CHECK TCM INPUT SIGNAL

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

TCM CONNECTOR REFERENCE

| TCM connector | | | Condition | Data (Approx.) |
|---------------|----------|----|--|--|
| Connector | Terminal | | | |
| E19 | 29 | 42 | <ul style="list-style-type: none">• Selector lever: "L" position• While driving at 20 km/h (12 MPH) | <div>570 Hz</div> <div></div> |

Is the inspection result normal?

YES: GO TO 8.

NO: GO TO 3.

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

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

CONTINUITY CHART

| TCM vehicle side harness connector | | Secondary speed sensor vehicle side harness connector | | Continuity |
|------------------------------------|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| E19 | 29 | F19 | 2 | Existed |

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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 2)

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

CONTINUITY CHART

| TCM vehicle side harness connector | | Ground | Continuity |
|------------------------------------|----------|--------|-------------|
| Connector | Terminal | | |
| E19 | 29 | | Not Existed |
| | 42 | | |

Is the inspection result normal?

YES: GO TO 8.

NO: Repair or replace damaged parts.

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

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

CONTINUITY CHART

| Secondary speed sensor vehicle side harness connector | | IPDM E/R vehicle side harness connector | | Continuity |
|---|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| F19 | 3 | E15 | 58 | Existed |

Is the inspection result normal?

YES: GO TO 6.

NO: Repair or replace damaged parts.

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

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

CONTINUITY CHART

| Secondary speed sensor vehicle side harness connector | | Ground | Continuity |
|---|----------|--------|-------------|
| Connector | Terminal | | |
| F19 | 3 | | Not existed |

Is the inspection result normal?

YES: GO TO 7.

NO: Repair or replace damaged parts.

7. DETECT MALFUNCTIONING ITEMS

Check the following.

- IPDM E/R
- 10A fuse (No. 55, located in the IPDM E/R)
- Harness for short or open between IPDM E/R and ignition switch (Refer to "**WIRING DIAGRAM - IGNITION POWER SUPPLY -**".)
- Ignition switch

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Repair or replace damaged parts.

8. CHECK INTERMITTENT INCIDENT

Refer to "**INTERMITTENT INCIDENT**".

Is the inspection result normal?

YES: Replace secondary speed sensor. Refer to "**EXPLODED VIEW**".

NO: Repair or replace damaged parts.

P0725 ENGINE SPEED

Description

TCM receives engine speed signal from ECM via CAN communication.

DTC Logic

DTC DETECTION LOGIC

TROUBLE DIAGNOSIS REFERENCE

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|----------------------------|--|--|
| P0725 | Engine Speed Input Circuit | <ul style="list-style-type: none"> TCM detects a malfunction in CAN communication between TCM and ECM When primary pulley speed is more than 1,000 RPM, engine speed (CAN signal) is less than 450 RPM | <ul style="list-style-type: none"> Harness or connectors (CAN communication line is open or shorted.) (Engine speed signal circuit is open or shorted.) ECM |

DTC CONFIRMATION PROCEDURE

CAUTION: Always drive vehicle at a safe speed.

1. PRECONDITIONING

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

PRI SPEED SEN : More than 1,000 RPM

6. Stop the vehicle.
7. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "P0725" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK DTC WITH ECM

With CONSULT-III

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

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Check DTC detected item. Refer to "**DTC INDEX**".

P0740 TORQUE CONVERTER

Description

- Torque converter clutch solenoid valve is installed to control valve.
- Torque converter clutch solenoid valve adjusts oil pump discharge pressure to an optimum level according to the driving conditions.
- The adoption of an N/L type (normal low) torque converter clutch solenoid valve enables generation of a control oil pressure when a voltage is not applied to the coil.
- Torque converter clutch solenoid valve is controlled by TCM according to signals transmitted from vehicle speed sensor and accelerator pedal position sensor.
- Lock-up is prohibited when CVT fluid temperature is low.
- When accelerator pedal is depressed (throttle opening angle is less than 2.0/8) in the lock-up state, engine speed does not suddenly change. If engine speed changes suddenly, lock-up is not applied.

DTC Logic

DTC DETECTION LOGIC

TROUBLE DIAGNOSIS REFERENCE

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-----|------------------------|--|--|
| | | <ul style="list-style-type: none"> • Torque converter clutch solenoid valve monitor voltage value of TCM is less than | <ul style="list-style-type: none"> • Harness or connectors (Torque converter |

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| | | | |
|-------|--------------------------------------|--|--|
| P0740 | Torque Converter Clutch Circuit/Open | 70% of torque converter clutch solenoid valve target voltage value <ul style="list-style-type: none">• Torque converter clutch solenoid valve current command value of TCM and torque converter clutch solenoid valve current monitor value is deviated | clutch solenoid valve circuit is open or shorted.) <ul style="list-style-type: none">• Torque converter clutch solenoid valve |
|-------|--------------------------------------|--|--|

DTC CONFIRMATION PROCEDURE

CAUTION: Always drive vehicle at a safe speed.

1. PRECONDITIONING (PART 1)

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PRECONDITIONING (PART 2)

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "ATF TEMP SEN".

Is "ATF TEMP SEN" value 2.17 V or less?

YES: GO TO 3.

NO:

1. Warm up transaxle.
2. GO TO 3.

3. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "VEHICLE SPEED".

4. Drive the vehicle.
5. Maintain the following conditions for 5 seconds or more.

VEHICLE SPEED : More than 40 km/h (25 MPH)

6. Stop the vehicle.
7. Select "Self Diagnostic Results" in "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "P0740" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE CIRCUIT

1. Turn ignition switch OFF.
2. Check resistance between TCM connector terminal and ground.

RESISTANCE REFERENCE

| TCM connector | | | Condition | Resistance (Approx.) |
|---------------|----------|--------|-------------------------------------|----------------------|
| Connector | Terminal | | | |
| E18 | 3 | Ground | CVT fluid temperature: 20°C (68°F) | 5.60 - 6.60 ohms |
| | | | CVT fluid temperature: 50°C (122°F) | 6.76 - 6.87 ohms |
| | | | CVT fluid temperature: 80°C (176°F) | 7.47 - 7.59 ohms |

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: GO TO 2.

2. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

1. Disconnect CVT unit connector.
2. Check torque converter clutch solenoid valve. Refer to "**COMPONENT INSPECTION (TORQUE CONVERTER CLUTCH SOLENOID VALVE)**".

Is the inspection result normal?

YES: GO TO 3.

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NO: Torque converter clutch solenoid valve is malfunctioning. Replace transaxle assembly. Refer to **"EXPLODED VIEW"**.

3. CHECK HARNESS BETWEEN TCM AND CVT UNIT (TORQUE CONVERTER CLUTCH SOLENOID VALVE) (PART 1)
 1. Disconnect TCM connector.
 2. Check continuity between TCM vehicle side harness connector terminal and CVT unit vehicle side harness connector terminal.

CONTINUITY CHART

| TCM vehicle side harness connector | | CVT unit vehicle side harness connector | | Continuity |
|------------------------------------|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| E18 | 3 | F24 | 12 | Existed |

Is the inspection result normal?

YES: GO TO 4.

NO: Repair or replace damaged parts.

4. 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.

CONTINUITY CHART

| TCM vehicle side harness connector | | Ground | Continuity |
|------------------------------------|----------|--------|-------------|
| Connector | Terminal | | |
| E18 | 3 | | Not existed |

Is the inspection result normal?

YES: Check intermittent incident. Refer to **"INTERMITTENT INCIDENT "**.

NO: Repair or replace damaged parts.

Component Inspection (Torque Converter Clutch Solenoid Valve)

1. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check resistance between CVT unit harness connector terminal and ground.

RESISTANCE REFERENCE

| CVT unit harness connector | | Condition | Resistance (Approx.) |
|----------------------------|----------|-----------|----------------------|
| Connector | Terminal | | |
| | | | |

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| | | | | |
|-----|----|--------|-------------------------------------|------------------|
| F24 | 12 | Ground | CVT fluid temperature: 20°C (68°F) | 5.60 - 6.60 ohms |
| | | | CVT fluid temperature: 50°C (122°F) | 6.76 - 6.87 ohms |
| | | | CVT fluid temperature: 80°C (176°F) | 7.47 - 7.59 ohms |

Is the inspection result normal?

YES: INSPECTION END

NO: Torque converter clutch solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

P0744 TORQUE CONVERTER

Description

- This is detected when torque converter clutch is not engaged under an electrically normal condition of torque converter clutch solenoid valve.
- This DTC is not caused by an electrical malfunction (circuit open or short) but is caused by a mechanical malfunction (control valve clogging, solenoid valve sticking, and others).

DTC Logic

DTC DETECTION LOGIC

TROUBLE DIAGNOSIS REFERENCE

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|--|---|--|
| P0744 | Torque Converter Clutch Circuit Intermittent | Torque converter slip speed is more than a certain value (40 RPM + vehicle speed/2) while TCM is in lock-up command state | <ul style="list-style-type: none">• Hydraulic control circuit• Torque converter clutch solenoid valve• Lock-up select solenoid valve |

DTC CONFIRMATION PROCEDURE

CAUTION: Always drive vehicle at a safe speed.

1. PRECONDITIONING

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "RANGE", "ATF TEMP SEN", "ACC PEDAL OPEN" and "VEHICLE SPEED".
4. Drive the vehicle.
5. Maintain the following conditions for 10 seconds or more.

RANGE : D

ATF TEMP SEN : 2.03 V or less

ACC PEDAL OPEN : 0.0/8 - 1.0/8

VEHICLE SPEED : More than 40 km/h (25 MPH)

6. Stop the vehicle.
7. Select "Self Diagnostic Results" in "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "P0744" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to "**INSPECTION AND JUDGMENT**".

Is the inspection result normal?

YES: GO TO 2.

NO: Repair or replace damaged parts. Refer to "**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 "**COMPONENT INSPECTION (TORQUE CONVERTER CLUTCH SOLENOID VALVE)**".

Is the inspection result normal?

YES: GO TO 3.

NO: Torque converter clutch solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

3. CHECK LOCK-UP SELECT SOLENOID VALVE

Check lock-up select solenoid valve. Refer to "**COMPONENT INSPECTION (LOCK-UP SELECT SOLENOID VALVE)**".

Is the inspection result normal?

YES: GO TO 4.

NO: Lock-up select solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

4. CHECK PRIMARY SPEED SENSOR SYSTEM

Check primary speed sensor system. Refer to "**DTC LOGIC**".

Is the inspection result normal?

YES: GO TO 5.

NO: Repair or replace damaged parts.

5. CHECK SECONDARY SPEED SENSOR SYSTEM

Check secondary speed sensor system. Refer to "**DTC LOGIC**".

Is the inspection result normal?

YES: GO TO 6.

NO: Repair or replace damaged parts.

6. CHECK INTERMITTENT INCIDENT

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Refer to "**INTERMITTENT INCIDENT**".

Is the inspection result normal?

YES: Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

NO: Repair or replace damaged parts.

Component Inspection (Torque Converter Clutch Solenoid Valve)

1. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check resistance between CVT unit harness connector terminal and ground.

RESISTANCE REFERENCE

| CVT unit harness connector | | | Condition | Resistance (Approx.) |
|----------------------------|----------|--------|-------------------------------------|----------------------|
| Connector | Terminal | | | |
| F24 | 12 | Ground | CVT fluid temperature: 20°C (68°F) | 5.60 - 6.60 ohms |
| | | | CVT fluid temperature: 50°C (122°F) | 6.76 - 6.87 ohms |
| | | | CVT fluid temperature: 80°C (176°F) | 7.47 - 7.59 ohms |

Is the inspection result normal?

YES: INSPECTION END

NO: Torque converter clutch solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

Component Inspection (Lock-up Select Solenoid Valve)

1. CHECK LOCK-UP SELECT SOLENOID VALVE

Check resistance between CVT unit harness connector terminal and ground.

RESISTANCE REFERENCE

| CVT unit harness connector | | | Condition | Resistance (Approx.) |
|----------------------------|----------|--------|-------------------------------------|----------------------|
| Connector | Terminal | | | |
| F24 | 13 | Ground | CVT fluid temperature: 20°C (68°F) | 12.3 - 13.5 ohms |
| | | | CVT fluid temperature: 50°C (122°F) | 13.7 - 15.1 ohms |
| | | | CVT fluid temperature: 80°C (176°F) | 15.1 - 16.7 ohms |

Is the inspection result normal?

YES: INSPECTION END

NO: Lock-up select solenoid valve is malfunctioning. Replace transaxle assembly. Refer to

"EXPLODED VIEW".**P0745 PRESSURE CONTROL SOLENOID A****Description**

- Line pressure solenoid valve is installed to control valve.
- Line pressure solenoid valve adjusts oil pump discharge pressure to optimum level according to the driving conditions.
- The adoption of an N/H type (normal high) line pressure solenoid valve enables generation of a control oil pressure when a voltage is not applied to the coil.

DTC Logic**DTC DETECTION LOGIC****TROUBLE DIAGNOSIS REFERENCE**

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|-----------------------------|--|--|
| P0745 | Pressure Control Solenoid A | <ul style="list-style-type: none"> • Monitor voltage value of TCM line pressure solenoid valve is less than 70% of the target voltage value of line pressure solenoid valve • Current monitor value of the Line pressure solenoid valve differs from the TCM current command value of line pressure solenoid valve | <ul style="list-style-type: none"> • Harness or connectors (Line pressure solenoid valve circuit is open or shorted.) • Line pressure solenoid valve |

DTC CONFIRMATION PROCEDURE

CAUTION: Always drive vehicle at a safe speed.

1. PRECONDITIONING

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Start the engine.
2. Drive the vehicle for 10 seconds or more.
3. Stop the vehicle.
4. Select "Self Diagnostic Results" in "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "P0745" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK LINE PRESSURE SOLENOID VALVE CIRCUIT
 1. Turn ignition switch OFF.
 2. Check resistance between TCM connector terminal and ground.

RESISTANCE REFERENCE

| TCM connector | | | Condition | Resistance (Approx.) |
|---------------|----------|--------|-------------------------------------|----------------------|
| Connector | Terminal | | | |
| E18 | 1 | Ground | CVT fluid temperature: 20°C (68°F) | 5.60 - 6.60 ohms |
| | | | CVT fluid temperature: 50°C (122°F) | 6.76 - 6.87 ohms |
| | | | CVT fluid temperature: 80°C (176°F) | 7.47 - 7.59 ohms |

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: GO TO 2.

2. CHECK LINE PRESSURE SOLENOID VALVE
 1. Disconnect CVT unit connector.
 2. Check Line pressure solenoid valve. Refer to "**COMPONENT INSPECTION (LINE PRESSURE SOLENOID VALVE)**".

Is the inspection result normal?

YES: GO TO 3.

NO: Line pressure solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED**".

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VIEW".

3. CHECK HARNESS BETWEEN TCM AND CVT UNIT (LINE PRESSURE SOLENOID VALVE) (PART 1)
 1. Disconnect TCM connector.
 2. Check continuity between TCM vehicle side harness connector terminal and CVT unit vehicle side harness connector terminal.

CONTINUITY CHART

| TCM vehicle side harness connector | | CVT unit vehicle side harness connector | | Continuity |
|------------------------------------|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| E18 | 1 | F24 | 2 | Existed |

Is the inspection result normal?

YES: GO TO 4.

NO: Repair or replace damaged parts.

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

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

CONTINUITY CHART

| TCM vehicle side harness connector | | Ground | Continuity |
|------------------------------------|----------|--------|-------------|
| Connector | Terminal | | |
| E18 | 1 | | Not existed |

Is the inspection result normal?YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Repair or replace damaged parts.

Component Inspection (Line Pressure Solenoid Valve)

1. CHECK LINE PRESSURE SOLENOID VALVE

Check resistance between CVT unit harness connector terminal and ground.

RESISTANCE REFERENCE

| CVT unit harness connector | | Ground | Condition | Resistance (Approx.) |
|----------------------------|----------|--------|------------------------------------|----------------------|
| Connector | Terminal | | | |
| | | | CVT fluid temperature: 20°C (68°F) | 5.60 - 6.60 ohms |

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| | | | | |
|-----|---|--|-------------------------------------|------------------|
| F24 | 2 | | CVT fluid temperature: 50°C (122°F) | 6.76 - 6.87 ohms |
| | | | CVT fluid temperature: 80°C (176°F) | 7.47 - 7.59 ohms |

Is the inspection result normal?

YES: INSPECTION END

NO: Line pressure solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

P0746 PRESSURE CONTROL SOLENOID A

Description

- When an abnormal gear ratio is detected on the LOW side due to a low line pressure with the line pressure solenoid valve electrically normal, this phenomenon is judged as a malfunction.
- This DTC is not caused by an electrical malfunction (circuit open or short) but is caused by a mechanical malfunction (control valve clogging, solenoid valve sticking, and others).

DTC Logic

DTC DETECTION LOGIC

TROUBLE DIAGNOSIS REFERENCE

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|---|--|---|
| P0746 | Pressure Control Solenoid A Performance/Stuck Off | TCM detects a state that gear ratio is more than 2.9 | <ul style="list-style-type: none">• Line pressure control system• Line pressure solenoid valve• Primary speed sensor• Secondary speed sensor |

DTC CONFIRMATION PROCEDURE

CAUTION: Always drive vehicle at a safe speed.

1. PRECONDITIONING

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

ENG SPEED : More than 600 RPM

PRI SPEED : More than 500 RPM

VEHICLE SPEED : More than 10 km/h (7 MPH)

6. Stop the vehicle.
7. Select "Self Diagnostic Results" in "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "P0746" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to "**INSPECTION AND JUDGMENT**".

Is the inspection result normal?

YES: GO TO 2.

NO: Repair or replace damaged parts. Refer to "**INSPECTION AND JUDGMENT**".

2. CHECK LINE PRESSURE SOLENOID VALVE

1. Turn ignition switch OFF.

2. Disconnect CVT unit harness connector.
3. Check line pressure solenoid valve. Refer to "**COMPONENT INSPECTION (LINE PRESSURE SOLENOID VALVE)**".

Is the inspection result normal?

YES: GO TO 3.

NO: Line pressure solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

3. CHECK PRIMARY SPEED SENSOR SYSTEM

Check primary speed sensor system. Refer to "**DTC LOGIC**".

Is the inspection result normal?

YES: GO TO 4.

NO: Repair or replace damaged parts.

4. CHECK SECONDARY SPEED SENSOR SYSTEM

Check secondary speed sensor system. Refer to "**DTC LOGIC**".

Is the inspection result normal?

YES: GO TO 5.

NO: Repair or replace damaged parts.

5. CHECK INTERMITTENT INCIDENT

Refer to "**INTERMITTENT INCIDENT**".

Is the inspection result normal?

YES: Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

NO: Repair or replace damaged parts.

Component Inspection (Line Pressure Solenoid Valve)

1. CHECK LINE PRESSURE SOLENOID VALVE

Check resistance between CVT unit harness connector terminal and ground.

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RESISTANCE REFERENCE

| CVT unit harness connector | | | Condition | Resistance (Approx.) |
|----------------------------|----------|--------|-------------------------------------|----------------------|
| Connector | Terminal | | | |
| F24 | 2 | Ground | CVT fluid temperature: 20°C (68°F) | 5.60 - 6.60 ohms |
| | | | CVT fluid temperature: 50°C (122°F) | 6.76 - 6.87 ohms |
| | | | CVT fluid temperature: 80°C (176°F) | 7.47 - 7.59 ohms |

Is the inspection result normal?

YES: INSPECTION END

NO: Line pressure solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".**P0776 PRESSURE CONTROL SOLENOID B****Description**

- This is detected when secondary pressure solenoid valve is electrically normal and secondary pressure is low.
- This DTC is not caused by an electrical malfunction (circuit open or short) but is caused by a mechanical malfunction (control valve clogging, solenoid valve sticking, and others).

DTC Logic**DTC DETECTION LOGIC****TROUBLE DIAGNOSIS REFERENCE**

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|---|---|---|
| P0776 | Pressure Control Solenoid B Performance/Stuck Off | Difference of secondary pressure target value of TCM and secondary pressure actual value is more than 1.2 MPa | <ul style="list-style-type: none">• Secondary pressure solenoid valve system• Line pressure control system• Secondary pressure solenoid valve• Secondary pressure sensor |

DTC CONFIRMATION PROCEDURE**CAUTION: Always drive vehicle at a safe speed.****1. PRECONDITIONING**

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "RANGE", "VIGN SEN", "ATF TEMP SEN", "ACC PEDAL OPEN" and "VEHICLE SPEED".
4. Drive the vehicle.
5. Maintain the following conditions for 30 seconds or more.

RANGE : D

VIGN SEN : More than 10 V

ATF TEMP SEN : 2.03 - 0.16 V

ACC PEDAL OPEN : More than 1.0/8

VEHICLE SPEED : More than 10 km/h (7 MPH)

6. Stop the vehicle.
7. Select "Self Diagnostic Results" in "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "P0776" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to "**INSPECTION AND JUDGMENT**".

Is the inspection result normal?

YES: GO TO 2.

NO: Repair or replace damaged parts. Refer to "**INSPECTION AND JUDGMENT**".

2. CHECK SECONDARY PRESSURE SOLENOID VALVE

1. Turn ignition switch OFF.
2. Disconnect CVT unit harness connector.
3. Check secondary pressure solenoid valve. Refer to "**COMPONENT INSPECTION (SECONDARY PRESSURE SOLENOID VALVE)**".

Is the inspection result normal?

YES: GO TO 3.

NO: Secondary pressure solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

3. CHECK SECONDARY PRESSURE SENSOR SYSTEM

Check secondary pressure sensor system. Refer to "**DTC LOGIC**".

Is the inspection result normal?

YES: GO TO 4.

NO: Repair or replace damaged parts.

4. CHECK INTERMITTENT INCIDENT

Refer to "**INTERMITTENT INCIDENT**".

Is the inspection result normal?

YES: Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

NO: Repair or replace damaged parts.

Component Inspection (Secondary Pressure Solenoid Valve)**1. CHECK SECONDARY PRESSURE SOLENOID VALVE**

Check resistance between CVT unit harness connector terminal and ground.

RESISTANCE REFERENCE

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

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| CVT unit harness connector | | Condition | Resistance (Approx.) |
|----------------------------|----------|-------------------------------------|----------------------|
| Connector | Terminal | | |
| F24 | 3 | Ground | |
| | | CVT fluid temperature: 20°C (68°F) | 5.60 - 6.60 ohms |
| | | CVT fluid temperature: 50°C (122°F) | 6.76 - 6.87 ohms |
| | | CVT fluid temperature: 80°C (176°F) | 7.47 - 7.59 ohms |

Is the inspection result normal?

YES: INSPECTION END

NO: Secondary pressure solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".**P0778 PRESSURE CONTROL SOLENOID B****Description**

- Secondary pressure solenoid valve is installed to control valve.
- Secondary pressure solenoid valve adjusts oil pump discharge pressure to optimum level according to the driving conditions.
- The adoption of an N/H type (normal high) secondary pressure solenoid valve enables generation of a control oil pressure when a voltage is not applied to the coil.

DTC Logic**DTC DETECTION LOGIC****TROUBLE DIAGNOSIS REFERENCE**

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|--|---|--|
| P0778 | Pressure Control Solenoid B Electrical | <ul style="list-style-type: none">• Current monitor value of the secondary pressure solenoid valve differs from the TCM current command value of secondary pressure solenoid valve• Secondary pressure solenoid valve current command value of TCM and secondary pressure solenoid valve current monitor value is deviated | <ul style="list-style-type: none">• Harness or connectors (secondary pressure solenoid valve circuit is open or shorted.)• Secondary pressure solenoid valve |

DTC CONFIRMATION PROCEDURE**CAUTION: Always drive vehicle at a safe speed.****1. PRECONDITIONING**

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Start the engine.
2. Drive the vehicle for 10 seconds or more.
3. Stop the vehicle.
4. Select "Self Diagnostic Results" in "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "P0778" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK SECONDARY PRESSURE SOLENOID VALVE CIRCUIT

1. Turn ignition switch OFF.
2. Check resistance between TCM connector terminal and ground.

RESISTANCE REFERENCE

| TCM connector | | | Condition | Resistance (Approx.) |
|---------------|----------|--------|-------------------------------------|----------------------|
| Connector | Terminal | | | |
| E18 | 2 | Ground | CVT fluid temperature: 20°C (68°F) | 5.60 - 6.60 ohms |
| | | | CVT fluid temperature: 50°C (122°F) | 6.76 - 6.87 ohms |
| | | | CVT fluid temperature: 80°C (176°F) | 7.47 - 7.59 ohms |

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: GO TO 2.

2. CHECK SECONDARY PRESSURE SOLENOID VALVE

1. Disconnect CVT unit harness connector.
2. Check secondary pressure solenoid valve. Refer to "**COMPONENT INSPECTION (SECONDARY PRESSURE SOLENOID VALVE)**".

Is the inspection result normal?

YES: GO TO 3.

NO: Secondary pressure solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

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

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

CONTINUITY CHART

| TCM vehicle side harness connector | | CVT unit vehicle side harness connector | | Continuity |
|------------------------------------|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| E18 | 2 | F24 | 3 | 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 SOLENOID VALVE) (PART 2)

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

CONTINUITY CHART

| TCM vehicle side harness connector | | Ground | Continuity |
|------------------------------------|----------|--------|-------------|
| Connector | Terminal | | |
| E18 | 2 | | Not existed |

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Repair or replace damaged parts.

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Component Inspection (Secondary Pressure Solenoid Valve)**1. CHECK SECONDARY PRESSURE SOLENOID VALVE**

Check resistance between CVT unit harness connector terminal and ground.

RESISTANCE REFERENCE

| CVT unit harness connector | | Ground | Condition | Resistance (Approx.) |
|----------------------------|----------|--------|-------------------------------------|----------------------|
| Connector | Terminal | | | |
| F24 | 3 | | CVT fluid temperature: 20°C (68°F) | 5.60 - 6.60 ohms |
| | | | CVT fluid temperature: 50°C (122°F) | 6.76 - 6.87 ohms |
| | | | CVT fluid temperature: 80°C (176°F) | 7.47 - 7.59 ohms |

Is the inspection result normal?

YES: INSPECTION END

NO: Secondary pressure solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

P0840 TRANSMISSION FLUID PRESSURE SEN/SW A**Description**

- Secondary pressure sensor is installed to control valve.
- Secondary pressure sensor detects pressure that is applied to secondary pulley.
- Secondary pressure sensor converts pressure that is applied to secondary pulley to output voltage and transmits the signal to TCM.
- Secondary pressure sensor changes voltage according to pressure change. The voltage increases as the pressure increases.

DTC Logic**DTC DETECTION LOGIC****TROUBLE DIAGNOSIS REFERENCE**

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|---|---|--|
| P0840 | Transmission Fluid Pressure Sensor/Switch A Circuit | <ul style="list-style-type: none">• Secondary pressure sensor voltage that TCM receives is more than 4.7 V• Secondary pressure sensor voltage that TCM receives is less than 0.9 V | <ul style="list-style-type: none">• Harness or connectors (Secondary pressure sensor circuit is open or shorted.)• Secondary pressure sensor |

DTC CONFIRMATION PROCEDURE**1. PRECONDITIONING**

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "ATF TEMP SEN".
4. Maintain the following conditions for 5 seconds or more.

ATF TEMP SEN : 2.41 V or less

5. Select "Self Diagnostic Results" in "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "P0840" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure**1. CHECK TCM INPUT SIGNAL**

1. Turn ignition switch OFF.
2. Start the engine.
3. Check voltage between TCM vehicle side harness connector terminals.

VOLTAGE SPECIFICATION

| TCM connector | | | Condition | Voltage (Approx.) |
|---------------|----------|----|--|-------------------|
| Connector | Terminal | | | |
| E19 | 37 | 42 | <ul style="list-style-type: none">Selector lever: "N" position | 0.8 V |

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- | | | | |
|--|--|--------------|--|
| | | • Idle speed | |
|--|--|--------------|--|

Is the inspection result normal?YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: GO TO 2.

2. CHECK POWER AND SENSOR GROUND

1. Turn ignition switch OFF.
2. Check voltage between TCM vehicle side harness connector terminals.

VOLTAGE SPECIFICATION

| TCM connector | | | Condition | Voltage (Approx.) |
|---------------|----------|----|----------------------|-------------------|
| Connector | Terminal | | | |
| E19 | 42 | 46 | Ignition switch: ON | 5.0 V |
| | | | Ignition switch: OFF | 0 V |

Is the inspection result normal?

YES: GO TO 3.

NO: Go to "**DIAGNOSIS PROCEDURE**".**3. CHECK HARNESS BETWEEN TCM AND CVT UNIT (SECONDARY PRESSURE SENSOR) (PART 1)**

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

CONTINUITY CHART

| TCM vehicle side harness connector | | CVT unit vehicle side harness connector | | Continuity |
|------------------------------------|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| E19 | 37 | F24 | 23 | Existed |
| | 42 | | 19 | |
| | 46 | | 20 | |

Is the inspection result normal?

YES: GO TO 4.

NO: Repair or replace damaged parts.

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

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

CONTINUITY CHART

| TCM vehicle side harness connector | | | Continuity |
|------------------------------------|----------|--------|-------------|
| Connector | Terminal | | |
| E19 | 37 | Ground | Not Existed |
| | 42 | | |
| | 46 | | |

Is the inspection result normal?

YES: GO TO 5.

NO: Repair or replace damaged parts.

5. CHECK INTERMITTENT INCIDENT

Refer to "**INTERMITTENT INCIDENT**".

Is the inspection result normal?

YES: Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

NO: Repair or replace damaged parts.

P0841 TRANSMISSION FLUID PRESSURE SEN/SW A**Description**

A malfunction of oil pressure sensor function is detected by mutual monitoring between secondary pressure sensor and line pressure.

