

TM

SECTION

TRANSAXLE & TRANSMISSION

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B

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HOW TO USE THIS MANUAL

APPLICATION NOTICE

How to Check M/T Type

INFOID:0000000006288130

Check the M/T type to confirm the service information in TM section.

Service information	M/T type
	1st and 2nd gears synchronizer type*
RS5F91R (TYPE 1)	Single-cone synchronizer
RS5F91R (TYPE 2)	Double-cone synchronizer

*: Refer to [TM-100, "General Specifications"](#) for the application of the synchronizer type.

PRECAUTION

PRECAUTIONS FOR EUROPE

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

INFOID:000000006766838

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. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

The vehicle may be equipped with a passenger air bag deactivation switch. Because no rear seat exists where a rear-facing child restraint can be placed, the switch is designed to turn off the passenger air bag so that a rear-facing child restraint can be used in the front passenger seat. The switch is located in the center of the instrument panel, near the ashtray. When the switch is turned to the ON position, the passenger air bag is enabled and could inflate for certain types of collision. When the switch is turned to the OFF position, the passenger air bag is disabled and will not inflate. A passenger air bag OFF indicator on the instrument panel lights up when the passenger air bag is switched OFF. The driver air bag always remains enabled and is not affected by the passenger air bag deactivation switch.

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the "SRS AIR BAG".
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.
- The vehicle may be equipped with a passenger air bag deactivation switch which can be operated by the customer. When the passenger air bag is switched OFF, the passenger air bag is disabled and will not inflate. When the passenger air bag is switched ON, the passenger air bag is enabled and could inflate for certain types of collision. After SRS maintenance or repair, make sure the passenger air bag deactivation switch is in the same position (ON or OFF) as when the vehicle arrived for service.

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

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, 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.

FOR EUROPE : Precautions Necessary for Steering Wheel Rotation After Battery Disconnection

INFOID:000000006766839

CAUTION:

Comply with the following cautions to prevent any error and malfunction.

- Before removing and installing any control units, first turn the 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.

PRECAUTIONS

< PRECAUTION >

[5MT: RS5F91R]

- **Always use CONSULT 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.**

For vehicle with 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 operation 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 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 ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the ignition switch is turned to LOCK position.)
6. Perform self-diagnosis check of all control units using CONSULT.

FOR EUROPE : General Precautions

INFOID:000000006766840

CAUTION:

- **Never reuse CSC (Concentric Slave Cylinder). Because CSC slides back to the original position every time when removing transaxle assembly. At this timing, dust on the sliding parts may damage a seal of CSC and may cause clutch fluid leakage. Refer to [CL-25, "Removal and Installation"](#).**
- **Never reuse transaxle gear oil, once it has been drained.**
- **Check oil level or replace gear oil with vehicle on level surface.**
- **During removal or installation, keep inside of transaxle clear of dust or dirt.**
- **Check for the correct installation status prior to removal or disassembly. If matching marks are required, be certain they never interfere with the function of the parts they are applied.**
- **In principle, tighten bolts or nuts gradually in several steps working diagonally from inside to outside. If tightening sequence is specified, use it.**
- **Never damage sliding surfaces and mating surfaces.**

EXCEPT FOR EUROPE

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

INFOID:000000006766841

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. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

Always observe the following items for preventing accidental activation.

PRECAUTIONS

< PRECAUTION >

[5MT: RS5F91R]

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

EXCEPT FOR EUROPE : Precautions Necessary for Steering Wheel Rotation After Battery Disconnection

INFOID:000000006766842

CAUTION:

Comply with the following cautions to prevent any error and malfunction.

- Before removing and installing any control units, first turn the 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 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.

For vehicle with 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 operation 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 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 ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the ignition switch is turned to LOCK position.)
6. Perform self-diagnosis check of all control units using CONSULT.

EXCEPT FOR EUROPE : General Precautions

INFOID:000000006766843

CAUTION:

- Never reuse CSC (Concentric Slave Cylinder). Because CSC slides back to the original position every time when removing transaxle assembly. At this timing, dust on the sliding parts may damage a seal of CSC and may cause clutch fluid leakage. Refer to [CL-25, "Removal and Installation"](#).
- Never reuse transaxle gear oil, once it has been drained.
- Check oil level or replace gear oil with vehicle on level surface.
- During removal or installation, keep inside of transaxle clear of dust or dirt.
- Check for the correct installation status prior to removal or disassembly. If matching marks are required, be certain they never interfere with the function of the parts they are applied.
- In principle, tighten bolts or nuts gradually in several steps working diagonally from inside to outside. If tightening sequence is specified, use it.
- Never damage sliding surfaces and mating surfaces.

PREPARATION

< PREPARATION >

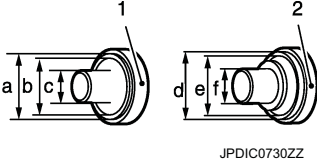
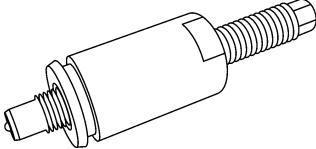
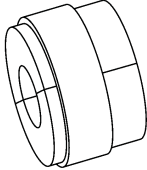
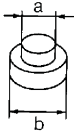
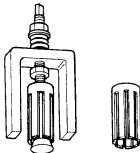
[5MT: RS5F91R]

PREPARATION

PREPARATION

Special Service Tools

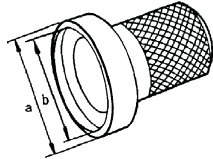
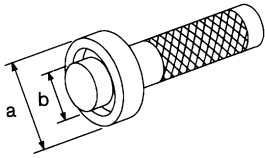
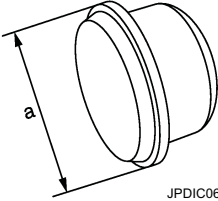
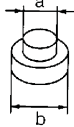
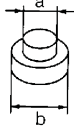
INFOID:0000000006056556

Tool number Tool name	Description
KV32500QAA (Renault SST: B.vi 1666) Drift set 1. — (Stamping number: B.vi 1666-A) Drift a: 54.3 mm (2.138 in) dia. b: 45 mm (1.77 in) dia. c: 26.6 mm (1.047 in) dia. 2. — (Stamping number: B.vi 1666-B) Drift d: 54 mm (2.13 in) dia. e: 48.6 mm (1.913 in) dia. f: 26.6 mm (1.047 in) dia.	Installing differential side oil seal 
KV32300QAC (Renault SST: B.vi 22-01) Puller	Removing 5th main gear 
KV32300QAD (Renault SST: B.vi 1000-01) Puller	Removing 5th main gear 
ST35300000 Drift a: 45 mm (1.77 in) dia. b: 59 mm (2.32 in) dia.	- Removing and installing input shaft rear bearing - Removing and installing mainshaft rear bearing 
KV111011S0 Valve seat remover	Removing mainshaft front bearing 

PREPARATION

< PREPARATION >

[5MT: RS5F91R]

Tool number Tool name	Description
ST33400001 Drift a: 60 mm (2.36 in) dia. b: 47 mm (1.85 in) dia.  ZZA0814D	Installing mainshaft front bearing
KV40100900 Drift a: 52 mm (2.05 in) dia. b: 39.5 mm (1.555 in) dia.  NT084	Installing input shaft front bearing
KV32300QAE (Renault SST: B.vi.1554) Drift a: 61.5 mm (2.421 in) dia.  JPDIC0635ZZ	Installing differential side bearing outer race
ST33052000 Drift a: 22 mm (0.87 in) dia. b: 28 mm (1.10 in) dia.  ZZA0969D	Removing differential side bearing
KV40104920 Drift a: 21.7 mm (0.854 in) dia. b: 44.7 mm (1.760 in) dia.  ZZA0969D	Installing differential side bearing

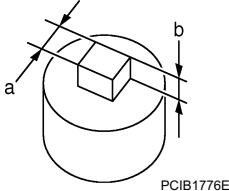
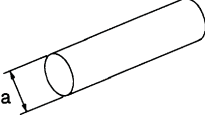
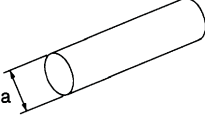
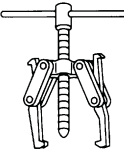
PREPARATION

< PREPARATION >

[5MT: RS5F91R]

Commercial Service Tools

INFOID:000000006056557

Tool name	Description
Socket a: 8 mm (0.31 in) b: 5 mm (0.20 in)	Removing and installing drain plug
 PCIB1776E	
Drift a: 38 mm (1.50 in) dia.	Removing input shaft front bearing
 S-NT063	
Drift a: 14.5 mm (0.571 in) dia.	Installing bushing
 S-NT063	
Puller	• Removing 5th-reverse synchronizer hub • Removing differential side bearing
 NT077	
Bearing remover	Removing bushing
 S-NT134	

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SYSTEM DESCRIPTION

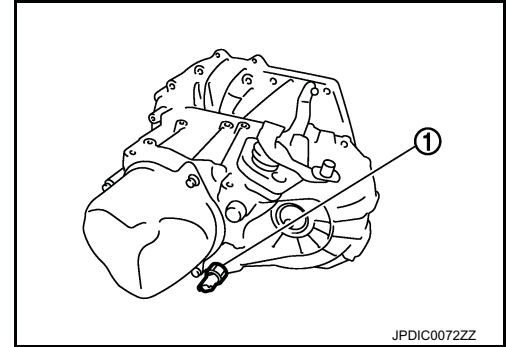
COMPONENT PARTS

Component Parts Location

INFOID:000000006056558

POSITION SWITCH

1 : Position switch

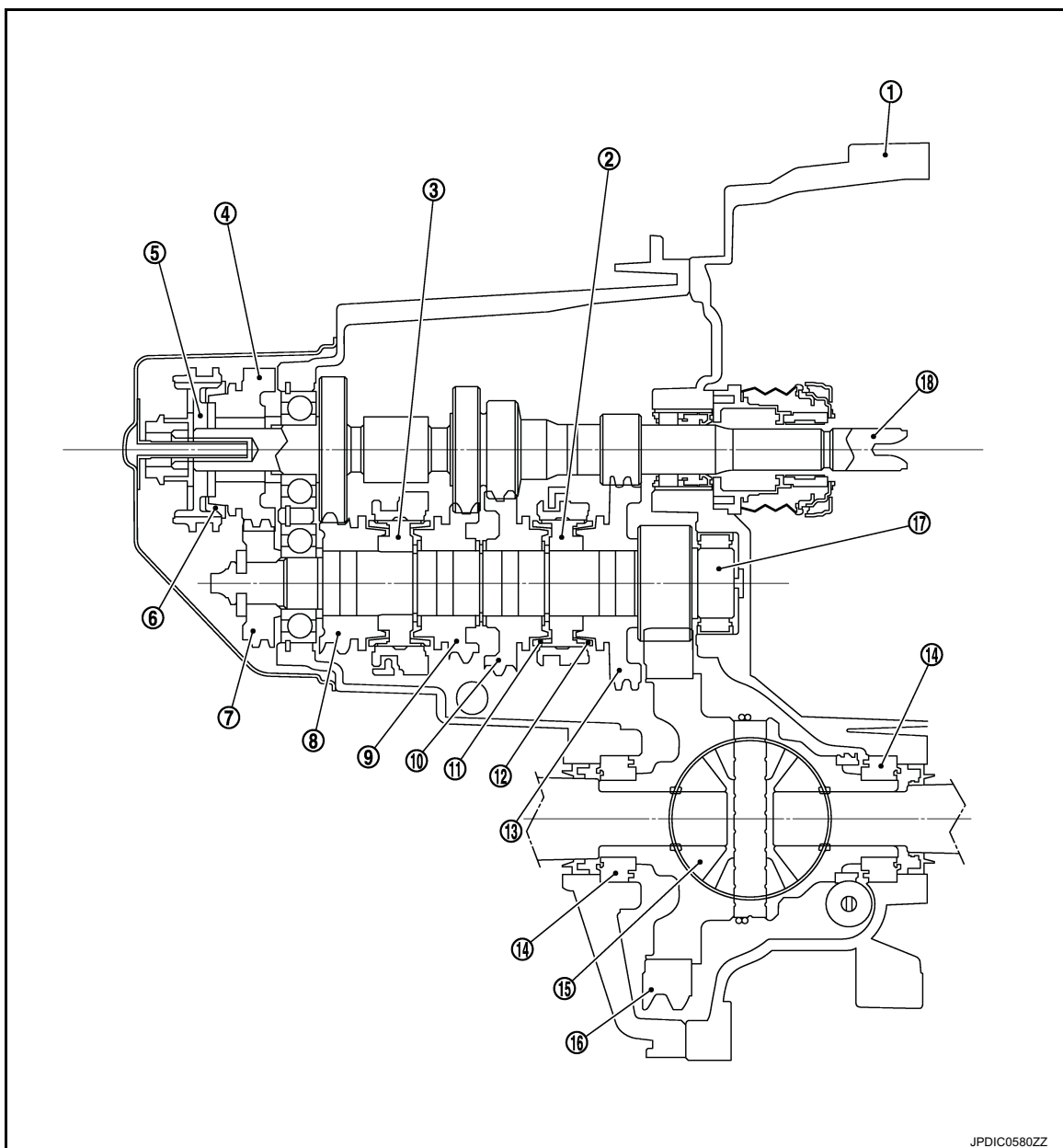


STRUCTURE AND OPERATION

TYPE 1

TYPE 1 : Sectional View

INFOID:000000006056559



1. Clutch housing	2. 1st-2nd synchronizer hub assembly	3. 3rd-4th synchronizer hub assembly
4. 5th input gear	5. 5th-reverse synchronizer hub assembly	6. 5th baulk ring
7. 5th main gear	8. 4th main gear	9. 3rd main gear
10. 2nd main gear	11. 2nd single-cone synchronizer	12. 1st single-cone synchronizer
13. 1st main gear	14. Differential side bearing	15. Differential
16. Final gear	17. Mainshaft	18. Input shaft

TYPE 2

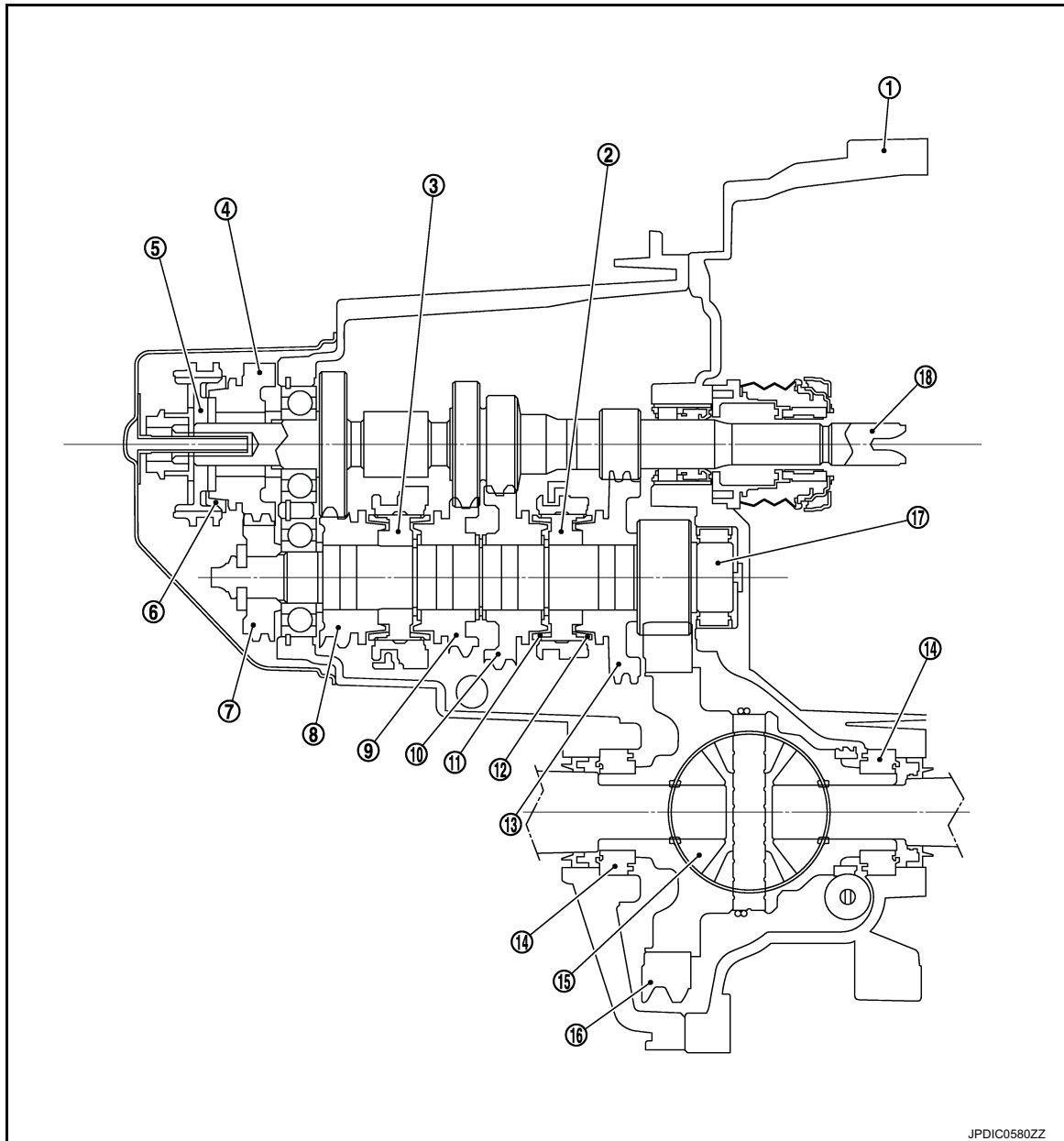
STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[5MT: RS5F91R]

TYPE 2 : Sectional View

INFOID:000000006288122



1. Clutch housing	2. 1st-2nd synchronizer hub assembly	3. 3rd-4th synchronizer hub assembly
4. 5th input gear	5. 5th-reverse synchronizer hub assembly	6. 5th-reverse baulk ring
7. 5th main gear	8. 4th main gear	9. 3rd main gear
10. 2nd main gear	11. 2nd double-cone synchronizer	12. 1st double-cone synchronizer
13. 1st main gear	14. Differential side bearing	15. Differential
16. Final gear	17. Mainshaft	18. Input shaft

TYPE 2 : System Description

INFOID:000000006288123

DOUBLE-CONE SYNCHRONIZER

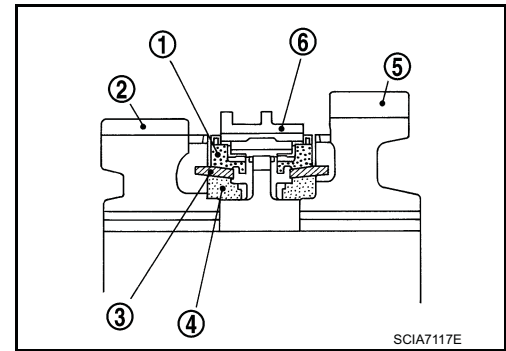
STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[5MT: RS5F91R]

Double-cone synchronizers are adopted for 1st and 2nd gears to reduce operating force of the shifter lever.

- 1 : Outer baulk ring
- 2 : 2nd main gear
- 3 : Synchronizer cone
- 4 : Inner baulk ring
- 5 : 1st main gear
- 6 : 1st-2nd coupling sleeve



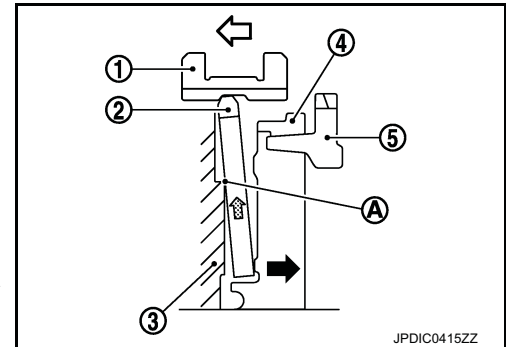
REVERSE GEAR NOISE PREVENTION FUNCTION (REVERSE BRAKE)

Description

Soon after the clutch is disengaged, the input shaft is still rotating due to inertia. This may cause a gear noise when the gear is shifted to reverse position. The reverse gear noise prevention function stops the rotation of the input shaft and enables smooth gear shifting when the reverse gear is selected.