DTC Logic**DTC DETECTION LOGIC****TROUBLE DIAGNOSIS REFERENCE**

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|---|---|---|
| P0841 | Transmission Fluid Pressure Sensor/Switch A Circuit Range/Performance | Secondary pressure sensor value exceeds line pressure value | <ul style="list-style-type: none">• Harness or connectors (secondary pressure sensor circuit is open or shorted.) |

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- Secondary pressure sensor

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

VEHICLE SPEED : More than 30 km/h (19 MPH)

6. Stop the vehicle.
7. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "P0841" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to "**INSPECTION AND JUDGMENT**".

Is the inspection result normal?

YES: GO TO 2.

NO: Repair or replace damaged parts. Refer to "**INSPECTION AND JUDGMENT**".

2. CHECK SECONDARY PRESSURE SENSOR SYSTEM

Check secondary pressure sensor system. Refer to "**DTC LOGIC**".

Is the inspection result normal?

YES: GO TO 3.

NO: Repair or replace damaged parts.

3. CHECK SECONDARY PRESSURE SOLENOID VALVE

Check line pressure solenoid valve. Refer to "**COMPONENT INSPECTION (LINE PRESSURE SOLENOID VALVE)**".

Is the inspection result normal?

YES: GO TO 4.

NO: Line pressure solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

4. CHECK SECONDARY PRESSURE SOLENOID VALVE

Check secondary pressure solenoid valve. Refer to "**COMPONENT INSPECTION (SECONDARY PRESSURE SOLENOID VALVE)**".

Is the inspection result normal?

YES: GO TO 5.

NO: Secondary pressure solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

5. CHECK STEP MOTOR SYSTEM

Check step motor system. Refer to "**DTC LOGIC**".

Is the inspection result normal?

YES: GO TO 6.

NO: Repair or replace damaged parts.

6. CHECK INTERMITTENT INCIDENT

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Refer to "**INTERMITTENT INCIDENT**".

Is the inspection result normal?

YES: Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

NO: Repair or replace damaged parts.

Component Inspection (Line Pressure Solenoid Valve)**1. CHECK LINE PRESSURE SOLENOID VALVE**

Check resistance between CVT unit harness connector terminal and ground.

RESISTANCE REFERENCE

| CVT unit harness connector | | | Condition | Resistance (Approx.) |
|----------------------------|----------|--------|-------------------------------------|----------------------|
| Connector | Terminal | | | |
| F24 | 2 | Ground | CVT fluid temperature: 20°C (68°F) | 5.60 - 6.60 ohms |
| | | | CVT fluid temperature: 50°C (122°F) | 6.76 - 6.87 ohms |
| | | | CVT fluid temperature: 80°C (176°F) | 7.47 - 7.59 ohms |

Is the inspection result normal?

YES: INSPECTION END

NO: Line pressure solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

Component Inspection (Secondary Pressure Solenoid Valve)**1. CHECK SECONDARY PRESSURE SOLENOID VALVE**

Check resistance between CVT unit harness connector terminal and ground.

RESISTANCE REFERENCE

| CVT unit harness connector | | | Condition | Resistance (Approx.) |
|----------------------------|----------|--------|-------------------------------------|----------------------|
| Connector | Terminal | | | |
| F24 | 3 | Ground | CVT fluid temperature: 20°C (68°F) | 5.60 - 6.60 ohms |
| | | | CVT fluid temperature: 50°C (122°F) | 6.76 - 6.87 ohms |
| | | | CVT fluid temperature: 80°C (176°F) | 7.47 - 7.59 ohms |

Is the inspection result normal?

YES: INSPECTION END

NO: Secondary pressure solenoid valve is malfunctioning. Replace transaxle assembly. Refer to

"EXPLODED VIEW".**P0868 TRANSMISSION FLUID PRESSURE****Description**

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

DTC Logic**DTC DETECTION LOGIC****TROUBLE DIAGNOSIS REFERENCE**

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|---------------------------------|---|---|
| P0868 | Transmission Fluid Pressure Low | TCM detects that secondary pressure is excessively low against target secondary pressure while the vehicle is in ordinary driving | <ul style="list-style-type: none"> • Harness or connectors <p>(Sensor circuit is open or shorted.)</p> <ul style="list-style-type: none"> • Secondary pressure solenoid valve system • Line pressure control system • Secondary pressure sensor |

DTC CONFIRMATION PROCEDURE

CAUTION: Always drive vehicle at a safe speed.

1. PRECONDITIONING

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "RANGE", "ATF TEMP SEN", "ACC PEDAL OPEN", "BRAKESW" and "VEHICLE SPEED".
4. Drive the vehicle.
5. Maintain the following conditions for 30 seconds or more.

RANGE : D

ATF TEMP SEN : 2.41 V or less

ACC PEDAL OPEN : 0.5/8 - 1.0/8

BRAKESW : Off

VEHICLE SPEED : More than 40 km/h (25 MPH)

6. Stop the vehicle.
7. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "P0868" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to "**INSPECTION AND JUDGMENT**".

Is the inspection result normal?

YES: GO TO 2.

NO: Repair or replace damaged parts. Refer to "**INSPECTION AND JUDGMENT**".

2. CHECK LINE PRESSURE SOLENOID VALVE

1. Turn ignition switch OFF.
2. Disconnect CVT unit harness connector.
3. Check line pressure solenoid valve. Refer to "**COMPONENT INSPECTION (LINE PRESSURE SOLENOID VALVE)**".

Is the inspection result normal?

YES: GO TO 3.

NO: Line pressure solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

3. CHECK SECONDARY PRESSURE SOLENOID VALVE

Check secondary pressure solenoid valve. Refer to "**COMPONENT INSPECTION (SECONDARY PRESSURE SOLENOID VALVE)**".

Is the inspection result normal?

YES: GO TO 4.

NO: Secondary pressure solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

4. CHECK SECONDARY PRESSURE SENSOR SYSTEM

Check secondary pressure sensor system. Refer to "**DTC LOGIC**".

Is the inspection result normal?

YES: GO TO 5.

NO: Repair or replace damaged parts.

5. CHECK INTERMITTENT INCIDENT

Refer to "**INTERMITTENT INCIDENT**".

Is the inspection result normal?

YES: Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

NO: Repair or replace damaged parts.

Component Inspection (Line Pressure Solenoid Valve)**1. CHECK LINE PRESSURE SOLENOID VALVE**

Check resistance between CVT unit harness connector terminal and ground.

RESISTANCE REFERENCE

| | | | |
|----------------------------|--|--|--|
| CVT unit harness connector | | | |
|----------------------------|--|--|--|

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| Connector | Terminal | Ground | Condition | Resistance (Approx.) |
|-----------|----------|--------|-------------------------------------|----------------------|
| F24 | 2 | | CVT fluid temperature: 20°C (68°F) | 5.60 - 6.60 ohms |
| | | | CVT fluid temperature: 50°C (122°F) | 6.76 - 6.87 ohms |
| | | | CVT fluid temperature: 80°C (176°F) | 7.47 - 7.59 ohms |

Is the inspection result normal?

YES: INSPECTION END

NO: Line pressure solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".**Component Inspection (Secondary Pressure Solenoid Valve)****1. CHECK SECONDARY PRESSURE SOLENOID VALVE**

Check resistance between CVT unit harness connector terminal and ground.

RESISTANCE REFERENCE

| CVT unit harness connector | | Ground | Condition | Resistance (Approx.) |
|----------------------------|----------|--------|-------------------------------------|----------------------|
| Connector | Terminal | | | |
| F24 | 3 | | CVT fluid temperature: 20°C (68°F) | 5.60 - 6.60 ohms |
| | | | CVT fluid temperature: 50°C (122°F) | 6.76 - 6.87 ohms |
| | | | CVT fluid temperature: 80°C (176°F) | 7.47 - 7.59 ohms |

Is the inspection result normal?

YES: INSPECTION END

NO: Secondary pressure solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".**P1701 TCM****Description**

This malfunction is detected when power (backup) is not supplied to TCM and the learning function stops.

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" may be displayed. In this case, erase self-diagnosis result using CONSULT-III. After erasing self-diagnosis, perform reproduction procedures of DTC P1701 and check that a malfunction is not detected.

DTC Logic

DTC DETECTION LOGIC

TROUBLE DIAGNOSIS REFERENCE

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|------------------------|--|--|
| P1701 | Power Supply Circuit | Power supply (backup) of TCM is not supplied and learning function stops | Harness or connectors (TCM power source circuit is open or shorted.) |

DTC CONFIRMATION PROCEDURE

CAUTION: Always drive vehicle at a safe speed.

1. PRECONDITIONING

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Start the engine.
2. Maintain idling state for 10 seconds or more.
3. Drive the vehicle for 10 seconds or more.
4. Stop the vehicle.
5. Turn ignition switch OFF.
6. Wait for 2 seconds or more.
7. Start the engine.
8. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "P1701" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK TCM POWER CIRCUIT (PART 1)

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1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Turn ignition switch ON.
4. Check voltage between TCM vehicle side harness connector terminals and ground.

VOLTAGE SPECIFICATION

| TCM vehicle side harness connector | | Ground | Condition | Voltage (Approx.) |
|------------------------------------|----------|--------|----------------------|-------------------|
| Connector | Terminal | | | |
| E18 | 10 | | Ignition switch: ON | Battery voltage |
| | | | Ignition switch: OFF | 0 V |
| | 19 | | Ignition switch: ON | Battery voltage |
| | | | Ignition switch: OFF | 0 V |

Is the inspection result normal?

YES: GO TO 2.

NO: GO TO 3.

2. CHECK TCM POWER CIRCUIT (PART 2)

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

VOLTAGE SPECIFICATION

| TCM vehicle side harness connector | | Ground | Condition | Voltage (Approx.) |
|------------------------------------|----------|--------|-----------|-------------------|
| Connector | Terminal | | | |
| E19 | 28 | | Always | Battery voltage |

Is the inspection result normal?

YES: GO TO 9.

NO: GO TO 6.

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

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.

CONTINUITY CHART

| TCM vehicle side harness connector | | IPDM E/R vehicle side harness connector | | Continuity |
|------------------------------------|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |

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| | | | | |
|-----|----|-----|----|---------|
| E18 | 10 | E15 | 58 | Existed |
| | 19 | | | |

Is the inspection result normal?

YES: GO TO 4.

NO: Repair or replace damaged parts.

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

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

CONTINUITY CHART

| TCM vehicle side harness connector | | Ground | Continuity |
|------------------------------------|----------|--------|-------------|
| Connector | Terminal | | |
| E18 | 10 | | Not Existed |
| | 19 | | |

Is the inspection result normal?

YES: GO TO 5.

NO: Repair or replace damaged parts.

5. DETECT MALFUNCTIONING ITEMS

Check the following.

- IPDM E/R
- 10A fuse (No. 55, located in the IPDM E/R)
- Harness for short or open between IPDM E/R and ignition switch (Refer to "**WIRING DIAGRAM - IGNITION POWER SUPPLY -**".)
- Ignition switch

Is the inspection result normal?YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Repair or replace damaged parts.

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

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.

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

CONTINUITY CHART

| TCM vehicle side harness connector | | IPDM E/R vehicle side harness connector | | Continuity |
|------------------------------------|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| E19 | 28 | E14 | 45 | Existed |

Is the inspection result normal?

YES: GO TO 7.

NO: Repair or replace damaged parts.

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

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

CONTINUITY CHART

| TCM vehicle side harness connector | | Ground | Continuity |
|------------------------------------|----------|--------|-------------|
| Connector | Terminal | | |
| E19 | 28 | | Not existed |

Is the inspection result normal?

YES: GO TO 8.

NO: Repair or replace damaged parts.

8. DETECT MALFUNCTIONING ITEMS

Check the following.

- IPDM E/R
- 20A fuse (No. 43, located in the IPDM E/R)
- Harness for short or open between IPDM E/R and battery (Refer to "**WIRING DIAGRAM - BATTERY POWER SUPPLY** - ".)
- Battery

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT** ".

NO: Repair or replace damaged parts.

9. CHECK HARNESS BETWEEN TCM AND GROUND

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

CONTINUITY CHART

| TCM vehicle side harness connector | | Ground | Continuity |
|------------------------------------|----------|--------|------------|
| Connector | Terminal | | |
| E19 | 25 | | Existed |
| | 48 | | |

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Repair or replace damaged parts.

P1705 TP SENSOR**Description**

- Accelerator position sensor is installed to upper of accelerator pedal.
- Accelerator position sensor detects depressing amount of accelerator pedal.
- Accelerator position sensor converts depressing amount of accelerator pedal to voltage signal and transmits the signal to ECM.
- TCM receives throttle opening signal from ECM via CAN communication.

DTC Logic**DTC DETECTION LOGIC****TROUBLE DIAGNOSIS REFERENCE**

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|--|--|---|
| P1705 | Accelerator Pedal Position Sensor Signal Circuit | TCM detects that difference between 2 throttle opening signals (CAN communication) from ECM is 1/8 or more | <ul style="list-style-type: none"> • Harness or connectors (CAN communication line is open or shorted.) (Accelerator pedal position signal circuit is open or shorted.) • ECM |

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Start the engine.
2. Apply parking brake.
3. Fully depress accelerator pedal.
4. Release accelerator pedal.
5. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "P1705" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure**1. CHECK DTC WITH ECM**

With CONSULT-III

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

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Check DTC detected item. Refer to "**DTC INDEX**".

P1722 VEHICLE SPEED**Description**

TCM receives vehicle speed signal from ABS actuator and electric unit (control unit) via CAN communication.

DTC Logic**DTC DETECTION LOGIC****TROUBLE DIAGNOSIS REFERENCE**

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|------------|-------------------------------|--|--|
| P1722 | Vehicle Speed Signal Circuit | <ul style="list-style-type: none"> TCM detects a malfunction of CAN communication between ABS actuator and electric unit (control unit) When vehicle speed that TCM detects is 10 km/h (7 MPH) or more, vehicle speed signal (CAN signal) that is received from ABS actuator and electric unit (control unit) is less than 2 km/h (1 MPH) Change of vehicle speed signal (CAN communication) that TCM receives is large | <ul style="list-style-type: none"> Harness or connectors (CAN communication line is open or shorted.) (Vehicle speed signal circuit is open or shorted.) ABS actuator and electric unit (control unit) |

DTC CONFIRMATION PROCEDURE

CAUTION: Always drive vehicle at a safe speed.

1. PRECONDITIONING

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "VSP SENSOR".
4. Drive the vehicle.

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5. Maintain the following conditions for 5 seconds or more.

VSP SENSOR : More than 10 km/h (7 MPH)

6. Stop the vehicle.

7. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "P1722" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK DTC WITH ABS

With CONSULT-III

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

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Check DTC detected item. Refer to "**DTC INDEX**".

P1723 SPEED SENSOR

Description

When noise (pulse) that is generated because of connection malfunction caused by primary speed sensor and secondary speed sensor harness and others is detected, it is judged that a malfunction occurs.

DTC Logic

DTC DETECTION LOGIC

CAUTION: Either "P0715" or "P0720" is displayed simultaneously.

TROUBLE DIAGNOSIS REFERENCE

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-----|------------------------|-----------------------|----------------|
| | | | |

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| | | | |
|-------|----------------------|---|---|
| P1723 | Speed Sensor Circuit | TCM detects that high frequency elements that are extracted from primary pulley speed and secondary pulley speed exceed a certain value | Harness or connectors (Primary speed sensor circuit is open or shorted.) (Secondary speed sensor circuit is open or shorted.) |
|-------|----------------------|---|---|

DTC CONFIRMATION PROCEDURE

CAUTION: Always drive vehicle at a safe speed.

1. PRECONDITIONING

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

RANGE : D

VEHICLE SPEED : More than 20 km/h (12 MPH)

6. Stop the vehicle.
7. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "P1723" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure**1. CHECK SECONDARY SPEED SENSOR SYSTEM**

Check secondary speed sensor system. Refer to "**DTC LOGIC**".

Is the inspection result normal?

YES: GO TO 2.

NO: Repair or replace damaged parts.

2. CHECK PRIMARY SPEED SENSOR SYSTEM

Check primary speed sensor system. Refer to "**DTC LOGIC**".

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Repair or replace damaged parts.

P1726 THROTTLE CONTROL SIGNAL**Description**

Electric throttle control system consists of throttle control motor, accelerator position sensor, throttle position sensor, and others. Electric throttle control system transmits signal to ECM and ECM transmits signal to TCM via CAN communication.

DTC Logic**DTC DETECTION LOGIC****TROUBLE DIAGNOSIS REFERENCE**

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|------------|---------------------------------|---|--|
| P1726 | Throttle Control Signal Circuit | TCM receives a malfunction signal of engine system from ECM | Harness or connectors (Electric throttle sensor signal circuit is open or shorted.) |

DTC CONFIRMATION PROCEDURE**1. PRECONDITIONING**

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Start the engine.
2. Maintain idling state for 10 seconds or more.
3. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "P1726" detected?

YES: Go to "**INTERMITTENT INCIDENT**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK DTC WITH ECM

With CONSULT-III

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

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Check DTC detected item. Refer to "**DTC INDEX**".

P1740 SELECT SOLENOID

Description

- Lock-up select solenoid valve is installed to control valve.
- Lock-up select solenoid valve switches among lock-up oil pressure, forward clutch oil pressure, and reverse brake oil pressure.
- Lock-up select solenoid valve is an ON/OFF solenoid valve.

DTC Logic

DTC DETECTION LOGIC

TROUBLE DIAGNOSIS REFERENCE

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| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|---------------------------------------|---|---|
| P1740 | Lock-up Select Solenoid Valve Circuit | <ul style="list-style-type: none">• Lock-up select solenoid valve monitor value is OFF when lock-up select solenoid valve command value of TCM is ON• Lock-up select solenoid valve monitor value is ON when lock-up select solenoid valve command value of TCM is OFF | <ul style="list-style-type: none">• Harness or connectors (Lock-up select solenoid valve circuit is open or shorted.)• Lock-up select solenoid valve |

DTC CONFIRMATION PROCEDURE**CAUTION: Always drive vehicle at a safe speed.****1. PRECONDITIONING**

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE (PART 1)

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "RANGE".
4. Maintain the following conditions for 1 seconds or more.

RANGE : N.P

5. Select "Self Diagnostic Results" in "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "P1740" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: GO TO 3.

3. PERFORM DTC CONFIRMATION PROCEDURE (PART 2)

With CONSULT-III

1. Select "Data Monitor" in "TRANSMISSION".
2. Select "RANGE".
3. Maintain the following state for 1 second or more.

RANGE : R.D

4. Select "Self Diagnostic Results" in "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "P1740" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK LOCK-UP SELECT SOLENOID VALVE CIRCUIT
 1. Turn ignition switch OFF.
 2. Check resistance between TCM connector terminal and ground.

RESISTANCE REFERENCE

| TCM connector | | | Condition | Resistance (Approx.) |
|---------------|----------|--------|-------------------------------------|----------------------|
| Connector | Terminal | | | |
| E18 | 4 | Ground | CVT fluid temperature: 20°C (68°F) | 12.3 - 13.5 ohms |
| | | | CVT fluid temperature: 50°C (122°F) | 13.7 - 15.1 ohms |
| | | | CVT fluid temperature: 80°C (176°F) | 15.1 - 16.7 ohms |

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: GO TO 2.

2. CHECK LOCK-UP SELECT SOLENOID VALVE

1. Disconnect CVT unit harness connector.

2. Check lock-up select solenoid valve. Refer to "**COMPONENT INSPECTION (LOCK-UP SELECT SOLENOID VALVE)**".

Is the inspection result normal?

YES: GO TO 3.

NO: Lock-up select solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

3. CHECK HARNESS BETWEEN TCM AND CVT UNIT (LOCK-UP SELECT SOLENOID VALVE) (PART 1)
 1. Disconnect TCM connector.
 2. Check continuity between TCM vehicle side harness connector terminal and CVT unit vehicle side harness connector terminal.

CONTINUITY CHART

| TCM vehicle side harness connector | | CVT unit vehicle side harness connector | | Continuity |
|------------------------------------|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| E18 | 4 | F24 | 13 | Existed |

Is the inspection result normal?

YES: GO TO 4.

NO: Repair or replace damaged parts.

4. 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.

CONTINUITY CHART

| TCM vehicle side harness connector | | Ground | Continuity |
|------------------------------------|----------|--------|-------------|
| Connector | Terminal | | |
| E18 | 4 | | Not existed |

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Repair or replace damaged parts.

Component Inspection (Lock-up Select Solenoid Valve)

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1. CHECK LOCK-UP SELECT SOLENOID VALVE

Check resistance between CVT unit harness connector terminal and ground.

RESISTANCE REFERENCE

| CVT unit harness connector | | Ground | Condition | Resistance (Approx.) |
|----------------------------|----------|--------|-------------------------------------|----------------------|
| Connector | Terminal | | | |
| F24 | 13 | | CVT fluid temperature: 20°C (68°F) | 12.3 - 13.5 ohms |
| | | | CVT fluid temperature: 50°C (122°F) | 13.7 - 15.1 ohms |
| | | | CVT fluid temperature: 80°C (176°F) | 15.1 - 16.7 ohms |

Is the inspection result normal?

YES: INSPECTION END

NO: Lock-up select solenoid valve is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

P1777 STEP MOTOR

Description

- Step motor changes step by turning 4 coils ON or OFF according to signal from TCM.
- By changing step, step motor controls outward flow and inward flow of line pressure to primary pulley, determines the primary pulley position, and controls gear ratio.

DTC Logic

DTC DETECTION LOGIC

TROUBLE DIAGNOSIS REFERENCE

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|------------------------|---|---|
| P1777 | Step Motor Circuit | <ul style="list-style-type: none">• Step motor monitor value is OFF when step motor command value of TCM is ON• Step motor monitor value is ON when step motor command value of TCM is OFF | <ul style="list-style-type: none">• Harness or connectors (Step motor circuit is open or shorted.)• Step motor |

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "RANGE" and "VEHICLE SPEED".
4. Maintain the following conditions for 1 seconds or more.

RANGE : D

VEHICLE SPEED : More than 20 km/h (12 MPH)

5. Stop the vehicle.
6. Select "Self Diagnostic Results" in "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "P1777" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK STEP MOTOR CIRCUIT (PART 1)

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

RESISTANCE REFERENCE

| TCM vehicle side harness connector | | | Resistance (Approx.) |
|------------------------------------|----------|----|----------------------|
| Connector | Terminal | | |
| E18 | 11 | 12 | 30.0 ohms |
| | 20 | 21 | |

Is the inspection result normal?

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YES: GO TO 2.

NO: GO TO 3.

2. CHECK STEP MOTOR CIRCUIT (PART 2)

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

RESISTANCE REFERENCE

| TCM vehicle side harness connector | | | Resistance (Approx.) |
|------------------------------------|----------|--------|----------------------|
| Connector | Terminal | | |
| E18 | 11 | Ground | 15.0 ohms |
| | 12 | | |
| | 20 | | |
| | 21 | | |

Is the inspection result normal?YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: GO TO 3.

3. CHECK STEP MOTOR

1. Disconnect CVT unit connector.
2. Check step motor. Refer to "**COMPONENT INSPECTION (STEP MOTOR)**".

Is the inspection result normal?

YES: GO TO 4.

NO: Step motor is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".**4. CHECK HARNESS BETWEEN TCM AND CVT UNIT (STEP MOTOR) (PART 1)**

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

CONTINUITY CHART

| TCM vehicle side harness connector | | CVT unit vehicle side harness connector | | Continuity |
|------------------------------------|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| E18 | 11 | F24 | 6 | Existed |
| | 12 | | 7 | |
| | 20 | | 8 | |
| | 21 | | 9 | |

Is the inspection result normal?

YES: GO TO 5.

NO: Repair or replace damaged parts.

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

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

CONTINUITY CHART

| TCM vehicle side harness connector | | | Continuity |
|------------------------------------|----------|--------|-------------|
| Connector | Terminal | | |
| E18 | 11 | Ground | Not Existed |
| | 12 | | |
| | 20 | | |
| | 21 | | |

Is the inspection result normal?YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Repair or replace damaged parts.

Component Inspection (Step Motor)**1. CHECK STEP MOTOR (PART 1)**

Check resistance between CVT unit harness connector terminals.

RESISTANCE REFERENCE

| CVT unit connector | | | Resistance (Approx.) |
|--------------------|----------|---|----------------------|
| Connector | Terminal | | |
| F24 | 6 | 7 | 30.0 ohms |
| | 8 | 9 | |

Is the inspection result normal?

YES: GO TO 2.

NO: Step motor is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".**2. CHECK STEP MOTOR (PART 2)**

Check resistance between CVT unit connector terminals and ground.

RESISTANCE REFERENCE

| CVT unit connector | | | Resistance (Approx.) |
|--------------------|----------|--------|----------------------|
| Connector | Terminal | | |
| F24 | 6 | Ground | 15.0 ohms |
| | 7 | | |
| | 8 | | |
| | 9 | | |

Is the inspection result normal?

YES: INSPECTION END

NO: Step motor is malfunctioning. Replace transaxle assembly. Refer to "**EXPLODED VIEW**".**P1778 STEP MOTOR****Description**

- Step motor changes step by turning 4 coils ON or OFF according to signal from TCM.
- By changing step, step motor controls outward flow and inward flow of line pressure to primary pulley, determines the primary pulley position, and controls gear ratio.
- This DTC is not caused by an electrical malfunction (circuit open or short) but is caused by a mechanical malfunction (control valve clogging, solenoid valve sticking, and others).

DTC Logic**DTC DETECTION LOGIC****TROUBLE DIAGNOSIS REFERENCE**

| DTC | Trouble diagnosis name | DTC is detected if... | Possible cause |
|-------|---------------------------------|---|----------------|
| P1778 | Step Motor Circuit Intermittent | TCM detects that primary speed sensor value and primary pulley speed estimated from secondary speed sensor are in a deviated state, and target pulley ratio and actual pulley ratio are in a deviated state | Step motor |

DTC CONFIRMATION PROCEDURE**CAUTION:**

- Always drive vehicle at a safe speed.
- Before starting "DTC confirmation procedure", check primary pulley speed and vehicle speed.
- It is fixed in high speed range. Go to "**DIAGNOSIS PROCEDURE**".

1. PRECONDITIONING

Immediately after performing any "DTC CONFIRMATION PROCEDURE", always turn ignition switch

OFF.

Then wait at least 10 seconds before performing the next test.

GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

1. Select "Data Monitor" in "TRANSMISSION".
2. Select "RANGE", "ATF TEMP SEN", "ACC PEDAL OPEN", "PRI SPEED" and "VEHICLE SPEED".
3. Drive the vehicle.
4. Maintain the following conditions for 5 seconds or more.

RANGE : D

ATF TEMP SEN : 2.03 - 0.16 V

ACC PEDAL OPEN : More than 1.0/8

PRI SPEED : More than 1,000 RPM

VEHICLE SPEED : More than 10 km/h (7 MPH)

5. Stop the vehicle.
6. Select "Self Diagnostic Results" in "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "P1778" detected?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: INSPECTION END

Diagnosis Procedure

1. CHECK STEP MOTOR SYSTEM

Check step motor system. Refer to "**DTC LOGIC**".

Is the inspection result normal?

YES: GO TO 2.

NO: Repair or replace damaged parts.

2. CHECK PRIMARY SPEED SENSOR SYSTEM

Check primary speed sensor system. Refer to "**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 "**DTC LOGIC**".

Is the inspection result normal?

YES: GO TO 4.

NO: Repair or replace damaged parts.

4. CHECK INTERMITTENT INCIDENT

Refer to "**INTERMITTENT INCIDENT**".

Is the inspection result normal?

YES: Replace transaxle assembly. Refer to "**EXPLODED VIEW**".

NO: Repair or replace damaged parts.

OVERDRIVE CONTROL SWITCH

Description

- The overdrive control switch is installed to the selector lever knob.
- When turning ON the overdrive control switch (OD OFF indicator lamp turns ON), the driving condition becomes overdrive OFF.
- When turning OFF the overdrive control switch (OD OFF indicator lamp turns OFF), the driving condition changes to "D" position.

Component Function Check

1. CHECK OVERDRIVE CONTROL SWITCH SIGNAL

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With CONSULT-III

1. Turn ignition switch ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "SPORT MODE SW".
4. Check display of "SPORT MODE SW".

MONITOR ITEM CONDITION CHART

| Monitor item | Condition | Status |
|---------------|---|--------|
| SPORT MODE SW | Press and hold overdrive control switch | On |
| | Other conditions | Off |

Is the inspection result normal?

YES: INSPECTION END

NO: Go to "**DIAGNOSIS PROCEDURE**".

Diagnosis Procedure

1. CHECK OVERDRIVE CONTROL SWITCH POWER CIRCUIT

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

With intelligent key system

VOLTAGE SPECIFICATION

| CVT shift selector vehicle side harness connector | | Condition | | Voltage (Approx.) |
|---|----------|-----------|----------------------|-------------------|
| Connector | Terminal | | | |
| M58 | 1 | 2 | Ignition switch: ON | 5 V |
| | | | Ignition switch: OFF | 0 V |

Without intelligent key system

VOLTAGE SPECIFICATION

| CVT shift selector vehicle side harness connector | | Condition | | Voltage (Approx.) |
|---|----------|-----------|----------------------|-------------------|
| Connector | Terminal | | | |
| M57 | 1 | 2 | Ignition switch: ON | 5 V |
| | | | Ignition switch: OFF | 0 V |

Is the inspection result normal?

YES: GO TO 2.

NO: GO TO 3.

2. CHECK OVERDRIVE CONTROL SWITCH

Check overdrive control switch. Refer to "**COMPONENT INSPECTION (OVERDRIVE CONTROL SWITCH)**".

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Repair or replace damaged parts.

3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between CVT shift selector vehicle side harness connector terminal and ground.