Operation Principle

1. When the gear is shifted to reverse position, 5th-reverse coupling sleeve (1) slides in the reverse direction. (⇐)
- 5 : 5th input gear
2. Synchronizer levers (2) with support point (A) at 5th-reverse synchronizer hub (3) presses 5th-reverse baulk ring (4). (⇐)
3. Friction that is generated at 5-reverse baulk ring presses synchronizer lever on 5th-reverse coupling sleeve. (⇐)
4. 5th-reverse coupling sleeve that is pressed by synchronizer lever stops the rotation of input shaft.



DTC/CIRCUIT DIAGNOSIS

POSITION SWITCH

BACK-UP LAMP SWITCH

BACK-UP LAMP SWITCH : Component Inspection

INFOID:000000006056560

1.CHECK BACK-UP LAMP SWITCH

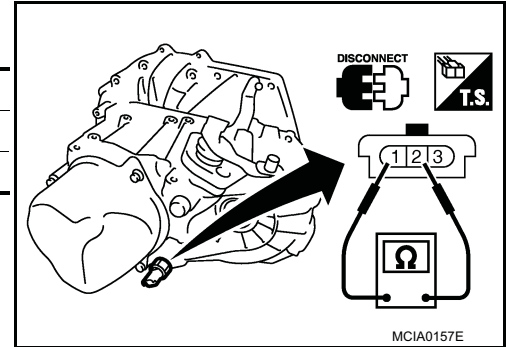
1. Disconnect position switch connector. Refer to [TM-29, "Removal and Installation"](#).
2. Check continuity between position switch terminals.

Terminals		Condition	Continuity
1	2	Reverse gear position	Existed
		Except reverse gear position	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace position switch. Refer to [TM-29, "Removal and Installation"](#).



PARK/NEUTRAL POSITION (PNP) SWITCH

PARK/NEUTRAL POSITION (PNP) SWITCH : Component Inspection

INFOID:000000006056561

1.CHECK PARK/NEUTRAL POSITION (PNP) SWITCH

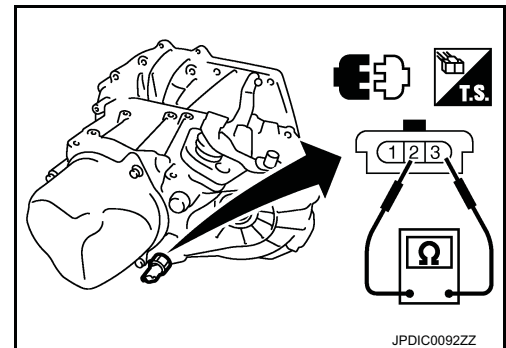
1. Disconnect position switch connector. Refer to [TM-29, "Removal and Installation"](#).
2. Check continuity between position switch terminals.

Terminals		Condition	Continuity
2	3	Neutral gear position	Existed
		Except neutral gear position	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace position switch. Refer to [TM-29, "Removal and Installation"](#).



NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[5MT: RS5F91R]

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000006056562

Use the chart below to find the cause of the symptom. The numbers indicate the order of the inspection. If necessary, repair or replace these parts.

SUSPECTED PARTS (Possible cause)		OIL (Oil level is low)	OIL (Wrong oil)	OIL (Oil level is high)	GASKET (Damaged)	OIL SEAL (Worn or damaged)	O-RING (Worn or damaged)	SHIFT CONTROL LINKAGE (Worn)	SHIFT FORK (Worn)	GEAR (Worn or damaged)	BEARING (Worn or damaged)	BAULK RING (Worn or damaged)	INSERT SPRING (Damaged)
Reference		TM-26			TM-44 (TYPE 1), TM-63 (TYPE 2)			TM-31	TM-44 (TYPE 1), TM-63 (TYPE 2)				
Symptoms	Noise	1	2							3	3		
	Oil leakage		3	1	2	2	2						
	Hard to shift or will not shift		1	1				2				3	3
	Jumps out of gear							1	2	2			

PERIODIC MAINTENANCE

GEAR OIL

Inspection

INFOID:000000006056563

OIL LEAKAGE

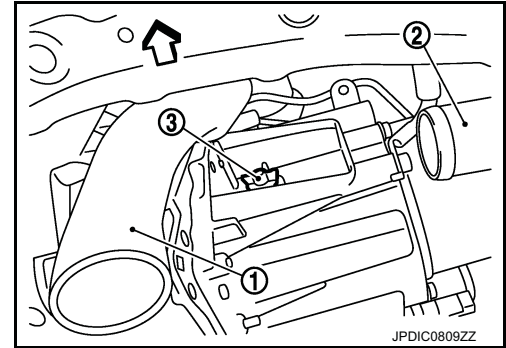
Make sure that gear oil is not leaking from transaxle or around it.

OIL LEVEL

1. Remove air inlet hose (1) from air inlet tube (2) (for K9K). Refer to [EM-462, "Removal and Installation"](#).

3 : Filler plug
 : Vehicle front

2. Temporarily fix the air inlet hose in a position where the hose doesn't interfere with work (for K9K).



3. Remove filler plug (1) and gasket from transaxle case.
4. Check the oil level from filler plug mounting hole as shown in the figure.

CAUTION:

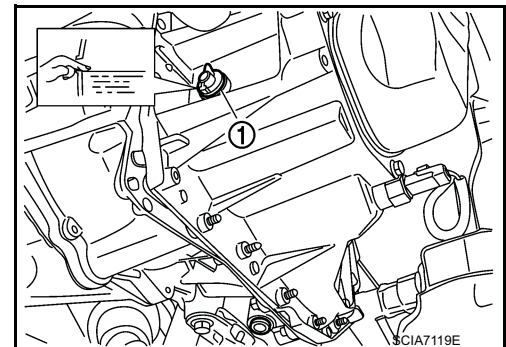
Never start engine while checking oil level.

5. Set a gasket on filler plug and then install it to transaxle case.

CAUTION:

Never reuse gasket.

6. Tighten filler plug to the specified torque. Refer to [TM-44, "TYPE 1 : Exploded View"](#) (TYPE 1) or [TM-63, "TYPE 2 : Exploded View"](#) (TYPE 2).



Draining

INFOID:000000006056564

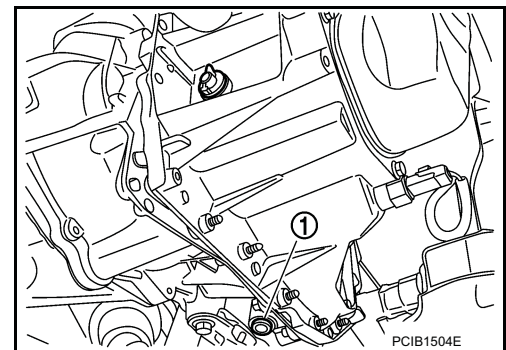
1. Start engine and let it run to warm up transaxle.
2. Stop engine. Remove drain plug (1) and gasket, using a socket [Commercial service tool] and then drain gear oil.

3. Set a gasket on drain plug and install it to clutch housing, using a socket [Commercial service tool].

CAUTION:

Never reuse gasket.

4. Tighten drain plug to the specified torque. Refer to [TM-44, "TYPE 1 : Exploded View"](#) (TYPE 1) or [TM-63, "TYPE 2 : Exploded View"](#) (TYPE 2).



GEAR OIL

< PERIODIC MAINTENANCE >

[5MT: RS5F91R]

INFOID:000000006056565

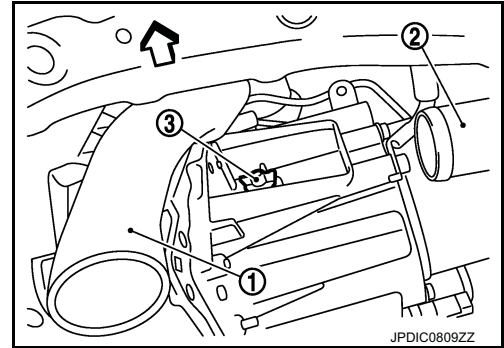
Refilling

1. Remove air inlet hose (1) from air inlet tube (2) (for K9K). Refer to [EM-462, "Removal and Installation"](#).

3 : Filler plug

⇐ : Vehicle front

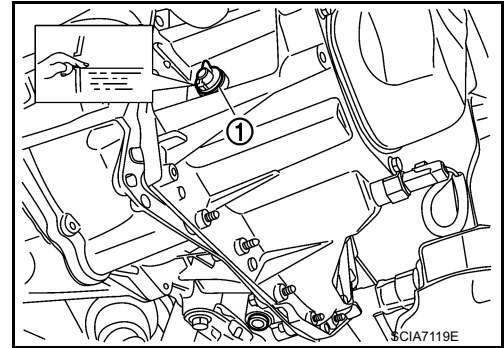
2. Temporarily fix the air inlet hose in a position where the hose doesn't interfere with work (for K9K).



3. Remove filler plug (1) and gasket from transaxle case.
4. Fill with new gear oil until oil level reaches the specified limit at filler plug mounting hole as shown in the figure.

Oil grade and viscosity : Refer to [MA-29, "Fluids and Lubricants"](#).

Oil capacity : Refer to [TM-100, "General Specifications"](#).



5. After refilling gear oil, check the oil level. Refer to [TM-26, "Inspection"](#).
6. Set a gasket on filler plug and then install it to transaxle case.
CAUTION:
Never reuse gasket.
7. Tighten filler plug to the specified torque. Refer to [TM-44, "TYPE 1 : Exploded View"](#) (TYPE 1) or [TM-63, "TYPE 2 : Exploded View"](#) (TYPE 2).

REMOVAL AND INSTALLATION

SIDE OIL SEAL

Removal and Installation

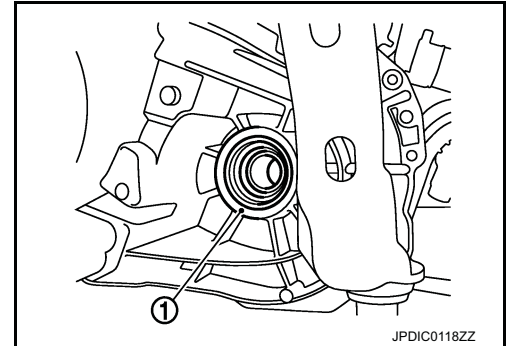
INFOID:000000006056566

REMOVAL

1. Remove front drive shafts. Refer to [FAX-25, "Removal and Installation"](#) (TYPE 1)*, [FAX-59, "EXCEPT FOR K9K : Removal and Installation"](#) (TYPE 2)*, [FAX-68, "FOR K9K : Removal and Installation"](#) (TYPE 2)*, or [FAX-102, "Removal and Installation"](#) (TYPE 3)*.
*: Refer to [FAX-4, "Information"](#).
2. Remove differential side oil seals (1) from clutch housing and transaxle case, using a suitable tool.

CAUTION:

Never damage transaxle case and clutch housing.



INSTALLATION

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

- Install differential side oil seals (1) to clutch housing and transaxle case, using the drift [Stamping number: B.vi 1666-B] of the drift set [SST: KV32500QAA].

B : Transaxle case side

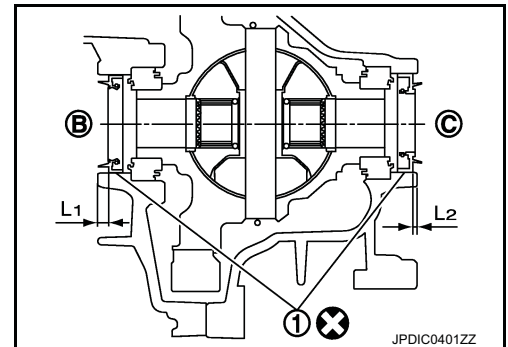
C : Clutch housing side

Dimension "L1" : 5.7 – 6.3 mm (0.224 – 0.248 in)

Dimension "L2" : 2.4 – 3.0 mm (0.094 – 0.118 in)

CAUTION:

- **Never incline differential side oil seal.**
- **Never damage clutch housing and transaxle case.**



Inspection

INFOID:000000006056567

INSPECTION AFTER INSTALLATION

Check the oil level and oil leakage. Refer to [TM-26, "Inspection"](#).

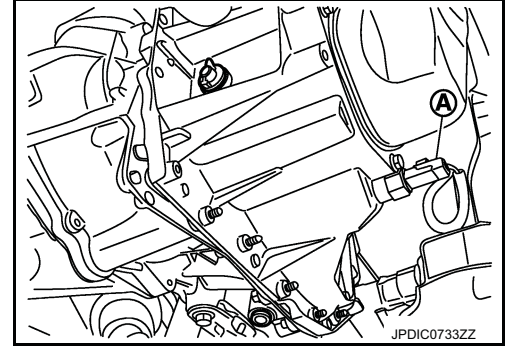
POSITION SWITCH

Removal and Installation

INFOID:000000006056568

REMOVAL

1. Drain gear oil. Refer to [TM-26, "Draining"](#).
2. Disconnect position switch connector (A).
3. Remove position switch from transaxle case.



INSTALLATION

1. Apply recommended sealant to threads of position switch.
 - **Use Genuine Liquid Gasket, Three Bond 1215 or an equivalent.**

CAUTION:
Remove old sealant and oil adhering to threads.
2. Install position switch to transaxle case.
3. Tighten position switch to the specified torque. Refer to [TM-44, "TYPE 1 : Exploded View"](#) (TYPE 1) or [TM-63, "TYPE 2 : Exploded View"](#) (TYPE 2).
4. Refill gear oil. Refer to [TM-27, "Refilling"](#).

Inspection

INFOID:000000006056569

INSPECTION AFTER INSTALLATION

- Check continuity between position switch terminals. Refer to [TM-24, "BACK-UP LAMP SWITCH : Component Inspection"](#) (Back-up lamp switch) and [TM-24, "PARK/NEUTRAL POSITION \(PNP\) SWITCH : Component Inspection"](#) (PNP switch).
- Check the oil leakage and the oil level. Refer to [TM-26, "Inspection"](#).

CONTROL LINKAGE

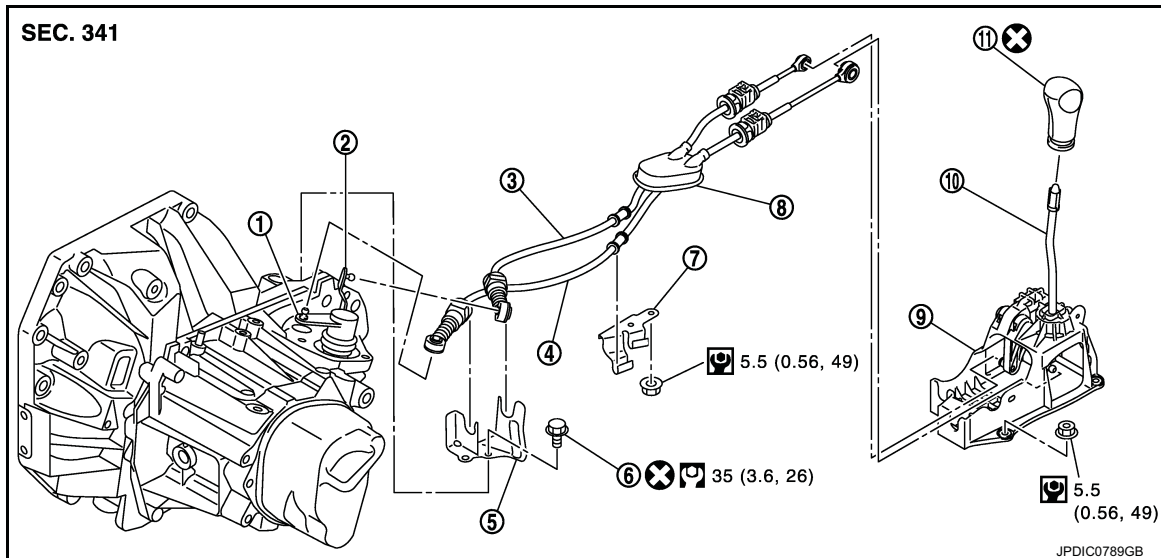
< REMOVAL AND INSTALLATION >

[5MT: RS5F91R]

CONTROL LINKAGE

Exploded View

INFOID:000000006056570



1. Shifter lever A	2. Selector lever	3. Selector cable
4. Shifter cable	5. Cable mounting bracket	6. Tapping bolt
7. Bracket	8. Grommet	9. M/T shift selector assembly
10. Shifter lever	11. Shifter lever knob	

⊗: Always replace after every disassembly.

Ⓐ: N·m (kg-m, in-lb)

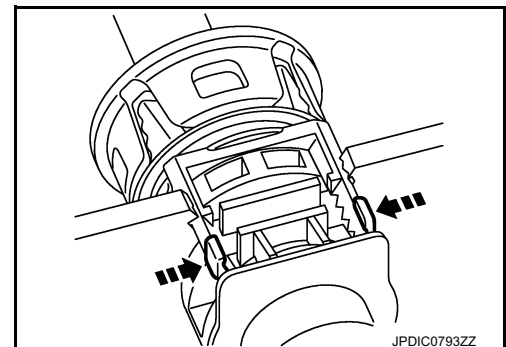
Ⓑ: N·m (kg-m, ft-lb)

Removal and Installation

INFOID:000000006056571

REMOVAL

- Shift the shifter lever to the neutral position.
- Remove air cleaner case (for HR12DE). Refer to [EM-33, "TYPE 1 : Removal and Installation"](#) (TYPE 1)* or [EM-34, "TYPE 2 : Removal and Installation"](#) (TYPE 2)*.
*: Refer to [EM-8, "How to Check Vehicle Type"](#).
- Remove inlet tube (for HR12DDR). Refer to [EM-199, "Removal and Installation"](#).
- Remove air cleaner case (for HR15DE). Refer to [EM-337, "Removal and Installation"](#).
- Remove air inlet tube and air inlet hose (for K9K). Refer to [EM-462, "Removal and Installation"](#).
- Pull out and disconnect the each cable from the shifter lever A and the selector lever, using a suitable remover.
- While pressing the lock of the selector cable in the direction of the arrow shown in the figure, remove the selector cable from the cable mounting bracket.
- While pressing the lock of the shifter cable in the direction of the arrow shown in the figure, remove the shifter cable from the cable mounting bracket.
- Remove cable mounting bracket from clutch housing.
- Pull the shifter lever knob upward to remove.
- Remove center console assembly. Refer to [IP-24, "Removal and Installation"](#).

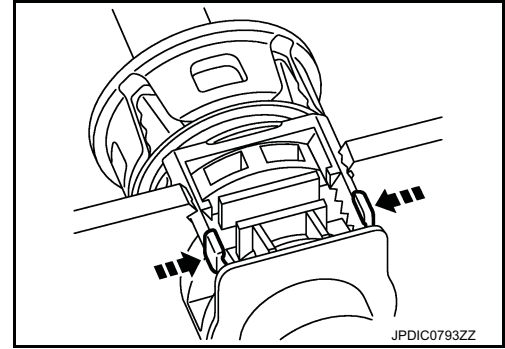


CONTROL LINKAGE

< REMOVAL AND INSTALLATION >

[5MT: RS5F91R]

12. Pull out and disconnect the each cable from the M/T shift selector assembly, using a suitable remover.
13. While pressing the lock of the selector cable in the direction of the arrow shown in the figure, remove the selector cable from the M/T shift selector assembly.
14. While pressing the lock of the shifter cable in the direction of the arrow shown in the figure, remove the shifter cable from the M/T shift selector assembly.
15. Remove the M/T shift selector assembly.
16. Remove center muffler, exhaust front tube, and heat plate (except for K9K). Refer to [EX-6. "Removal and Installation"](#).
17. Remove center tube, exhaust front tube, and heat plate (for K9K). Refer to [EX-17. "Removal and Installation"](#).
18. Remove the bracket from the vehicle.
19. Remove the grommet and then remove the shifter cable and selector cable from the vehicle.