With intelligent key system

CONTINUITY CHART

| CVT shift selector vehicle side harness connector | | Ground | Continuity |
|---|----------|--------|------------|
| Connector | Terminal | | |
| M58 | 2 | | Existed |

Without intelligent key system

CONTINUITY CHART

| CVT shift selector vehicle side harness connector | | Ground | Continuity |
|---|----------|--------|------------|
| Connector | Terminal | | |
| M57 | 2 | | Existed |

Is the inspection result normal?

YES: GO TO 4.

NO: Repair or replace damaged parts.

4. CHECK HARNESS BETWEEN CVT SHIFT SELECTOR (OVERDRIVE CONTROL SWITCH) AND COMBINATION METER (PART 1)

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

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With intelligent key system

CONTINUITY CHART

| CVT shift selector vehicle side harness connector | | Combination meter vehicle side harness connector | | Continuity |
|---|----------|--|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| M58 | 1 | M34 | 8 | Existed |

Without intelligent key system

CONTINUITY CHART

| CVT shift selector vehicle side harness connector | | Combination meter vehicle side harness connector | | Continuity |
|---|----------|--|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| M57 | 1 | M34 | 8 | Existed |

Is the inspection result normal?

YES: GO TO 5.

NO: Repair or replace damaged parts.

5. CHECK HARNESS BETWEEN CVT SHIFT SELECTOR (OVERDRIVE CONTROL SWITCH) AND COMBINATION METER (PART 2)

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

With intelligent key system

CONTINUITY CHART

| CVT shift selector vehicle side harness connector | | Ground | Continuity |
|---|----------|--------|-------------|
| Connector | Terminal | | |
| M58 | 1 | | Not existed |

Without intelligent key system

CONTINUITY CHART

| CVT shift selector vehicle side harness connector | | Ground | Continuity |
|---|----------|--------|-------------|
| Connector | Terminal | | |
| M57 | 1 | | Not existed |

Is the inspection result normal?

YES: GO TO 6.

NO: Repair or replace damaged parts.

6. CHECK INTERMITTENT INCIDENT

Refer to "**INTERMITTENT INCIDENT**".

Is the inspection result normal?

YES: Check input and output signals of combination meter. Refer to "**REFERENCE VALUE**".

NO: Repair or replace damaged parts.

Component Inspection (Overdrive Control Switch)

1. CHECK OVERDRIVE CONTROL SWITCH

Check continuity between CVT shift selector vehicle connector terminals.

With intelligent key system

CONTINUITY CHART

| CVT shift selector connector | | | Condition | Continuity |
|------------------------------|----------|---|---|-------------|
| Connector | Terminal | | | |
| M58 | 1 | 2 | Press and hold overdrive control switch | Existed |
| | | | Other conditions | Not existed |

Without intelligent key system

CONTINUITY CHART

| CVT shift selector connector | | | Condition | Continuity |
|------------------------------|----------|---|---|-------------|
| Connector | Terminal | | | |
| M57 | 1 | 2 | Press and hold overdrive control switch | Existed |
| | | | Other conditions | Not existed |

Is the inspection result normal?

YES: INSPECTION END

NO: Repair or replace damaged parts.

SHIFT POSITION INDICATOR CIRCUIT

Description

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

Component Function Check**1. CHECK SHIFT POSITION INDICATOR**

1. Start the engine.
2. Shift selector lever.
3. Check that the selector lever position and shift position indicator on combination meter are equivalent.

Is the inspection result normal?

YES: INSPECTION END

NO: Go to "**DIAGNOSIS PROCEDURE**".

Diagnosis Procedure**1. CHECK TCM INPUT AND OUTPUT SIGNALS**

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "RANGE".
4. Shift selector lever.
5. Check that selector lever position, "RANGE" on CONSULT-III screen, and shift position indicator display on combination meter are identical.

Is the inspection result normal?

YES: INSPECTION END

NO-1 ("RANGE" is changed but is not displayed on shift position indicator.): Select "Self Diagnostic Results" in "TRANSMISSION".

NO-2 ("RANGE" differs from shift position indicator.): Select "Self Diagnostic Results" in "TRANSMISSION".

NO-3 (Specific "RANGE" is not displayed on shift position indicator.): Select "Self Diagnostic Results" in "METER/M&A".

SHIFT LOCK SYSTEM**Description****COMPONENT DESCRIPTION CHART**

| Component | Function |
|-----------|----------|
|-----------|----------|

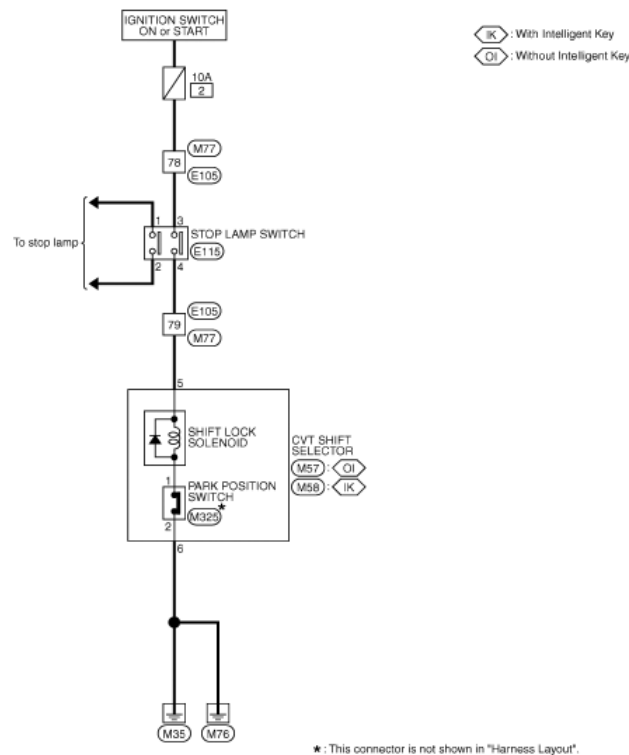
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| | |
|---------------------------|--|
| Shift lock solenoid | It operates according to the signal from the stop lamp switch and moves the lock lever. |
| Lock lever | <ul style="list-style-type: none"> It is rotated according to shift lock solenoid activation and shift lock is released. If shift lock solenoid does not activate, lock lever can be rotated when shift lock release button is pressed and shift lock is released. |
| Detent plate | It links with the selector button and restricts the selector lever movement. |
| Park position switch | It detects that the selector lever is in "P" position. |
| Shift lock release button | It moves the lock lever forcibly. |

Wiring Diagram - SHIFT LOCK SYSTEM -

SHIFT LOCK SYSTEM



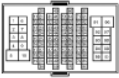
80332WV1001

2009/02/27

Fig. 35: Shift Lock System - Wiring Diagram
Courtesy of NISSAN MOTOR CO., U.S.A.

SHIFT LOCK SYSTEM

| | |
|----------------|-----------------|
| Connector No. | E105 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80PW-CS18-TM4 |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 78 | O | - |
| 79 | G | - |

| | |
|----------------|-----------------------------|
| Connector No. | E115 |
| Connector Name | STOP LAMP SWITCH (WITH CVT) |
| Connector Type | MO8PW-LG |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | V | - |
| 2 | B | - |
| 3 | O | - |
| 4 | G | - |

| | |
|----------------|--|
| Connector No. | M57 |
| Connector Name | CVT SHIFT SELECTOR (WITHOUT INTELLIGENT KEY) |
| Connector Type | TK08PW-TV |



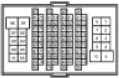
| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 5 | LG | - |
| 6 | B | - |

| | |
|----------------|---|
| Connector No. | M58 |
| Connector Name | CVT SHIFT SELECTOR (WITH INTELLIGENT KEY) |
| Connector Type | TK08PW |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 5 | LG | - |
| 6 | B | - |

| | |
|----------------|-----------------|
| Connector No. | M77 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80PW-CS18-TM4 |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 78 | O | - |
| 79 | LG | - |

| | |
|----------------|----------------------|
| Connector No. | M225 |
| Connector Name | PARK POSITION SWITCH |
| Connector Type | - |



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

80PSS004WCDT

Fig. 36: Identifying Shift Lock System Connector Terminals
Courtesy of NISSAN MOTOR CO., U.S.A.

Component Function Check

1. CHECK CVT SHIFT LOCK OPERATION (PART 1)

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

Can the selector lever be shifted to any other position?

YES: Go to "**DIAGNOSIS PROCEDURE**".

NO: GO TO 2.

2. CHECK CVT SHIFT LOCK OPERATION (PART 2)

1. Shift selector lever to "P" position.
2. Attempt to shift the selector lever to any other position with the brake pedal depressed.

Can the selector lever be shifted to any other position?

YES: INSPECTION END

NO: Go to "**DIAGNOSIS PROCEDURE**".

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Diagnosis Procedure**1. CHECK CVT SHIFT SELECTOR POWER CIRCUIT**

1. Turn ignition switch OFF.
2. Disconnect CVT shift selector connector.
3. Turn ignition switch ON.
4. Check voltage between CVT shift selector vehicle side harness connector terminal and ground.

With intelligent key system

VOLTAGE SPECIFICATION

| CVT shift selector vehicle side harness connector | | Ground | Condition | Voltage (Approx.) |
|---|----------|--------|---------------------------|-------------------|
| Connector | Terminal | | | |
| M58 | 5 | | Depressed brake pedal | Battery voltage |
| | | | Brake pedal not depressed | 0 V |

Without intelligent key system

VOLTAGE SPECIFICATION

| CVT shift selector vehicle side harness connector | | Ground | Condition | Voltage (Approx.) |
|---|----------|--------|---------------------------|-------------------|
| Connector | Terminal | | | |
| M57 | 5 | | Depressed brake pedal | Battery voltage |
| | | | Brake pedal not depressed | 0 V |

Is the inspection result normal?

YES: GO TO 2.

NO: GO TO 6.

2. CHECK GROUND CIRCUIT

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

With intelligent key system

CONTINUITY CHART

| CVT shift selector vehicle side harness connector | | Ground | Continuity |
|---|----------|--------|------------|
| Connector | Terminal | | |
| M58 | 6 | | Existed |

Without intelligent key system

CONTINUITY CHART

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

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| CVT shift selector vehicle side harness connector | | Ground | Continuity |
|---|----------|--------|------------|
| Connector | Terminal | | |
| M57 | 6 | | Existed |

Is the inspection result normal?

YES: GO TO 3.

NO: Repair or replace damaged parts.

3. CHECK CVT SHIFT SELELCTOR

- Shift selector lever to "P" position.
- Check continuity between CVT shift selector connector terminals.

With intelligent key system

CONTINUITY CHART

| CVT shift selector connector | | | Condition | Continuity |
|------------------------------|----------|---|------------------------------|-------------|
| Connector | Terminal | | | |
| M58 | 5 | 6 | Selector lever: "P" position | Existed |
| | | | Other conditions | Not existed |

Without intelligent key system

CONTINUITY CHART

| CVT shift selector connector | | | Condition | Continuity |
|------------------------------|----------|---|------------------------------|-------------|
| Connector | Terminal | | | |
| M57 | 5 | 6 | Selector lever: "P" position | Existed |
| | | | Other conditions | Not existed |

Is the inspection result normal?

YES: GO TO 4.

NO: Repair or replace damaged parts.

4. CHECK PARK POSITION SWITCH

- Disconnect park position switch connector.
- Check park position switch. Refer to "**COMPONENT INSPECTION (PARK POSITION SWITCH)**".

Is the inspection result normal?

YES: GO TO 5.

NO: Replace park position switch. Refer to "**EXPLODED VIEW**".

5. CHECK SHIFT LOCK SOLENOID

Check shift lock solenoid. Refer to "**COMPONENT INSPECTION (SHIFT LOCK SOLENOID)**".

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Replace CVT shift selector. Refer to "**EXPLODED VIEW**".

6. CHECK HARNESS BETWEEN CVT SHIFT SELELCTOR AND STOP LAMP SWITCH (PART 1)

1. Turn ignition switch OFF.
2. Disconnect stop lamp switch connector.
3. Check continuity between CVT shift selector vehicle side harness connector terminal and stop lamp switch vehicle side harness connector terminal.

With intelligent key system

CONTINUITY CHART

| CVT shift selector vehicle side harness connector | | Stop lamp switch vehicle side harness connector | | Continuity |
|---|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| M58 | 5 | E115 | 4 | Existed |

Without intelligent key system

CONTINUITY CHART

| CVT shift selector vehicle side harness connector | | Stop lamp switch vehicle side harness connector | | Continuity |
|---|----------|---|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| M57 | 5 | E115 | 4 | Existed |

Is the inspection result normal?

YES: GO TO 7.

NO: Repair or replace damaged parts.

7. CHECK HARNESS BETWEEN CVT SHIFT SELELCTOR AND STOP LAMP SWITCH (PART 2)

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

With intelligent key system

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CONTINUITY CHART

| CVT shift selector vehicle side harness connector | | Ground | Continuity |
|---|----------|--------|-------------|
| Connector | Terminal | | |
| M58 | 5 | | Not existed |

Without intelligent key system

CONTINUITY CHART

| CVT shift selector vehicle side harness connector | | Ground | Continuity |
|---|----------|--------|-------------|
| Connector | Terminal | | |
| M57 | 5 | | Not existed |

Is the inspection result normal?

YES: GO TO 8.

NO: Repair or replace damaged parts.

8. CHECK STOP LAMP SWITCH (PART 1)

Check stop lamp switch. Refer to "**COMPONENT INSPECTION (STOP LAMP SWITCH)**".

Is the inspection result normal?

YES: GO TO 11.

NO: GO TO 9.

9. PERFORM STOP LAMP SWITCH INSTALLATION POSITION ADJUSTMENT

Perform stop lamp switch installation position adjustment. Refer to "**INSPECTION AND ADJUSTMENT**".

GO TO 10.

10. CHECK STOP LAMP SWITCH (PART 2)

Check stop lamp switch. Refer to "**COMPONENT INSPECTION (STOP LAMP SWITCH)**".

Is the inspection result normal?

YES: INSPECTION END

NO: Replace stop lamp switch. Refer to "**EXPLODED VIEW**".

11. CHECK HARNESS BETWEEN STOP LAMP SWITCH AND IGNITION SWITCH

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

CONTINUITY CHART

| Stop lamp switch vehicle side harness connector | | Ground | Continuity |
|---|----------|--------|-------------|
| Connector | Terminal | | |
| E115 | 3 | | Not existed |

Is the inspection result normal?

YES: GO TO 12.

NO: Repair or replace damaged parts.

12. DETECT MALFUNCTIONING ITEMS

Check the following.

- 10A fuse (No. 2)
- Harness for short or open between stop lamp switch and ignition switch (Refer to "**WIRING DIAGRAM - IGNITION POWER SUPPLY -**".)
- Ignition switch

Is the inspection result normal?

YES: Check intermittent incident. Refer to "**INTERMITTENT INCIDENT**".

NO: Repair or replace damaged parts.

Component Inspection (Stop Lamp Switch)

1. CHECK STOP LAMP SWITCH

Check continuity between stop lamp switch connector terminals.

CONTINUITY CHART

| Stop lamp switch connector | | | Condition | Continuity |
|----------------------------|----------|---|---------------------------|-------------|
| Connector | Terminal | | | |
| E115 | 1 | 2 | Depressed brake pedal | Existed |
| | | | Brake pedal not depressed | Not existed |
| | 3 | 4 | Depressed brake pedal | Existed |
| | | | Brake pedal not depressed | Not existed |

Is the inspection result normal?

YES: INSPECTION END

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NO: Replace stop lamp switch. Refer to "**EXPLODED VIEW**".

Component Inspection (Shift Lock Solenoid)

1. CHECK SHIFT LOCK SOLENOID

Apply voltage to CVT shift selector connector terminal and park position switch connector terminal then check that shift lock solenoid is activated.

CAUTION: Before applying voltage, always install a fuse between battery positive terminal and CVT shift selector connector terminal.

With intelligent key system

PARK POSITION SWITCH CONNECTOR STATUS

| CVT shift selector connector | | Park position switch connector | | Condition | Status |
|------------------------------|----------|--------------------------------|----------|---|------------------------------|
| Connector | Terminal | Connector | Terminal | | |
| M58 | 5 | M325 | 1 | Impress battery voltage to CVT shift selector connector terminal 5. | Shift lock solenoid operates |

Without intelligent key system

PARK POSITION SWITCH CONNECTOR STATUS

| CVT shift selector connector | | Park position switch connector | | Condition | Status |
|------------------------------|----------|--------------------------------|----------|---|------------------------------|
| Connector | Terminal | Connector | Terminal | | |
| M57 | 5 | M325 | 1 | Impress battery voltage to CVT shift selector connector terminal 5. | Shift lock solenoid operates |

Is the inspection result normal?

YES: INSPECTION END

NO: Replace CVT shift selector. Refer to "**EXPLODED VIEW**".

Component Inspection (Park Position Switch)

1. CHECK PARK POSITION SWITCH

Check continuity between park position switch connector terminals.

CONTINUITY CHART

| Park position switch connector | | Condition | Continuity |
|--------------------------------|----------|-----------|------------|
| Connector | Terminal | | |
| | | | |

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2010 TRANSMISSION Automatic Transmission (RE0F08B) - Cube

| | | | | |
|------|---|---|---------------------------|-------------|
| M325 | 1 | 2 | Park position switch: ON | Existed |
| | | | Park position switch: OFF | Not existed |

Is the inspection result normal?

YES: INSPECTION END

NO: Replace park position switch. Refer to "**EXPLODED VIEW**".**ECU DIAGNOSIS INFORMATION****TCM****Reference Value****VALUES ON THE DIAGNOSIS TOOL****MONITOR ITEM CONDITION REFERENCE**

| Monitor item | Condition | Value / Status (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 | <ul style="list-style-type: none"> Selector lever: "N" position Idle speed | 0.8 V |
| ATF TEMP SEN | CVT fluid temperature: 20°C (68°F) | 2.01 - 2.05 V |
| | CVT fluid temperature: 50°C (122°F) | 1.45 - 1.50 V |
| | CVT fluid temperature: 80°C (176°F) | 0.90 - 0.94 V |
| 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 | 50 X (Approximately matches the speedometer reading.) |
| ENG SPEED | Engine running | Closely matches the tachometer reading. |
| GEAR RATIO | During driving | 2.56 - 0.43 |
| ACC PEDAL OPEN | Released accelerator pedal - Fully depressed accelerator pedal | 0.0/8 - 8.0/8 |
| | | |

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| | | |
|---------------------------------|--|--------------------|
| SEC PRESS | <ul style="list-style-type: none"> • Selector lever: "N" position • Idle speed | 0 - 1 MPa |
| ATFTEMP COUNT ⁽¹⁾ | CVT fluid temperature: 20°C (68°F) | 47 |
| | CVT fluid temperature: 50°C (122°F) | 104 |
| | CVT fluid temperature: 80°C (176°F) | 161 |
| STM STEP | During driving | -7 step - 171 step |
| ISOLT1 | Lock-up "OFF" | 0 A |
| | Lock-up "ON" | 0.7 A |
| ISOLT2 | Line pressure low | 0.8 A |
| | Line pressure high | 0 A |
| ISOLT3 | Secondary pressure low - Secondary pressure high | 0.8 - 0 A |
| SOLMON1 | Lock-up "OFF" | 0 A |
| | Lock-up "ON" | 0.7 A |
| SOLMON2 | <ul style="list-style-type: none"> • Selector lever: "N" position • Idle speed | 0.8 A |
| | Stall speed | 0.3 - 0.6 A |
| SOLMON3 | <ul style="list-style-type: none"> • Selector lever: "N" position • Idle speed | 0.6 - 0.7 A |
| | Stall speed | 0.4 - 0.6 A |
| BRAKESW | Depressed brake pedal | On |
| | Brake pedal not depressed | Off |
| FULL SW | Fully depressed accelerator pedal | On |
| | Released accelerator pedal | Off |
| IDLE SW | After engine is warmed up, release accelerator pedal | On |
| | Fully depressed accelerator pedal | Off |
| SPORT MODE SW | Press and hold overdrive control switch | On |
| | Other conditions | Off |
| INDLRNG | Selector lever: "L" position | On |
| | Other conditions | Off |
| INDDRNG | Selector lever: "D" position | On |
| | Other conditions | Off |
| INDNRNG | Selector lever: "N" position | On |
| | Other conditions | Off |
| INDRRNG | Selector lever: "R" position | On |
| | Other conditions | Off |
| INDPRNG | Selector lever: "P" position | On |
| | Other conditions | Off |
| SPORT MODE | When overdrive OFF condition | On |
| | | |

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| IND | 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: "P" and "N" positions | On |
| | Wait at least for 5 seconds with the selector lever in "R", "D" and "L" positions | Off |
| LUSEL SOL MON | Selector lever: "P" and "N" positions | On |
| | Wait at least for 5 seconds with the selector lever in "R", "D" and "L" positions | Off |
| VDC ON | VDC operate | On |
| | Other conditions | Off |
| TCS ON | TCS operate | On |
| | Other conditions | Off |
| ABS ON | ABS operates | On |
| | Other conditions | Off |
| RANGE | Selector lever: "P" and "N" positions | N.P |
| | Selector lever: "R" position | R |
| | Selector lever: "D" position | D |
| | Selector lever: "L" position | L |
| L POSITION SW | Selector lever: "L" position | On |
| | Other conditions | Off |
| D POSITION SW | Selector lever: "D" position | On |
| | Other conditions | Off |
| N POSITION SW | Selector lever: "N" position | On |
| | Other conditions | Off |
| R POSITION SW | Selector lever: "R" position | On |
| | Other conditions | Off |
| P POSITION SW | Selector lever: "P" position | On |
| | Other conditions | Off |

(1) Means CVT fluid temperature. Convert numerical values for actual fluid temperature °C (°F). Refer to "**ATFTEMP COUNT CONVERSION TABLE**".

TERMINAL LAYOUT

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| | | | | | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| 19 | 20 | 21 | | | | 22 | 23 | 24 | 43 | 44 | 45 | | | | 46 | 47 | 48 |

ATN1874D

Fig. 37: Identifying Terminal Layout
Courtesy of NISSAN MOTOR CO., U.S.A.

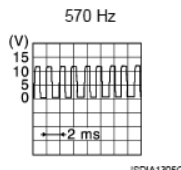
PHYSICAL VALUES

VOLTAGE SPECIFICATION

| Terminal (Wire color) | | Description | | Condition | | Value (Approx.) |
|--------------------------|--------|--|--------------|--|---|--------------------|
| + | - | Signal name | Input/Output | | | |
| 1 (G) | Ground | Line pressure solenoid valve | Output | <ul style="list-style-type: none"> Selector lever: "N" position Idle speed After engine is warmed up, release accelerator pedal | | 5.0 - 7.0 V |
| | | | | <ul style="list-style-type: none"> Selector lever: "N" position Idle speed After engine is warmed up, fully depress accelerator pedal | | 1.0 V |
| 2 (SB) | Ground | Secondary pressure solenoid valve | Output | <ul style="list-style-type: none"> Selector lever: "N" position Idle speed After engine is warmed up, release accelerator pedal | | 5.0 - 7.0 V |
| | | | | <ul style="list-style-type: none"> Selector lever: "N" position Idle speed After engine is warmed up, fully depress accelerator pedal | | 3.0 - 4.0 V |
| 3 (V) | Ground | Torque converter clutch solenoid valve | Output | During driving | When CVT performs lock-up. | 6.0 V |
| | | | | | When CVT does not perform lock-up | 1.0 V |
| 4 (O) | Ground | Lock-up select solenoid valve | Output | Ignition switch: ON | Selector lever: "P" and "N" positions | Battery voltage |
| | | | | | Wait at least for 5 seconds with the selector lever in "R", "D" and "L" positions | 0 V |
| 5 (L) | - | CAN-H | Input/Output | | | - |

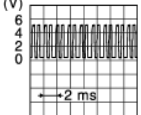
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| | | | | | |
|---------|--------|------------------------------|--------------|--|---|
| 6 (P) | - | CAN-L | Input/Output | - | - |
| 10 (R) | Ground | Power supply | Input | Ignition switch: ON Ignition switch: OFF | Battery voltage 0 V |
| 11 (GR) | Ground | Step motor A | Output | Within 2 seconds after ignition switch ON, the time measurement by using the pulse width measurement function (Hi level) of CONSULT-III* | 30.0 msec |
| 12 (G) | Ground | Step motor B | Output | *: Connect the diagnosis data link cable to the vehicle diagnosis connector | 10.0 msec |
| 13 (Y) | - | ROM ASSY (SEL2) | - | - | - |
| 14 (R) | - | ROM ASSY (SEL1) | - | - | - |
| 15 (P) | - | ROM ASSY (SEL3) | - | - | - |
| 18 (L) | Ground | P RANGE SW | Input | Ignition switch: ON Selector lever: "P" position Other conditions | Battery voltage 0 V |
| 19 (R) | Ground | Power supply | Input | Ignition switch: ON Ignition switch: OFF | Battery voltage 0 V |
| 20 (LG) | Ground | Step motor C | Output | Within 2 seconds after ignition switch ON, the time measurement by using the pulse width measurement function (Hi level) of CONSULT-III* | 30.0 msec |
| 21 (Y) | Ground | Step motor D | Output | *: Connect the diagnosis data link cable to the vehicle diagnosis connector | 10.0 msec |
| 22 (Y) | Ground | R RANGE SW | Input | Ignition switch: ON Selector lever: "R" position Other conditions | Battery voltage 0 V |
| 25 (B) | Ground | Ground | Output | Always | 0 V |
| 26 (GR) | Ground | N RANGE SW | Input | Ignition switch: ON Selector lever: "N" position Other conditions | Battery voltage 0 V |
| 28 (Y) | Ground | Power supply (memory backup) | Input | Always | Battery voltage |
| 29 (W) | Ground | Secondary speed sensor | Input | <ul style="list-style-type: none"> Selector lever: "L" position While driving at 20 km/h (12 MPH) |  |
| 37 (P) | Ground | Secondary pressure sensor | Input | <ul style="list-style-type: none"> Selector lever: "N" position Idle speed | 0.8 V |
| 38 | Ground | Primary speed | Input | <ul style="list-style-type: none"> Selector lever: "L" position | |

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2010 TRANSMISSION Automatic Transmission (RE0F08B) - Cube

| (V) | | sensor | | • While driving at 20 km/h (12 MPH) | | <div><div>1275 Hz</div><div>JSDIA1306GB</div></div> |
|---------|--------|------------------------------|--------|-------------------------------------|-------------------------------------|--|
| 42 (O) | Ground | Sensor ground | Input | Always | | 0 V |
| 43 (SB) | Ground | D RANGE SW | Input | Ignition switch: ON | Selector lever: "D" position | Battery voltage |
| | | | | | Other conditions | 0 V |
| 44 (L) | Ground | L RANGE SW | Input | | Selector lever: "L" position | Battery voltage |
| | | | | | Other conditions | 0 V |
| 46 (BR) | Ground | Sensor power | Output | Ignition switch: ON | | 5.0 V |
| | | | | Ignition switch: OFF | | 0 V |
| 47 (LG) | Ground | CVT fluid temperature sensor | Input | Ignition switch: ON | CVT fluid temperature: 20°C (68°F) | 2.01 - 2.05 V |
| | | | | | CVT fluid temperature: 50°C (122°F) | 1.45 - 1.50 V |
| | | | | | CVT fluid temperature: 80°C (176°F) | 0.90 - 0.94 V |
| 48 (B) | Ground | Ground | Output | Always | | 0 V |

NOTE: Voltage value is reference value between each terminal and terminal 5 or terminal 42 (ground terminal).

Wiring Diagram - CVT CONTROL SYSTEM -

CVT CONTROL SYSTEM

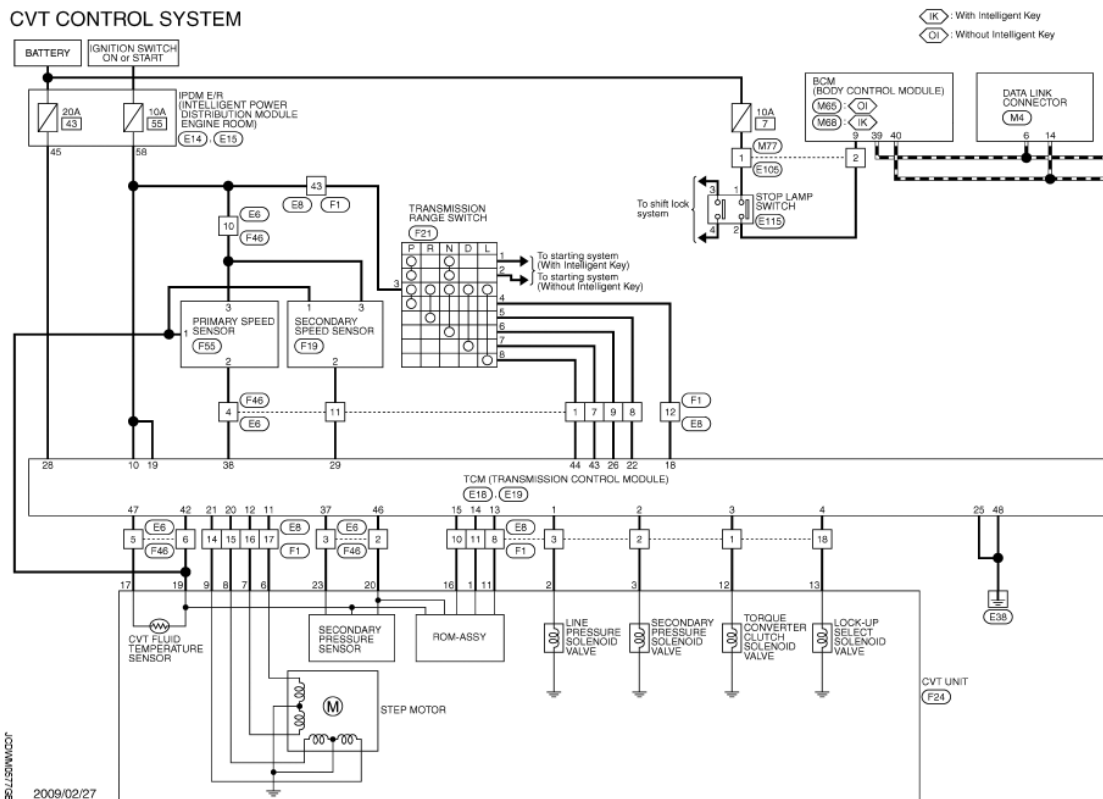


Fig. 38: CVT Control System - Wiring Diagram (1 Of 2)
 Courtesy of NISSAN MOTOR CO., U.S.A.