INSTALLATION

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

CAUTION:

- Install each cable without causing interference with other parts, a 120 mm (4.72 in)-or-less bend, and a 180-degrees-or-more twist.
- Install boot of each cable without causing interference with other parts and a 90-degrees-or-more twist.
- Fit boot of to center console assembly the groove on shifter lever knob.
- To install the shifter lever knob, press it into the shifter lever.

CAUTION:

- Never reuse shifter lever knob.
- Be careful with orientation of shifter lever knob.
- Tapping work for tapping bolts is not applied to new clutch housing. Do not perform tapping by other than screwing tapping bolts because tapping is formed by screwing tapping bolts into clutch housing.

CAUTION:

Never reuse tapping bolt.

- Insert the each cable until it reaches the cable mounting bracket and M/T shift selector assembly.
- Insert the each cable until it reaches the shifter lever A and the selector lever.
- Shift the shifter lever to the neutral position.

Inspection

INFOID:000000006056572

INSPECTION AFTER INSTALLATION

Shifter Lever Knob

Check that the shifter lever knob is installed in the right position.

Shifter Cable and Selector Cable

- Pull each cable in the removal direction to check that it dose not disconnect from the cable mounting bracket.
- Pull each cable in the removal direction to check that it dose not disconnect from the M/T shift selector assembly.
- Pull grommet in the removal direction to check that it dose not disconnect from the vehicle.

M/T Shift Selector Assembly and Shifter Lever

- Check that there is no tangle, hook, abnormal sound, looseness, and interference when the shifter lever is moved to each position. If there is a malfunction, then repair or replace the malfunctioning part.
- Check that the shifter lever smoothly returns to the neutral position after moving the lever from 1st to 2nd gear and moving hands off the lever. If there is a malfunction, then repair or replace the malfunctioning part.
- Check that the shifter lever smoothly returns to the neutral position after moving the lever from 5th to the reverse gear position and moving hands off the lever. If there is a malfunction, then repair or replace the malfunctioning part.

AIR BREATHER HOSE

< REMOVAL AND INSTALLATION >

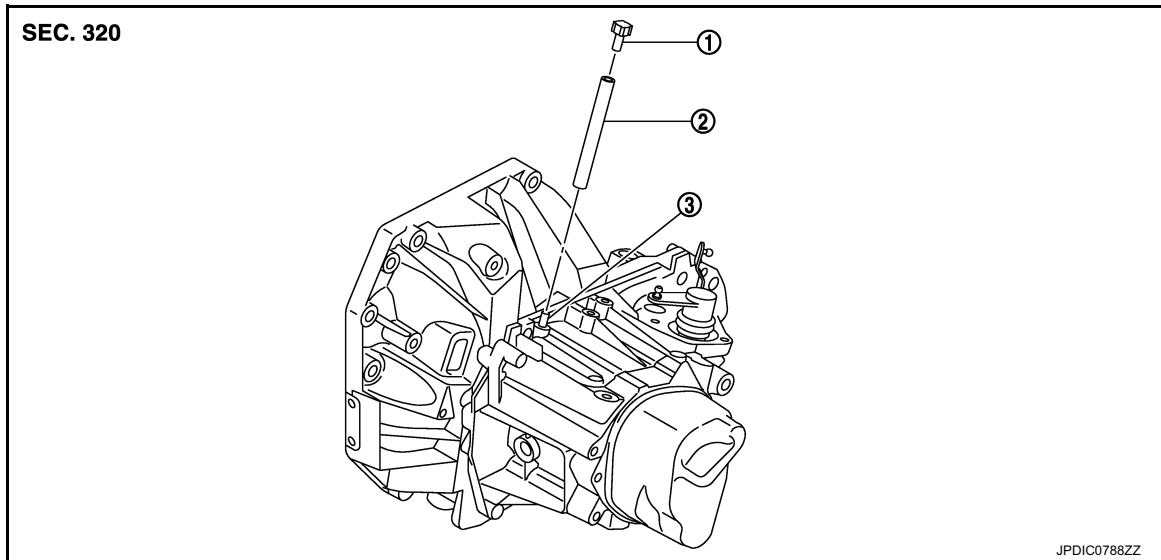
[5MT: RS5F91R]

AIR BREATHER HOSE

EXCEPT FOR K9K

EXCEPT FOR K9K : Exploded View

INFOID:000000006056573



1. Cap

2. Air breather hose

3. 2 way connector

EXCEPT FOR K9K : Removal and Installation

INFOID:000000006056574

REMOVAL

1. Remove air cleaner case (for HR15DE). Refer to [EM-337, "Removal and Installation"](#).
2. Remove air breather hose from the 2 way connector.

CAUTION:

When removing air breather hose, be sure to hold 2 way connector securely.

3. Remove cap hose from air breather hose.

INSTALLATION

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

CAUTION:

- Install air breather hose, preventing crush and clogging caused by bending.
- Insert the allowance of air breather hose to the spool of the 2 way connector.

K9K

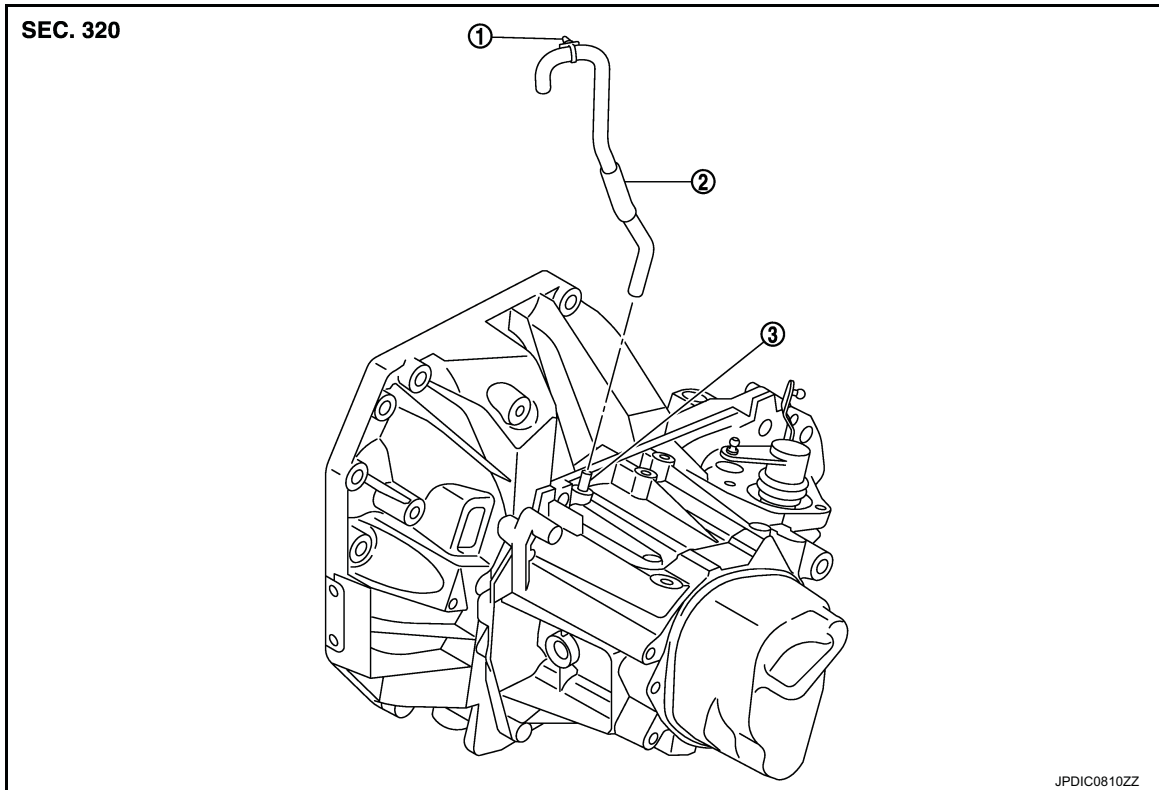
AIR BREATHER HOSE

< REMOVAL AND INSTALLATION >

[5MT: RS5F91R]

K9K : Exploded View

INFOID:000000006288026



1. Clip

2. Air breather hose

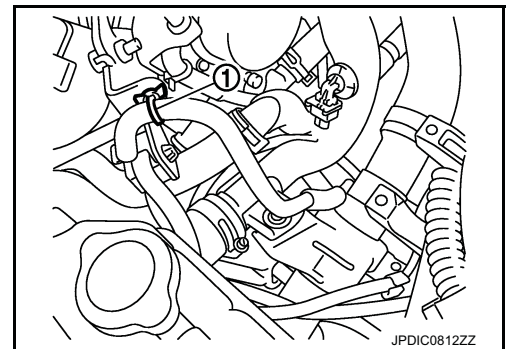
3. 2 way connector

K9K : Removal and Installation

INFOID:000000006288027

REMOVAL

1. Remove air inlet hose. Refer to [EM-462. "Removal and Installation"](#).
2. Remove clip (1).



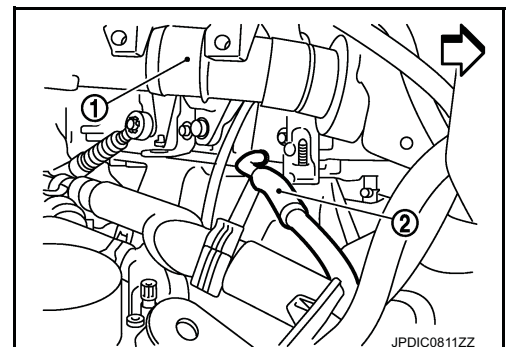
3. Temporarily fix the air inlet tube (1) in a position where the tube doesn't interfere with work.

← : Vehicle front

4. Remove air breather hose (2) from the 2 way connector.

CAUTION:

When removing air breather hose, be sure to hold 2 way connector securely.



AIR BREATHER HOSE

< REMOVAL AND INSTALLATION >

[5MT: RS5F91R]

INSTALLATION

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

CAUTION:

- Install air breather hose, preventing crush and clogging caused by bending.
- Insert the allowance of air breather hose to the spool of the 2 way connector.
- Install air breather hose to the 2 way connector with the paint mark faced forward of the vehicle.

5TH MAIN GEAR ASSEMBLY

< REMOVAL AND INSTALLATION >

[5MT: RS5F91R]

5TH MAIN GEAR ASSEMBLY

Removal and Installation

INFOID:0000000006056575

REMOVAL

1. Shift the shifter lever to the 3rd gear position.
2. Disconnect the shifter cable and the selector cable from shifter lever A and selector lever. Refer to [TM-30, "Removal and Installation"](#).

CAUTION:

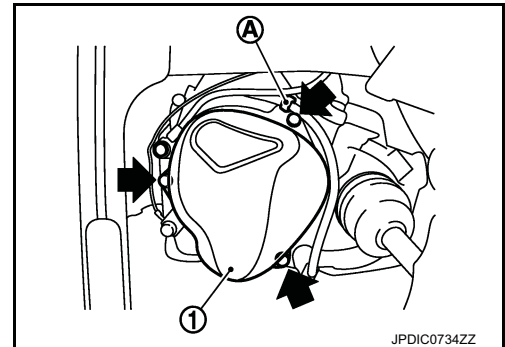
Never move shifter lever A and the selector lever to disconnect each cable.

3. Drain gear oil. Refer to [TM-26, "Draining"](#).
4. Remove fender protector LH. Refer to [EXT-21, "FENDER PROTECTOR : Removal and Installation"](#).
5. Remove the harness clamp (A) from rear housing (1).
6. Remove rear housing and O-ring.

CAUTION:

Remove in the input shaft axial direction because the oil channel of the rear housing is inserted in the center hole of the input shaft.

7. Remove 5th main gear assembly, referring to Step 5 to 9 of "Disassembly of TRANSAXLE ASSEMBLY" Refer to [TM-50, "TYPE 1 : Disassembly"](#) (for TYPE 1).
8. Remove 5th main gear assembly, referring to Step 5 to 8 of "Disassembly of TRANSAXLE ASSEMBLY" Refer to [TM-70, "TYPE 2 : Disassembly"](#) (for TYPE 2).



INSTALLATION

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

- Shift into 3rd with shifter lever to install the 5th main gear assembly, referring to Step 35 to 38 of "Assembly of TRANSAXLE ASSEMBLY" Refer to [TM-55, "TYPE 1 : Assembly"](#) (TYPE 1) or [TM-75, "TYPE 2 : Assembly"](#) (TYPE 2).
- Install O-ring and the rear housing to the transaxle case and tighten the mounting bolts to the specified torque. Refer to [TM-44, "TYPE 1 : Exploded View"](#) (TYPE 1) or [TM-63, "TYPE 2 : Exploded View"](#) (TYPE 2).

CAUTION:

Never pinch O-ring when installing rear housing.

- Refill gear oil. Refer to [TM-27, "Refilling"](#).

Inspection

INFOID:0000000006056576

INSPECTION AFTER INSTALLATION

- Check the operation of the control linkage. Refer to [TM-31, "Inspection"](#).
- Check the oil leakage and the oil level. Refer to [TM-26, "Inspection"](#).

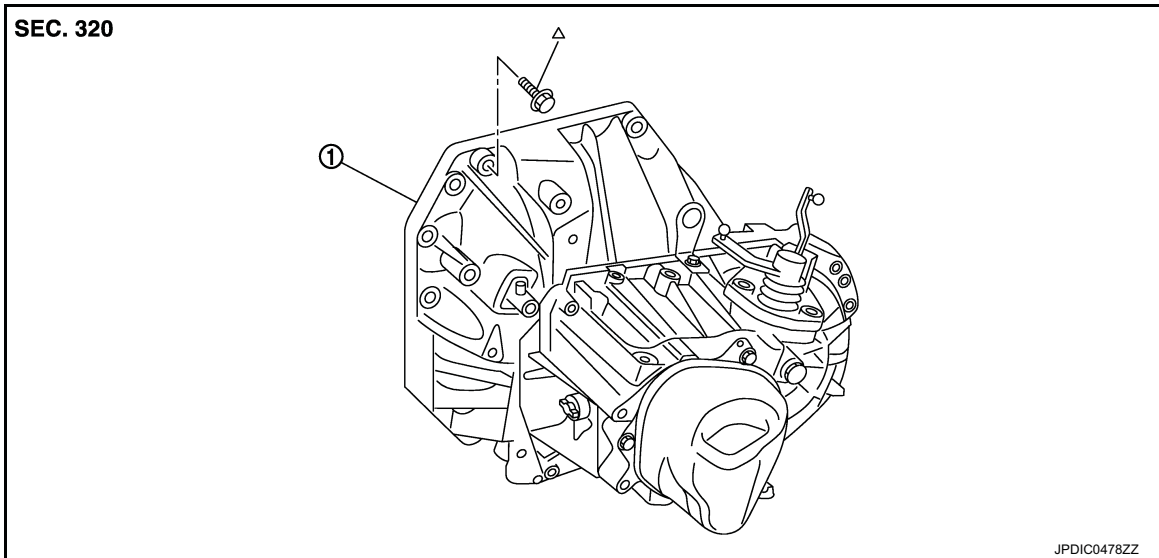
UNIT REMOVAL AND INSTALLATION

TRANSAXLE ASSEMBLY

HR12DE, HR12DDR

HR12DE, HR12DDR : Exploded View

INFOID:000000006056577



1. Transaxle assembly

△: Refer to "INSTALLATION" in [TM-36, "HR12DE, HR12DDR : Removal and Installation"](#) for the locations and tightening torque.

HR12DE, HR12DDR : Removal and Installation

INFOID:000000006056578

CAUTION:

Never reuse CSC (Concentric Slave Cylinder). Because CSC slides back to the original position every time when removing transaxle assembly. At this timing, dust on the sliding parts may damage a seal of CSC and may cause clutch fluid leakage. Refer to [CL-25, "Removal and Installation"](#).

REMOVAL

1. Shift the shifter lever to the neutral position.
2. Remove battery. Refer to [PG-529, "FOR MAINTENANCE REQUIRED BATTERY MODELS : Removal and Installation"](#) (maintenance required battery) or [PG-530, "FOR MAINTENANCE FREE BATTERY MODELS : Removal and Installation"](#) (maintenance free battery).
3. Remove air cleaner case (for HR12DE). Refer to [EM-33, "TYPE 1 : Removal and Installation"](#) (TYPE 1)* or [EM-34, "TYPE 2 : Removal and Installation"](#) (TYPE 2)*.
*: Refer to [EM-8, "How to Check Vehicle Type"](#).
4. Remove air inlet tube 1 (for HR12DDR). Refer to [EM-199, "Removal and Installation"](#).
5. Remove inlet tube (for HR12DDR). Refer to [EM-199, "Removal and Installation"](#).
6. Remove air breather hose. Refer to [TM-32, "EXCEPT FOR K9K : Removal and Installation"](#).

TRANSAXLE ASSEMBLY

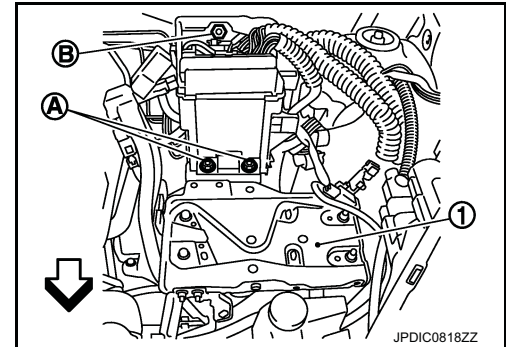
< UNIT REMOVAL AND INSTALLATION >

[5MT: RS5F91R]

7. Remove bolts (A) and nut (B).

← : Vehicle front

8. Remove bracket (1).
9. Disconnect selector cable and shifter cable from transaxle assembly. Refer to [TM-30, "Removal and Installation"](#).
10. Disconnect speed sensor connector. (Without ABS)
11. Remove clutch tube clip from engine mounting bracket (LH).
12. Remove clutch tube from CSC (Concentric Slave Cylinder) and then temporarily secure it to a position where it will not inhibit work. Refer to [CL-23, "Removal and Installation"](#).



CAUTION:

- Keep painted surface on the body or other parts free of clutch fluid. If it spills, wipe up immediately and wash the affected area with water.
- Never depress clutch pedal during removal procedure.

13. Remove fender protector LH. Refer to [EXT-21, "FENDER PROTECTOR : Removal and Installation"](#).

14. Disconnect ground cable.

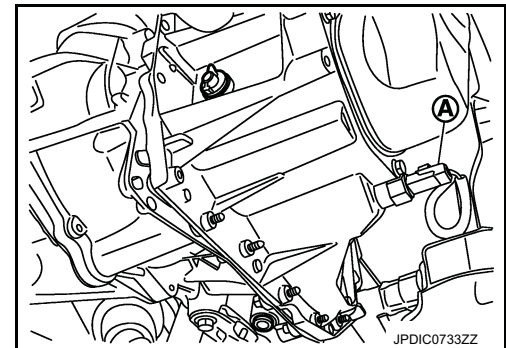
15. Disconnect position switch connector (A).

16. Remove the harness clamp from rear housing.

17. Remove crankshaft position sensor. Refer to [EM-132, "Exploded View"](#) (HR12DE) or [EM-272, "Exploded View"](#) (HR12DDR).

CAUTION:

- Never subject it to impact by dropping or hitting it.
- Never disassemble.
- Never allow metal filings, etc. to get on the sensor's front edge magnetic area.
- Never place in an area affected by magnetism.



18. Remove the engine harness clamp and then temporarily secure it to a position where it will not inhibit work.

19. Remove starter motor. Refer to [STR-64, "HR12DE : Removal and Installation"](#).

20. Remove front drive shafts. Refer to [FAX-59, "EXCEPT FOR K9K : Removal and Installation"](#) (TYPE 2)* or [FAX-102, "Removal and Installation"](#) (TYPE 3)*.

*: Refer to [FAX-4, "Information"](#).

NOTE:

Insert a suitable plug into differential side oil seal after removing front drive shaft.

21. Set a suitable jack to transaxle assembly and then set a suitable jack to engine assembly.

CAUTION:

When setting a suitable jack, be careful so that it does not contact with the switch.

22. Remove engine mounting frame support (LH) mounting bolts from vehicle. Refer to [EM-116, "Removal and Installation"](#) (HR12DE) or [EM-265, "Removal and Installation"](#) (HR12DDR).

23. Remove rear engine mounting bracket and rear torque rod. Refer to [EM-116, "Removal and Installation"](#) (HR12DE) or [EM-265, "Removal and Installation"](#) (HR12DDR).

24. Remove transaxle assembly mounting bolts.

25. Remove transaxle assembly from the engine.

CAUTION:

- Fix transaxle assembly to a suitable jack.
- The transaxle assembly must not interfere with the wire harnesses and clutch tube.

26. Remove engine mounting bracket (LH) and engine mounting frame support (LH) from transaxle assembly. Refer to [EM-116, "Removal and Installation"](#) (HR12DE) or [EM-265, "Removal and Installation"](#) (HR12DDR).

27. Remove CSC. Refer to [CL-25, "Removal and Installation"](#).

INSTALLATION

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

CAUTION:

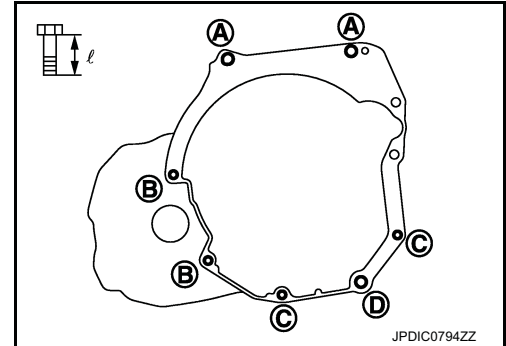
TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[5MT: RS5F91R]

- Fix transaxle assembly to a suitable jack.
- The transaxle assembly must not interfere with the wire harnesses and clutch tube.
- When installing transaxle assembly, never bring input shaft into contact with clutch cover.
- Tapping work for tapping bolts is not applied to new clutch housing. Do not perform tapping by other than screwing tapping bolts because tapping is formed by screwing tapping bolts into clutch housing.
- Tighten transaxle assembly mounting bolts to the specified torque.
The figure is the view from the engine.

Bolt symbol	A	B	C	D
Insertion direction	Transaxle to engine	Engine to transaxle		
Quantity	2	2	2	1
Bolt length "ℓ" mm (in)	55 (2.17)	44 (1.73)	49 (1.93)	69 (2.72)
Tightening torque N·m (kg-m, ft-lb)	48.0 (4.9, 35)			



HR12DE, HR12DDR : Inspection

INFOID:000000006056629

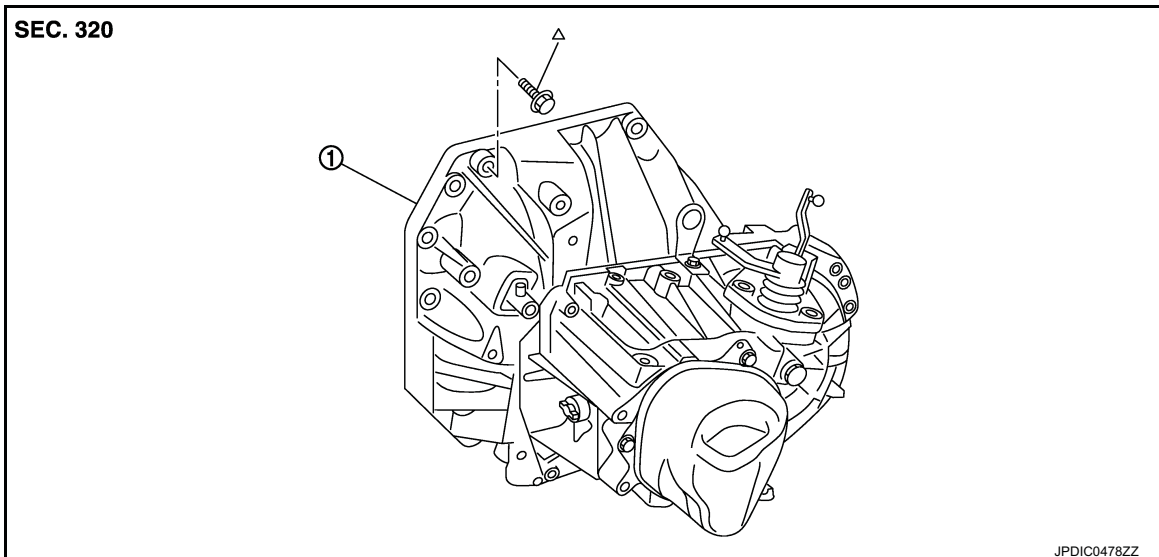
INSPECTION AFTER INSTALLATION

- Check the operation of the control linkage. Refer to [TM-31, "Inspection"](#).
- Check the oil leakage and the oil level. Refer to [TM-26, "Inspection"](#).

HR15DE

HR15DE : Exploded View

INFOID:000000006288011



1. Transaxle assembly

△: Refer to "INSTALLATION" in [TM-38, "HR15DE : Removal and Installation"](#) for the locations and tightening torque.

HR15DE : Removal and Installation

INFOID:000000006288010

CAUTION:

Never reuse CSC (Concentric Slave Cylinder). Because CSC slides back to the original position every time when removing transaxle assembly. At this timing, dust on the sliding parts may damage a seal of CSC and may cause clutch fluid leakage. Refer to [CL-25, "Removal and Installation"](#).

REMOVAL

TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[5MT: RS5F91R]

1. Shift the shifter lever to the neutral position.
2. Remove battery. Refer to [PG-529, "FOR MAINTENANCE REQUIRED BATTERY MODELS : Removal and Installation"](#) (maintenance required battery) or [PG-530, "FOR MAINTENANCE FREE BATTERY MODELS : Removal and Installation"](#) (maintenance free battery).
3. Remove air cleaner case. Refer to [EM-337, "Removal and Installation"](#).
4. Remove bolts (A) and nut (B).

← : Vehicle front

5. Remove bracket (1).
6. Remove air breather hose. Refer to [TM-32, "EXCEPT FOR K9K : Removal and Installation"](#).
7. Disconnect selector cable and shifter cable from transaxle assembly. Refer to [TM-30, "Removal and Installation"](#).
8. Remove heat insulator. Refer to [EM-343, "Removal and Installation"](#).
9. Remove crankshaft position sensor. Refer to [EM-407, "Exploded View"](#).
- CAUTION:**
 - Never subject it to impact by dropping or hitting it.
 - Never disassemble.
 - Never allow metal filings, etc. to get on the sensor's front edge magnetic area.
 - Never place in an area affected by magnetism.
10. Remove clutch tube clip from engine mounting bracket (LH).
11. Remove clutch tube from CSC (Concentric Slave Cylinder) and then temporarily secure it to a position where it will not inhibit work. Refer to [CL-23, "Removal and Installation"](#).

CAUTION:

- Keep painted surface on the body or other parts free of clutch fluid. If it spills, wipe up immediately and wash the affected area with water.
- Never depress clutch pedal during removal procedure.

12. Remove fender protector LH. Refer to [EXT-21, "FENDER PROTECTOR : Removal and Installation"](#).
13. Disconnect ground cable.
14. Disconnect position switch connector (A).

15. Remove the harness clamp from rear housing.
16. Remove the engine harness clamp and then temporarily secure it to a position where it will not inhibit work.
17. Remove starter motor. Refer to [STR-70, "HR15DE : Removal and Installation"](#).
18. Remove front drive shafts. Refer to [FAX-25, "Removal and Installation"](#) (TYPE 1)*, [FAX-59, "EXCEPT FOR K9K : Removal and Installation"](#) (TYPE 2)* or [FAX-102, "Removal and Installation"](#) (TYPE 3)*.

*: Refer to [FAX-4, "Information"](#).

NOTE:

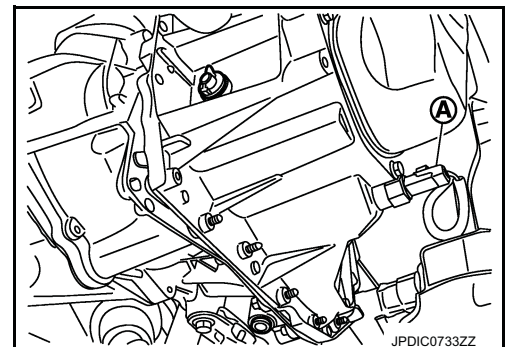
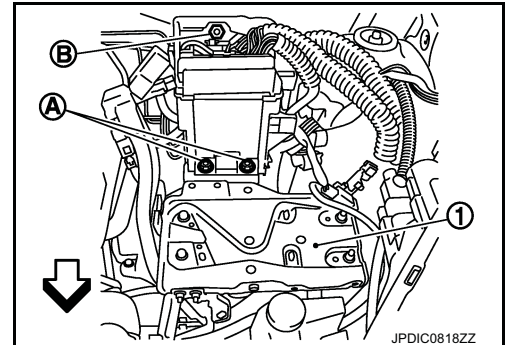
Insert a suitable plug into differential side oil seal after removing front drive shaft.

19. Set a suitable jack to transaxle assembly and then set a suitable jack to engine assembly.

CAUTION:

When setting a suitable jack, be careful so that it does not contact with the switch.

20. Remove engine mounting frame support (LH) mounting bolts, as per the following procedure.



TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[5MT: RS5F91R]

a. Remove bolt (A).

⇐ : Vehicle front

- b. Release clutch damper (1) from bracket. Refer to [CL-23, "Removal and Installation"](#).
- c. Remove bolt (B).
- d. Remove engine mounting frame support (LH) mounting bolts from vehicle. Refer to [EM-392, "Removal and Installation"](#).
21. Remove rear engine mounting bracket and rear torque rod. Refer to [EM-392, "Removal and Installation"](#).
22. Remove transaxle assembly mounting bolts and nuts.
23. Remove transaxle assembly from the engine.

CAUTION:

- Fix transaxle assembly to a suitable jack.
- The transaxle assembly must not interfere with the wire harnesses and clutch tube.

24. Remove engine mounting bracket (LH) and engine mounting frame support (LH) from transaxle assembly. Refer to [EM-392, "Removal and Installation"](#).
25. Remove CSC. Refer to [CL-25, "Removal and Installation"](#).

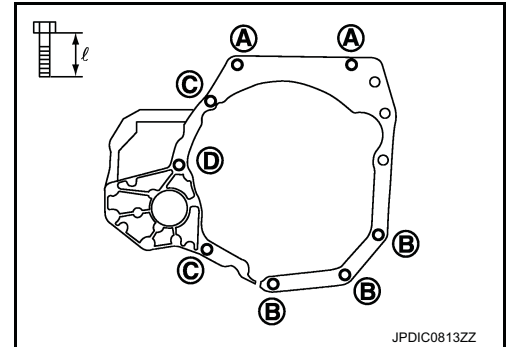
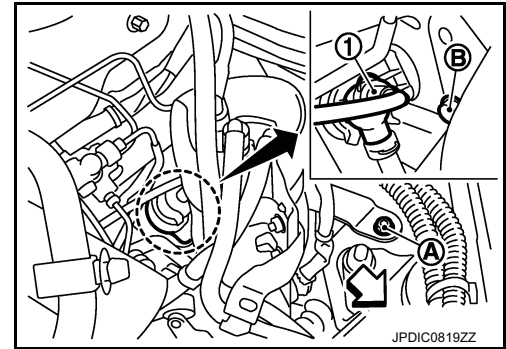
INSTALLATION

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

CAUTION:

- Fix transaxle assembly to a suitable jack.
- The transaxle assembly must not interfere with the wire harnesses and clutch tube.
- When installing transaxle assembly, never bring input shaft into contact with clutch cover.
- Tapping work for tapping bolts is not applied to new clutch housing. Do not perform tapping by other than screwing tapping bolts because tapping is formed by screwing tapping bolts into clutch housing.
- Tighten transaxle assembly mounting bolts to the specified torque. The figure is the view from the engine.

Bolt symbol	A	B	C	D
Insertion direction	Transaxle to engine	Engine to transaxle		
Quantity	2	3	2	1
Bolt length "ℓ" mm (in)	55 (2.17)		49 (1.93)	69 (2.72)
Tightening torque N·m (kg·m, ft·lb)	48.0 (4.9, 35)			



HR15DE : Inspection

INFOID:000000006288023

INSPECTION AFTER INSTALLATION

- Check the operation of the control linkage. Refer to [TM-31, "Inspection"](#).
- Check the oil leakage and the oil level. Refer to [TM-26, "Inspection"](#).

K9K

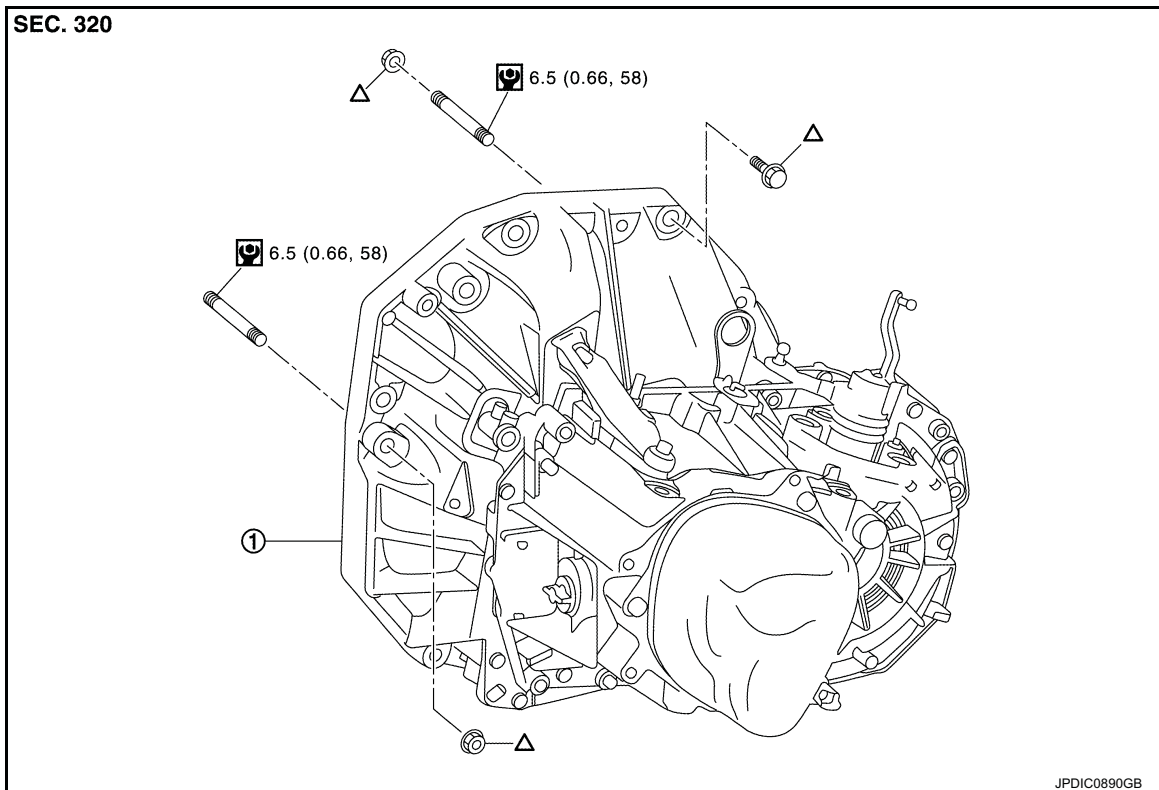
TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[5MT: RS5F91R]

K9K : Exploded View

INFOID:000000006288012



1. Transaxle assembly

Δ: Refer to "INSTALLATION" in [TM-41, "K9K : Removal and Installation"](#) for the locations and tightening torque.

Refer to [GI-4, "Components"](#) for the symbols in the figure.

K9K : Removal and Installation

INFOID:000000006288013

CAUTION:

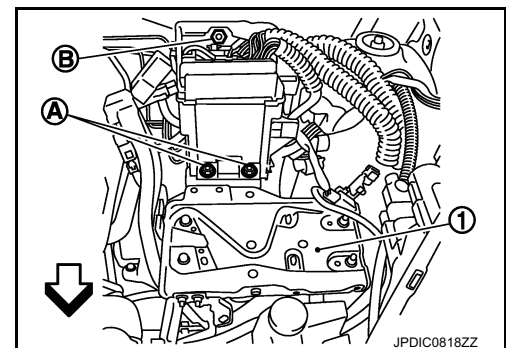
Never reuse CSC (Concentric Slave Cylinder). Because CSC slides back to the original position every time when removing transaxle assembly. At this timing, dust on the sliding parts may damage a seal of CSC and may cause clutch fluid leakage. Refer to [CL-25, "Removal and Installation"](#).

REMOVAL

1. Shift the shifter lever to the neutral position.
2. Remove battery. Refer to [PG-529, "FOR MAINTENANCE REQUIRED BATTERY MODELS : Removal and Installation"](#) (maintenance required battery) or [PG-530, "FOR MAINTENANCE FREE BATTERY MODELS : Removal and Installation"](#) (maintenance free battery).
3. Remove air cleaner case. Refer to [EM-461, "Removal and Installation"](#).
4. Remove bolts (A) and nut (B).

← : Vehicle front

5. Remove bracket (1).
6. Remove air inlet hose, air inlet tube, and air inlet pipe. Refer to [EM-462, "Removal and Installation"](#).
7. Remove air breather hose. Refer to [TM-33, "K9K : Removal and Installation"](#).
8. Disconnect selector cable and shifter cable from transaxle assembly. Refer to [TM-30, "Removal and Installation"](#).
9. Disconnect speed sensor connector. (Without ABS)



TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[5MT: RS5F91R]

10. Remove crankshaft position sensor from clutch housing. Refer to [EM-470, "Removal and Installation"](#).

CAUTION:

- Never subject it to impact by dropping or hitting it.
- Never disassemble.
- Never allow metal filings, etc. to get on the sensor's front edge magnetic area.
- Never place in an area affected by magnetism.

11. Remove clutch tube clip from engine mounting bracket (LH).

12. Remove clutch tube from CSC (Concentric Slave Cylinder) and then temporarily secure it to a position where it will not inhibit work. Refer to [CL-23, "Removal and Installation"](#).

CAUTION:

- Keep painted surface on the body or other parts free of clutch fluid. If it spills, wipe up immediately and wash the affected area with water.
- Never depress clutch pedal during removal procedure.

13. Remove fender protector LH. Refer to [EXT-21, "FENDER PROTECTOR : Removal and Installation"](#).

14. Disconnect ground cable.

15. Disconnect position switch connector (A).

16. Remove the harness clamp from rear housing.

17. Remove the engine harness clamp and then temporarily secure it to a position where it will not inhibit work.

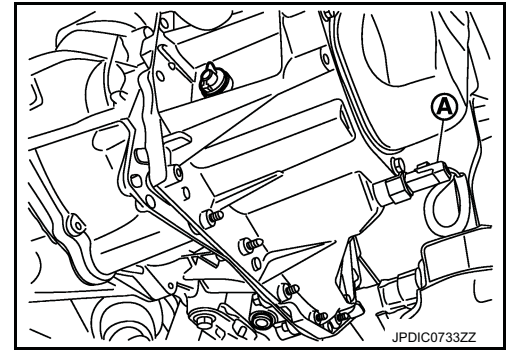
18. Remove starter motor. Refer to [STR-76, "K9K : Removal and Installation"](#).

19. Remove front drive shafts. Refer to [FAX-68, "FOR K9K : Removal and Installation"](#) (TYPE 2)*.

*: Refer to [FAX-4, "Information"](#).

NOTE:

Insert a suitable plug into differential side oil seal after removing front drive shaft.