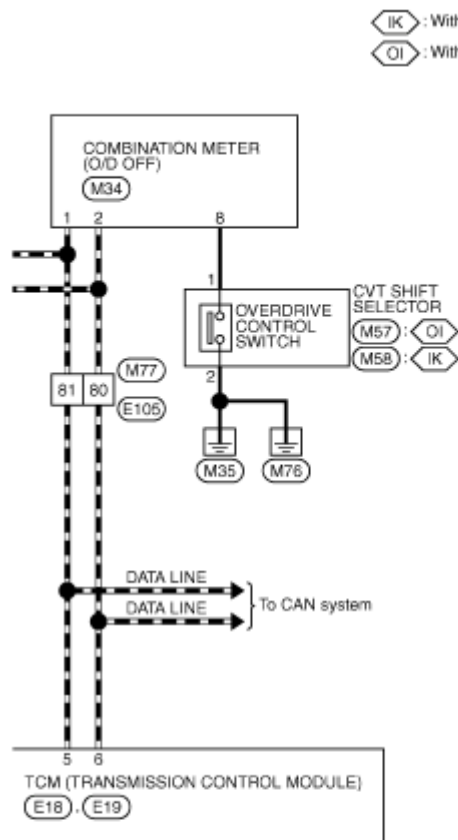


Fig. 39: CVT Control System - Wiring Diagram (2 Of 2)
 Courtesy of NISSAN MOTOR CO., U.S.A.

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2010 TRANSMISSION Automatic Transmission (RE0F08B) - Cube

CVT CONTROL SYSTEM

| | |
|----------------|--------------|
| Connector No. | E5 |
| Connector Name | WIRE TO WIRE |
| Connector Type | RN12FB |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | L | - |
| 2 | BR | - |
| 3 | P | - |
| 4 | V | - |
| 5 | LG | - |
| 6 | R | - |
| 7 | SB | - |
| 8 | GR | - |
| 9 | LG | - |
| 10 | R | - |
| 11 | W | - |

| | |
|----------------|-------------------|
| Connector No. | E8 |
| Connector Name | WIRE TO WIRE |
| Connector Type | SAA39MB-RS10-SJ22 |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | BR | - |
| 2 | LG | - |
| 3 | V | - |
| 8 | SB | - |
| 10 | V | - |
| 11 | P | - |
| 12 | BR | - |
| 14 | V | - |
| 15 | SB | - |
| 16 | L | - |
| 17 | W | - |

| | | |
|----|---|-------------|
| 18 | O | - |
| 43 | R | -(With CVT) |

| | |
|----------------|--|
| Connector No. | E14 |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | RS12FB-CB |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 45 | Y | - |

| | |
|----------------|--|
| Connector No. | E19 |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | NS16FW-CS |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 58 | R | -(With CVT) |

| | |
|----------------|-----------------------------------|
| Connector No. | E18 |
| Connector Name | TCM (TRANSMISSION CONTROL MODULE) |
| Connector Type | TK24FW |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | V | - |
| 2 | LG | - |
| 3 | BR | - |
| 4 | O | - |
| 5 | L | - |
| 6 | P | - |
| 10 | R | - |
| 11 | W | - |
| 12 | L | - |
| 13 | SB | - |
| 14 | P | - |

| | | |
|----|----|---|
| 19 | V | - |
| 19 | BR | - |
| 19 | R | - |
| 20 | SB | - |
| 21 | Y | - |
| 22 | GR | - |

804530WVCDT

Fig. 40: Identifying CVT Control System Connector Terminals (1 Of 4)
Courtesy of NISSAN MOTOR CO., U.S.A.

CVT CONTROL SYSTEM

| | |
|----------------|-----------------------------------|
| Connector No. | E19 |
| Connector Name | TCM (TRANSMISSION CONTROL MODULE) |
| Connector Type | TK24FY |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 25 | B | - |
| 26 | LG | - |
| 28 | Y | - |
| 29 | W | - |
| 37 | P | - |
| 38 | V | - |
| 42 | R | - |
| 43 | SB | - |
| 44 | - | - |
| 46 | BR | - |
| 47 | LG | - |

| | | |
|----|---|---|
| 48 | R | - |
|----|---|---|

| | |
|----------------|-----------------|
| Connector No. | E105 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TH89MR-CS16-TM4 |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | V | - |
| 2 | W | - |
| 80 | P | - |
| 81 | L | - |

| | |
|----------------|-----------------------------|
| Connector No. | E119 |
| Connector Name | STOP LAMP SWITCH (WITH CVT) |
| Connector Type | M04W-LC |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | V | - |
| 2 | W | - |
| 3 | O | - |
| 4 | G | - |

| | |
|----------------|-------------------|
| Connector No. | F1 |
| Connector Name | WIRE TO WIRE |
| Connector Type | SAA39FB-RS10-SJ22 |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | SB | - |
| 2 | LG | - |
| 3 | R | - |
| 8 | G | - |
| 10 | L | - |
| 11 | Y | - |
| 12 | GR | - |
| 14 | G | - |
| 15 | W | - |
| 16 | Y | - |
| 17 | P | - |

| | | |
|----|----|---|
| 18 | BR | - |
| 43 | R | - |

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



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | LG | - |
| 2 | G | - |
| 3 | R | - |

| | |
|----------------|---------------------------|
| Connector No. | F21 |
| Connector Name | TRANSMISSION RANGE SWITCH |
| Connector Type | RK08FG |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | R | - |
| 2 | W | - |
| 3 | R | - |
| 4 | GR | - |
| 5 | SB | - |
| 6 | W | - |
| 7 | Y | - |
| 8 | G | - |

804530WVCDT

Fig. 41: Identifying CVT Control System Connector Terminals (2 Of 4)
Courtesy of NISSAN MOTOR CO., U.S.A.

2010 Nissan Cube

2010 TRANSMISSION Automatic Transmission (RE0F08B) - Cube

CVT CONTROL SYSTEM

| | |
|----------------|---------------------|
| Connector No. | F24 |
| Connector Name | CVT UNIT |
| Connector Type | Yazaki 7283-8750-30 |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | Y | CHP SELECT (SEL1) |
| 2 | R | PL LINEAR SOL |
| 3 | LG | SG LINEAR SOL |
| 6 | P | S/M-A |
| 7 | Y | S/M-B |
| 8 | W | S/M-C |
| 9 | G | S/M-D |
| 11 | G | CLOCK (SEL2) |
| 12 | SB | L/USELECT LINEAR SOL |
| 13 | BR | L/USELECT ON/OFF SOL |
| 16 | L | DATA I/O (SEL3) |

| | | |
|----|----|------------------------|
| 17 | BR | ATP TEMP SENSOR |
| 19 | LG | SENSOR GND |
| 20 | O | SENS POWER SOURCE (3V) |
| 23 | L | SEC PRESS SENS |

| | |
|----------------|--------------|
| Connector No. | F46 |
| Connector Name | WIRE TO WIRE |
| Connector Type | PH12MB |



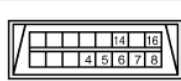
| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | G | - |
| 2 | O | - |
| 3 | L | - |
| 4 | V | - |
| 5 | BR | - |
| 6 | LG | - |
| 7 | Y | - |
| 8 | SB | - |
| 9 | W | - |
| 10 | R | - |
| 11 | G | - |

| | |
|----------------|----------------------|
| Connector No. | F55 |
| Connector Name | PRIMARY SPEED SENSOR |
| Connector Type | PK03FB |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | LG | - |
| 2 | V | - |
| 3 | R | - |

| | |
|----------------|---------------------|
| Connector No. | M4 |
| Connector Name | DATA LINK CONNECTOR |
| Connector Type | BD10FW |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 6 | L | - |
| 14 | P | - |

| | |
|----------------|-------------------|
| Connector No. | M24 |
| Connector Name | COMBINATION METER |
| Connector Type | TH40FW-NH |



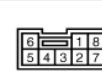
| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|---------------------------------|
| 1 | L | CAN-H |
| 2 | P | CAN-L |
| 8 | P | OVERDRIVE CONTROL SWITCH SIGNAL |

| | |
|----------------|---|
| Connector No. | M37 |
| Connector Name | CVT SHFT SELECTOR (WITHOUT INTELLIGENT KEY) |
| Connector Type | TK06FW-1V |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | P | - |
| 2 | B | - |

| | |
|----------------|--|
| Connector No. | M58 |
| Connector Name | CVT SHFT SELECTOR (WITH INTELLIGENT KEY) |
| Connector Type | TK06FW |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | P | - |
| 2 | B | - |

BD10FW-MCOT

Fig. 42: Identifying CVT Control System Connector Terminals (3 Of 4)
Courtesy of NISSAN MOTOR CO., U.S.A.

CVT CONTROL SYSTEM

| | |
|----------------|---|
| Connector No. | M65 |
| Connector Name | BCM (BODY CONTROL MODULE) (WITHOUT INTELLIGENT KEY) |
| Connector Type | TH40FW-NH |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 9 | R | STOP LAMP SW |
| 39 | L | CAN-H |
| 40 | P | CAN-L |

| | |
|----------------|--|
| Connector No. | M68 |
| Connector Name | BCM (BODY CONTROL MODULE) (WITH INTELLIGENT KEY) |
| Connector Type | TH40FB-NH |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 9 | R | STOP LAMP SW I |
| 39 | L | CAN-H |
| 40 | P | CAN-L |

| | |
|----------------|-----------------|
| Connector No. | M77 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80FW-CS10-TM4 |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | B/O | - |
| 2 | R | - |
| 80 | P | - |
| 81 | L | - |

JCDWM0582GB

Fig. 43: Identifying CVT Control System Connector Terminals (4 Of 4)
Courtesy of NISSAN MOTOR CO., U.S.A.

Fail-safe

Description

When a malfunction is detected in each sensor, switch, solenoid or others, this function provides control to minimize reduction of driveability so that durability of transmission assembly can be acquired.

DTC CONDITION CHART

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2010 TRANSMISSION Automatic Transmission (RE0F08B) - Cube

| DTC | Condition | | Vehicle behavior |
|-------|--|---|--|
| P0703 | - | | <ul style="list-style-type: none"> Start is slow Acceleration is slow |
| P0705 | - | | <ul style="list-style-type: none"> Position indicator on combination meter is not displayed Selector shock is large Start is slow Acceleration at high load state is slow Overdrive off condition is not activated "L" position is not activated |
| P0710 | Engine coolant temperature when engine starts is 10°C (50°F) or more | Open circuit is detected while ignition switch is OFF | <ul style="list-style-type: none"> Selector shock is large Low is fixed |
| | | Other than the above | <ul style="list-style-type: none"> Selector shock is large Engine speed is high in middle and high speed range |
| | Engine coolant temperature when engine starts is 10°C (50°F) or less | | <ul style="list-style-type: none"> Start is slow Acceleration is slow Vehicle speed is not increased |
| | Engine coolant temperature when engine starts is -35°C (-31°F) or less | | Vehicle speed is not increased |
| P0715 | - | | <ul style="list-style-type: none"> Re-acceleration is slightly slow Re-start is slow after vehicle is stop by strong deceleration Overdrive off condition is not activated "L" position is not activated Lock-up is not performed |
| P0720 | - | | <ul style="list-style-type: none"> Start is slow Re-acceleration is slow Re-start is slow after vehicle is stop by strong deceleration Overdrive off condition is not activated "L" position is not activated Lock-up is not performed |
| P0725 | - | | Lock-up is not performed |

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2010 TRANSMISSION Automatic Transmission (RE0F08B) - Cube

| | | |
|-------|---|--|
| P0740 | - | <ul style="list-style-type: none"> • Selector shock is large • Lock-up is not performed |
| P0744 | - | Lock-up is not performed |
| P0746 | A malfunction is detected | <ul style="list-style-type: none"> • Start is slow • Acceleration is slow • Lock-up is not performed |
| | Function is excessively reduced after a malfunction is detected | <ul style="list-style-type: none"> • Start is difficult • Drive is difficult • Lock-up is not performed |
| P0778 | - | Engine speed is high in middle and high speed range |
| P0840 | - | <ul style="list-style-type: none"> • Start is slow • Acceleration at high load state is slow |
| P0841 | - | <ul style="list-style-type: none"> • Start is slow • Acceleration is slow |
| P0868 | - | <ul style="list-style-type: none"> • Start is slow • Acceleration is slow <p>(Slow acceleration is subject to secondary pressure that is recognized by TCM)</p> |
| P1701 | - | <ul style="list-style-type: none"> • Start is slow • Acceleration at high load state is slow |
| P1705 | - | <ul style="list-style-type: none"> • Acceleration is slow • Lock-up is not performed |
| P1722 | - | Lock-up is not activated in coast state |
| P1723 | A malfunction is detected in primary pulley speed sensor side | <ul style="list-style-type: none"> • Acceleration is slow • Re-start is slow after vehicle is stop by strong deceleration • Overdrive off condition is not activated • "L" position is not activated • Lock-up is not performed |
| | | <ul style="list-style-type: none"> • Start is slow • Acceleration is slow • Re-start is slow after vehicle is |

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| | | |
|-------|---|--|
| | A malfunction is detected in secondary pulley speed sensor | <ul style="list-style-type: none"> stop by strong deceleration Overdrive off condition is not activated "L" position is not activated Lock-up is not performed |
| P1726 | - | Acceleration is slow |
| P1740 | - | <ul style="list-style-type: none"> Selector shock is large Lock-up is not performed |
| P1777 | A malfunction is detected in low side (when vehicle is stopped) | <ul style="list-style-type: none"> Low is fixed Lock-up is not performed |
| | A malfunction is detected in high side (during driving) | <ul style="list-style-type: none"> Start is slow Acceleration is low in low speed range Lock-up is not performed |
| U1000 | - | <ul style="list-style-type: none"> Start is slow Acceleration is slow Vehicle speed is not increased |
| U1010 | - | <ul style="list-style-type: none"> Start is slow Acceleration is slow Vehicle speed is not increased |

DTC Inspection Priority Chart

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

DTC INSPECTION PRIORITY CHART

| Priority | Detected items (DTC) |
|----------|----------------------|
| 1 | U1000, U1010 |
| 2 | Except above |

DTC Index

When multiple malfunctions are detected simultaneously, perform inspection one by one according to DTC check priority list. Refer to **"DTC INSPECTION PRIORITY CHART"**.

DTC INSPECTION PRIORITY CHART

| DTC ⁽¹⁾ | | Items (CONSULT-III screen terms) | Reference |
|---|---------------------------------|----------------------------------|-----------------------------|
| MIL ⁽²⁾ , "ENGINE" with CONSULT-III or GST | "TRANSMISSION" with CONSULT-III | | |
| - | P0703 | BRAKE SWITCH B | <u>"DESCRIPTION"</u> |

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| | | | |
|-------|-------|-------------------------|------------------------|
| P0705 | P0705 | T/M RANGE SENSOR A | " <u>DESCRIPTION</u> " |
| P0710 | P0710 | FLUID TEMP SENSOR A | " <u>DESCRIPTION</u> " |
| P0715 | P0715 | INPUT SPEED SENSOR A | " <u>DESCRIPTION</u> " |
| P0720 | P0720 | OUTPUT SPEED SENSOR | " <u>DESCRIPTION</u> " |
| - | P0725 | ENGINE SPEED | " <u>DESCRIPTION</u> " |
| P0740 | P0740 | TORQUE CONVERTER | " <u>DESCRIPTION</u> " |
| P0744 | P0744 | TORQUE CONVERTER | " <u>DESCRIPTION</u> " |
| P0745 | P0745 | PC SOLENOID A | " <u>DESCRIPTION</u> " |
| P0746 | P0746 | PC SOLENOID A | " <u>DESCRIPTION</u> " |
| P0776 | P0776 | PC SOLENOID B | " <u>DESCRIPTION</u> " |
| P0778 | P0778 | PC SOLENOID B | " <u>DESCRIPTION</u> " |
| P0840 | P0840 | FLUID PRESS SEN/SW A | " <u>DESCRIPTION</u> " |
| - | P0841 | FLUID PRESS SEN/SW A | " <u>DESCRIPTION</u> " |
| - | P0868 | FLUID PRESS LOW | " <u>DESCRIPTION</u> " |
| - | P1701 | TCM | " <u>DESCRIPTION</u> " |
| - | P1705 | TP SENSOR | " <u>DESCRIPTION</u> " |
| - | P1722 | VEHICLE SPEED | " <u>DESCRIPTION</u> " |
| - | P1723 | SPEED SENSOR | " <u>DESCRIPTION</u> " |
| - | P1726 | THROTTLE CONTROL SIGNAL | " <u>DESCRIPTION</u> " |
| P1740 | P1740 | SLCT SOLENOID | " <u>DESCRIPTION</u> " |
| P1777 | P1777 | STEP MOTOR | " <u>DESCRIPTION</u> " |
| P1778 | P1778 | STEP MOTOR | " <u>DESCRIPTION</u> " |
| U1000 | U1000 | CAN COMM CIRCUIT | " <u>DESCRIPTION</u> " |
| - | U1010 | CONTROL UNIT (CAN) | " <u>DESCRIPTION</u> " |

(1) These numbers are prescribed by SAE J2012.

(2) Refer to "DIAGNOSIS DESCRIPTION".

SYMPTOM DIAGNOSIS

SYSTEM SYMPTOM

Symptom Table

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The diagnostics item numbers show the sequence for inspection. Inspect in order from item 1.

SYMPTOM CONDITION REFERENCE

| No. | Item | Symptom | Condition | Diagnostic item | Reference |
|-----|-------------|--|-------------|---|--|
| 1 | Shift Shock | Large shock. ("N" --> "D" position) | ON vehicle | 1. Engine idle speed | <u>IDLE SPEED</u> |
| | | | | 2. Engine speed signal | <u>P0725 ENGINE SPEED</u> |
| | | | | 3. Accelerator pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | | | 4. CVT position | <u>CVT POSITION</u> |
| | | | | 5. CVT fluid temperature sensor | <u>P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A</u> |
| | | | | 6. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | | 7. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | | 8. Line pressure test | <u>LINE PRESSURE TEST</u> |
| | | | | 9. Torque converter clutch solenoid valve | <u>P0740 TORQUE CONVERTER</u> |
| | | | | 10. Lock-up select solenoid valve | <u>P1740 SELECT SOLENOID</u> |
| | | | | 11. Transmission range switch | <u>P0705 TRANSMISSION RANGE SWITCH A</u> |
| | | | OFF vehicle | 12. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | | 13. Forward clutch | |
| | | | | 1. Engine idle speed | <u>IDLE SPEED</u> |
| | | | | 2. Engine speed signal | <u>P0725 ENGINE SPEED</u> |
| | | | | 3. Accelerator pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | | | 4. CVT position | <u>CVT POSITION</u> |
| | | | | 5. CVT fluid temperature sensor | <u>P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A</u> |
| | | | | 6. CAN | |

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| | | | | | |
|---|-------------------|--|----------------|---|---|
| 2 | | Large shock. ("N" --> "R" position) | ON vehicle | communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | | 7. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | | 8. Line pressure test | <u>LINE PRESSURE TEST</u> |
| | | | | 9. Torque converter clutch solenoid valve | <u>P0740 TORQUE CONVERTER</u> |
| | | | | 10. Lock-up select solenoid valve | <u>P1740 SELECT SOLENOID</u> |
| | | | | 11. Transmission range switch | <u>P0705 TRANSMISSION RANGE SWITCH A</u> |
| 3 | | Shock is too large for lock- up. | OFF vehicle | 12. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | | 13. Reverse brake | <u>CVT POSITION</u> |
| | | | ON vehicle | 1. CVT position | <u>P0725 ENGINE SPEED</u> |
| | | | | 2. Engine speed signal | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | | 3. CAN communication line | <u>PERIODIC MAINTENANCE</u> |
| | | | | 4. CVT fluid level and state | <u>UNIT REMOVAL AND INSTALLATION</u> |
| 4 | Slips/Will Not | Vehicle cannot take off from | OFF vehicle | 5. Control valve | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | | 6. Torque converter | <u>PERIODIC MAINTENANCE</u> |
| | | | ON vehicle | 1. CVT fluid level and state | <u>CVT POSITION</u> |
| | | | | 2. CVT position | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | | 3. CAN communication line | <u>LINE PRESSURE TEST</u> |
| | | | | 4. Line pressure test | <u>STALL TEST</u> |
| | | | | 5. Stall test | <u>P1777 STEP MOTOR</u> |
| | | | | 6. Step motor | <u>P0715 INPUT SPEED SENSOR A</u> |
| | | | | 7. Primary speed sensor | <u>P0720 OUTPUT SPEED SENSOR</u> |
| | | | | 8. Secondary speed sensor | <u>P1705 TP SENSOR</u> |
| | | | | 9. Accelerator pedal position | |

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| | | | | | |
|---|--------|--|-------------|--------------------------------------|---|
| 5 | Engage | "D" position. | | sensor | |
| | | | | 10. CVT fluid temperature sensor | <u>P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A</u> |
| | | | | 11. Secondary pressure sensor | <u>P0778 PRESSURE CONTROL SOLENOID B</u> |
| | | | | 12. TCM power supply and ground | <u>P1701 TCM</u> |
| | | | OFF vehicle | 13. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | | 14. Oil pump assembly | |
| | | | | 15. Forward clutch | |
| | | | | 16. Parking components | |
| | | Vehicle cannot take off from "R" position. | ON vehicle | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | | 2. CVT position | <u>CVT POSITION</u> |
| | | | | 3. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | | 4. Line pressure test | <u>LINE PRESSURE TEST</u> |
| | | | | 5. Stall test | <u>STALL TEST</u> |
| | | | | 6. Step motor | <u>P1777 STEP MOTOR</u> |
| | | | | 7. Primary speed sensor | <u>P0715 INPUT SPEED SENSOR A</u> |
| | | | | 8. Secondary speed sensor | <u>P0720 OUTPUT SPEED SENSOR</u> |
| | | | | 9. Accelerator pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | | | 10. CVT fluid temperature sensor | <u>P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A</u> |
| | | | | 11. Secondary pressure sensor | <u>P0778 PRESSURE CONTROL SOLENOID B</u> |
| | | | | 12. TCM power supply and ground | <u>P1701 TCM</u> |
| | | | OFF | 13. Control valve | <u>UNIT REMOVAL AND</u> |
| | | | | 14. Oil pump assembly | |

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| | | | | |
|---|-------------------|-------------|---|---|
| 6 | Does not lock-up. | vehicle | 15. Reverse brake | <u>INSTALLATION</u> |
| | | | 16. Parking components | |
| | | ON vehicle | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | 2. Line pressure test | <u>LINE PRESSURE TEST</u> |
| | | | 3. Engine speed signal | <u>P0725 ENGINE SPEED</u> |
| | | | 4. Primary speed sensor | <u>P0715 INPUT SPEED SENSOR A</u> |
| | | | 5. Torque converter clutch solenoid valve | <u>P0740 TORQUE CONVERTER</u> |
| | | | 6. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | 7. Stall test | <u>STALL TEST</u> |
| | | | 8. Step motor | <u>P1777 STEP MOTOR</u> |
| | | | 9. Transmission range switch | <u>P0705 TRANSMISSION RANGE SWITCH A</u> |
| | | | 10. Lock-up select solenoid valve | <u>P1740 SELECT SOLENOID</u> |
| | | | 11. CVT fluid temperature sensor | <u>P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A</u> |
| | | | 12. Secondary speed sensor | <u>P0720 OUTPUT SPEED SENSOR</u> |
| | | | 13. Secondary pressure sensor | <u>P0778 PRESSURE CONTROL SOLENOID B</u> |
| | | OFF vehicle | 14. Torque converter | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | 15. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | 16. Oil pump assembly | |
| | | | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | 2. Line pressure test | <u>LINE PRESSURE TEST</u> |
| | | | 3. Engine speed signal | <u>P0725 ENGINE SPEED</u> |
| | | | 4. Primary speed sensor | <u>P0715 INPUT SPEED SENSOR A</u> |

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| | | | | |
|---|----------------------------------|-------------|---|---|
| 7 | Does not hold lock-up condition. | ON vehicle | 5. Torque converter clutch solenoid valve | <u>P0740 TORQUE CONVERTER</u> |
| | | | 6. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | 7. Stall test | <u>STALL TEST</u> |
| | | | 8. Step motor | <u>P1777 STEP MOTOR</u> |
| | | | 9. Transmission range switch | <u>P0705 TRANSMISSION RANGE SWITCH A</u> |
| | | | 10. Lock-up select solenoid valve | <u>P1740 SELECT SOLENOID</u> |
| | | | 11. CVT fluid temperature sensor | <u>P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A</u> |
| | | | 12. Secondary speed sensor | <u>P0720 OUTPUT SPEED SENSOR</u> |
| | | | 13. Secondary pressure sensor | <u>P0778 PRESSURE CONTROL SOLENOID B</u> |
| | | OFF vehicle | 14. Torque converter | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | 15. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | 16. Oil pump assembly | |
| 8 | Lock-up is not released. | ON vehicle | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | 2. Line pressure test | <u>LINE PRESSURE TEST</u> |
| | | | 3. Engine speed signal | <u>P0725 ENGINE SPEED</u> |
| | | | 4. Primary speed sensor | <u>P0715 INPUT SPEED SENSOR A</u> |
| | | | 5. Torque converter clutch solenoid valve | <u>P0740 TORQUE CONVERTER</u> |
| | | | 6. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | 7. Stall test | <u>STALL TEST</u> |
| | | OFF vehicle | 8. Torque converter | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | 9. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | 10. Oil pump | |

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| | | | | |
|---|--|-------------|---------------------------------------|---|
| 9 | With selector lever in "D" position, acceleration is extremely poor. | ON vehicle | assembly | |
| | | | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | 2. Line pressure test | <u>LINE PRESSURE TEST</u> |
| | | | 3. Stall test | <u>STALL TEST</u> |
| | | | 4. Accelerator pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | | 5. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | 6. Transmission range switch | <u>P0705 TRANSMISSION RANGE SWITCH A</u> |
| | | | 7. CVT position | <u>CVT POSITION</u> |
| | | | 8. Step motor | <u>P1777 STEP MOTOR</u> |
| | | | 9. Primary speed sensor | <u>P0715 INPUT SPEED SENSOR A</u> |
| | | | 10. Secondary speed sensor | <u>P0720 OUTPUT SPEED SENSOR</u> |
| | | | 11. Accelerator pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | | 12. Secondary pressure sensor | <u>P0778 PRESSURE CONTROL SOLENOID B</u> |
| | | | 13. CVT fluid temperature sensor | <u>P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A</u> |
| | | | 14. TCM power supply and ground | <u>P1701 TCM</u> |
| | | OFF vehicle | 15. Torque converter | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | 16. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | 17. Oil pump assembly | |
| | | | 18. Forward clutch | |
| | | | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | 2. Line pressure test | <u>LINE PRESSURE TEST</u> |
| | | | 3. Stall test | <u>STALL TEST</u> |
| | | | 4. Accelerator | |

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| | | | | |
|----|---|-------------|---|---|
| 10 | With selector lever in " <u>CVT: RE0F08B</u> " position, acceleration is extremely poor. | ON vehicle | pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | | 5. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | 6. Transmission range switch | <u>P0705 TRANSMISSION RANGE SWITCH A</u> |
| | | | 7. CVT position | <u>CVT POSITION</u> |
| | | | 8. Step motor | <u>P1777 STEP MOTOR</u> |
| | | | 9. Primary speed sensor | <u>P0715 INPUT SPEED SENSOR A</u> |
| | | | 10. Secondary speed sensor | <u>P0720 OUTPUT SPEED SENSOR</u> |
| | | | 11. Accelerator pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | | 12. Secondary pressure sensor | <u>P0778 PRESSURE CONTROL SOLENOID B</u> |
| | | | 13. CVT fluid temperature sensor | <u>P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A</u> |
| | | OFF vehicle | 14. TCM power supply and ground | <u>P1701 TCM</u> |
| | | | 15. Torque converter | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | 16. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | 17. Oil pump assembly | |
| | | | 18. Reverse brake | |
| | ON | | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | 2. Line pressure test | <u>LINE PRESSURE TEST</u> |
| | | | 3. Engine speed signal | <u>P0725 ENGINE SPEED</u> |
| | | | 4. Primary speed sensor | <u>P0715 INPUT SPEED SENSOR A</u> |
| | | | 5. Torque converter clutch solenoid valve | <u>P0740 TORQUE CONVERTER</u> |
| | | | 6. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | | |

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| | | | | |
|----|-------------------|-------------|-----------------------------------|---|
| 11 | Slips at lock-up. | vehicle | 7. Stall test | <u>STALL TEST</u> |
| | | | 8. Step motor | <u>P1777 STEP MOTOR</u> |
| | | | 9. Transmission range switch | <u>P0705 TRANSMISSION RANGE SWITCH A</u> |
| | | | 10. Lock-up select solenoid valve | <u>P1740 SELECT SOLENOID</u> |
| | | | 11. CVT fluid temperature sensor | <u>P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A</u> |
| | | | 12. Secondary speed sensor | <u>P0720 OUTPUT SPEED SENSOR</u> |
| | | | 13. Secondary pressure sensor | <u>P0778 PRESSURE CONTROL SOLENOID B</u> |
| | | OFF vehicle | 14. Torque converter | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | 15. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | 16. Oil pump assembly | |

| | | | | | |
|--|------------|--|--|--|--|
| | Slips/Will | | | | |
|--|------------|--|--|--|--|

| | | | | | |
|--|-----|--|--|--|--|
| | Not | | | | |
|--|-----|--|--|--|--|

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| | | | | | |
|----|--------|------------------|------------------------------|---------------------------------------|--|
| | Engage | | | | |
| 12 | | No creep at all. | ON vehicle | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | | 2. Line pressure test | <u>LINE PRESSURE TEST</u> |
| | | | | 3. Accelerator pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | | | 4. Transmission range switch | <u>P0705 TRANSMISSION RANGE SWITCH A</u> |
| | | | | 5. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | | 6. Stall test | <u>STALL TEST</u> |
| | | | | 7. CVT position | <u>CVT POSITION</u> |
| | | | | 8. Step motor | <u>P1777 STEP MOTOR</u> |
| | | | | 9. Primary speed sensor | <u>P0715 INPUT SPEED SENSOR A</u> |
| | | | | 10. Secondary speed sensor | <u>P0720 OUTPUT SPEED SENSOR</u> |
| | | | | 11. Accelerator pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | | | 12. CVT fluid temperature sensor | <u>P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A</u> |
| | | | | 13. Secondary pressure sensor | <u>P0778 PRESSURE CONTROL SOLENOID B</u> |
| | | | | 14. TCM power supply and ground | <u>P1701 TCM</u> |
| | | | OFF vehicle | 15. Torque converter | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | | 16. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | | 17. Oil pump assembly | |
| | | | | 18. Gear system | |
| | | | | 19. Forward clutch | |
| | | | | 20. Reverse brake | |
| | | | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> | |
| | | | 2. Line pressure test | <u>LINE PRESSURE TEST</u> | |
| | | | | | |

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| | | | | |
|----|--|-------------|--------------------------------------|---|
| 13 | Vehicle cannot drive in all positions. | ON vehicle | 3. Transmission range switch | <u>P0705 TRANSMISSION RANGE SWITCH A</u> |
| | | | 4. Stall test | <u>STALL TEST</u> |
| | | | 5. CVT position | <u>CVT POSITION</u> |
| | | | 6. Step motor | <u>P1777 STEP MOTOR</u> |
| | | | 7. Primary speed sensor | <u>P0715 INPUT SPEED SENSOR A</u> |
| | | | 8. Secondary speed sensor | <u>P0720 OUTPUT SPEED SENSOR</u> |
| | | | 9. Accelerator pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | | 10. CVT fluid temperature sensor | <u>P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A</u> |
| | | | 11. Secondary pressure sensor | <u>P0778 PRESSURE CONTROL SOLENOID B</u> |
| | | | 12. TCM power supply and ground | <u>P1701 TCM</u> |
| | | OFF vehicle | 13. Torque converter | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | 14. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | 15. Oil pump assembly | |
| | | | 16. Gear system | |
| | | | 17. Forward clutch | |
| | | | 18. Reverse brake | |
| | | | 19. Parking components | |
| | | ON vehicle | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | 2. Line pressure test | <u>LINE PRESSURE TEST</u> |
| | | | 3. Transmission range switch | <u>P0705 TRANSMISSION RANGE SWITCH A</u> |
| | | | 4. Stall test | <u>STALL TEST</u> |
| | | | 5. CVT position | <u>CVT POSITION</u> |
| | | | 6. Step motor | <u>P1777 STEP MOTOR</u> |
| | | | 7. Primary speed sensor | <u>P0715 INPUT SPEED SENSOR A</u> |
| | | | 8. Secondary speed sensor | <u>P0720 OUTPUT SPEED SENSOR</u> |

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| | | | | |
|----|---|-------------|--------------------------------------|---|
| 14 | With selector lever in "D" position, driving is not possible. | OFF vehicle | 9. Accelerator pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | | 10. CVT fluid temperature sensor | <u>P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A</u> |
| | | | 11. Secondary pressure sensor | <u>P0778 PRESSURE CONTROL SOLENOID B</u> |
| | | | 12. TCM power supply and ground | <u>P1701 TCM</u> |
| | | | 13. Torque converter | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | 14. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | 15. Oil pump assembly | |
| | | | 16. Gear system | |
| 15 | With selector lever in " CVT: RE0F08B " position, driving is not possible. | ON vehicle | 17. Forward clutch | |
| | | | 18. Parking components | |
| | | | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | 2. Line pressure test | <u>LINE PRESSURE TEST</u> |
| | | | 3. Transmission range switch | <u>P0705 TRANSMISSION RANGE SWITCH A</u> |
| | | | 4. Stall test | <u>STALL TEST</u> |
| | | | 5. CVT position | <u>CVT POSITION</u> |
| | | | 6. Step motor | <u>P1777 STEP MOTOR</u> |
| | | | 7. Primary speed sensor | <u>P0715 INPUT SPEED SENSOR A</u> |
| | | | 8. Secondary speed sensor | <u>P0720 OUTPUT SPEED SENSOR</u> |
| | | | 9. Accelerator pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | | 10. CVT fluid temperature sensor | <u>P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A</u> |
| | | | 11. Secondary pressure sensor | <u>P0778 PRESSURE CONTROL SOLENOID B</u> |
| | | | 12. TCM power supply and | <u>P1701 TCM</u> |

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| | | | | | |
|----|--------------------------------|-------------|-------------|---|---|
| | | | | ground | |
| | | | OFF vehicle | 13. Torque converter | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | | 14. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | | 15. Oil pump assembly | |
| | | | | 16. Gear system | |
| | | | | 17. Reverse brake | |
| | | | | 18. Parking components | |
| 16 | Judder occurs during lock-up. | ON vehicle | | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | | 2. Engine speed signal | <u>P0725 ENGINE SPEED</u> |
| | | | | 3. Primary speed sensor | <u>P0715 INPUT SPEED SENSOR A</u> |
| | | | | 4. Secondary speed sensor | <u>P0720 OUTPUT SPEED SENSOR</u> |
| | | | | 5. Accelerator pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | | | 6. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | | 7. Torque converter clutch solenoid valve | <u>P0740 TORQUE CONVERTER</u> |
| | | OFF vehicle | | 8. Torque converter | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | | 9. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| 17 | Strange noise in "D" position. | ON vehicle | | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | | 2. Engine speed signal | <u>P0725 ENGINE SPEED</u> |
| | | | | 3. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | OFF vehicle | | 4. Torque converter | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | | 5. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | | 6. Oil pump assembly | |
| | | | | 7. Gear system | |

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| | | | | |
|----|--|-------------|------------------------------|--------------------------------------|
| 18 | Strange noise in "R" position. | ON vehicle | 8. Forward clutch | |
| | | | 9. Bearing | |
| | | | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | OFF vehicle | 2. Engine speed signal | <u>P0725 ENGINE SPEED</u> |
| | | | 3. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | 4. Torque converter | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | 5. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | 6. Oil pump assembly | |
| | | | 7. Gear system | |
| | | | 8. Reverse brake | |
| 19 | Strange noise in "N" position. | ON vehicle | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | 2. Engine speed signal | <u>P0725 ENGINE SPEED</u> |
| | | | 3. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | OFF vehicle | 4. Torque converter | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | 5. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | 6. Oil pump assembly | |
| | | | 7. Gear system | |
| 20 | Vehicle does not decelerate by engine brake. | ON vehicle | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | 2. CVT position | <u>CVT POSITION</u> |
| | | | 3. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | 4. Step motor | <u>P1777 STEP MOTOR</u> |
| | | | 5. Primary speed sensor | <u>P0715 INPUT SPEED SENSOR A</u> |
| | | | 6. Secondary speed sensor | <u>P0720 OUTPUT SPEED SENSOR</u> |
| | | | 7. Line pressure test | <u>LINE PRESSURE TEST</u> |
| | | | 8. Engine speed signal | <u>P0725 ENGINE SPEED</u> |

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| | | | | |
|----|--|-------------|--------------------------------------|---|
| 21 | Maximum speed low. | | 9. Accelerator pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | OFF vehicle | 10. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | ON vehicle | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | 2. Line pressure test | <u>LINE PRESSURE TEST</u> |
| | | | 3. Accelerator pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | | 4. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | 5. Stall test | <u>STALL TEST</u> |
| | | | 6. Step motor | <u>P1777 STEP MOTOR</u> |
| | | | 7. Primary speed sensor | <u>P0715 INPUT SPEED SENSOR A</u> |
| | | | 8. Secondary speed sensor | <u>P0720 OUTPUT SPEED SENSOR</u> |
| | | | 9. Secondary pressure sensor | <u>P0778 PRESSURE CONTROL SOLENOID B</u> |
| | | | 10. CVT fluid temperature sensor | <u>P0710 TRANSMISSION FLUID TEMPERATURE SENSOR A</u> |
| | | OFF vehicle | 11. Torque converter | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | 12. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | 13. Oil pump assembly | |
| | | | 14. Gear system | |
| | | | 15. Forward clutch | |
| 22 | 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 | <u>P0705 TRANSMISSION RANGE SWITCH A</u> |
| | | | 2. CVT position | <u>CVT POSITION</u> |
| | | OFF vehicle | 3. Parking components | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | ON vehicle | 1. Transmission range switch | <u>P0705 TRANSMISSION RANGE SWITCH A</u> |
| | | | 2. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | 3. CVT position | <u>CVT POSITION</u> |
| | Vehicle drives with CVT in | | | |

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| | | | | |
|----|--|----------------|--|---|
| 23 | <u>"BASIC INSPECTION"</u> position. | OFF vehicle | 4. Control valve 5. Parking components 6. Gear system | <u>UNIT REMOVAL AND INSTALLATION</u> |
| 24 | Vehicle drives with CVT in "N" position. | ON vehicle | 1. Transmission range switch 2. CVT fluid level and state 3. CVT position | <u>P0705 TRANSMISSION RANGE SWITCH A</u> <u>PERIODIC MAINTENANCE</u> <u>CVT POSITION</u> |
| | | OFF vehicle | 4. Control valve 5. Gear system 6. Forward clutch 7. Reverse brake | <u>UNIT REMOVAL AND INSTALLATION</u> |
| 25 | Engine stall. | ON vehicle | 1. CVT fluid level and state 2. Engine speed signal 3. Primary speed sensor 4. Torque converter clutch solenoid valve 5. CAN communication line 6. Stall test 7. Secondary pressure sensor | <u>PERIODIC MAINTENANCE</u> <u>P0725 ENGINE SPEED</u> <u>P0715 INPUT SPEED SENSOR A</u> <u>P0740 TORQUE CONVERTER</u> <u>DTC/CIRCUIT DIAGNOSIS</u> <u>STALL TEST</u> <u>P0778 PRESSURE CONTROL SOLENOID B</u> |
| | | OFF vehicle | 8. Torque converter 9. Control valve | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> <u>UNIT REMOVAL AND INSTALLATION</u> |
| 26 | Engine stalls when selector lever is shifted "N" --> "D" or "R". | ON vehicle | 1. CVT fluid level and state 2. Engine speed signal 3. Primary speed sensor 4. Torque converter clutch solenoid valve 5. CAN communication line | <u>PERIODIC MAINTENANCE</u> <u>P0725 ENGINE SPEED</u> <u>P0715 INPUT SPEED SENSOR A</u> <u>P0740 TORQUE CONVERTER</u> <u>DTC/CIRCUIT DIAGNOSIS</u> |

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| | | | | |
|----|---|-------------|--------------------------------------|--|
| 27 | Engine speed does not return to idle. | OFF vehicle | 6. Stall test | <u>STALL TEST</u> |
| | | | 7. Torque converter | <u>UNIT DISASSEMBLY AND ASSEMBLY</u> |
| | | | 8. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| 28 | CVT does not shift. | ON vehicle | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | 2. Accelerator pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | | 3. Secondary speed sensor | <u>P0720 OUTPUT SPEED SENSOR</u> |
| | | | 4. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | OFF vehicle | 5. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | ON vehicle | 1. CVT fluid level and state | <u>PERIODIC MAINTENANCE</u> |
| | | | 2. CVT position | <u>CVT POSITION</u> |
| | | | 3. Line pressure test | <u>LINE PRESSURE TEST</u> |
| | | | 4. Engine speed signal | <u>P0725 ENGINE SPEED</u> |
| | | | 5. Accelerator pedal position sensor | <u>P1705 TP SENSOR</u> |
| | | | 6. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | 7. Primary speed sensor | <u>P0715 INPUT SPEED SENSOR A</u> |
| | | | 8. Secondary speed sensor | <u>P0720 OUTPUT SPEED SENSOR</u> |
| | | | 9. Step motor | <u>P1777 STEP MOTOR</u> |
| | | OFF vehicle | 10. Control valve | <u>UNIT REMOVAL AND INSTALLATION</u> |
| | | | 11. Oil pump assembly | |
| 29 | Engine does not start in "N" or "P" position. | ON vehicle | 1. Ignition switch and starter | <u>WIRING DIAGRAM - IGNITION POWER SUPPLY - , CVT : SYSTEM DIAGRAM (WITH INTELLIGENT KEY)</u> |
| | | | 2. CVT position | <u>CVT POSITION</u> |

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| | | | | | |
|----|---|------------|--|--------------------------------|--|
| | | | | 3. Transmission range switch | <u>P0705 TRANSMISSION RANGE SWITCH A</u> |
| 30 | Engine starts in positions other than " <u>CVT: RE0F08B</u> " or "P". | ON vehicle | | 1. Ignition switch and starter | <u>WIRING DIAGRAM - IGNITION POWER SUPPLY - , CVT : SYSTEM DIAGRAM (WITH INTELLIGENT KEY)</u> |
| | | | | 2. CVT position | <u>CVT POSITION</u> |
| | | | | 3. Transmission range switch | <u>P0705 TRANSMISSION RANGE SWITCH A</u> |
| 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 | <u>SHIFT LOCK SYSTEM</u> |
| | | | | 2. Shift lock solenoid | |
| | | | | 3. CVT shift selector | |
| 32 | 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 | <u>SHIFT LOCK SYSTEM</u> |
| | | | | 2. Shift lock solenoid | |
| | | | | 3. CVT shift selector | |
| 33 | Cannot be changed to overdrive OFF condition. | ON vehicle | | 1. Overdrive control switch | <u>OVERDRIVE CONTROL SWITCH</u> |
| | | | | 2. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | | 3. Combination meters | <u>COMBINATION METER</u> |
| 34 | OD OFF indicator lamp is not turned ON. | ON vehicle | | 1. CAN communication line | <u>DTC/CIRCUIT DIAGNOSIS</u> |
| | | | | 2. Combination meters | <u>COMBINATION METER</u> |
| | | | | 3. TCM power supply and ground | <u>P1701 TCM</u> |

PRECAUTIONS

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

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain

types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted.

Information necessary to service the system safely is included in the "**SRS AIR BAG**" and "**SEAT BELTS**" articles.

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 "**SRS AIR BAG**".
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in the article. 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 Air Bag Diagnosis Sensor Unit or other Air Bag 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 Necessary for Steering Wheel Rotation after Battery Disconnect**NOTE:**

- Before removing and installing any control units, first turn the push-button ignition switch to the LOCK position, then disconnect both battery cables.
- After finishing work, confirm that all control unit connectors are connected properly, then re-connect both battery cables.
- Always use CONSULT-III to perform self-diagnosis as a part of each function inspection after finishing work. If a DTC is detected, perform trouble diagnosis according to self-diagnosis results.

This vehicle is equipped with a push-button ignition switch and a steering lock unit.

If the battery is disconnected or discharged, the steering wheel will lock and cannot be turned.

If turning the steering wheel is required with the battery disconnected or discharged, follow the procedure

below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.

NOTE: Supply power using jumper cables if battery is discharged.

2. Turn the push-button ignition switch to ACC position.

(At this time, the steering lock will be released.)

3. Disconnect both battery cables. The steering lock will remain released with both battery cables disconnected and the steering wheel can be turned.
4. Perform the necessary repair operation.
5. When the repair work is completed, re-connect both battery cables. With the brake pedal released, turn the push-button ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the push-button ignition switch is turned to LOCK position.)
6. Perform self-diagnosis check of all control units using CONSULT-III.

Precaution for Procedure without Cowl Top Cover

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

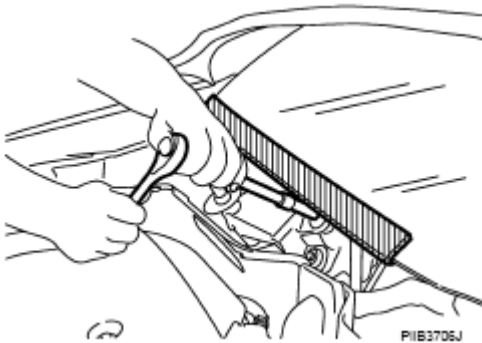


Fig. 44: Identifying Windshield Precaution

Courtesy of NISSAN MOTOR CO., U.S.A.

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

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 and Transaxle Assembly Replacement

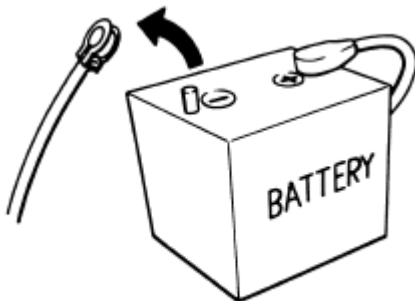
CAUTION:

- To replace TCM, refer to "TCM REPLACEMENT : DESCRIPTION".
- To replace transaxle assembly, refer to "TRANSAXLE ASSEMBLY REPLACEMENT : DESCRIPTION".

Precaution

NOTE: If any malfunction occurs in the RE0F08B model transaxle, replace the entire transaxle assembly.

- 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.



SEF285H

Fig. 45: Disconnecting Negative Battery Terminal
Courtesy of NISSAN MOTOR CO., U.S.A.

- 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.

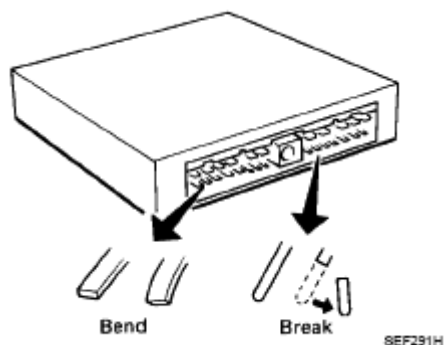


Fig. 46: Identifying TCM Pin Terminal
Courtesy of NISSAN MOTOR CO., U.S.A.

- Perform TCM input/output signal inspection and check whether TCM functions normally or not before replacing TCM. **"REFERENCE VALUE"**.

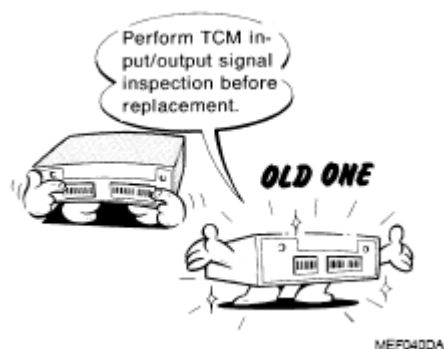


Fig. 47: Identifying Precaution Before Replacing TCM
Courtesy of NISSAN MOTOR CO., U.S.A.

- 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".

- Never disassemble transaxle unless it is described in this article.
- Always use the specified brand of CVT fluid. Refer to **"FLUIDS AND LUBRICANTS"**.
- Use lint-free paper, not cloth rags, during work.
- Dispose of the waste oil using the methods prescribed by law, ordinance, etc. after replacing the CVT fluid.
- Perform the work in a clean workplace.
- Before starting removal, check normal state in advance.
- During work, never allow dust, dirt, and others to enter in transaxle inside.

- Use genuine Nissan parts for replacement.
- Never reuse fluid that is drained.
- Always treat drained fluid, used flushing oil, and others as oil waste.
- Perform fluid level check and replacement while keeping the vehicle in horizontal state.
- Apply the specified fluid to O-ring and oil seal when installing them.



Fig. 48: Data Indicator Light
Courtesy of NISSAN MOTOR CO., U.S.A.

Removal and Installation Procedure for CVT Unit Connector

REMOVAL

- Rotate bayonet ring (A) counterclockwise. Pull out CVT unit harness connector (B) upward and remove it.

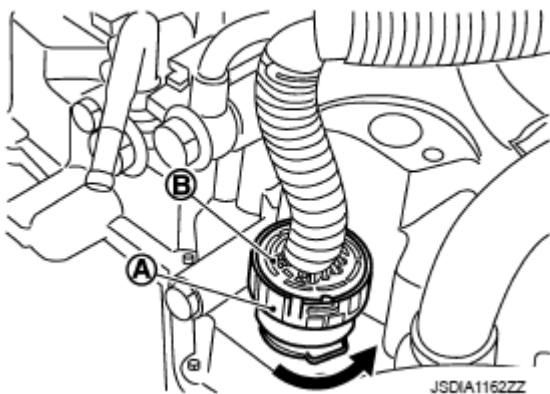
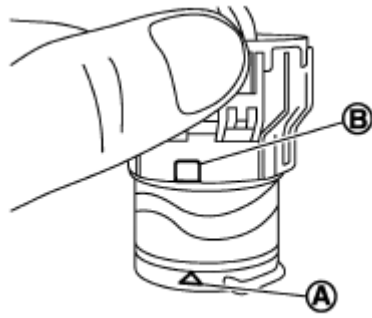


Fig. 49: Identifying Bayonet Ring And CVT Unit Harness Connector
Courtesy of NISSAN MOTOR CO., U.S.A.

INSTALLATION

1. Align marking (A) on CVT unit harness connector terminal with marking (B) on bayonet ring. Insert CVT unit harness connector.

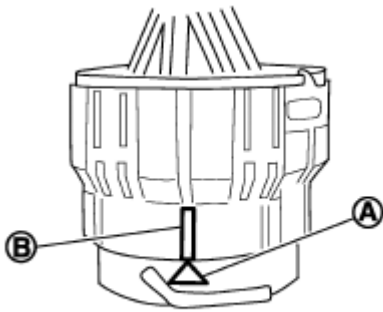
2. Rotate bayonet ring clockwise.



JPDIA0294ZZ

Fig. 50: Aligning Marking On CVT Unit Harness Connector Terminal
Courtesy of NISSAN MOTOR CO., U.S.A.

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

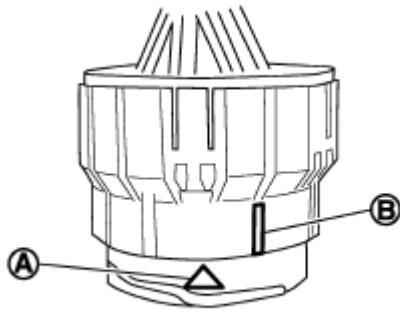


JPDIA0295ZZ

Fig. 51: Identifying Marking On CVT Unit Harness Connector Terminal Body
Courtesy of NISSAN MOTOR CO., U.S.A.

CAUTION:

- Securely align marking (A) on CVT unit harness connector terminal body with bayonet ring slit (B). 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.



JPDIA0296ZZ

Fig. 52: Aligning Marking On CVT Unit Harness Connector Terminal Body
Courtesy of NISSAN MOTOR CO., U.S.A.

Service Notice or Precaution

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 "**CONSULT-III FUNCTION (TRANSMISSION)**" for the indicator used to display each self-diagnostic result.
- The self-diagnostic results indicated by the MIL are automatically stored in both the ECM and TCM memories.

Always perform the procedure on "DIAGNOSIS DESCRIPTION" to complete the repair and avoid unnecessary blinking of the MIL.

For details of OBD-II, refer to "**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 **HARNESS CONNECTOR**.

ATFTEMP COUNT Conversion Table

SYMPTOM CONDITION REFERENCE

| 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) |

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| | | | |
|-----|----------|-----|-----------|
| 47 | 20 (68) | 218 | 130 (266) |
| 55 | 25 (77) | 221 | 135 (275) |
| 64 | 30 (86) | 224 | 140 (284) |
| 73 | 35 (95) | 227 | 145 (293) |
| 83 | 40 (104) | 229 | 150 (302) |
| 93 | 45 (113) | 231 | 155 (311) |
| 104 | 50 (122) | 233 | 160 (320) |
| 114 | 55 (131) | 235 | 165 (329) |
| 124 | 60 (140) | 236 | 170 (338) |
| 134 | 65 (149) | 238 | 175 (347) |
| 143 | 70 (158) | 239 | 180 (356) |
| 152 | 75 (167) | 241 | 190 (374) |
| 161 | 80 (176) | 243 | 200 (392) |
| 169 | 85 (185) | - | - |

PREPARATION**Special Service Tools**

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

SPECIAL SERVICE TOOLS REFERENCE

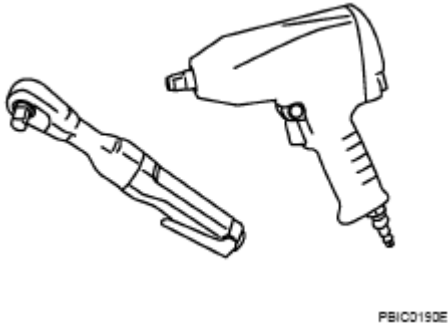
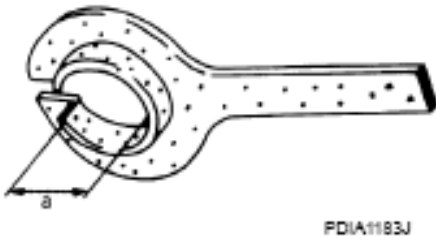
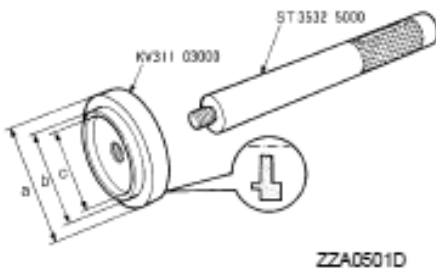
| Tool number (Kent-Moore No.) Tool name | | Description |
|--|--|-------------------------|
| - (OTC3492) Oil pressure gauge set |  SCIA7531E | Measuring line pressure |

Commercial Service Tools**COMMERCIAL SERVICE TOOLS REFERENCE**

| Tool number | Tool name | Description |
|-------------|-----------|-------------|
| | | |

2010 Nissan Cube

2010 TRANSMISSION Automatic Transmission (RE0F08B) - Cube

| | | |
|--|--|---------------------------------------|
| Power tool |  | Loosening nuts and bolts |
| KV38107900 (-) Protector a: 32 mm (1.26 in) dia. |  | Installing drive shaft |
| ST35325000 (-) KV31103000 (-) Drift a: 70 mm (2.75 in) dia. b: 59 mm (2.32 in) dia. c: 49 mm (1.92 in) dia. |  | Installing differential side oil seal |

PERIODIC MAINTENANCE

CVT FLUID

Inspection

Level check

Check fluid level in HOT state [CVT fluid temperature is between 50 to 80°C (122 to 176°F)], according to the following procedures.

1. Visually check that CVT fluid leakage from transaxle assembly is not detected.
2. After engine warms up, drive the vehicle in an urban area for approximately 10 minutes.

NOTE: When ambient temperature is 20°C (68°F), driving vehicle for approximately 10 minutes in an urban area ordinarily warms up CVT fluid temperature between 50 to 80°C (122 to 176°F).

3. Park the vehicle on a level surface.

4. Fully apply parking brake.
5. Adjust engine speed at idle state.
6. Shift selector lever through entire position from "P" to "D" while depressing brake pedal.
7. Press claw of CVT fluid level gauge lock to unlock.
8. Remove CVT fluid level gauge from CVT fluid charging pipe.
9. Wipe CVT fluid that is on CVT fluid level gauge.

CAUTION: Always use shop paper when wiping off CVT fluid that is on CVT fluid level gauge.

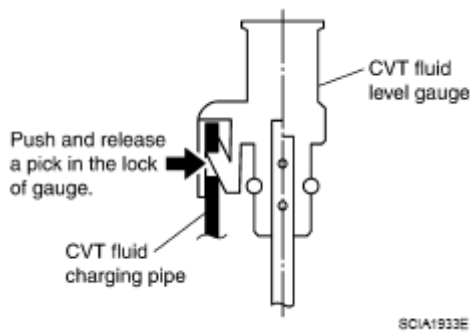


Fig. 53: Identifying CVT Fluid Charging Pipe And CVT Fluid Level Gauge
Courtesy of NISSAN MOTOR CO., U.S.A.

10. Rotate CVT fluid level gauge 180° from installed state.
11. Inset CVT fluid level gauge until it contacts CVT fluid charging pipe end.

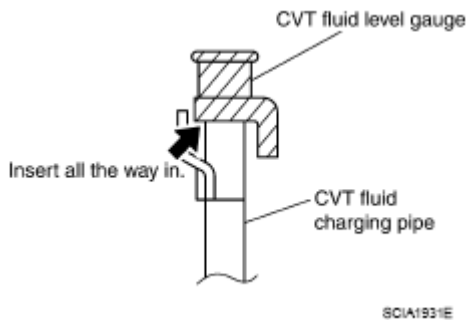


Fig. 54: Locating CVT Fluid Level Gauge
Courtesy of NISSAN MOTOR CO., U.S.A.

12. Check that CVT fluid level is within the specified level of CVT fluid level gauge (MAX side).

CAUTION:

- After level check, when returning CVT fluid level gauge to the original state, insert CVT fluid level gauge to CVT fluid charging pipe until it is locked.

- Always use shop paper when wiping off CVT fluid that is on CVT fluid level gauge.

CVT FLUID CONDITION

Check CVT fluid condition.

- If CVT fluid is very dark or smells burned, check operation of transaxle assembly. Flush cooling system after repair of transaxle assembly.
- If CVT fluid contains frictional material (clutches, brakes, etc.), replace radiator and flush cooler line using cleaning solvent and compressed air after repair of transaxle assembly. Refer to "**CVT FLUID COOLER HOSE : EXPLODED VIEW**".



Fig. 55: Checking CVT Fluid Condition
Courtesy of NISSAN MOTOR CO., U.S.A.