20. Set a suitable jack to transaxle assembly and then set a suitable jack to engine assembly.

CAUTION:

When setting a suitable jack, be careful so that it does not contact with the switch.

21. Remove engine mounting frame support (LH) mounting bolts, as per the following procedure.

- a. Remove bolt (A).

⇐ : Vehicle front

- b. Release clutch damper (1) from bracket. Refer to [CL-23, "Removal and Installation"](#).

- c. Remove bolt (B).

- d. Remove engine mounting frame support (LH) mounting bolts from vehicle. Refer to [EM-506, "Removal and Installation"](#).

22. Remove rear engine mounting bracket and rear torque rod. Refer to [EM-506, "Removal and Installation"](#).

23. Remove transaxle assembly mounting bolts and nuts.

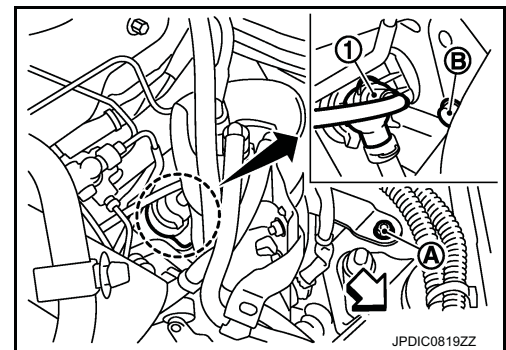
24. Remove transaxle assembly from the engine.

CAUTION:

- Fix transaxle assembly to a suitable jack.
- The transaxle assembly must not interfere with the wire harnesses and clutch tube.

25. Remove engine mounting bracket (LH) and engine mounting frame support (LH) from transaxle assembly. Refer to [EM-506, "Removal and Installation"](#).

26. Remove CSC. Refer to [CL-25, "Removal and Installation"](#).



INSTALLATION

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

CAUTION:

- Fix transaxle assembly to a suitable jack.
- The transaxle assembly must not interfere with the wire harnesses and clutch tube.
- When installing transaxle assembly, never bring input shaft into contact with clutch cover.

TRANSAXLE ASSEMBLY

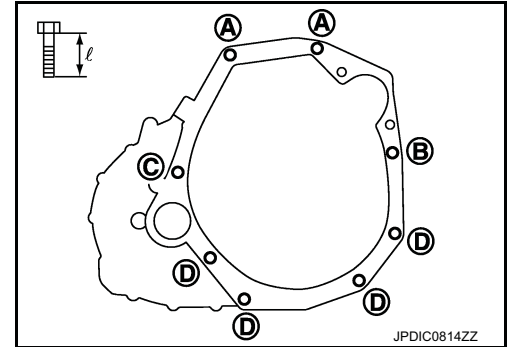
< UNIT REMOVAL AND INSTALLATION >

[5MT: RS5F91R]

- **Tapping work for tapping bolts is not applied to new clutch housing. Do not perform tapping by other than screwing tapping bolts because tapping is formed by screwing tapping bolts into clutch housing.**
- Tighten transaxle assembly mounting bolts to the specified torque.
The figure is the view from the engine.

Bolt symbol	A	B*	C*	D
Insertion direction	Transaxle to engine		Engine to transaxle	
Quantity	2	1	1	4
Bolt length “ℓ” mm (in)	55 (2.17)	—		65 (2.56)
Tightening torque N·m (kg-m, ft-lb)	44.0 (4.5, 32)			

*: Nut and stud



K9K : Inspection

INFOID:000000006288024

INSPECTION AFTER INSTALLATION

- Check the operation of the control linkage. Refer to [TM-31, "Inspection"](#).
- Check the oil leakage and the oil level. Refer to [TM-26, "Inspection"](#).

TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

UNIT DISASSEMBLY AND ASSEMBLY

TRANSAXLE ASSEMBLY

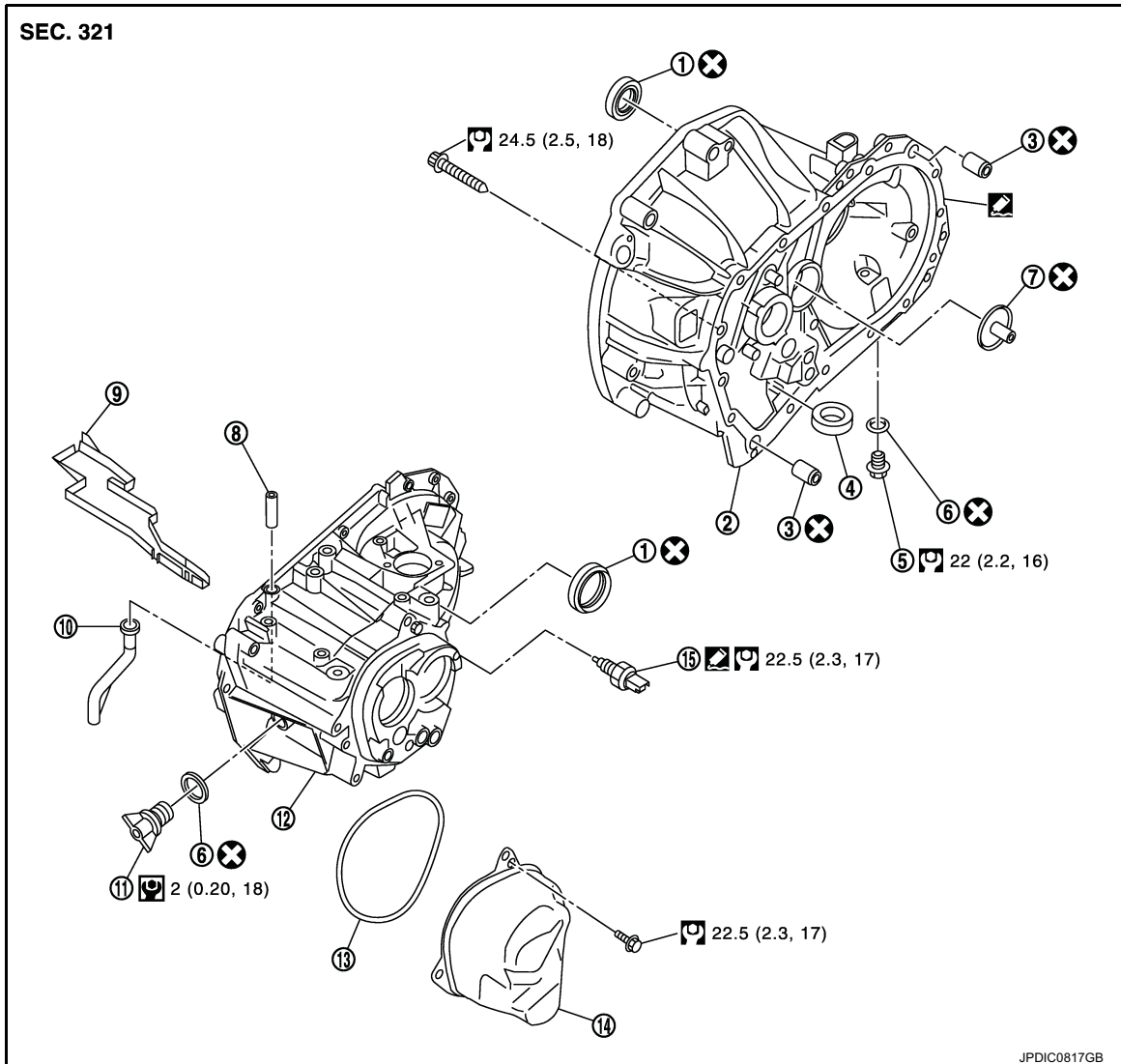
TYPE 1

TYPE 1 : Exploded View

INFOID:000000006056579

CASE AND HOUSING

WITHOUT SPEEDOMETER DRIVE GEAR*



JPDIC0817GB

1. Differential side oil seal	2. Clutch housing	3. Dowel pin
4. Magnet	5. Drain plug	6. Gasket
7. Oil channel	8. 2 way connector	9. Oil gutter
10. Air breather inner tube	11. Filler plug	12. Transaxle case
13. O-ring	14. Rear housing	15. Position switch

: Apply Genuine Liquid Gasket, Three Bond 1215 or an equivalent.

: Always replace after every disassembly.

: N·m (kg-m, ft-lb)

: N·m (kg-m, it-lb)

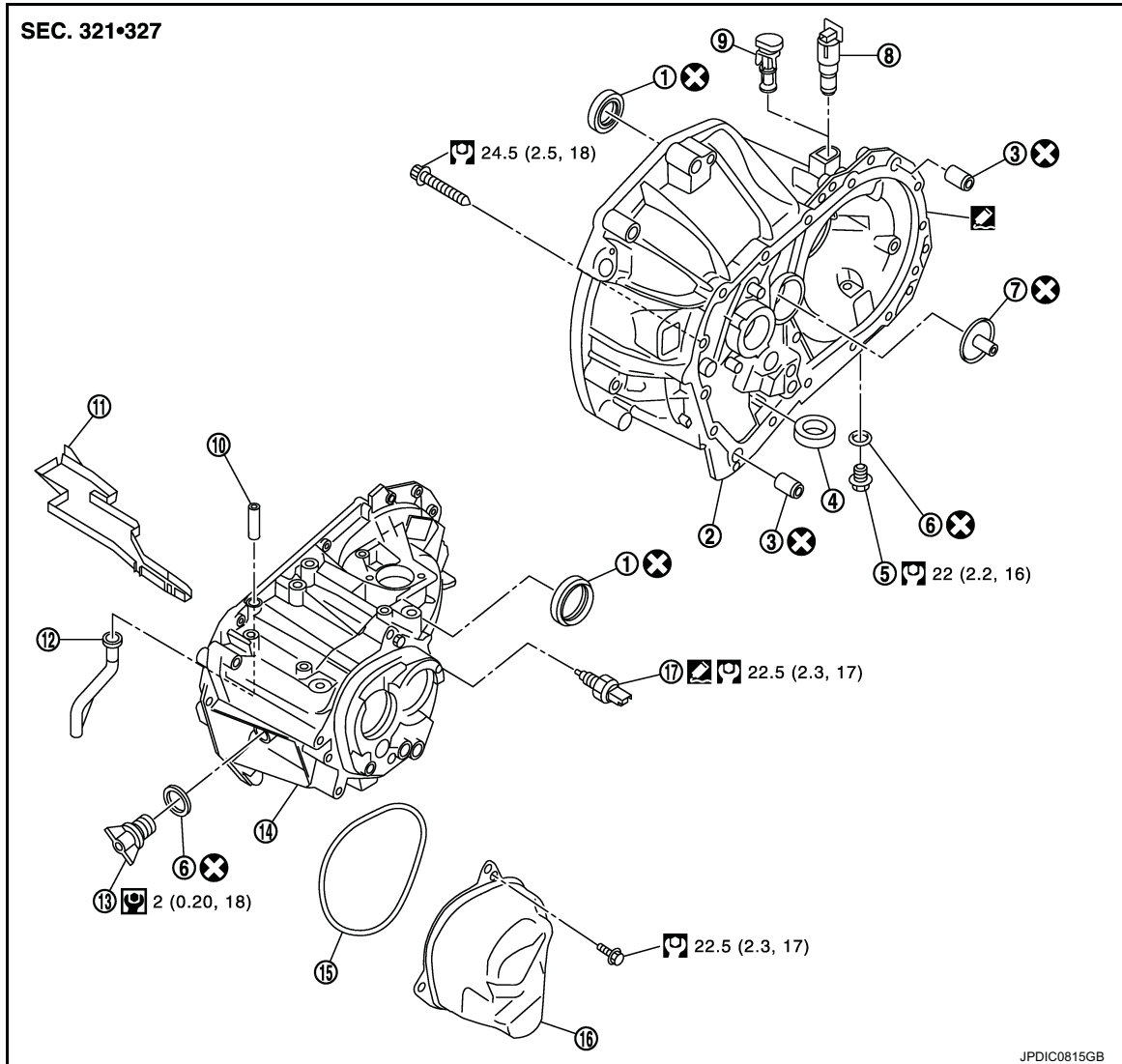
*: Refer to [TM-100, "General Specifications"](#) for the application of the speedometer drive gear.

TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

WITH SPEEDOMETER DRIVE GEAR*



1. Differential side oil seal	2. Clutch housing	3. Dowel pin
4. Magnet	5. Drain plug	6. Gasket
7. Oil channel	8. Speed sensor (without ABS)	9. Plug (with ABS)
10. 2 way connector	11. Oil gutter	12. Air breather inner tube
13. Filler plug	14. Transaxle case	15. O-ring
16. Rear housing	17. Position switch	

: Apply Genuine Liquid Gasket, Three Bond 1215 or an equivalent.

: Always replace after every disassembly.

: N·m (kg-m, ft-lb)

: N·m (kg-m, it-lb)

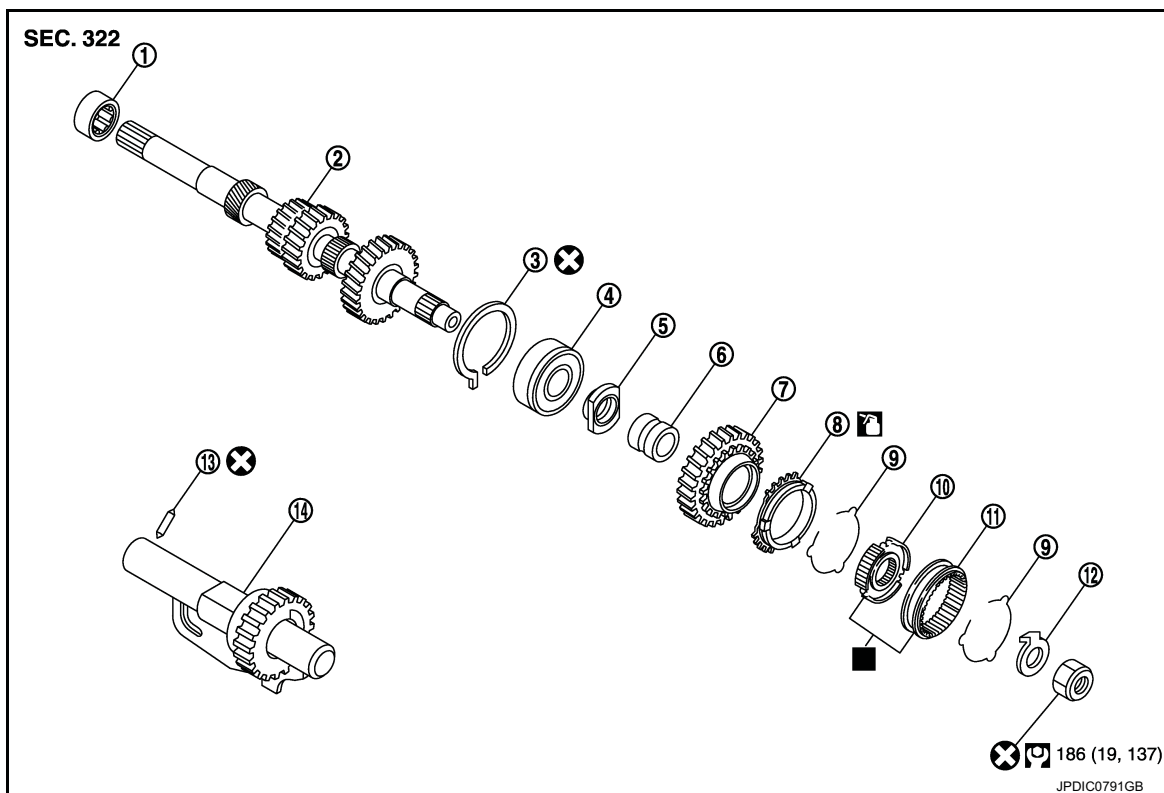
*: Refer to [TM-100, "General Specifications"](#) for the application of the speedometer drive gear.

SHAFT AND GEAR

TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]



1. Input shaft front bearing	2. Input shaft	3. Snap ring
4. Input shaft rear bearing	5. Adapter plate	6. Bushing
7. 5th input gear	8. 5th baulk ring	9. Spread spring
10. 5th-reverse synchronizer hub	11. 5th-reverse coupling sleeve	12. Lock washer
13. Retaining pin	14. Reverse gear	

: Apply gear oil.

: Always replace after every disassembly.

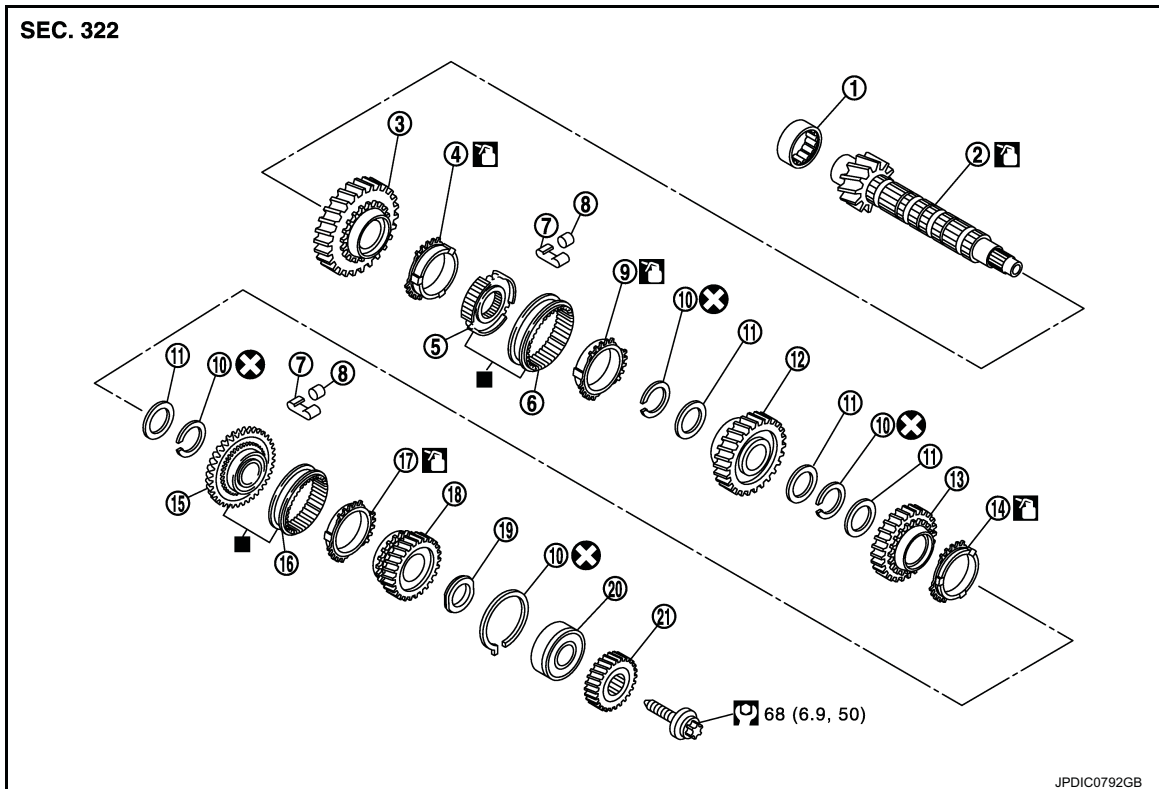
: N·m (kg-m, ft-lb)

: Replace the parts as a set.

TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]



1. Mainshaft front bearing	2. Mainshaft	3. 1st main gear
4. 1st baulk ring	5. 1st-2nd synchronizer hub	6. 1st-2nd coupling sleeve
7. Spring	8. Insert key	9. 2nd baulk ring
10. Snap ring	11. Thrust washer	12. 2nd main gear
13. 3rd main gear	14. 3rd baulk ring	15. 3rd-4th synchronizer hub
16. 3rd-4th coupling sleeve	17. 4th baulk ring	18. 4th main gear
19. Spacer	20. Mainshaft rear bearing	21. 5th main gear

: Apply gear oil.

: Always replace after every disassembly.

: N·m (kg-m, ft-lb)

: Replace the parts as a set.

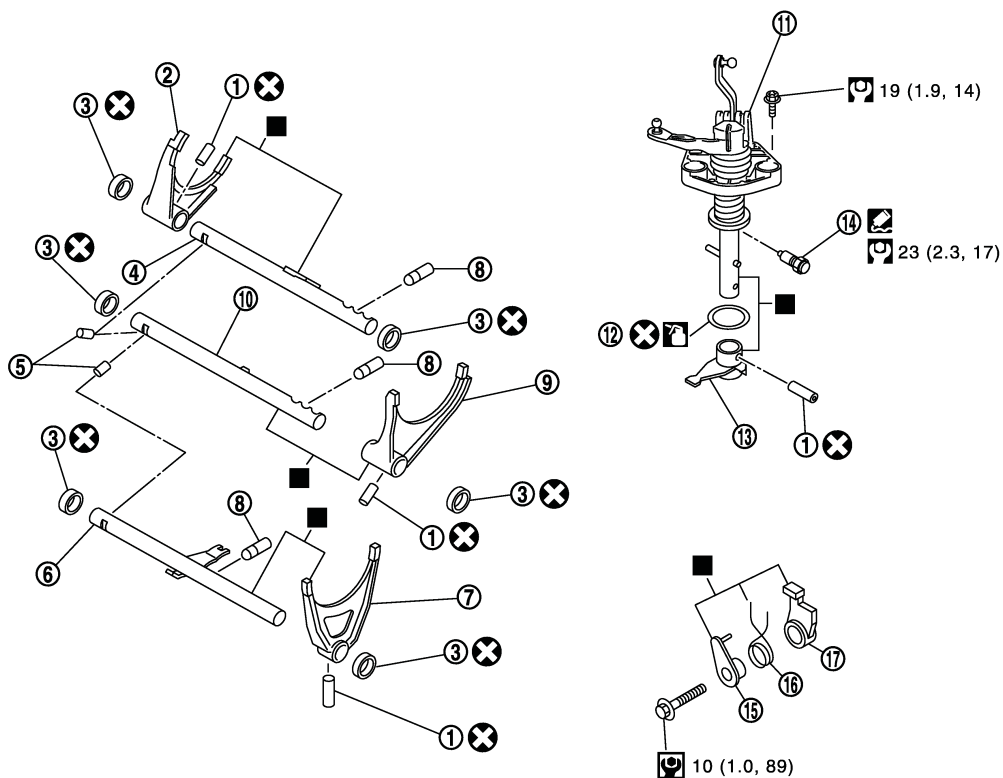
SHIFT FORK AND FORK ROD

TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

SEC.328



JPDIC0485GB

1. Retaining pin	2. 1st-2nd shift fork	3. Bushing
4. 1st-2nd fork rod	5. Lock pin	6. 5th-reverse fork rod
7. 5th-reverse shift fork	8. Check ball	9. 3rd-4th shift fork
10. 3rd-4th fork rod	11. Control shaft	12. O-ring
13. Selector	14. Check ball plug	15. Bushing
16. Spring	17. Gear catch	

: Apply Genuine Liquid Gasket, Three Bond 1215 or an equivalent.

: Apply gear oil.

: Always replace after every disassembly.

: N·m (kg-m, ft-lb)

: N·m (kg-m, it-lb)

: Replace the parts as a set.

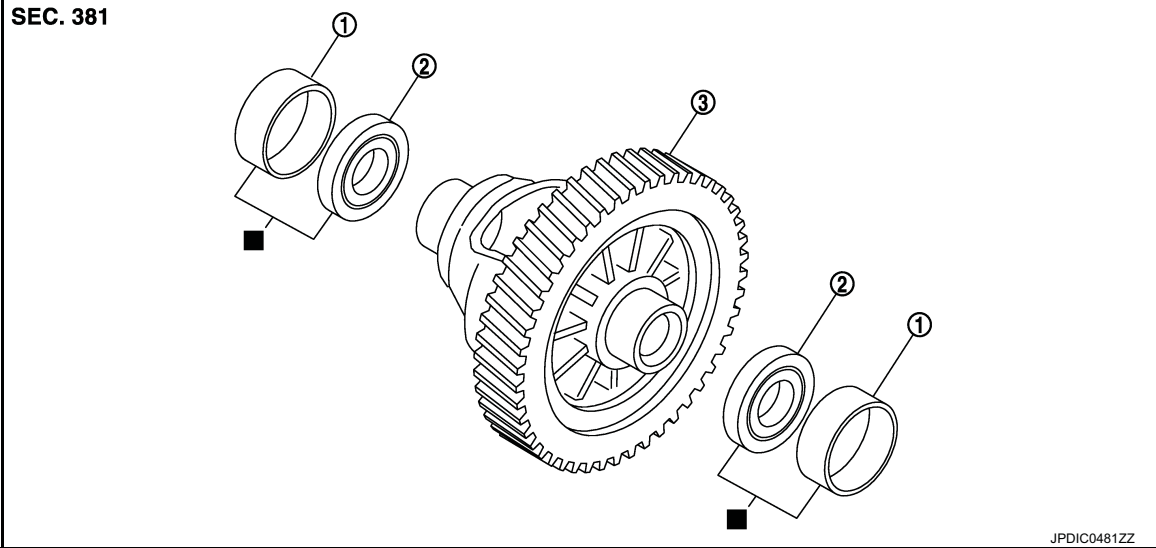
FINAL DRIVE

TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

WITHOUT SPEEDOMETER DRIVE GEAR*

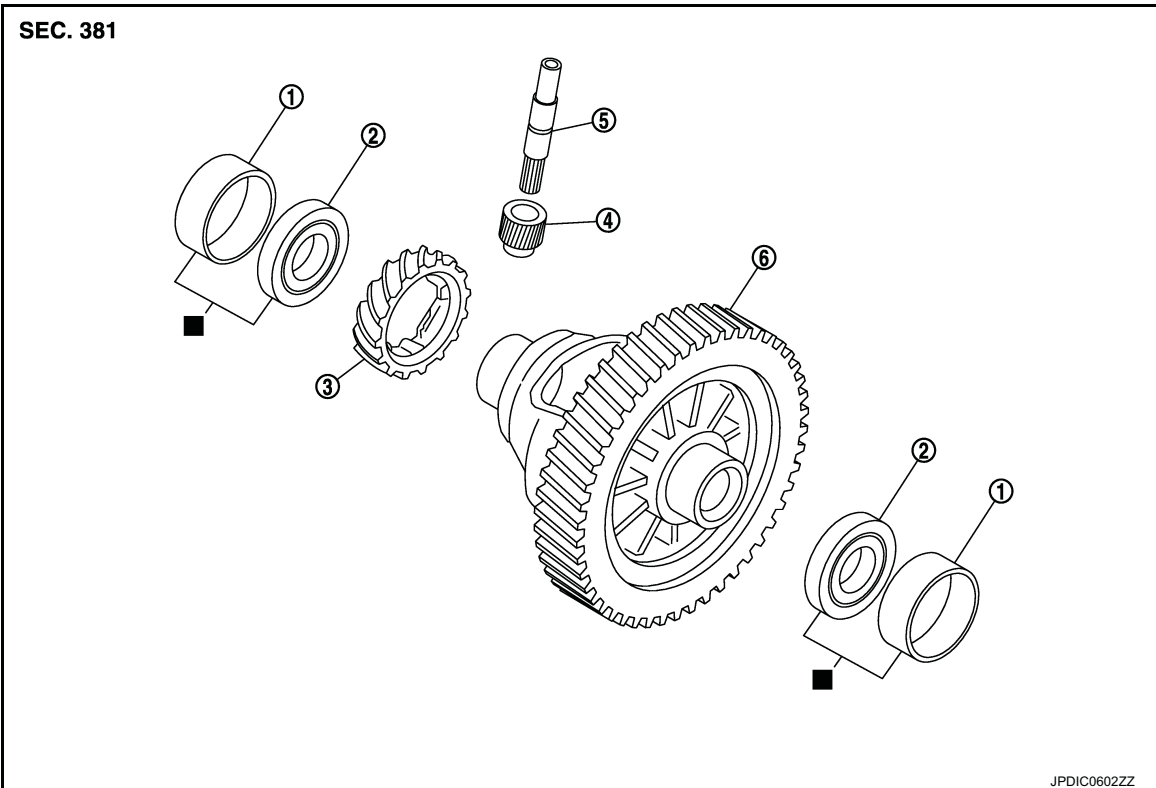


1. Differential side bearing outer race 2. Differential side bearing 3. Final drive

■ : Replace the parts as a set.

*: Refer to [TM-100. "General Specifications"](#) for the application of the speedometer drive gear.

WITH SPEEDOMETER DRIVE GEAR*



1. Differential side bearing outer race 2. Differential side bearing 3. Speedometer drive gear
4. Pinion gear 5. Pinion shaft 6. Final drive

■ : Replace the parts as a set.

*: Refer to [TM-100. "General Specifications"](#) for the application of the speedometer drive gear.

TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

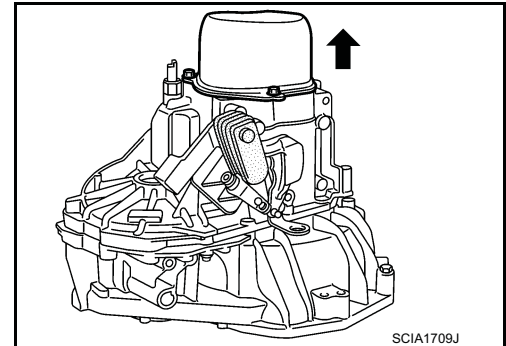
TYPE 1 : Disassembly

INFOID:000000006056580

1. Remove drain plug and gasket from clutch housing, using a socket [Commercial service tool] and drain gear oil.
2. Remove filler plug and gasket from transaxle case.
3. Remove rear housing and O-ring.

CAUTION:

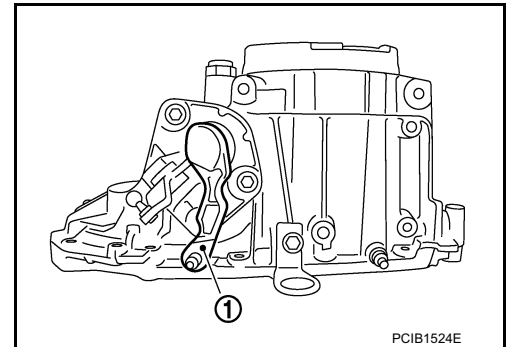
Remove to axial direction of input shaft (←) because rear housing oil channel is inserted to input shaft center hole.



4. Shift the shifter lever A (1) to the 3rd gear position.

NOTE:

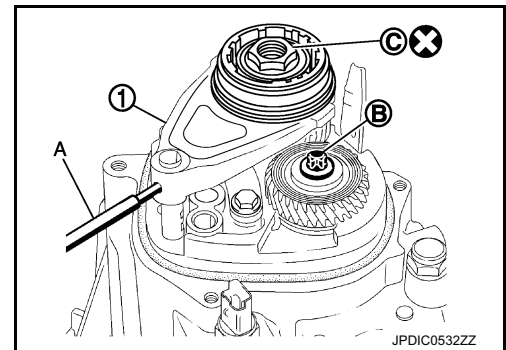
- If it is not shifted to the 3rd gear position, transaxle case cannot be removed from clutch housing.
- The 3rd gear position means that shifter lever A is fully rotated clockwise and it is returned approximately 10 degrees.



5. Remove 5th-reverse shift fork (1) and 5th-reverse coupling sleeve, as per the following procedure.
 - a. Remove retaining pin from 5th-reverse shift fork, using a pin punch (A).
 - b. Press 5th-reverse shift fork, shift to 5th, and then engage it with 3rd gear.
 - c. Remove mounting bolt (B).
 - d. Remove mounting nut (C) and lock washer.

CAUTION:

Never use an impact wrench for removal, or otherwise each gear may be damaged.

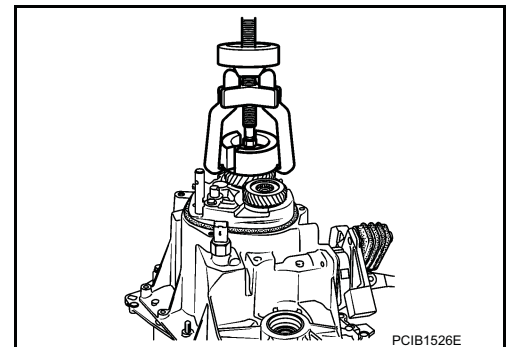


- e. Remove 5th-reverse shift fork and 5th-reverse coupling sleeve from 5th-reverse synchronizer hub.
6. Remove 5th-reverse synchronizer hub from input shaft, using a puller [Commercial service tool].

CAUTION:

Set claw of the puller to the wider side of the hub when setting the puller in 5th-reverse synchronizer hub.

7. Remove spread springs from 5th-reverse synchronizer hub.
8. Remove 5th baulk ring, 5th input gear, bushing, and adapter plate from input shaft.



TRANSAXLE ASSEMBLY

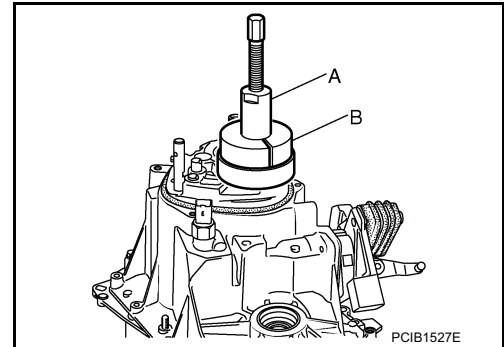
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

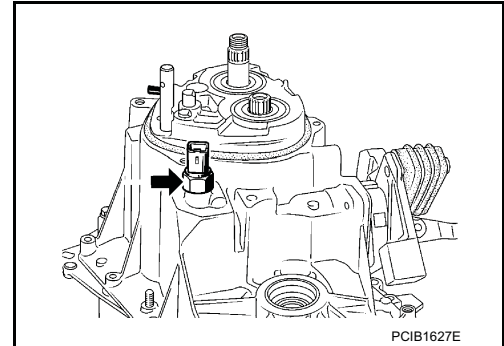
9. Remove 5th main gear from mainshaft, using the pullers.

A : Puller [SST: KV32300QAC]

B : Puller [SST: KV32300QAD]

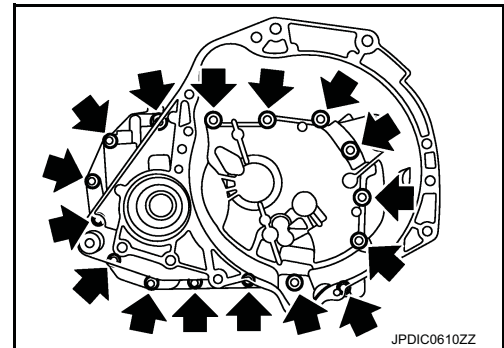


10. Remove position switch from transaxle case.

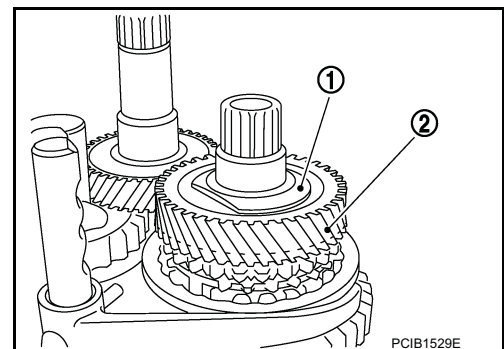


11. Remove transaxle case mounting bolts (←).

12. Remove transaxle case from clutch housing.

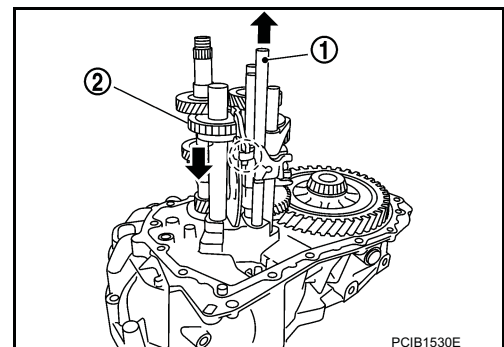


13. Remove spacer (1) and 4th main gear (2) from mainshaft.



14. Remove 5th-reverse fork rod (1), as per the following procedure.

- Pull 5th-reverse fork rod up until it contacts claw (⌋) of reverse gear (2).
- Press gear portion of reverse gear down, and then remove 5th-reverse fork rod from clutch housing.

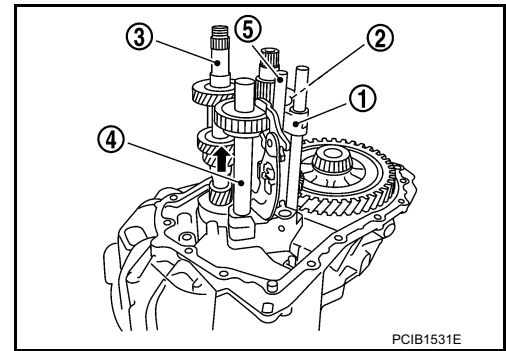


TRANSAXLE ASSEMBLY

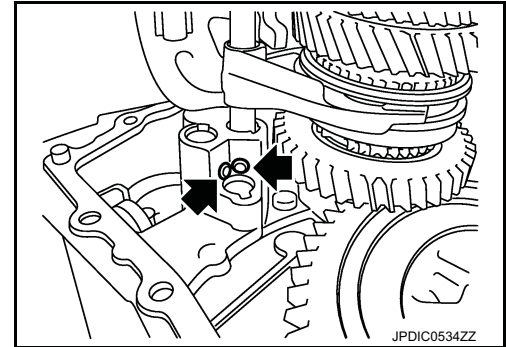
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

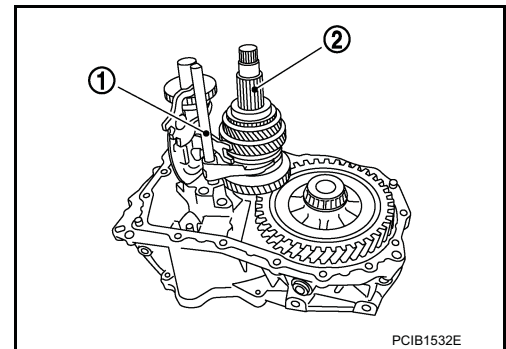
15. Remove 3rd-4th fork rod assembly (1), 3rd-4th coupling sleeve (2), and input shaft assembly (3), as per the following procedure.
 - a. Remove 4th baulk ring, insert keys, and springs from mainshaft.
 - b. Pull gear of reverse gear (4) up.
 - c. Pull 1st-2nd fork rod (5) up, and then maintain the neutral position.
 - d. Remove 3rd-4th fork rod assembly, 3rd-4th coupling sleeve, and input shaft assembly from clutch housing at the same time.
16. Remove retaining pin from 3rd-4th shift fork, using a pin punch.
17. Remove 3rd-4th shift fork from 3rd-4th shift fork rod.



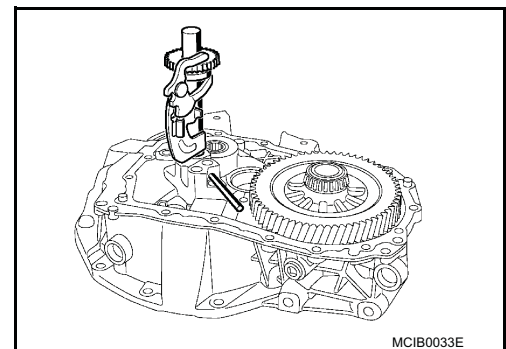
18. Remove lock pins (⬅) from clutch housing.



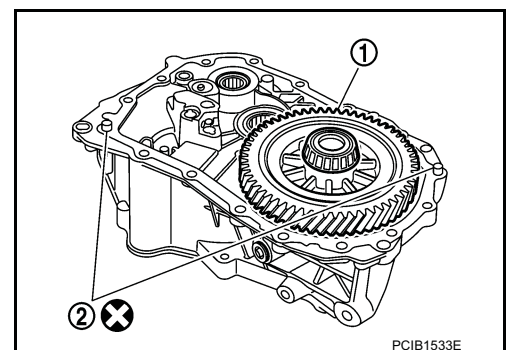
19. Remove 1st-2nd fork rod assembly (1) and mainshaft assembly (2) from clutch housing at the same time.
20. Remove retaining pin from 1st-2nd shift fork, using a pin punch.
21. Remove 1st-2nd shift fork from 1st-2nd shift fork rod.