FLUID STATUS REFERENCE

| Fluid status | Conceivable cause | Required operation |
|---------------------------------------|---|--|
| Varnished (viscous varnish state) | CVT fluid become degraded due to high temperatures | <ul style="list-style-type: none"> • Replace the CVT fluid. • Check the transaxle assembly and the vehicle for malfunctions (wire harnesses, cooler pipes, etc.) |
| Milky white or cloudy | Water in the fluid | <ul style="list-style-type: none"> • Replace the CVT fluid. • Check for places where water is getting in. |
| Large amount of metal powder mixed in | Unusual wear of sliding parts within transaxle assembly | <ul style="list-style-type: none"> • Replace the CVT fluid. • Check for improper operation of the transaxle assembly. |

Changing

1. Remove drain plug from oil pan and then the CVT fluid.
2. Remove drain plug gasket from drain plug.
3. Install drain plug gasket to drain plug.

CAUTION: Never reuse drain plug gasket.

4. Install drain plug to oil pan.

Tightening torque: "**EXPLODED VIEW**"

5. Fill CVT fluid from CVT fluid charging pipe to the specified level.

CVT fluid and fluid capacity : "**GENERAL SPECIFICATION**"

CAUTION:

- Always use the specified fluid. If use, misuse, or mixing of fluid other than the specified fluid occurs, original performance cannot be obtained or it may cause serious malfunctions.
- CVT fluid is not reusable. Never reuse CVT fluid.
- Always use shop paper. Never use shop cloth.
- After replacement, always perform CVT fluid leakage check.
- Delete CVT fluid deterioration date with CONSULT-III after changing CVT fluid.

6. After engine warms up, drive the vehicle in an urban area for approximately 10 minutes.

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. Refer to "**INSPECTION**".
8. Repeat steps 1 to 6 if CVT fluid has been contaminated.

STALL TEST

Inspection and Judgment

INSPECTION

1. Inspect the amount of engine oil. Replenish the engine oil if necessary. Refer to "**INSPECTION**".
2. After engine warms up, drive the vehicle in an urban area for approximately 10 minutes.

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).

3. Inspect the amount of CVT fluid. Replenish if necessary.
4. Securely engage parking brake so that the tires do not turn.
5. Start the engine.
6. Apply foot brake, and shift selector lever to "D" position.

2010 Nissan Cube

2010 TRANSMISSION Automatic Transmission (RE0F08B) - Cube

7. Gradually press down accelerator pedal while holding down the foot brake.
8. 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 : "STALL SPEED"

9. Shift selector lever to "N" position.
10. Cool down the CVT fluid.

CAUTION: Run the engine at idle for at least 1 minute.

11. Repeat steps 7 through 10 with selector lever in "R" position.

JUDGMENT

SELECTOR LEVER POSITION CHART

| | Selector lever position | | Expected problem location |
|---|-------------------------|-----|--|
| | "D" | "R" | |
| Stall rotation | H | O | <ul style="list-style-type: none">• Forward clutch |
| | O | H | <ul style="list-style-type: none">• Reverse brake |
| | L | L | <ul style="list-style-type: none">• Engine and torque converter one-way clutch• Accelerator pedal position sensor |
| | H | H | <ul style="list-style-type: none">• Line pressure low• Primary pulley• Secondary pulley• Steel belt |
| <ul style="list-style-type: none">• O: Stall speed within standard value position.• H: Stall speed is higher than standard value.• L: Stall speed is lower than standard value. | | | |

LINE PRESSURE TEST

Inspection and Judgment

INSPECTION

1. Inspect the amount of engine oil. Replenish the engine oil if necessary. Refer to "**INSPECTION**".
2. After engine warms up, drive the vehicle in an urban area for approximately 10 minutes.

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).

3. Inspect the amount of CVT fluid. Replenish if necessary.
4. Remove oil pressure detection plug (A).
5. Install oil pressure gauge [special service tool: - (OTC3492)].

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

6. Securely engage parking brake so that the tires do not turn.
7. Start the engine.
8. Measure the line pressure at both idle and the stall speed.

CAUTION: Keep brake pedal pressed all the way down during measurement.

Line pressure : "LINE PRESSURE"

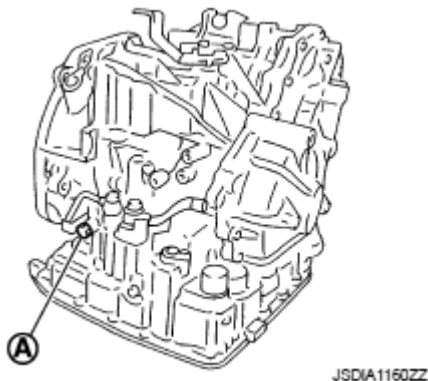


Fig. 56: Identifying Oil Pressure Detection Plug
Courtesy of NISSAN MOTOR CO., U.S.A.

9. Install O-ring to oil pressure detection plug.

CAUTION:

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

10. Install oil pressure detection plug.

Tightening torque: 7.5 N.m (0.77 kg-m, 66 in-lb)

JUDGMENT

POSSIBLE CAUSE

| Judgment | | Possible cause |
|-------------|---|--|
| Idle speed | Low for all positions ("P", "R", "N", "D", "L") | <p>Possible causes include malfunctions in the pressure supply system and low oil pump output. For example</p> <ul style="list-style-type: none"> • Oil pump wear • Pressure regulator valve or plug sticking or spring fatigue • Oil strainer --> oil pump --> pressure regulator valve passage oil leak • Engine idle speed too low |
| | Only low for a specific position | <p>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.</p> |
| | High | <p>Possible causes include a sensor malfunction or malfunction in the line pressure adjustment function. For example</p> <ul style="list-style-type: none"> • Accelerator pedal position signal malfunction • CVT fluid temperature sensor malfunction • Line pressure solenoid malfunction (sticking in OFF state, filter clog, cut line) • Pressure regulator valve or plug sticking |
| Stall speed | Line pressure does not rise higher than the line pressure for idle. | <p>Possible causes include a sensor malfunction or malfunction in the pressure adjustment function. For example</p> <ul style="list-style-type: none"> • Accelerator pedal position signal malfunction • TCM malfunction • Line pressure solenoid malfunction (shorting, sticking in ON state) • Pressure regulator valve or plug sticking |
| | The pressure rises, but does not enter the standard position. | <p>Possible causes include malfunctions in the pressure supply system and malfunction in the pressure adjustment function. For example</p> <ul style="list-style-type: none"> • Accelerator pedal position signal malfunction • Line pressure solenoid malfunction (sticking, filter clog) • Pressure regulator valve or plug sticking |
| | Only low for a specific position | <p>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.</p> |

ROAD TEST

Description**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"
 2. "Check at Idle"
 3. "Cruise Test"
- Before the road test, familiarize yourself with all test procedures and items to check.
- Perform tests for all the check items until a malfunction phenomenon is detected. Perform diagnosis for NG items after the completion of road tests. Refer to "**SYMPTOM TABLE**".

Check before Engine Is Started

1. CHECK SHIFT POSITION INDICATOR
 1. Park vehicle on level surface.
 2. Shift selector lever to "P" position.
 3. Turn ignition switch OFF.
 4. Wait at least 5 seconds.
 5. Turn ignition switch ON.

CAUTION: Never start the engine.

Has shift position indicator been turned ON for about 2 seconds?

YES: GO TO 2.

NO:

1. Stop "Road Test".
 2. Perform self-diagnosis. Refer to "**SYMPTOM TABLE**".
2. CHECK OD OFF INDICATOR LAMP
 1. Turn ignition switch OFF.
 2. Wait at least 5 seconds.
 3. Turn ignition switch ON.

CAUTION: Never start the engine.

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

YES:

1. Turn ignition switch OFF.
2. Go to "**CHECK AT IDLE**".

NO:

1. Stop "Road Test".
2. Perform self-diagnosis. Refer to "**SYMPTOM TABLE**".

Check at Idle

1. CHECK STARTING THE ENGINE (PART 1)
 1. Park vehicle on level surface.
 2. Shift 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:

1. Stop "Road Test".
 2. Perform self-diagnosis. Refer to "**SYMPTOM TABLE**".
2. CHECK STARTING THE ENGINE (PART 2)
 1. Turn ignition switch ON.
 2. Shift selector lever to "D" or "R" position.
 3. Turn ignition switch to "START" position.

Does engine start with selector lever in one of these positions?

YES:

1. Stop "Road Test".
 2. Perform self-diagnosis. Refer to "**SYMPTOM TABLE**".

NO: GO TO 3.

3. CHECK "P" POSITION FUNCTION
 1. Shift selector lever to "P" position.

2. Turn ignition switch OFF.
3. Release parking brake.
4. Push vehicle forward or backward.

Does the vehicle move when it is pushed?

YES:

1. Apply parking brake.
2. Record malfunction symptoms.
3. GO TO 4.

NO:

1. Apply parking brake.
2. GO TO 4.

4. CHECK "N" POSITION FUNCTION

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

Does vehicle move?

YES:

1. Record malfunction symptoms.
2. GO TO 5.

NO: GO TO 5.

5. CHECK SHIFT SHOCK

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

Is an excessive shock detected?

YES:

1. Record malfunction symptoms.
2. GO TO 6.

NO: GO TO 6.

6. CHECK "R" POSITION FUNCTION

Release foot brake pedal for several seconds.

Does vehicle back up?

YES: GO TO 7.

NO:

1. Record malfunction symptoms.
2. GO TO 7.

7. CHECK "D" POSITION FUNCTION

Shift selector lever to "D" position.

Does the vehicle move forward?

YES: Go to "**CRUISE TEST**".

NO:

1. Stop "Road Test".
2. Perform self-diagnosis. Refer to "**SYMPTOM TABLE**".

Cruise Test

CAUTION: Always drive vehicle at a safe speed.

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 level surface.
3. Shift selector lever to "P" position.
4. Start the engine.
5. Shift selector lever to "D" position.
6. Accelerate vehicle at 2/8 throttle opening.
7. Check "Vehicle Speed When Shifting Gears". Refer to "**VEHICLE SPEED WHEN SHIFTING GEARS**".

With CONSULT-III

- Read "ACC PEDAL OPEN", "VEHICLE SPEED" and "ENG SPEED".

Is the inspection result normal?

YES: GO TO 2.

NO:

1. Record malfunction symptoms.
 2. GO TO 2.
2. CHECK VEHICLE SPEED WHEN SHIFTING GEARS (PART 2)
1. Park vehicle on level surface.
 2. Shift selector lever to "D" position.
 3. Accelerate vehicle at 8/8 throttle opening.
 4. Check "Vehicle Speed When Shifting Gears". Refer to "**VEHICLE SPEED WHEN SHIFTING GEARS**".

With CONSULT-III

- Read "ACC PEDAL OPEN", "VEHICLE SPEED" and "ENG SPEED".

Is the inspection result normal?

YES: GO TO 3.

NO:

1. Record malfunction symptoms.
 2. GO TO 3.
3. CHECK OVERDRIVE OFF CONDITION (PART 1)
1. Park vehicle on level surface.
 2. Push overdrive control switch.
 3. Accelerate vehicle at 2/8 throttle opening.
 4. Check "Vehicle Speed When Shifting Gears". Refer to "**VEHICLE SPEED WHEN SHIFTING GEARS**".

With CONSULT-III

- Read "ACC PEDAL OPEN", "VEHICLE SPEED" and "ENG SPEED".

Is the inspection result normal?

YES: GO TO 4.

NO:

1. Record malfunction symptoms.
2. GO TO 4.

4. CHECK OVERDRIVE OFF CONDITION (PART 2)

1. Park vehicle on level surface.
2. Push overdrive control switch.
3. Accelerate vehicle at 8/8 throttle opening.
4. Check "Vehicle Speed When Shifting Gears". Refer to "**VEHICLE SPEED WHEN SHIFTING GEARS**".

With CONSULT-III

- Read "ACC PEDAL OPEN", "VEHICLE SPEED" and "ENG SPEED".

Is the inspection result normal?

YES: GO TO 5.

NO:

1. Record malfunction symptoms.
2. GO TO 5.

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

1. Park vehicle on level surface.
2. Shift selector lever to "L" position.
3. Accelerate vehicle at 2/8 throttle opening.
4. Check "Vehicle Speed When Shifting Gears". Refer to "**VEHICLE SPEED WHEN SHIFTING GEARS**".

With CONSULT-III

- Read "ACC PEDAL OPEN", "VEHICLE SPEED" and "ENG SPEED".

Is the inspection result normal?

YES: GO TO 6.

NO:

1. Record malfunction symptoms.
2. GO TO 6.

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

1. Park vehicle on level surface.
2. Shift selector lever to "L" position.
3. Accelerate vehicle at 8/8 throttle opening.
4. Check "Vehicle Speed When Shifting Gears". Refer to "**VEHICLE SPEED WHEN SHIFTING GEARS**".

GEARS.

With CONSULT-III

- Read "ACC PEDAL OPEN", "VEHICLE SPEED" and "ENG SPEED".

Is the inspection result normal?

YES: GO TO 7.

NO:

1. Record malfunction symptoms.
2. GO TO 7.

7. CHECK ENGINE BRAKE FUNCTION

Check engine brake.

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

YES:

1. Stop vehicle.
2. Perform "Self Diagnostic Results" in "TRANSMISSION".

NO:

1. Record malfunction symptoms.
2. Perform self-diagnosis. Refer to "**SYMPTOM TABLE**".

CVT POSITION

Inspection and Adjustment

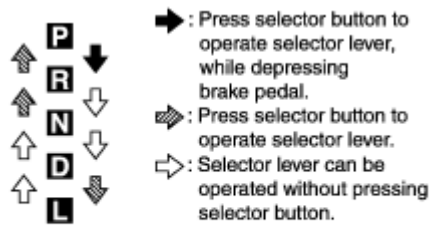
Inspection

1. Shift selector lever to "P" position, and turn ignition switch ON.
2. Check that selector lever can be shifted to other than "P" position when brake pedal is depressed. Also check that selector lever can be shifted from "P" position only when brake pedal is depressed.
3. Shift selector lever and check for excessive effort, sticking, noise or rattle.
4. Check that selector lever stops at each position with the feel of engagement when it is shifted through all the positions. Check that the actual position of selector lever matches the position shown by shift position indicator and manual lever on the transaxle.
5. The method of operating selector lever to individual positions correctly should be as shown in illustration.
6. When selector button is pressed in "P", "R", "N", "D" or "L" position without applying forward/backward

force to selector lever, check button operation for sticking.

7. Check that back-up lamps illuminate only when selector lever is placed in the "R" position.
8. When in "R" position, check that back-up lamps do not illuminate even when the selector lever is in the "P" position.

CAUTION: Check the lighting without pressing shift button.



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Fig. 57: Identifying Selector Button Operation
Courtesy of NISSAN MOTOR CO., U.S.A.

9. Check that back-up lamps do not illuminate when selector lever is pushed toward the "R" position when in the "P" or "N" position.

CAUTION: Check the lighting without pressing shift button.

10. Check that the engine can only be started with selector lever in the "P" and "N" positions.
11. Check that transaxle is locked completely in "P" position.

Adjustment

1. Shift selector lever to "P" position.

CAUTION: Turn wheels more than 1/4 rotations and apply the park lock.

2. Remove lock nut (<-->) and release control cable (1).

2 : Transmission range switch

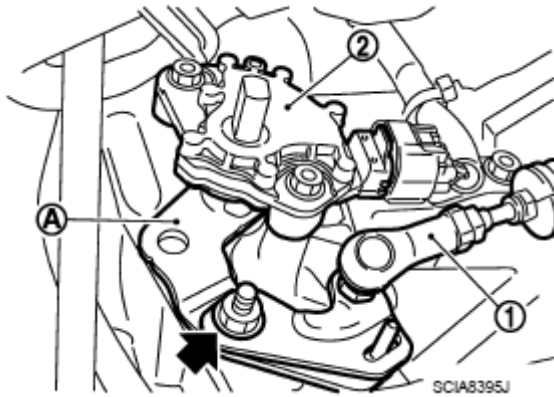


Fig. 58: Locating Lock Nut

Courtesy of NISSAN MOTOR CO., U.S.A.

3. Place manual lever (A) to "P" position.
4. Release control cable and temporarily tighten lock nut.
5. Tighten lock nut to the specified torque. Refer to "**EXPLODED VIEW**".

**CAUTION: Never apply any force to manual lever after lock nut is tightened.
(Especially forward and rearward)**

6. Check CVT position.

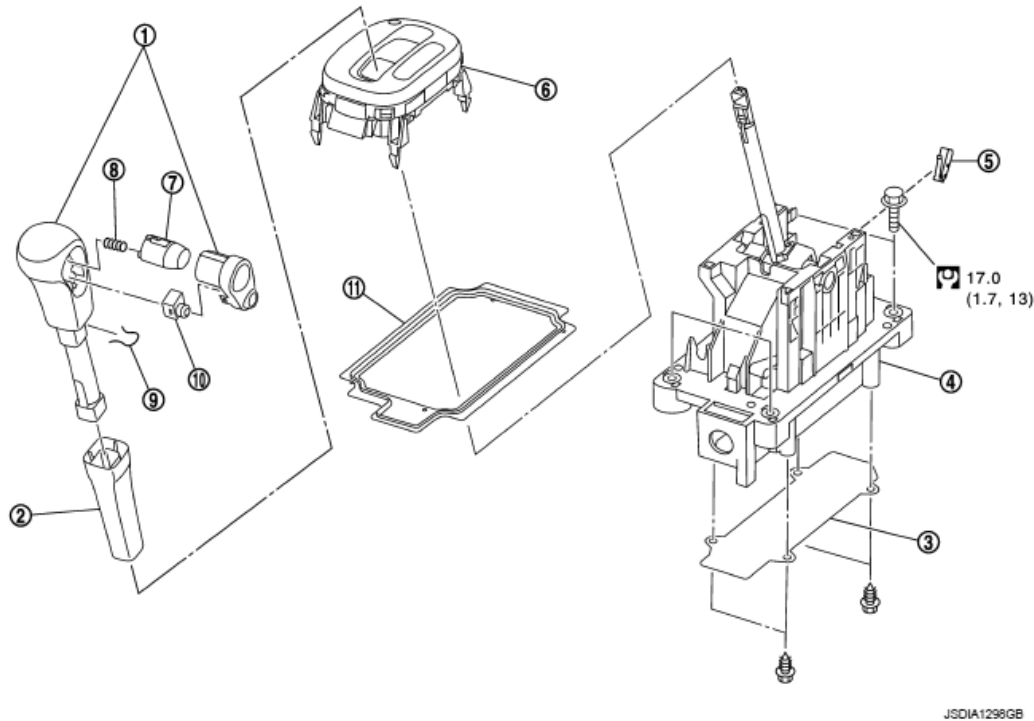
REMOVAL AND INSTALLATION

CVT SHIFT SELECTOR

Exploded View

| Symbol | Description |
|--------|-----------------------------------|
| | N·m (kg-m, ft-lb) |
| | N·m (kg-m, in-lb) |
| | Always replace after disassembly. |

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- | | | |
|------------------------------|----------------------------------|-----------------------------|
| 1. Selector lever knob | 2. Knob cover | 3. Plate |
| 4. CVT shift selector | 5. Park position switch | 6. Position indicator plate |
| 7. Selector button | 8. Selector button return spring | 9. Lock pin |
| 10. Overdrive control switch | 11. Dust cover | |

Fig. 59: Exploded View Of CVT Shift Selector With Torque Specifications
Courtesy of NISSAN MOTOR CO., U.S.A.

Refer to "**COMPONENTS**" for symbols in the figure.

Removal and Installation

REMOVAL

CAUTION: Make sure that parking brake is applied before removal and installation.

1. Disconnect the battery cable from the negative terminal. Refer to "**REMOVAL AND INSTALLATION**".
2. Shift selector lever knob in "N" position.

3. Slide knob cover downward.

CAUTION: Be careful not to damage selector lever knob.

4. Pull out lock pin from selector lever knob.
5. Remove selector lever knob and knob cover as a set from selector lever.

CAUTION: Never press selector button.

6. Remove center console assembly. Refer to "**EXPLODED VIEW**".
7. Disconnect CVT shift selector connector.
8. Disconnect key interlock cable from CVT shift selector assembly. Refer to "**EXPLODED VIEW**".
(Without intelligent Key system)
9. Remove the bolts from the CVT shift selector assembly.
10. Remove exhaust front tube, center muffler and heat plates. Refer to "**EXPLODED VIEW**".
11. Remove the plate from the CVT shift selector assembly.
12. Remove the lock plate from the control cable. Refer to "**EXPLODED VIEW**".
13. Remove control cable from the CVT shift selector assembly. Refer to "**EXPLODED VIEW**".
14. Insert flat-bladed screwdrivers at points (A) and (B) as shown in illustration, and press both tabs (E) and (F) at the front (C) and rear (D) slightly toward the center of the CVT shift selector assembly to remove the CVT shift selector assembly from the underside of the vehicle.
15. Remove CVT shift selector assembly from vehicle.

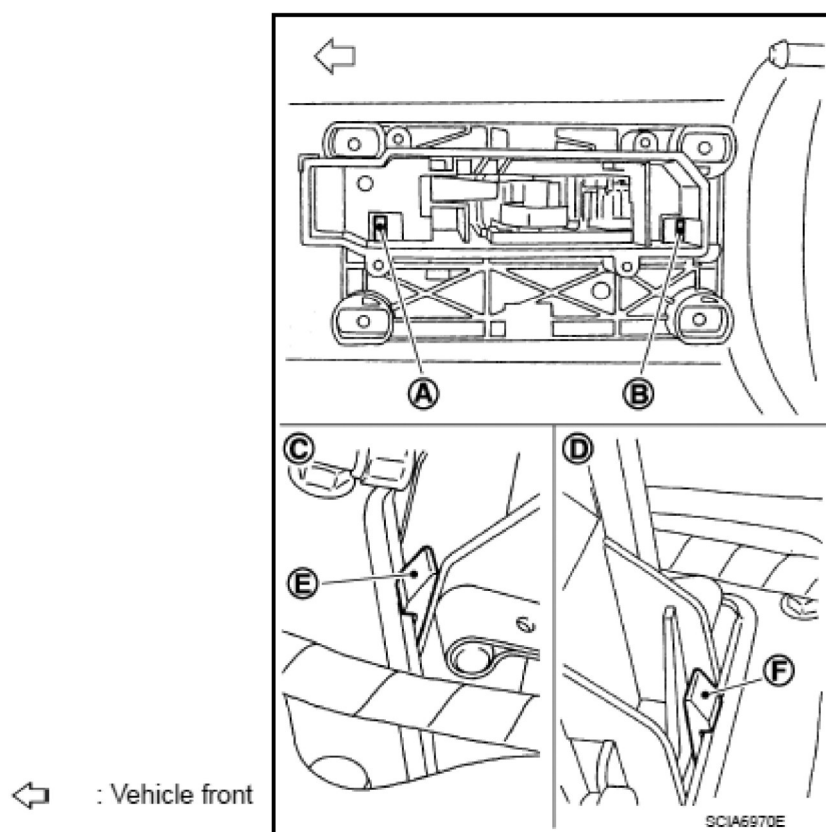


Fig. 60: Identifying CVT Shift Selector Assembly

Courtesy of NISSAN MOTOR CO., U.S.A.

INSTALLATION

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

- When installing control cable (1) to CVT shift selector assembly (2), check that control cable is fully pressed in with the ribbed (A) surface facing upward.

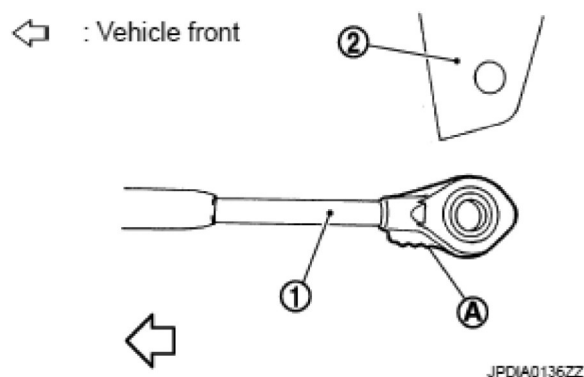


Fig. 61: Identifying CVT Shift Selector Assembly And Ribbed

Courtesy of NISSAN MOTOR CO., U.S.A.

- Refer to the followings when installing the selector lever knob to the CVT shift selector assembly.
- Install the lock pin (1) to the selector lever knob (2).
- Install the knob cover (3) to the selector lever knob.
- Shift selector lever in "N" position.
- Insert the shift lever knob into the shift lever until it clicks.

CAUTION:

- Install it straight, and never tap or apply any shock to install it.
- Never press selector button.

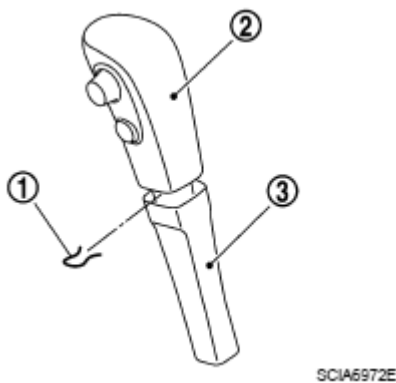


Fig. 62: Identifying Lock Pin And Selector Lever Knob
 Courtesy of NISSAN MOTOR CO., U.S.A.

Disassembly and Assembly

DISASSEMBLY

1. Remove overdrive control switch, selector lever button, and selector button return spring from selector lever knob.

CAUTION: Be careful not to damage selector lever knob.

2. Remove dust cover from CVT shift selector assembly.
3. Insert a flat-bladed screwdriver to (A) (at 4 locations) as shown in illustration, and bend each hook slightly to raise position indicator plate (1) and remove from CVT shift selector assembly (2).

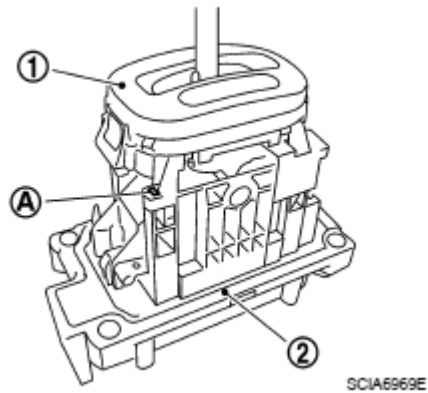


Fig. 63: Removing Dust Cover Of CVT Shift Selector Assembly
Courtesy of NISSAN MOTOR CO., U.S.A.

4. Remove park position switch (1) from CVT shift selector assembly.

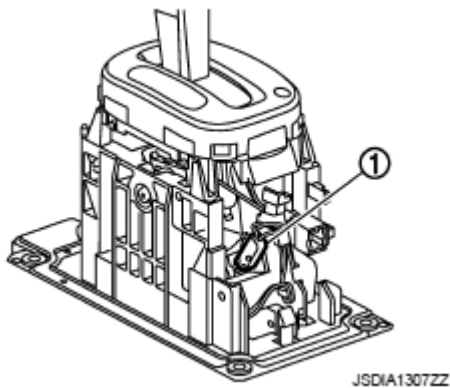


Fig. 64: Identifying Park Position Switch
Courtesy of NISSAN MOTOR CO., U.S.A.

ASSEMBLY

Assembly is in the reverse order of disassembly.

Inspection

INSPECTION AFTER INSTALLATION

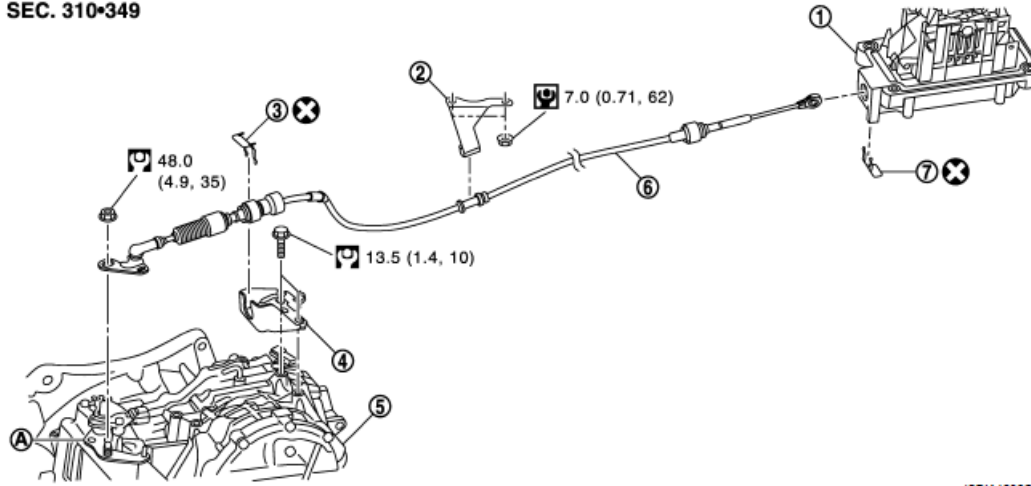
Check the CVT position. Refer to "**INSPECTION AND ADJUSTMENT**".

CONTROL CABLE

Exploded View

| Symbol | Description |
|--------|-----------------------------------|
| | N·m (kg-m, ft-lb) |
| | N·m (kg-m, in-lb) |
| | Always replace after disassembly. |

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- | | | |
|--------------------------------|-----------------------|------------------|
| 1. CVT shift selector assembly | 2. Bracket | 3. Lock plate |
| 4. Bracket | 5. Transaxle assembly | 6. Control cable |
| 7. Lock plate | | |
| A. Manual lever | | |

Fig. 65: Exploded View Of Control Cable With Torque Specifications
 Courtesy of NISSAN MOTOR CO., U.S.A.

Refer to "**COMPONENTS**" for symbols in the figure.

Removal and Installation

REMOVAL

CAUTION: Make sure that parking brake is applied before removal/installation.