22. Remove retaining pin from reverse gear, using a pin punch.
23. Remove reverse gear from clutch housing.



24. Remove final drive (1) from clutch housing.
25. Remove magnet and dowel pins (2) from clutch housing.



TRANSAXLE ASSEMBLY

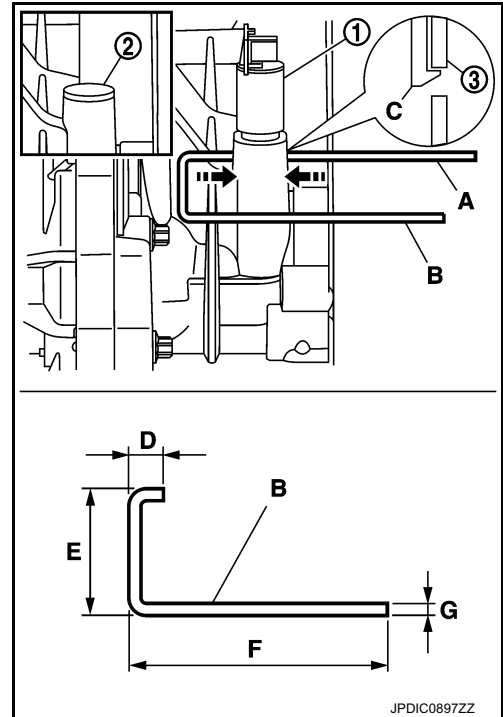
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

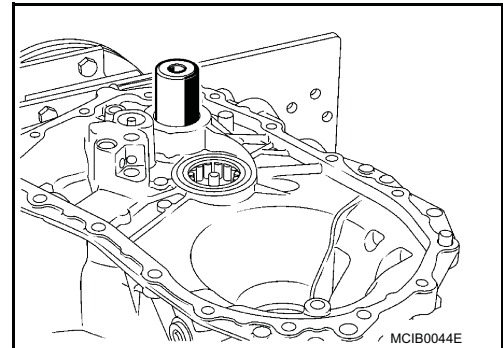
26. Remove speed sensor (1) or plug (2) from clutch housing (3), as per the following procedure. (With speedometer drive gear)

- C : The claw of speed sensor or plug
 D : 15 mm (0.59 in)
 E : 45 mm (1.77 in)
 F : 95 mm (3.74 in) or more
 G : 4 mm (0.16 in)

- a. Set the suitable drift (A) and (B) to the holes of clutch housing as shown in the figure.
 b. While pressing the suitable drift (A) and (B) in the direction of the arrow shown in the figure, remove speed sensor from clutch housing.
 27. Remove pinion gear and pinion shaft from clutch housing. (With speedometer drive gear)

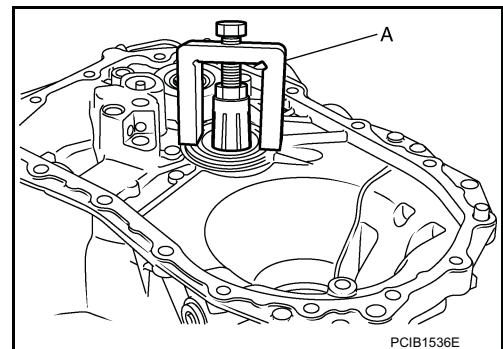


28. Remove input shaft front bearing from clutch housing, using a drift [Commercial service tool].

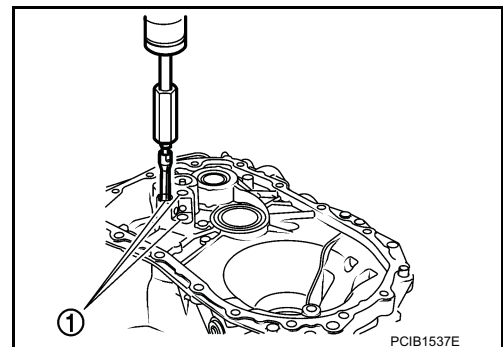


29. Cut oil channel tube at the root.

30. Remove mainshaft front bearing and oil channel from clutch housing, using the valve seat remover (A) [SST: KV111011S0].



31. Remove bushings (1) from clutch housing, using a bearing remover [Commercial service tool].



TRANSAXLE ASSEMBLY

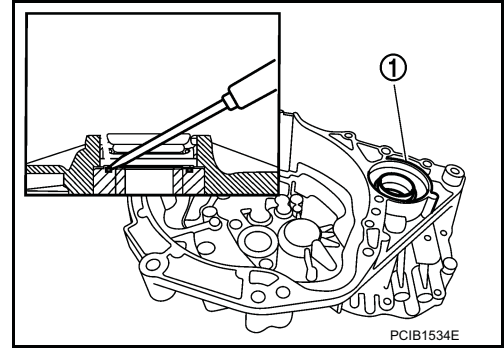
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

32. Remove differential side oil seals (1) from clutch housing and transaxle case, using a screwdriver.

CAUTION:

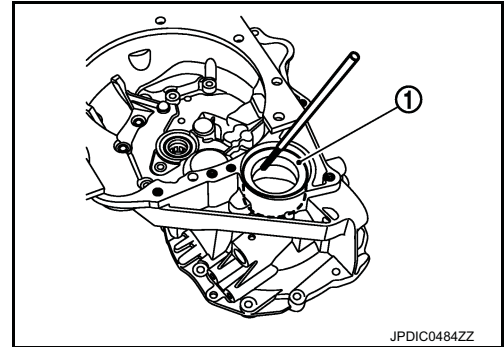
Never damage transaxle case and clutch housing.



33. Remove differential side bearing outer races (1) from clutch housing and transaxle case, using a brass rod.

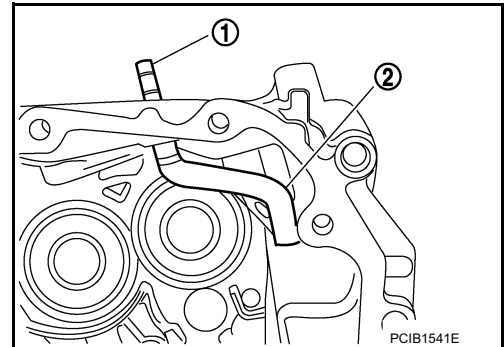
CAUTION:

Never damage transaxle case and clutch housing.



34. Pull 2 way connector (1) straight to remove it from air breather inner tube (2).

35. Remove air breather inner tube from transaxle case.

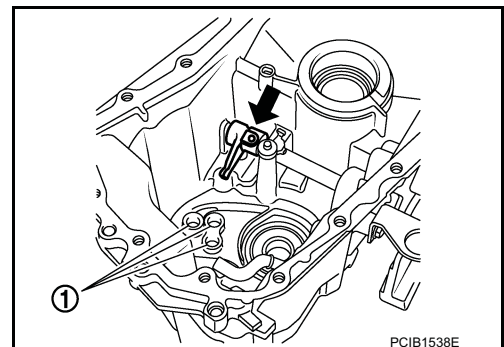


36. Remove bushings (1) from transaxle case, using a bearing remover [Commercial service tool].

37. Remove retaining pin (➡) from selector, using a pin punch.

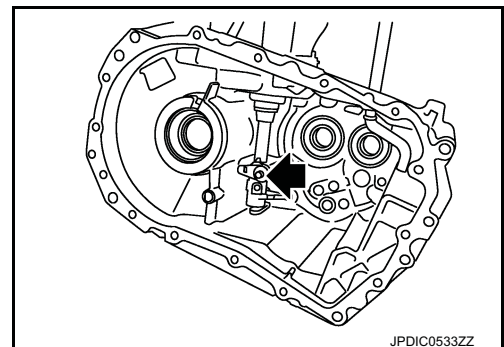
38. Remove selector from control shaft.

39. Remove oil gutter from transaxle case.



40. Remove mounting bolt (➡), and then remove bushing, spring, and gear catch from transaxle case.

41. Remove check ball plug from transaxle case.

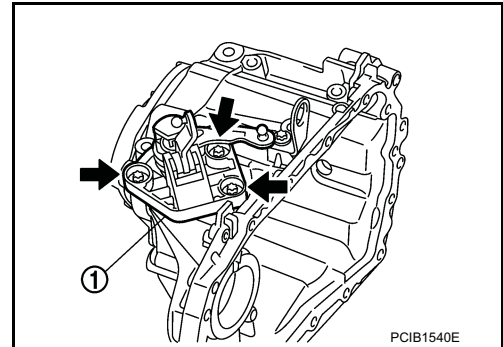


TRANSAXLE ASSEMBLY

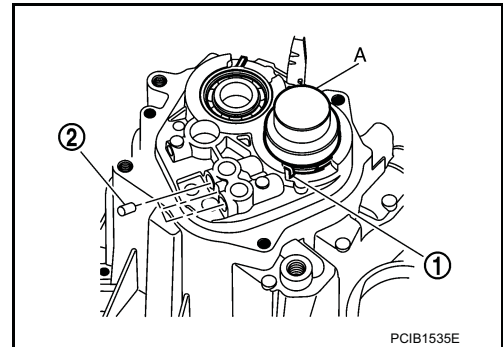
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

42. Remove mounting bolts (➡), and then remove control shaft (1) from transaxle case.
43. Remove O-ring from control shaft.



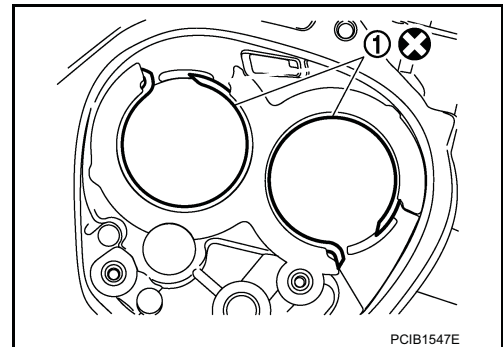
44. Expand snap rings (1) and remove input shaft rear bearing and mainshaft rear bearing from transaxle case, using the drift (A) [SST: ST35300000].
45. Remove snap rings from transaxle case.
46. Remove check balls (2) from transaxle case.



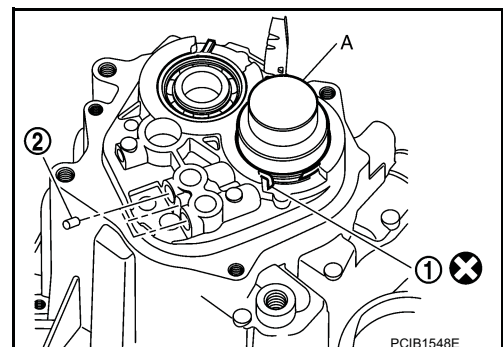
TYPE 1 : Assembly

INFOID:000000006056581

1. Install snap rings (1) along transaxle case groove so that notch mates with housing as shown in the figure.
CAUTION:
Check snap ring installing direction. Never misassemble.



2. Expand snap rings (1) and install input shaft rear bearing and mainshaft rear bearing to transaxle case, using the drift (A) [SST: ST35300000].
CAUTION:
Check that snap ring is correctly installed within bearing groove.
3. Install check balls (2) to transaxle case.

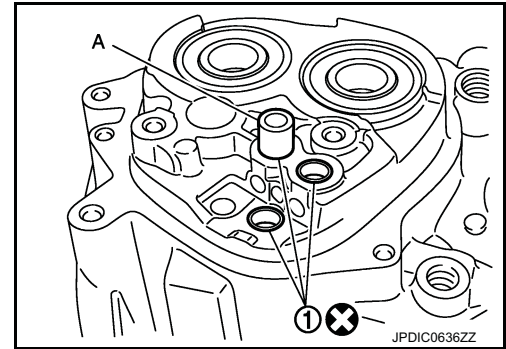


TRANSAXLE ASSEMBLY

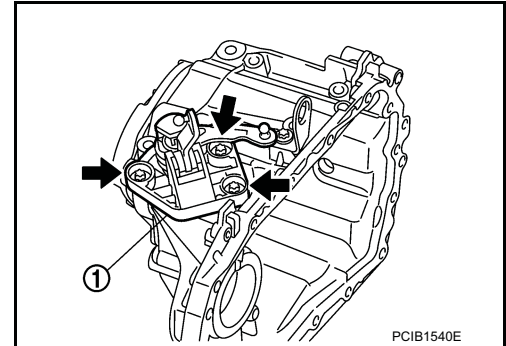
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

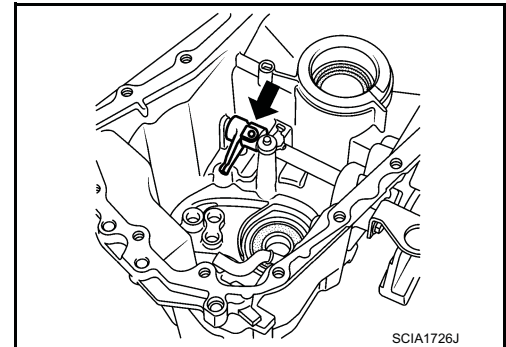
4. Install bushings (1) until they reach transaxle case, using a drift (A) [Commercial service tool].
5. Apply gear oil to O-ring, and then install it to control shaft.
CAUTION:
Never reuse O-ring.



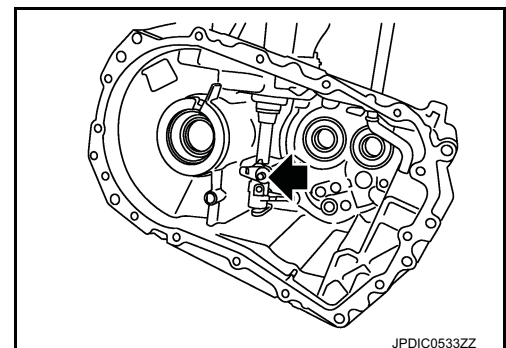
6. Install control shaft (1) to transaxle case, and tighten mounting bolts (⬅) to the specified torque.
CAUTION:
Replace control shaft and selector as a set.



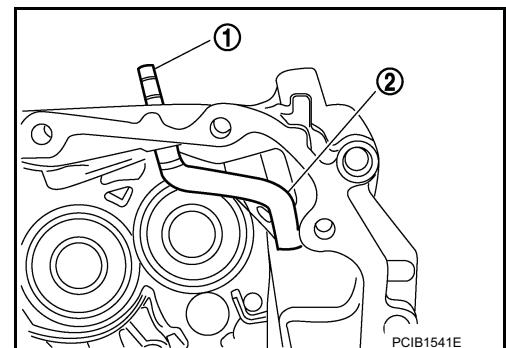
7. Install selector to control shaft, and then install retaining pin (⬅) to selector, using a pin punch.
CAUTION:
 - Be careful with the orientation of selector.
 - Replace control shaft and selector as a set.
 - Never reuse retaining pin.



8. Install gear catch, spring, and bushing to transaxle case, and then tighten mounting bolt (⬅) to the specified torque.
CAUTION:
Replace gear catch, spring, and bushing as a set.
9. Install oil gutter to transaxle case.



10. Install air breather inner tube (2) to transaxle case.
CAUTION:
Never damage air breather inner tube.
NOTE:
It is easier to install when air breather inner tube end is wrapped and narrowed by tape. Remove tape after installation.
11. Insert 2 way connector (1) straight, and then install it to air breather inner tube.
CAUTION:
Check air breather inner tube for twists after installing.



TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

12. Install differential side oil seals (1) to clutch housing and transaxle case, using the drift [Stamping number: B.vi 1666-B] of the drift set [SST: KV32500QAA].

B : Transaxle case side

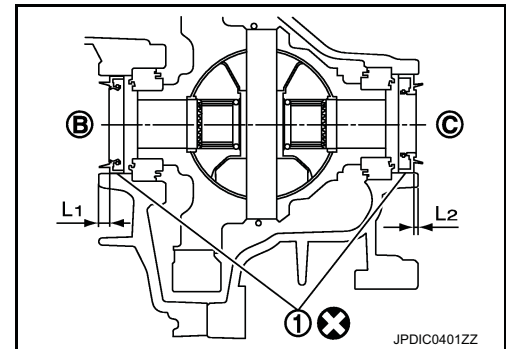
C : Clutch housing side

Dimension "L1" : 5.7 – 6.3 mm (0.224 – 0.248 in)

Dimension "L2" : 2.4 – 3.0 mm (0.094 – 0.118 in)

CAUTION:

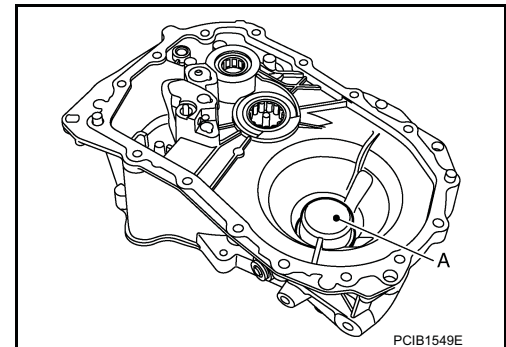
- Never incline differential side oil seal.
- Never damage clutch housing and transaxle case.



13. Install differential side bearing outer races until they reach clutch housing and transaxle case, using the drift (A) [SST: KV32300QAE].

CAUTION:

Replace differential side bearing outer race and differential side bearing as a set.

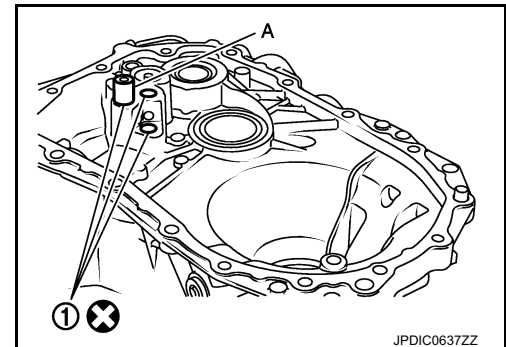


14. Install bushings (1) until they reach clutch housing, using a drift (A) [Commercial service tool].

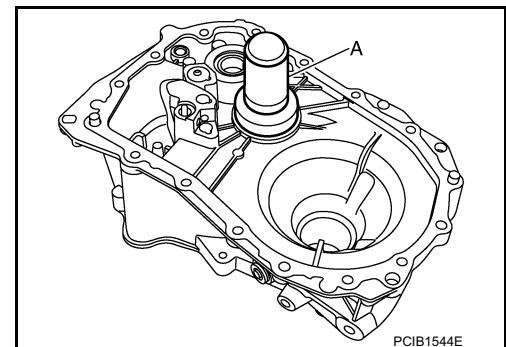
15. Install oil channel to clutch housing.

CAUTION:

Never reuse oil channel.



16. Install mainshaft front bearing so that it becomes even to clutch housing surface, using the drift (A) [SST: ST33400001].