1. Remove battery. Refer to "**EXPLODED VIEW**".
2. Remove air duct (inlet), air duct and air cleaner case. Refer to "**EXPLODED VIEW**".
3. Remove battery bracket.
4. Remove control cable fitting nut from control cable.
5. Remove lock plate from bracket.
6. Remove control cable from bracket.
7. Remove control cable from CVT shift selector assembly. Refer to "**EXPLODED VIEW**".
8. Remove control cable from vehicle.
9. Remove bracket.

INSTALLATION

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

When installing control cable (1) to CVT shift selector assembly (2), check that control cable is fully pressed in with the ribbed (A) surface facing upward.

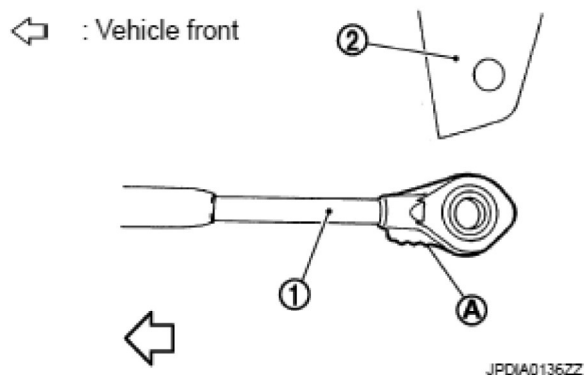


Fig. 66: Identifying Control Cable To CVT Shift Selector Assembly
 Courtesy of NISSAN MOTOR CO., U.S.A.

Inspection

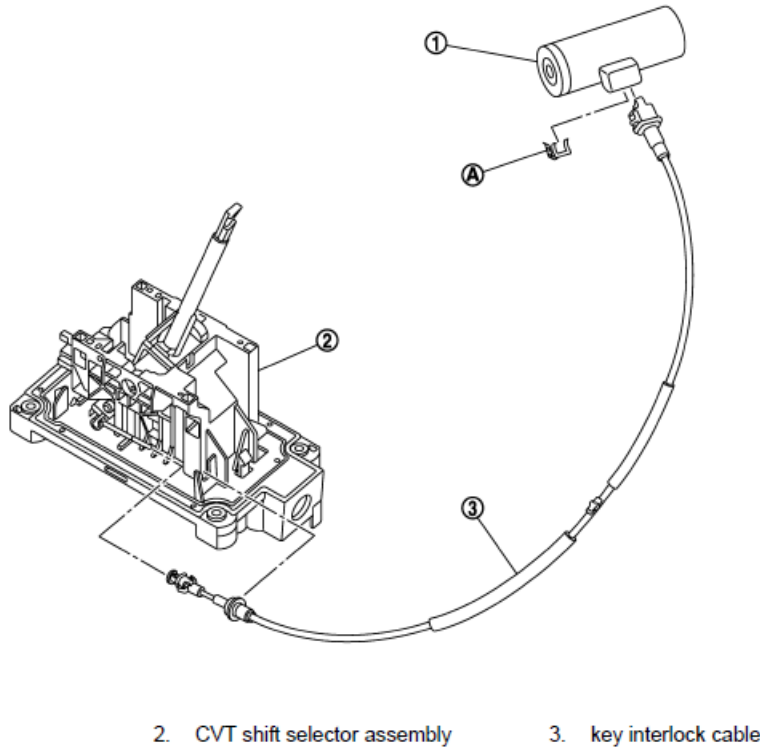
INSPECTION AFTER INSTALLATION

Check the CVT position. Refer to "**INSPECTION AND ADJUSTMENT**".

KEY INTERLOCK CABLE

Exploded View

SEC. 349•998



JS0IA1297ZZ

Fig. 67: Exploded View Of Key Interlock Cable
Courtesy of NISSAN MOTOR CO., U.S.A.

Refer to "COMPONENTS" for symbols in the figure.

Removal and Installation

REMOVAL

CAUTION: Make sure that parking brake is applied before removal/installation.

1. Remove selector lever knob. Refer to "**EXPLODED VIEW**".
2. Remove center console. Refer to "**EXPLODED VIEW**".
3. Slide slider (A) toward casing cap (B) while pressing tabs (C) on slider to separate slider from adjust holder (D).

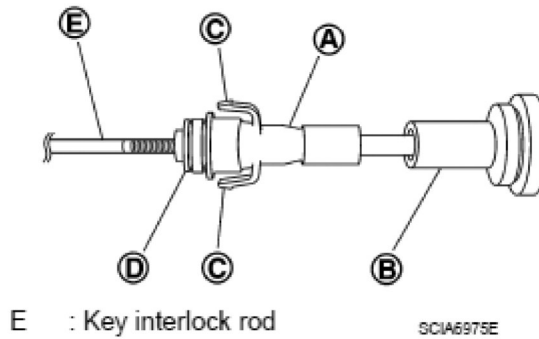


Fig. 68: Identifying Key Interlock Rod
Courtesy of NISSAN MOTOR CO., U.S.A.

4. Remove steering column cover lower and instrument driver lower panel. Refer to "**EXPLODED VIEW**".
5. Pull out the lock plate (A) from the holder (B).
6. Remove the key interlock cable (1) from the key cylinder (2).
7. Remove clip and remove key interlock cable.

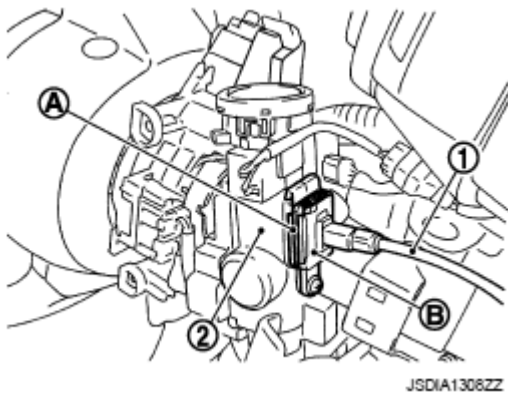


Fig. 69: Identifying Lock Plate Of Holder
Courtesy of NISSAN MOTOR CO., U.S.A.

INSTALLATION

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

- Temporarily install adjust holder (A) to key interlock rod (B). Install casing cap (C) to cable bracket (D) on CVT shift selector assembly.

CAUTION:

- Never bend or twist key interlock cable excessively when installing.
- Check that casing cap is firmly secured in cable bracket on CVT shift selector assembly after installing key interlock cable to cable bracket on CVT shift selector assembly.

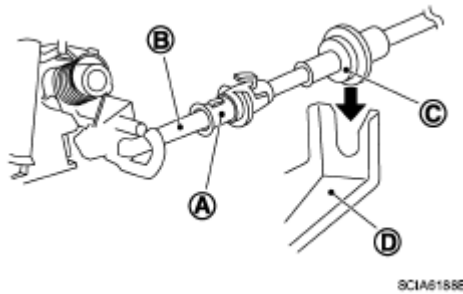


Fig. 70: Installing Casing Cap To Cable Bracket On CVT Shift Selector Assembly
Courtesy of NISSAN MOTOR CO., U.S.A.

- Slide the slider (A) toward the key interlock rod (D) while pressing the pull lock (B) down to securely connect the adjust holder (C) with the key interlock rod (D).

CAUTION:

- Never press tabs when holding slider.
- Never apply any force at a right angle to key interlock rod when sliding.

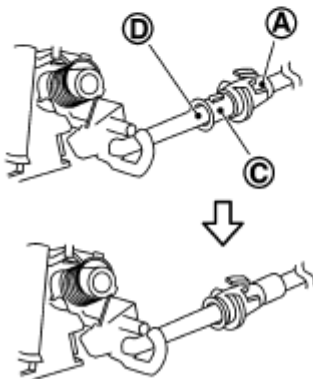
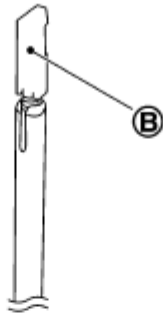





Fig. 71: Identifying Key Interlock Rod, Pull Lock And Adjust Holder
Courtesy of NISSAN MOTOR CO., U.S.A.

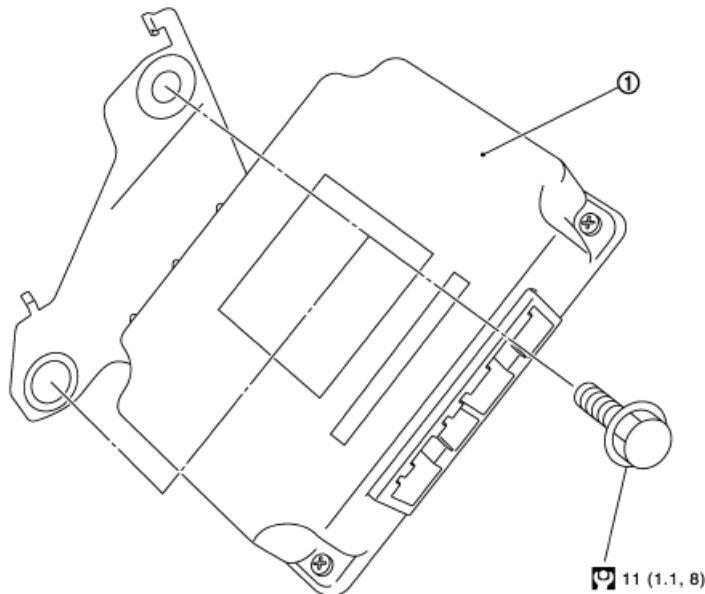
Inspection

INSPECTION AFTER INSTALLATION

Check the CVT position. Refer to "**INSPECTION AND ADJUSTMENT**".

TCM**Exploded View**

| Symbol | Description |
|---|-----------------------------------|
|  | N·m (kg-m, ft-lb) |
|  | N·m (kg-m, in-lb) |
|  | Always replace after disassembly. |

SEC. 310

JSDIA1232GB

1. TCM

Fig. 72: Exploded View Of TCM With Torque Specifications
Courtesy of NISSAN MOTOR CO., U.S.A.

Refer to "**COMPONENTS**" for symbols in the figure.

Removal and Installation**REMOVAL**

CAUTION: When replacing TCM and transaxle assembly as a set, replace transaxle assembly first and then replace TCM. Refer to "**TCM REPLACEMENT : SPECIAL REPAIR REQUIREMENT**".

1. Disconnect the battery cable from the negative terminal. Refer to "**REMOVAL AND INSTALLATION**".
2. Disconnect TCM connector.
3. Remove TCM.

INSTALLATION

Install in the reverse order of removal.

Adjustment**ADJUSTMENT AFTER INSTALLATION**

Perform "TCM REPLACEMENT: Special Repair Requirement". Refer to "**TCM REPLACEMENT : DESCRIPTION**".

AIR BREATHER HOSE**Removal and Installation****REMOVAL**

1. Remove clip from air cleaner assembly.
2. Remove air breather hose from transaxle assembly.

INSTALLATION

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

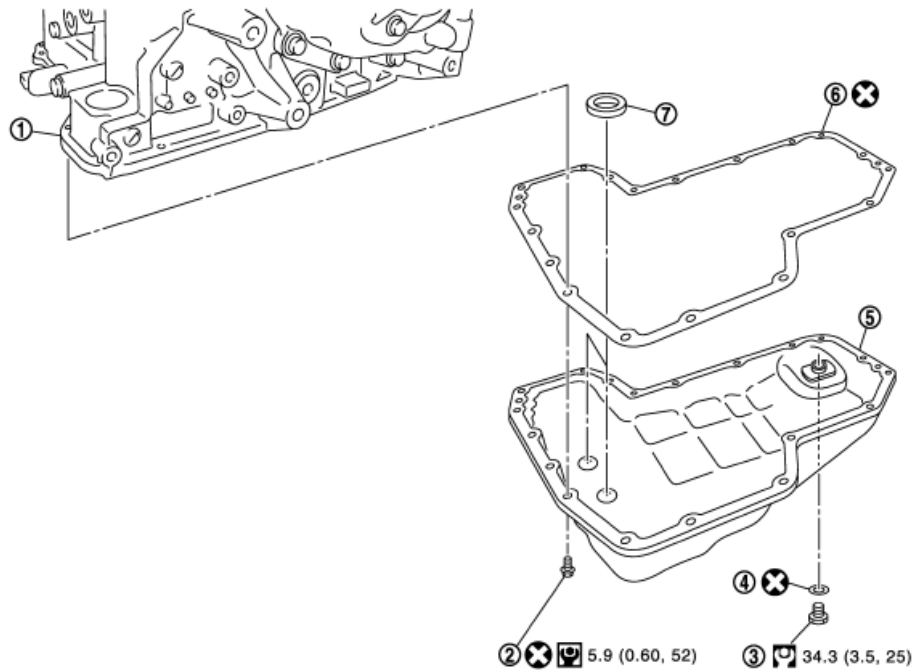
CAUTION:

- Check that air breather hose is not collapsed or blocked due to folding or bending when installed.
- Fix clip to mounting hole.
- Check that insertion allowance of hose to transaxle tube is end reaches radius curve end.
- When inserting air breather hose to transaxle tube, check that paint mark faces vehicle upper side.

OIL PAN**Exploded View**

| Symbol | Description |
|--------|-----------------------------------|
| | N·m (kg-m, ft·lb) |
| | N·m (kg-m, in·lb) |
| | Always replace after disassembly. |

SEC. 310



JSDIA1183GB

- | | | |
|-----------------------|-------------------------|-------------------|
| 1. Transaxle assembly | 2. Oil pan fitting bolt | 3. Drain plug |
| 4. Drain plug gasket | 5. Oil pan | 6. Oil pan gasket |
| 7. Magnet | | |

Fig. 73: Exploded View Of Oil Pan With Torque Specifications
 Courtesy of NISSAN MOTOR CO., U.S.A.

Refer to "**COMPONENTS**" for symbols in the figure.

Removal and Installation

REMOVAL

1. Remove engine under cover.
2. Remove drain plug from oil pan and then drain the CVT fluid.
3. Remove oil pan fitting bolts (<--), and then remove oil pan and oil pan gasket.

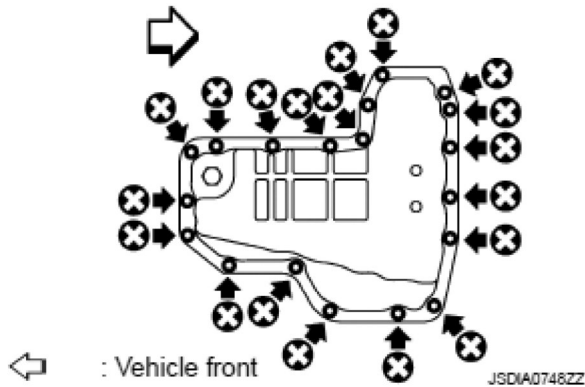


Fig. 74: Locating Oil Pan Bolts

Courtesy of NISSAN MOTOR CO., U.S.A.

4. Remove magnets from oil pan.

INSTALLATION

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

CAUTION:

- Never reuse oil pan gasket, drain plug gasket and oil pan fitting bolts.
- Completely remove all moisture, oil and old gasket, etc. from the oil pan gasket mounting surface of transaxle case and oil pan.

Inspection

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.

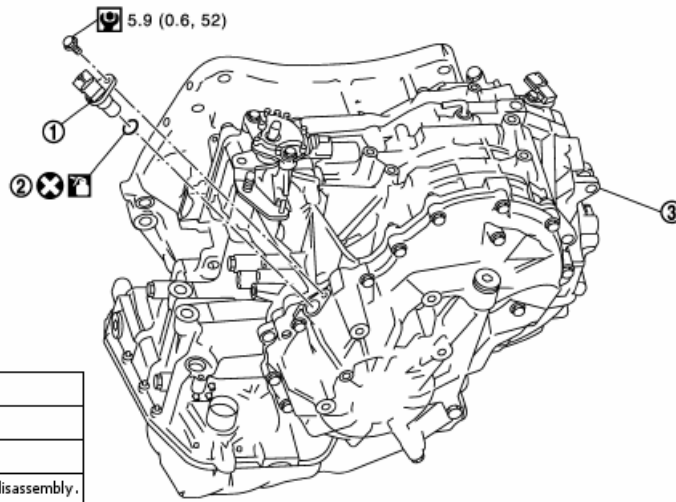
INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage and check CVT fluid level. Refer to "INSPECTION".

PRIMARY SPEED SENSOR

Exploded View

SEC. 319



| Symbol | Description |
|--------|-----------------------------------|
| | N·m (kg-m, ft-lb) |
| | N·m (kg-m, in-lb) |
| | Always replace after disassembly. |

JSDIA0750GB

1. Primary speed sensor

2. O-ring

3. Transaxle assembly

: Apply CVT Fluid NS-2.

Fig. 75: Identifying Primary Speed Sensor, O-Ring And Transaxle Assembly With Torque Specifications
 Courtesy of NISSAN MOTOR CO., U.S.A.

Refer to "**COMPONENTS**" for symbols not described above.

Removal and Installation

REMOVAL

1. Remove battery. Refer to "**EXPLODED VIEW**".
2. Remove air duct (inlet), air duct and air cleaner case. Refer to "**EXPLODED VIEW**".
3. Remove battery bracket.
4. Remove control cable from manual lever. Refer to "**EXPLODED VIEW**".
5. Place manual lever to "L" position.
6. Disconnect primary speed sensor connector.
7. Remove primary speed sensor.
8. Remove O-ring from primary speed sensor.

INSTALLATION

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

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

Inspection




INSPECTION AFTER INSTALLATION

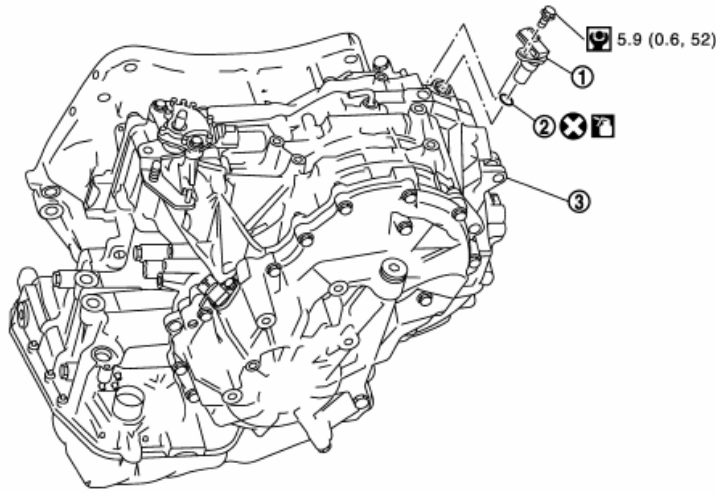
- Check for CVT fluid leakage and check CVT fluid level. Refer to "**INSPECTION**".
- Check the CVT position. Refer to "**INSPECTION AND ADJUSTMENT**".

SECONDARY SPEED SENSOR

Exploded View

SEC. 319

| Symbol | Description |
|---|-----------------------------------|
|  | N·m (kg-m, ft-lb) |
|  | N·m (kg-m, in-lb) |
|  | Always replace after disassembly. |



1. Secondary speed sensor 2. O-ring 3. Transaxle assembly


 : Apply CVT Fluid NS-2.

Fig. 76: Identifying Secondary Speed Sensor, O-Ring And Transaxle Assembly With Torque Specifications

Courtesy of NISSAN MOTOR CO., U.S.A.

Refer to "**COMPONENTS**" for symbols not described above.

Removal and Installation

REMOVAL

1. Remove air duct (inlet). Refer to "**EXPLODED VIEW**".
2. Disconnect secondary speed sensor connector.
3. Remove secondary speed sensor.
4. Remove O-ring from secondary speed sensor.

INSTALLATION

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

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

Inspection**INSPECTION AFTER INSTALLATION**

Check for CVT fluid leakage and check CVT fluid level. Refer to "**INSPECTION**".

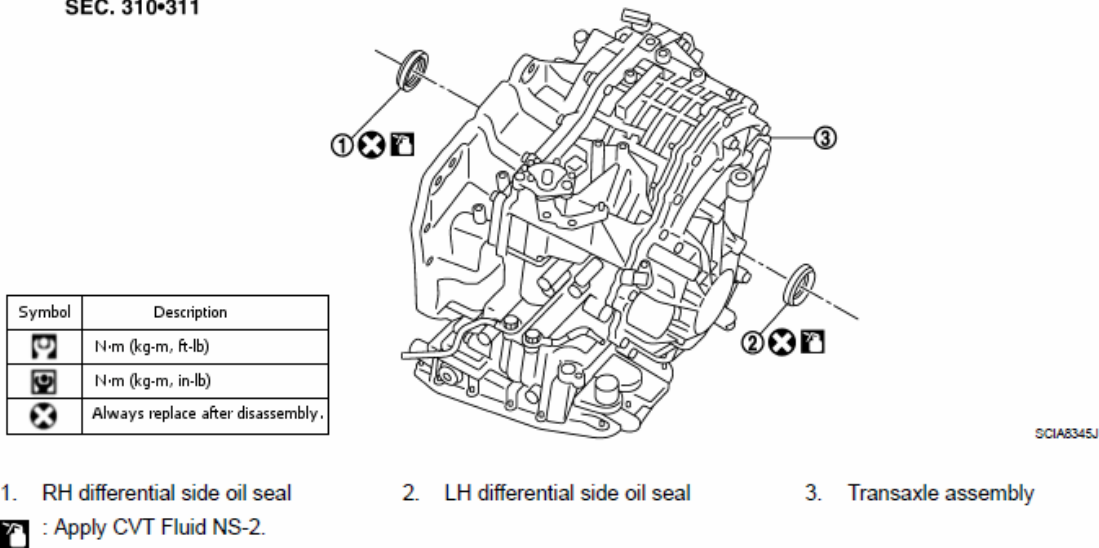
DIFFERENTIAL SIDE OIL SEAL**Exploded View****SEC. 310•311**

Fig. 77: Identifying Differential Side Oil Seal And Transaxle Assembly
 Courtesy of NISSAN MOTOR CO., U.S.A.

Refer to "**COMPONENTS**" for symbols not described above.

Removal and Installation**REMOVAL**

1. Remove front drive shaft assembly. Refer to "**EXPLODED VIEW**".
2. Remove differential side oil seals using a flat-bladed screwdriver.

CAUTION: Be careful not to scratch transaxle case and converter housing.

INSTALLATION

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

CAUTION: • Never reuse differential side oil seals.

- Apply CVT fluid to differential side oil seals.
- When insert drive shaft, always use a protector [SST: KV38107900 (-)]. Refer to "EXPLODED VIEW".

Install drive shaft using drifts [SST: ST35325000 (-)] and KV31103000 (-)]. Check that side oil seal height difference from case end surface is within the specified value "A" and "B".

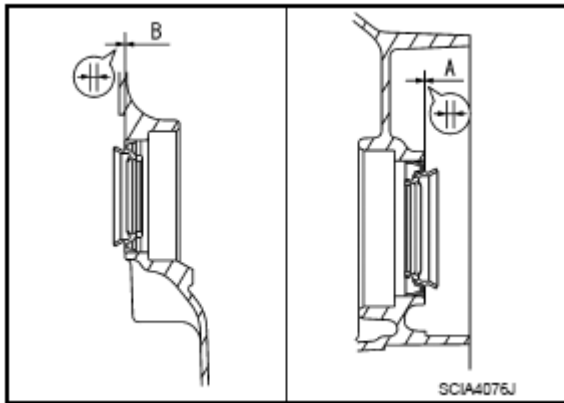


Fig. 78: Identifying Height Difference Of Case End Surface
Courtesy of NISSAN MOTOR CO., U.S.A.

Dimension "A" : Height difference from case end surface is within 0 ± 0.5 mm (0 ± 0.020 in).

Dimension "B" : Height difference from case end surface is within 0 ± 0.5 mm (0 ± 0.020 in).

NOTE: Differential side oil seal pulling direction is used as the reference.

Inspection




INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage and check CVT fluid level. Refer to "INSPECTION".

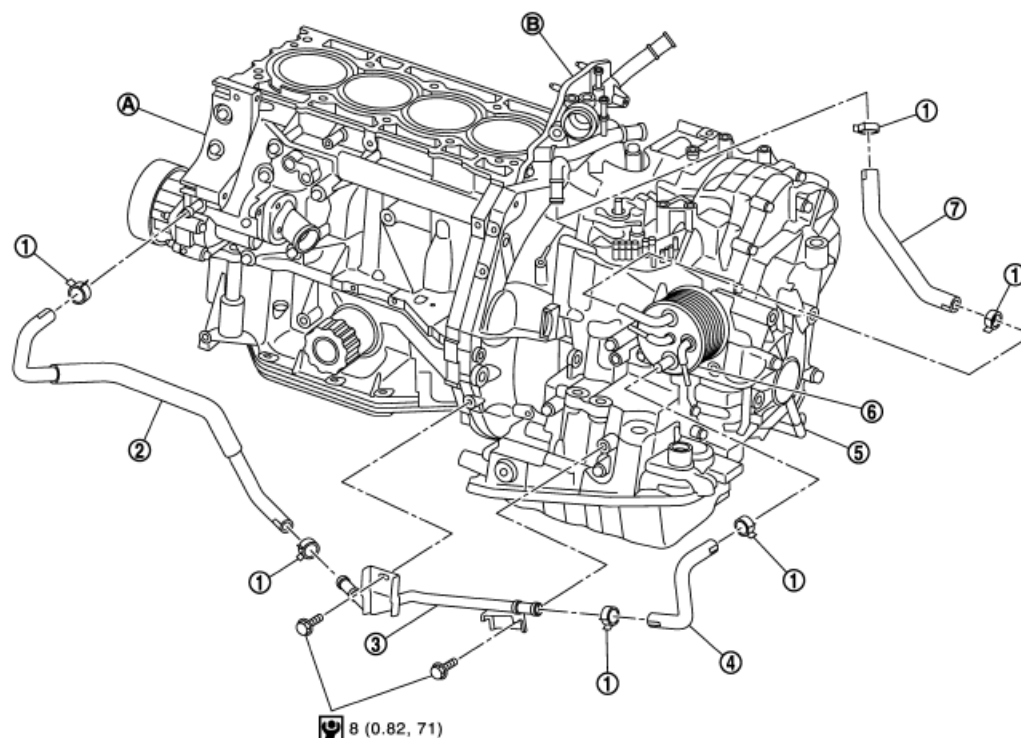
CVT OIL WARMER SYSTEM

WATER HOSE

WATER HOSE : Exploded View

| Symbol | Description |
|---|-----------------------------------|
|  | N·m (kg-m, ft·lb) |
|  | N·m (kg-m, in·lb) |
|  | Always replace after disassembly. |

SEC. 310



JSDIA1290GB

- | | | |
|---------------------|-----------------------|-------------------|
| 1. Hose clamp | 2. CVT water hose C | 3. CVT water tube |
| 4. CVT water hose B | 5. Transaxle assembly | 6. CVT oil warmer |
| 7. CVT water hose A | | |
| A. Water pump | B. Water inlet-outlet | |

Fig. 79: Identifying Water Hose Components With Torque Specifications
 Courtesy of NISSAN MOTOR CO., U.S.A.

Refer to "**COMPONENTS**" for symbols in the figure.

WATER HOSE : Removal and Installation

REMOVAL

WARNING: Never remove the radiator cap when the engine is hot. Serious burns could occur from high pressure coolant escaping from the radiator.

CAUTION: Perform this step engine is cold.

1. Remove air duct (inlet). Refer to "**EXPLODED VIEW**".
2. Remove hose clamps, and remove CVT water hose A.
3. Remove hose clamps, and remove CVT water hose B.
4. Remove hose clamps, and remove CVT water hose C.
5. Remove CVT water tube.

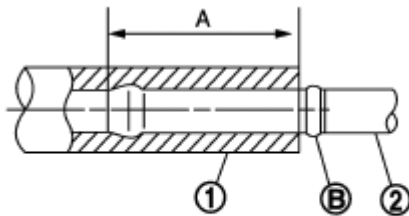
INSTALLATION

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

- Insert CVT water hose according to dimension "A" described below.

CVT WATER HOSE DIMENSION

| CVT water hose (1) | Insert side tube (2) | Dimension "A" |
|--------------------|----------------------|-----------------------------------|
| CVT water hose A | Water inlet-outlet | End reaches the spool portion (B) |
| | CVT oil warmer | |
| CVT water hose B | CVT oil warmer | |
| | CVT water tube | |
| CVT water hose C | CVT water tube | |
| | Water pump | |

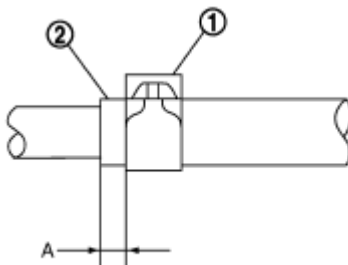


JSDIA1291ZZ

Fig. 80: Identifying CVT Water Hose Dimension

Courtesy of NISSAN MOTOR CO., U.S.A.

- Set hose clamps (1) at the both ends of fluid cooler hose (2) with dimension "A" from the hose edge.



SCIAB123E

Fig. 81: Identifying Fluid Cooler Hose With Dimension
Courtesy of NISSAN MOTOR CO., U.S.A.

Dimension "A" : 5 - 7 mm (0.20 - 0.28 in)

- Hose clamp should not interfere with the bulge.

CVT WATER HOSE DIMENSION

| CVT water hose | Hose end | Paint mark | Position of hose clamp ⁽¹⁾ |
|------------------|-------------------------|------------------------------------|---------------------------------------|
| CVT water hose A | Water inlet-outlet side | Facing forward | A |
| | CVT oil warmer side | Facing forward | A |
| CVT water hose B | CVT oil warmer side | Facing to the right of the vehicle | B |
| | CVT water tube side | Facing forward | A |
| CVT water hose C | CVT water tube side | Facing forward | A |
| | Water pump side | Facing upward | C |

(1) Refer to the illustrations for the specific position of each hose clamp tab.

- The illustrations indicate the view from the hose ends.
- When installing hose clamps the center line of each clamp tab should be positioned as shown in the figure.

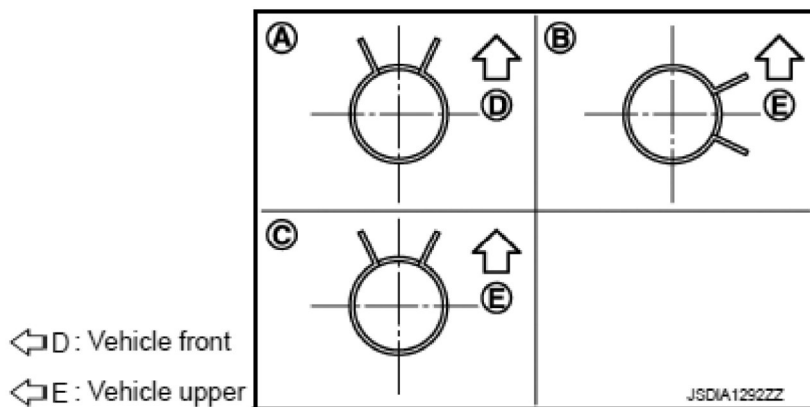


Fig. 82: Identifying Hose Clamps Of Center Line
Courtesy of NISSAN MOTOR CO., U.S.A.

WATER HOSE : Inspection

INSPECTION AFTER INSTALLATION

Start and warm up the engine. Visually check that there is no leakage of engine coolant and CVT fluid.

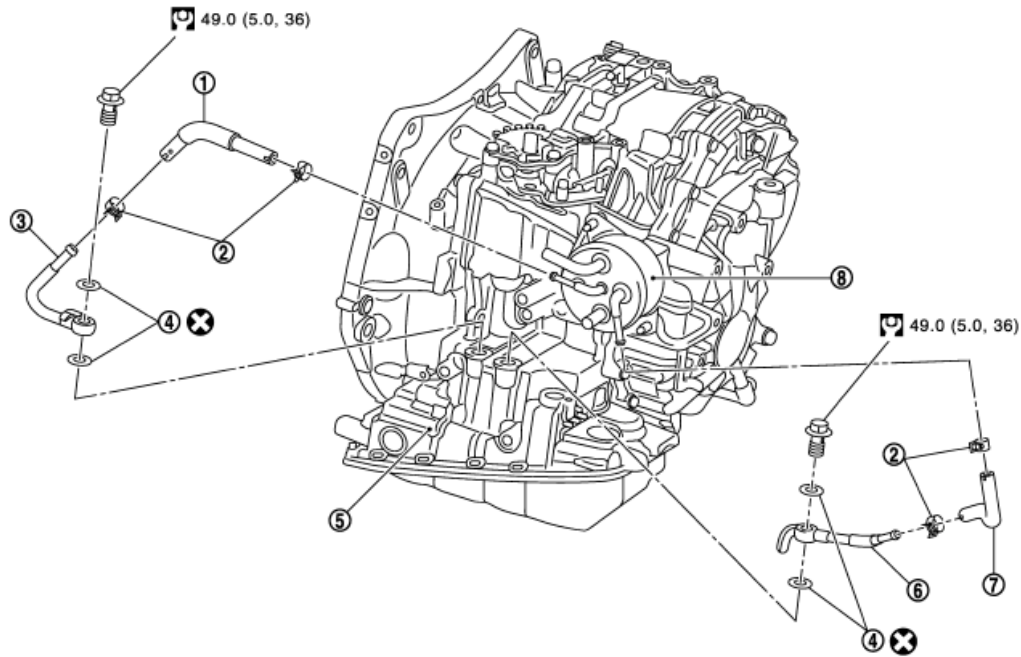
CVT FLUID COOLER HOSE

CVT FLUID COOLER HOSE : Exploded View

COMPONENT PARTS LOCATION

| Symbol | Description |
|--------|-----------------------------------|
| | N·m (kg-m, ft-lb) |
| | N·m (kg-m, in-lb) |
| | Always replace after disassembly. |

SEC. 310



JSDIA1288GB

- | | | |
|----------------------------|-----------------------|----------------------------|
| 1. CVT fluid cooler hose A | 2. Hose clamp | 3. CVT fluid cooler tube A |
| 4. Gasket | 5. Transaxle assembly | 6. CVT fluid cooler tube B |
| 7. CVT fluid cooler hose B | 8. CVT oil warmer | |

Fig. 83: Identifying CVT Oil Warmer System With Torque Specifications
Courtesy of NISSAN MOTOR CO., U.S.A.

Refer to "**COMPONENTS**" for symbols in the figure.

CVT FLUID COOLER HOSE : Removal and Installation

REMOVAL

1. Remove air duct (inlet). Refer to "**EXPLODED VIEW**".
2. Remove hose clamps, and remove CVT fluid cooler hose A.
3. Remove hose clamps, and remove CVT fluid cooler hose B.
4. Remove CVT fluid cooler tube A and CVT fluid cooler tube B.

INSTALLATION

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

- When installing CVT fluid cooler tube (1) and (2) to transaxle assembly, install them so that CVT fluid cooler tube rotation stopper (A) and (B) touch to transaxle case (C) and (D).

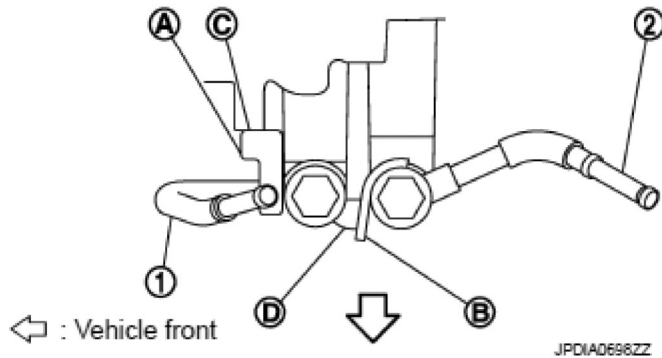


Fig. 84: Identifying CVT Fluid Cooler Tube
Courtesy of NISSAN MOTOR CO., U.S.A.

- Insert CVT fluid cooler hose according to dimension "A" described below.

CVT FLUID COOLER HOSE DIMENSION

| CVT fluid cooler hose (1) | Insert side tube (2) | Dimension "A" |
|---------------------------|-----------------------|-----------------------------------|
| CVT fluid cooler hose A | CVT fluid cooler tube | End reaches the 2-stage bulge (B) |
| | CVT oil warmer | |
| CVT fluid cooler hose B | CVT oil warmer | |
| | CVT fluid cooler tube | |

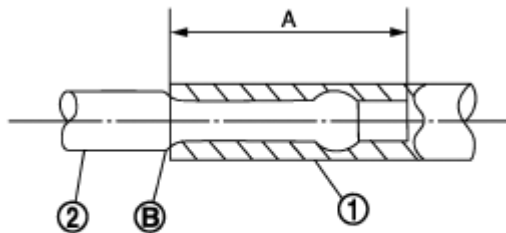
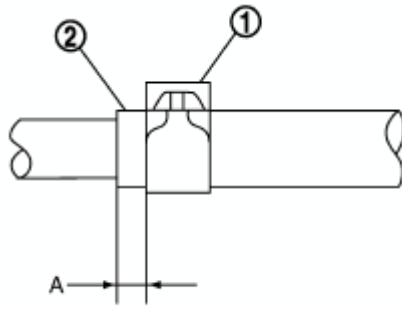


Fig. 85: Identifying CVT Fluid Cooler Tube
Courtesy of NISSAN MOTOR CO., U.S.A.

- Set hose clamps (1) at the both ends of fluid cooler hose (2) with dimension "A" from the hose edge.



SCIA8123E

Fig. 86: Identifying Hose Clamps Of Fluid Cooler Hose
Courtesy of NISSAN MOTOR CO., U.S.A.

Dimension "A" : 5 - 7 mm (0.20 - 0.28 in)

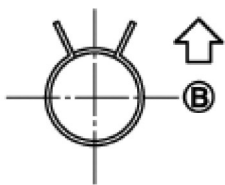
- Hose clamp should not interfere with the bulge.

CVT FLUID COOLER HOSE CHART

| CVT fluid cooler hose | Hose end | Paint mark | Position of hose clamp ⁽¹⁾ |
|--|----------------------------|---------------|---------------------------------------|
| CVT fluid cooler hose A | CVT fluid cooler tube side | Vehicle front | A |
| | CVT oil warmer side | Vehicle front | A |
| CVT fluid cooler hose B | CVT oil warmer side | Vehicle front | A |
| | CVT fluid cooler tube side | Vehicle front | A |
| (1) Refer to the illustrations for the specific position of each hose clamp tab. | | | |

- The illustrations indicate the view from the hose ends.
- When installing hose clamps the center line of each clamp tab should be positioned as shown in the figure.

Ⓐ



←B : Vehicle front

JPDIA0675ZZ

Fig. 87: Identifying Center Line Of Clamp
Courtesy of NISSAN MOTOR CO., U.S.A.




CVT FLUID COOLER HOSE : Inspection

INSPECTION AFTER INSTALLATION

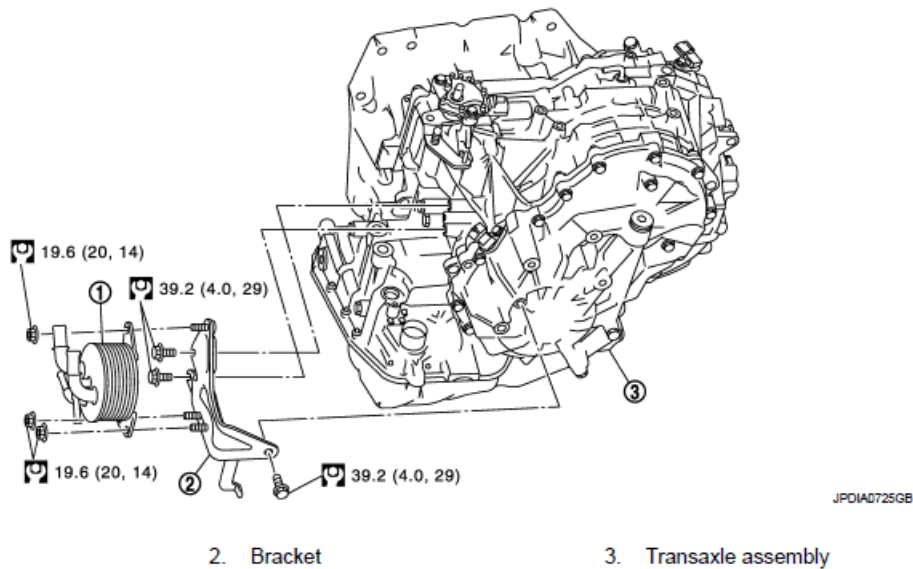
Check for CVT fluid leakage and check CVT fluid level. Refer to "**INSPECTION**".

CVT OIL WARMER

CVT OIL WARMER : Exploded View

| Symbol | Description |
|---|-----------------------------------|
|  | N·m (kg-m, ft-lb) |
|  | N·m (kg-m, in-lb) |
|  | Always replace after disassembly. |

SEC. 310



1. CVT oil warmer

2. Bracket

3. Transaxle assembly

Fig. 88: Identifying CVT Oil Warmer, Bracket And Transaxle Assembly With Torque Specification
Courtesy of NISSAN MOTOR CO., U.S.A.

Refer to "**COMPONENTS**" for symbols in the figure.

CVT OIL WARMER : Removal and Installation

REMOVAL

WARNING: Never remove the radiator cap when the engine is hot. Serious burns could occur from high pressure coolant escaping from the radiator.

CAUTION: Perform this step engine is cold.

1. Remove CVT water hose from CVT oil warmer. Refer to "**WATER HOSE : EXPLODED VIEW**".
2. Remove CVT fluid cooler hose from CVT oil warmer. Refer to "**CVT FLUID COOLER HOSE :**

EXPLODED VIEW".

3. Remove CVT oil warmer.
4. Remove bracket.

INSTALLATION

Install in the reverse order of removal.

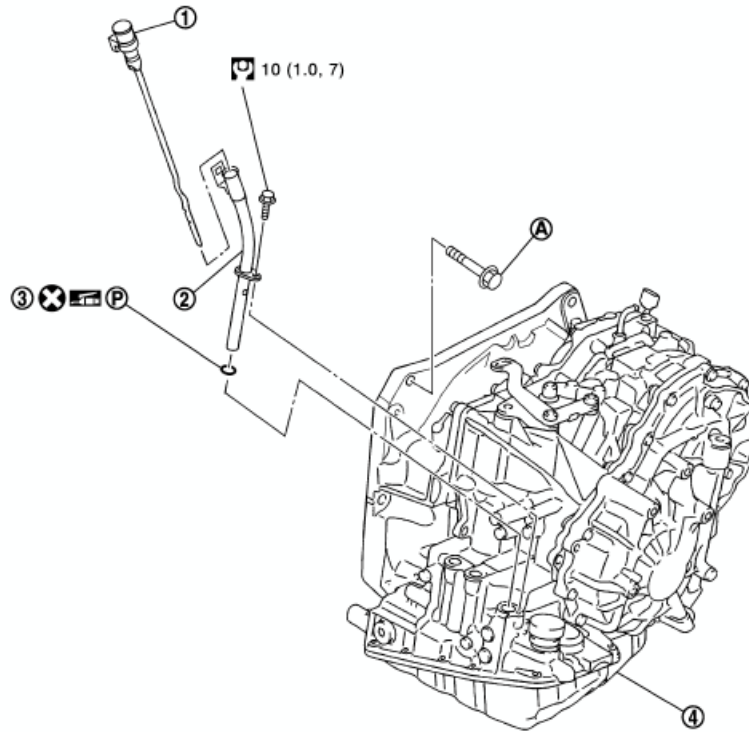
CVT OIL WARMER : Inspection**INSPECTION AFTER INSTALLATION**

- Check for CVT fluid leakage and check CVT fluid level. Refer to "**INSPECTION**".
- Start and warm up the engine. Visually check that there is no leakage of engine coolant and CVT fluid.

UNIT REMOVAL AND INSTALLATION**TRANSAXLE ASSEMBLY****Exploded View**

| Symbol | Description |
|--------|-----------------------------------|
| | N·m (kg-m, ft-lb) |
| | N·m (kg-m, in-lb) |
| | Always replace after disassembly. |

SEC. 310



JSDIA1185GB

- 1. CVT fluid level gauge
- 2. CVT fluid charging pipe
- 3. O-ring
- 4. Transaxle assembly
- A. : Tightening must be done following the installation procedure.

Fig. 89: Identifying CVT Fluid Level Gauge, CVT Fluid Charging Pipe And O-Ring With Torque Specifications

Courtesy of NISSAN MOTOR CO., U.S.A.

Refer to "COMPONENTS " for symbols in the figure.

Removal and Installation

WARNING: Never remove the radiator cap when the engine is hot. Serious burns could occur from high pressure coolant escaping from the radiator.

- CAUTION:**
- Perform this step engine is cold.
 - When replacing TCM and transaxle assembly as a set, replace transaxle assembly first and then replace TCM. Refer to "TCM REPLACEMENT : SPECIAL REPAIR REQUIREMENT".

REMOVAL

1. Remove battery. Refer to "**EXPLODED VIEW**".
2. Remove air duct (inlet), air duct and air cleaner case. Refer to "**EXPLODED VIEW**".
3. Remove air breather hose.
4. Remove battery bracket.
5. Disconnect following harness connector and wire harness.
 - CVT unit connector. Refer to "**REMOVAL AND INSTALLATION PROCEDURE FOR CVT UNIT CONNECTOR**".
 - Transmission range switch connector
 - Primary speed sensor connector
 - Secondary speed sensor connector
 - Ground
6. Remove control cable and bracket from transaxle assembly. Refer to "**EXPLODED VIEW**".
7. Remove CVT water hoses. Refer to "**WATER HOSE : EXPLODED VIEW**".
8. Remove CVT water tubes. Refer to "**WATER HOSE : EXPLODED VIEW**".
9. Remove CVT fluid level gauge.
10. Remove CVT fluid charging pipe.
11. Remove O-ring from CVT fluid charging pipe.
12. Remove starter motor. Refer to "**EXPLODED VIEW**".
13. Remove engine under cover.
14. Turn crankshaft, and remove the four tightening nuts for drive plate and torque converter.

CAUTION: When turning crankshaft, turn it clockwise as viewed from the front of the engine.

15. Remove front drive shafts. Refer to "**EXPLODED VIEW**".
16. Remove heat insulator. Refer to "**EXPLODED VIEW**".
17. Support transaxle assembly with a transmission jack.

CAUTION: When setting the transmission jack, be careful not to collide against drain plug.

18. Remove engine mounting insulator (LH). Refer to "**EXPLODED VIEW**".
19. Remove engine mounting bracket support (LH). Refer to "**EXPLODED VIEW**".
20. Remove rear engine mounting bracket. Refer to "**EXPLODED VIEW**".
21. Remove rear torque rod. Refer to "**EXPLODED VIEW**".
22. Support engine assembly with a transmission jack.

CAUTION: When setting the transmission jack, be careful not to collide against drain plug.

23. Remove engine mounting bracket (LH). Refer to "EXPLODED VIEW".
24. Remove bolts fixing transaxle assembly to engine assembly.
25. Remove transaxle assembly from vehicle.

CAUTION:

- Secure torque converter to prevent it from dropping.
- Secure transaxle assembly to a transmission jack.

26. Remove CVT fluid cooler tubes. Refer to "CVT FLUID COOLER HOSE : EXPLODED VIEW".

INSTALLATION

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

CAUTION:

- Never reuse O-ring.
- Apply grease to O-ring.
- Check fitting of dowel pins (A) when installing transaxle assembly to engine assembly.

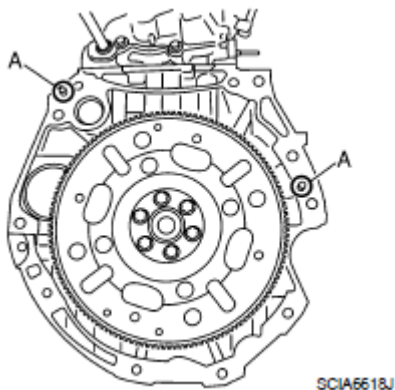


Fig. 90: Identifying Dowel Pins

Courtesy of NISSAN MOTOR CO., U.S.A.

- Rotate torque converter so that the stud bolt (A) for mounting the drive plate location guide of torque converter aligns with the mounting position of starter motor.

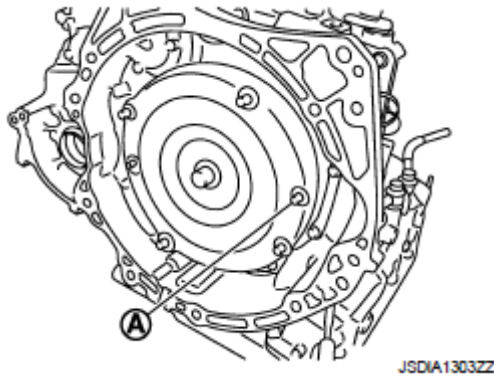


Fig. 91: Identifying Stud Bolt

Courtesy of NISSAN MOTOR CO., U.S.A.

- Rotate crankshaft so that the hole (A) for inserting drive plate location guide of drive plate aligns with the mounting position (B) of starter motor.

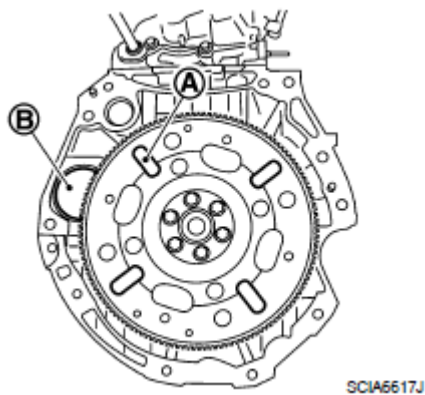


Fig. 92: Identifying Hole Of Drive Plate

Courtesy of NISSAN MOTOR CO., U.S.A.

CAUTION:

- When turning crankshaft, turn it clockwise as viewed from the front of the engine.
- Be careful that torque converter stud bolt is aligned to drive plate hole position. Otherwise stud bolt contacts drive plate.

NOTE:

Insert stud bolt of torque converter into the hole of drive plate, aligning the drive plate hole position and torque converter.

- Temporally tighten drive plate and torque converter connecting nuts and tighten to the specified torque.

Tightening torque: 51 N.m (5.2 kg-m, 38 ft-lb)

CAUTION:

- When turning crankshaft, turn it clockwise as viewed from the

front of the engine.

- When tightening the nuts for the torque converter after fixing the crankshaft pulley bolts, confirm the tightening torque of the crankshaft pulley mounting bolts. Refer to "**REMOVAL AND INSTALLATION**".
- When installing transaxle assembly to the engine assembly, attach the fixing bolts in accordance with the following.

BOLT POSITION CHART

| Bolt position | A | B |
|-------------------------------------|---------------------------------------|---------------------------------------|
| Insertion direction | Transaxle assembly to engine assembly | Engine assembly to transaxle assembly |
| Number of bolts | 2 | 2 |
| Bolt length mm (in) | 55 (2.17) | 50 (1.97) |
| Tightening torque N.m (kg-m, ft-lb) | 62.0 (6.3, 45.7) | |

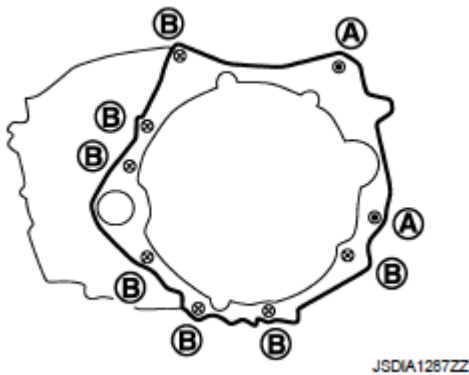


Fig. 93: Identifying Engine Assembly Bolts
Courtesy of NISSAN MOTOR CO., U.S.A.

Inspection and Adjustment

INSPECTION BEFORE INSTALLATION

After inserting a torque converter to transaxle assembly, check dimension "A" within the reference value limit.

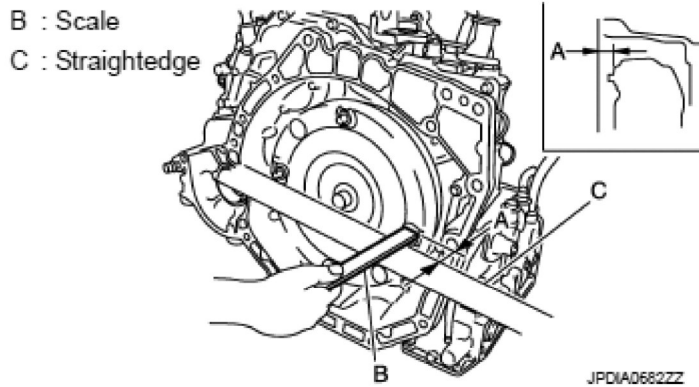


Fig. 94: Checking Reference Value Limit
Courtesy of NISSAN MOTOR CO., U.S.A.

Dimension "A" : "TORQUE CONVERTER"

INSPECTION AFTER INSTALLATION

Check the following.

- Check for CVT fluid leakage and check CVT fluid level. Refer to "INSPECTION".
- Check CVT position. Refer to "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 "CONSULT-III FUNCTION (TRANSMISSION)".
- Perform "TRANSAXLE ASSEMBLY REPLACEMENT: Special Repair Requirement". Refer to "TRANSAXLE ASSEMBLY REPLACEMENT : DESCRIPTION".

UNIT DISASSEMBLY AND ASSEMBLY

TORQUE CONVERTER

Disassembly

1. Remove transaxle assembly. Refer to "EXPLODED VIEW".
2. Remove torque converter from transaxle assembly.

CAUTION: Never damage bushing inside of torque converter sleeve when removing torque converter.

Assembly

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.

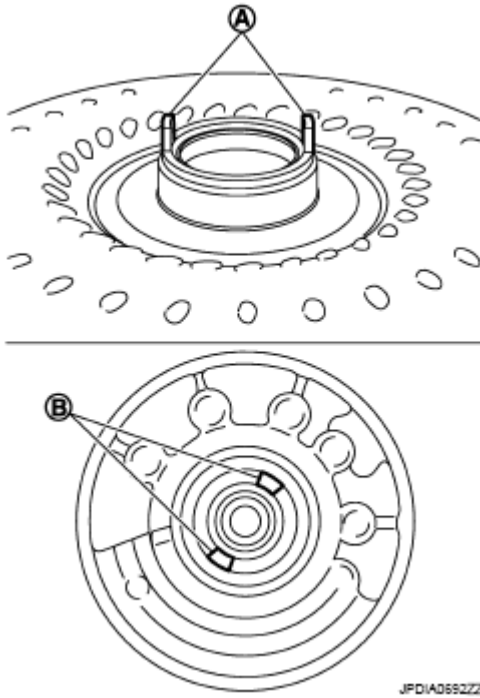


Fig. 95: Identifying Pawl And Inner Gear Hole
Courtesy of NISSAN MOTOR CO., U.S.A.

CAUTION:

- Rotate the torque converter for installing torque converter.
- Never damage the bushing inside the torque converter sleeve when installing the converter housing oil seal.

Inspection

INSPECTION AFTER INSTALLATION

After inserting a torque converter to transaxle assembly, check dimension "A" within the reference value limit.

2010 Nissan Cube

2010 TRANSMISSION Automatic Transmission (RE0F08B) - Cube

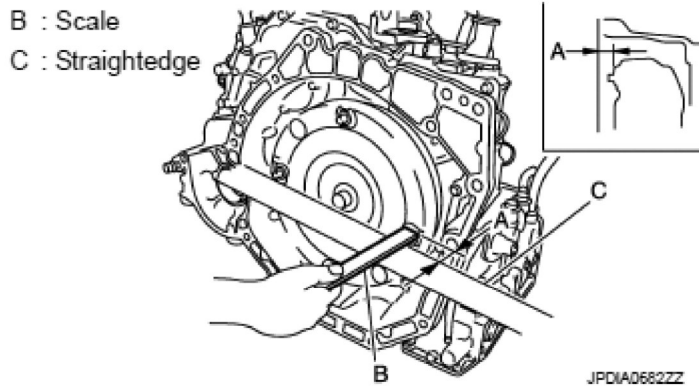


Fig. 96: Checking Reference Value Limit

Courtesy of NISSAN MOTOR CO., U.S.A.

Dimension "A" : "TORQUE CONVERTER"

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specification

GENERAL SPECIFICATION CHART

| | | |
|--|-------------|-----------------------------------|
| Applied model | | MR18DE |
| Drive type | | 2WD |
| CVT model | | RE0F08B |
| CVT assembly model code number | | 1XC6B |
| Transmission gear ratio | D range | 2.561 - 0.427 |
| | Reverse | 2.619 |
| | Final drive | 5.473 |
| Recommended fluid | | Genuine NISSAN CVT Fluid NS-2 |
| Fluid capacity liter (US qt, Imp qt) | | 7.4 (7-7/8, 6-1/2) ⁽¹⁾ |
| CAUTION: <ul style="list-style-type: none">• 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) The fluid capacity is the reference value. Check the fluid level with CVT fluid level gauge. | | |

Vehicle Speed When Shifting Gears

ENGINE SPEED SERVICE DATA SPECIFICATIONS

| | | Unit: RPM | |
|-------------------|---------------|---------------------|---------------------|
| Throttle position | Shift pattern | Engine speed | |
| | | At 40 km/h (25 MPH) | At 60 km/h (37 MPH) |
| | | | |

2010 Nissan Cube

2010 TRANSMISSION Automatic Transmission (RE0F08B) - Cube

| | | | |
|-----|-------------------------|---------------|---------------|
| 2/8 | "D" position | 1,300 - 3,100 | 1,400 - 3,500 |
| | Overdrive OFF condition | 2,200 - 3,000 | 2,800 - 3,600 |
| | "L" position | 3,100 - 4,000 | 3,800 - 4,700 |
| 8/8 | "D" position | 3,600 - 4,500 | 4,400 - 5,300 |
| | Overdrive OFF condition | 3,600 - 4,500 | 4,400 - 5,300 |
| | "L" position | 3,600 - 4,500 | 4,400 - 5,300 |

CAUTION: Lock-up clutch is engaged when vehicle speed is approximately 18 km/h (11 MPH) to 90 km/h (56 MPH).

Stall Speed

STALL SPEED SERVICE DATA SPECIFICATIONS

| | | |
|-------------|---------------|-----------|
| | | Unit: RPM |
| Stall speed | 2,300 - 2,850 | |

Line Pressure

LINE PRESSURE SERVICE DATA SPECIFICATIONS

| | | |
|--------------------------------------|--------------|----------------------|
| Unit: kPa (kg/cm ² , psi) | | |
| Select position | Engine speed | Line pressure |
| "R", "D" | Idle speed | 650 (6.63, 94.3) |
| | Stall speed | 4,250 (43.35, 616.3) |

Torque Converter

TORQUE CONVERTER SERVICE DATA SPECIFICATIONS

| | |
|---|-------------------|
| Dimension "A" between end of converter housing and torque converter | 14.4 mm (0.57 in) |
|---|-------------------|

KROM

SPEC CHANGE INFORMATION

SHIFT FINISHER AND SHIFT BASE FINISHER

Shift Finisher and Shift Base Finisher

- A special color is used for the shift finisher and the shift base finisher.

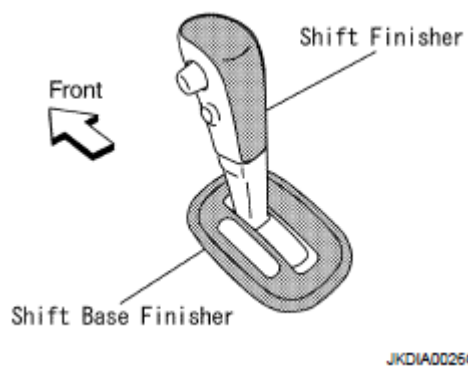


Fig. 97: Identifying Shift Finisher And Shift Base Finisher
Courtesy of NISSAN MOTOR CO., U.S.A.