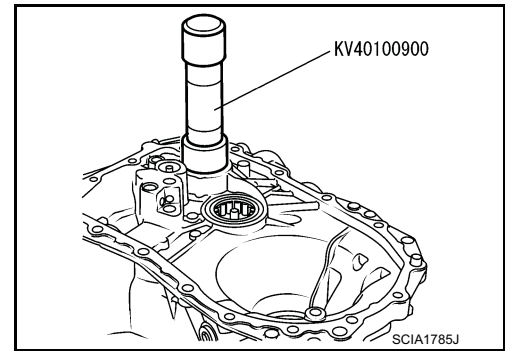


TRANSAXLE ASSEMBLY

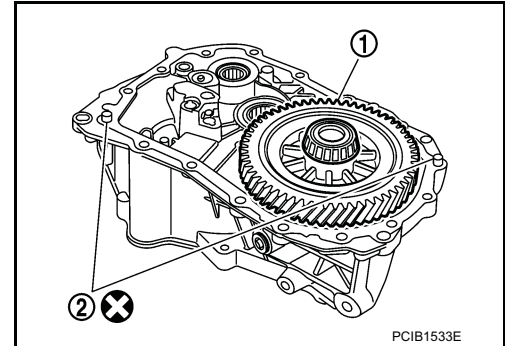
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

17. Install input shaft front bearing so that it becomes even to clutch housing surface, using the drift [SST].
18. Install pinion gear, pinion shaft, and speed sensor to clutch housing. (With speedometer drive gear)



19. Install final drive (1) to clutch housing.
20. Install dowel pins (2) and magnet to clutch housing.



21. Install reverse gear to clutch housing, and then install retaining pin to clutch housing, using a pin punch.

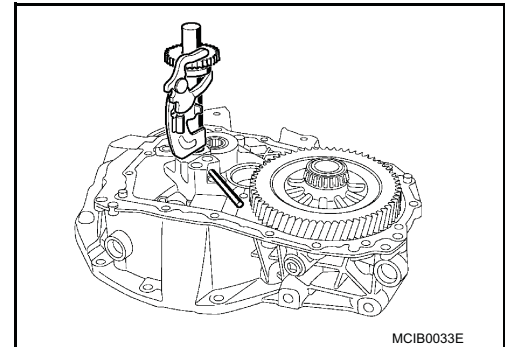
CAUTION:

Never reuse retaining pin.

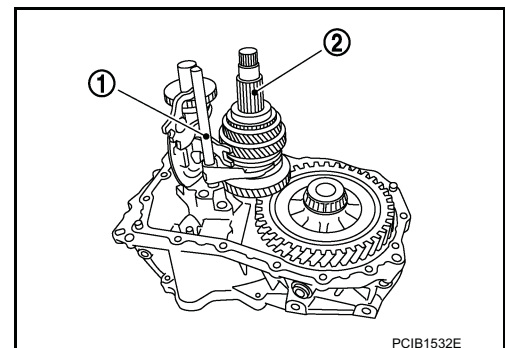
22. Install 1st-2nd shift fork to 1st-2nd fork rod, and then install retaining pin to 1st-2nd shift fork.

CAUTION:

- **Never reuse retaining pin.**
- **Replace 1st-2nd fork rod and 1st-2nd shift fork as a set.**



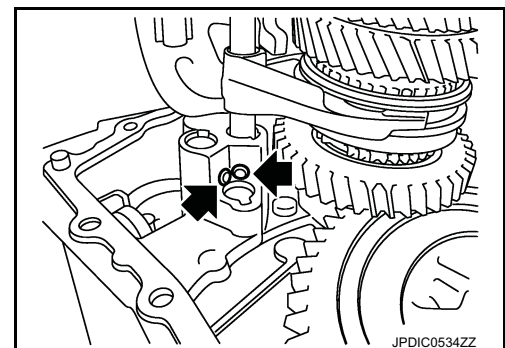
23. Set 1st-2nd fork rod assembly (1) onto mainshaft assembly (2), and then install them to clutch housing.



24. Install lock pins (⬅) to clutch housing.
25. Install 3rd-4th shift fork to 3rd-4th fork rod, and then install retaining pin to 3rd-4th shift fork.

CAUTION:

- **Never reuse retaining pin.**
- **Replace 3rd-4th fork rod and 3rd-4th shift fork as a set.**



TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

26. Install 3rd-4th fork rod assembly (1), 3rd-4th coupling sleeve (2), and input shaft assembly (3) to clutch housing, as per the following procedure.

- Pull 1st-2nd fork rod (4) up, and then maintain the neutral position.
- Set 3rd-4th fork rod assembly onto 3rd-4th coupling sleeve, and then install them together with input shaft assembly to clutch housing.

CAUTION:

- Set lock pin (3rd-4th fork rod side) onto 1st-2nd fork rod groove and then install 3rd-4th fork rod assembly.

- Be careful with the orientation of 3rd-4th coupling sleeve.

A : 4th main gear side

B : 3rd main gear side

- Install 3rd input gear of input shaft assembly so that it is set under reverse main gear of 3rd-4th coupling sleeve.
- Replace 3rd-4th coupling sleeve and 3rd-4th synchronizer hub as a set.

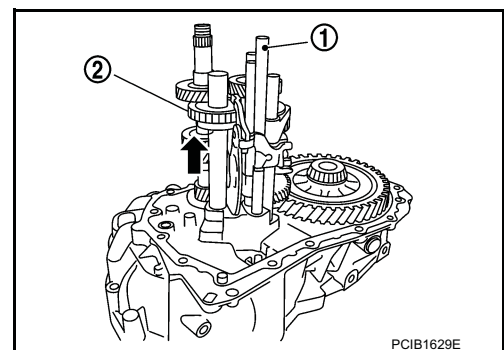
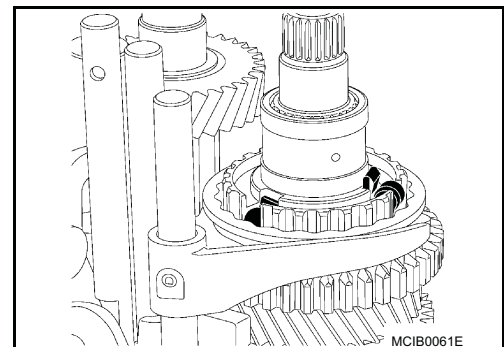
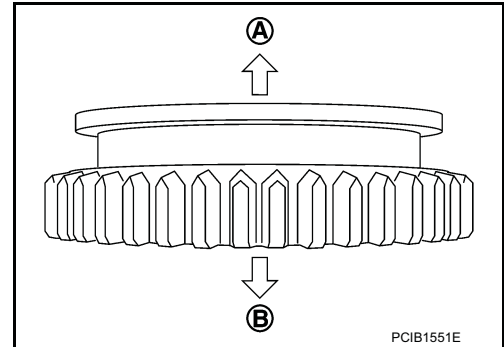
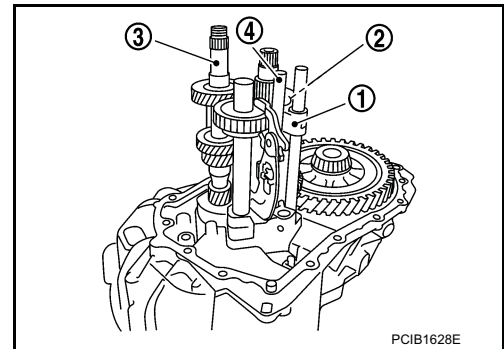
- Install springs and insert keys to 3rd-4th synchronizer hub.
- Apply gear oil to 4th baulk ring.
- Install 4th baulk ring.

27. Install 5th-reverse fork rod (1) to clutch housing, as per the following procedure.

CAUTION:

Replace 5th-reverse fork rod and 5th-reverse shift fork as a set.

- Pull gear of reverse gear (2) up.
- Temporarily install 5th-reverse fork rod to clutch housing.



TRANSAXLE ASSEMBLY

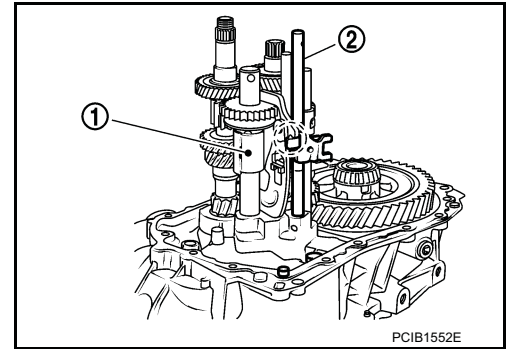
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

- c. Press gear of reverse gear (1) down and then install 5th-reverse fork rod (2) to clutch housing.

CAUTION:

Set levers of 5th-reverse fork rod so as to align with reverse gear groove (○).

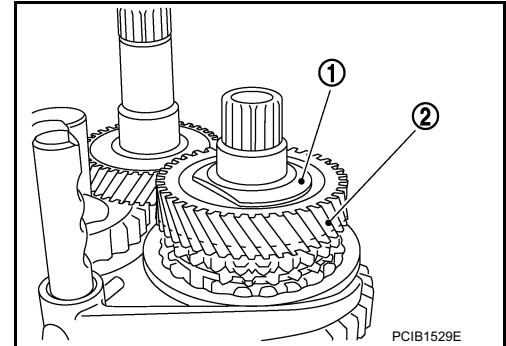


28. Install 4th main gear (2) and spacer (1) to mainshaft.

CAUTION:

Install spacer so that spacer protrusion faces to transaxle rear side.

29. Press 3rd-4th shift fork down and then shift 3rd-4th coupling sleeve to 3rd gear side.



30. Shift the shifter lever A (1) to the 3rd gear position.

NOTE:

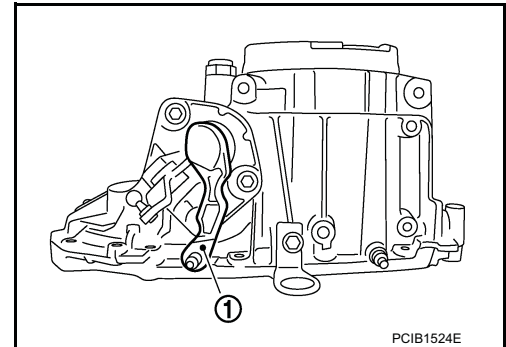
- If it is not shifted to the 3rd gear position, transaxle case cannot be installed to clutch housing.
- The 3rd gear position means that shifter lever A is fully rotated clockwise and it is returned approximately 10 degrees.

31. Apply recommended sealant to transaxle case mounting surface of clutch housing.

- Use Genuine Liquid Gasket, Three Bond 1215 or an equivalent.

CAUTION:

- Never allow old liquid gasket, moisture, oil, or foreign matter to remain on mounting surface.
- Check that mounting surface is not damaged.
- Apply a continuous bead of liquid gasket to the mounting surface.



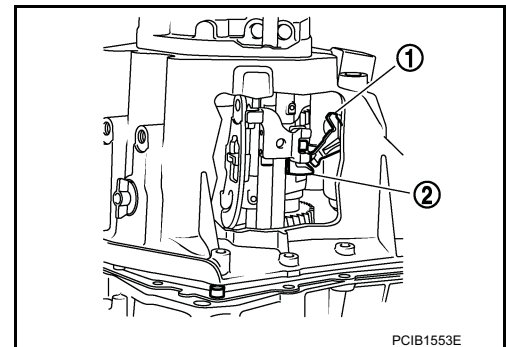
32. Install transaxle case to clutch housing. If it is difficult to install, slightly rotate shifter lever A counterclockwise, and then install.

1 : Selector

2 : Shift fork

CAUTION:

- Never disrupt liquid gasket bead with transaxle case or other objects during installation.
- Be careful to align the lever of 5th-reverse fork rod with reverse gear groove.



TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

33. Rotate input shaft so that bearing and shaft fit each other, and then tighten transaxle mounting bolts (➡) to the specified torque.

34. Apply recommended sealant to position switch thread and check ball plug thread. Tighten them to transaxle case and them to the specified torque.

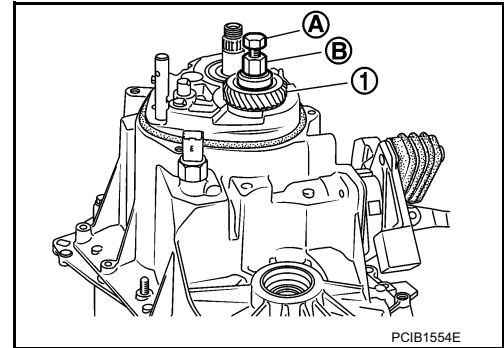
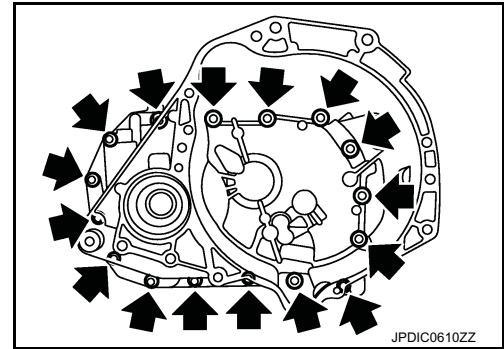
- Use Genuine Liquid Gasket, Three Bond 1215 or an equivalent.

CAUTION:

Never allow old liquid gasket, moisture, oil, or foreign matter to remain on thread.

35. Apply gear oil to mainshaft spline.

36. Install 5th main gear (1) to mainshaft, using a suitable bolt (A) [M10 x 1.0] and a suitable nut (B).

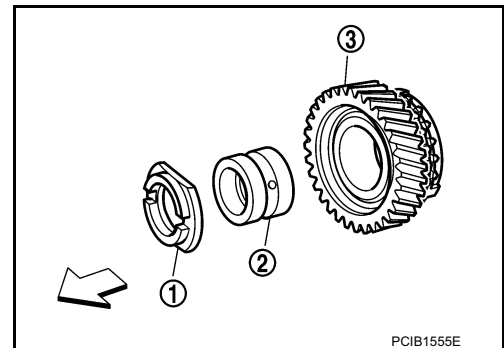


37. Install adapter plate (1), bushing (2), and 5th input gear (3) to input shaft.

CAUTION:

Be careful with the orientation of adapter plate.

➡ : Transaxle case side



38. Install 5th-reverse synchronizer hub, 5th-reverse coupling sleeve, and 5th-reverse shift fork, as per the following procedure.

- Apply gear oil to 5th baulk ring.
- Install 5th baulk ring to 5th input gear.
- Install spread springs to 5th-reverse synchronizer hub.

CAUTION:

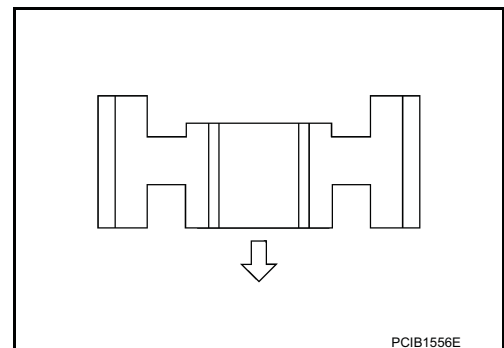
Replace 5th-reverse synchronizer hub and 5th-reverse coupling sleeve as a set.

d. Install 5th-reverse synchronizer hub assembly and lock washer to input shaft.

CAUTION:

Be careful with the orientation of 5th-reverse synchronizer hub.

➡ : 5th input gear side



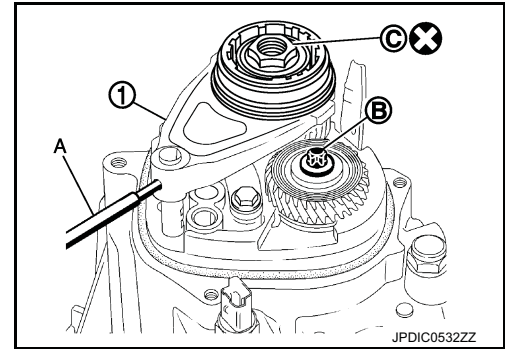
TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

- e. Set 5th-reverse shift fork (1) to 5th-reverse coupling sleeve, and then install them to 5th-reverse fork rod and input shaft.

- A : Pin punch
B : Mounting bolt
C : Mounting nut



CAUTION:

- Be careful with the orientation of 5th-reverse coupling sleeve.

← : 5th input gear side

- Replace 5th-reverse synchronizer hub and 5th-reverse coupling sleeve as a set.
- Replace 5th-reverse shift fork and 5th-reverse fork rod as a set.

- f. Check that the gear position is in the 3rd position. Press 5th-reverse shift fork and shift to 5th gear.
- g. Tighten mounting bolt to the specified torque.
- h. Tighten mounting nut to the specified torque.

CAUTION:

Never reuse mounting nut.

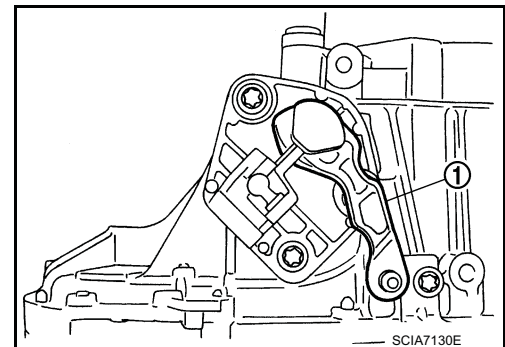
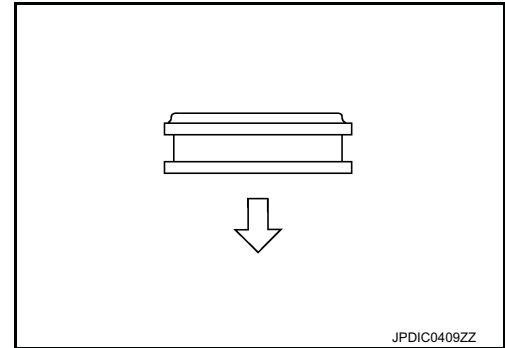
- i. Install retaining pin to 5th-reverse shift fork, using a pin punch.

CAUTION:

Never reuse retaining pin.

39. Shift the shifter lever A (1) to the neutral position.

40. Install O-ring to rear housing.



41. Install rear housing to transaxle case, and tighten bolts (←) to the specified torque.

CAUTION:

Never pinch O-ring when installing rear housing.

42. Install drain plug, as per the following procedure.

- a. Install gasket to drain plug.

CAUTION:

Never reuse gasket.

- b. Install drain plug to clutch housing, using a socket [Commercial service tool].

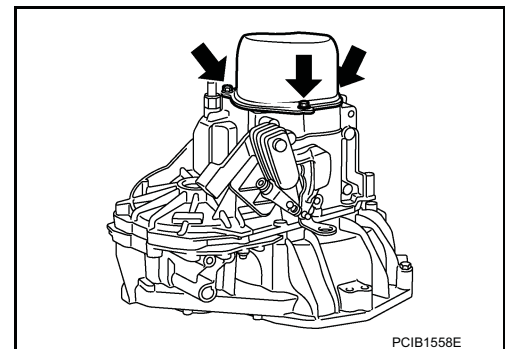
- c. Tighten drain plug to the specified torque.

43. Install filler plug, as per the following procedure.

- a. Install gasket to filler plug, and then install them to transaxle case.

CAUTION:

Never reuse gasket.



TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

- b. Tighten filler plug to the specified torque.

CAUTION:

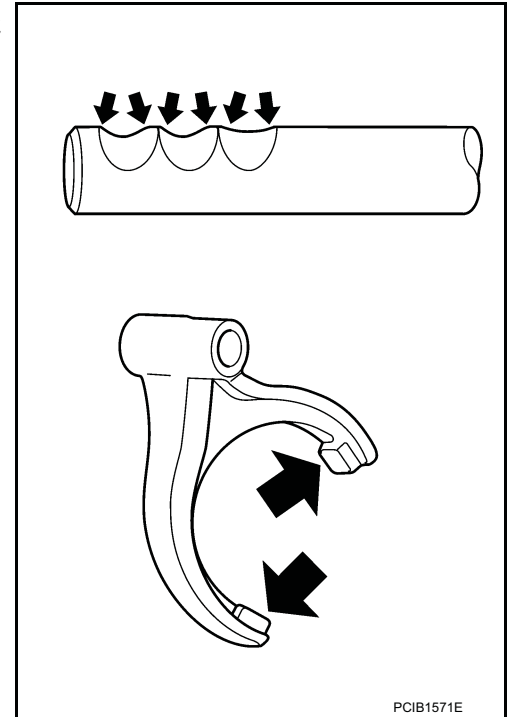
Fill with gear oil before tightening filler plug to the specified torque.

TYPE 1 : Inspection

INFOID:000000006056582

INSPECTION AFTER DISASSEMBLY

Check contact surface and sliding surface of fork rod and shift fork for excessive wear, uneven wear, bend, and damage. Replace if necessary.



TYPE 2

TYPE 2 : Exploded View

INFOID:000000006288031

CASE AND HOUSING

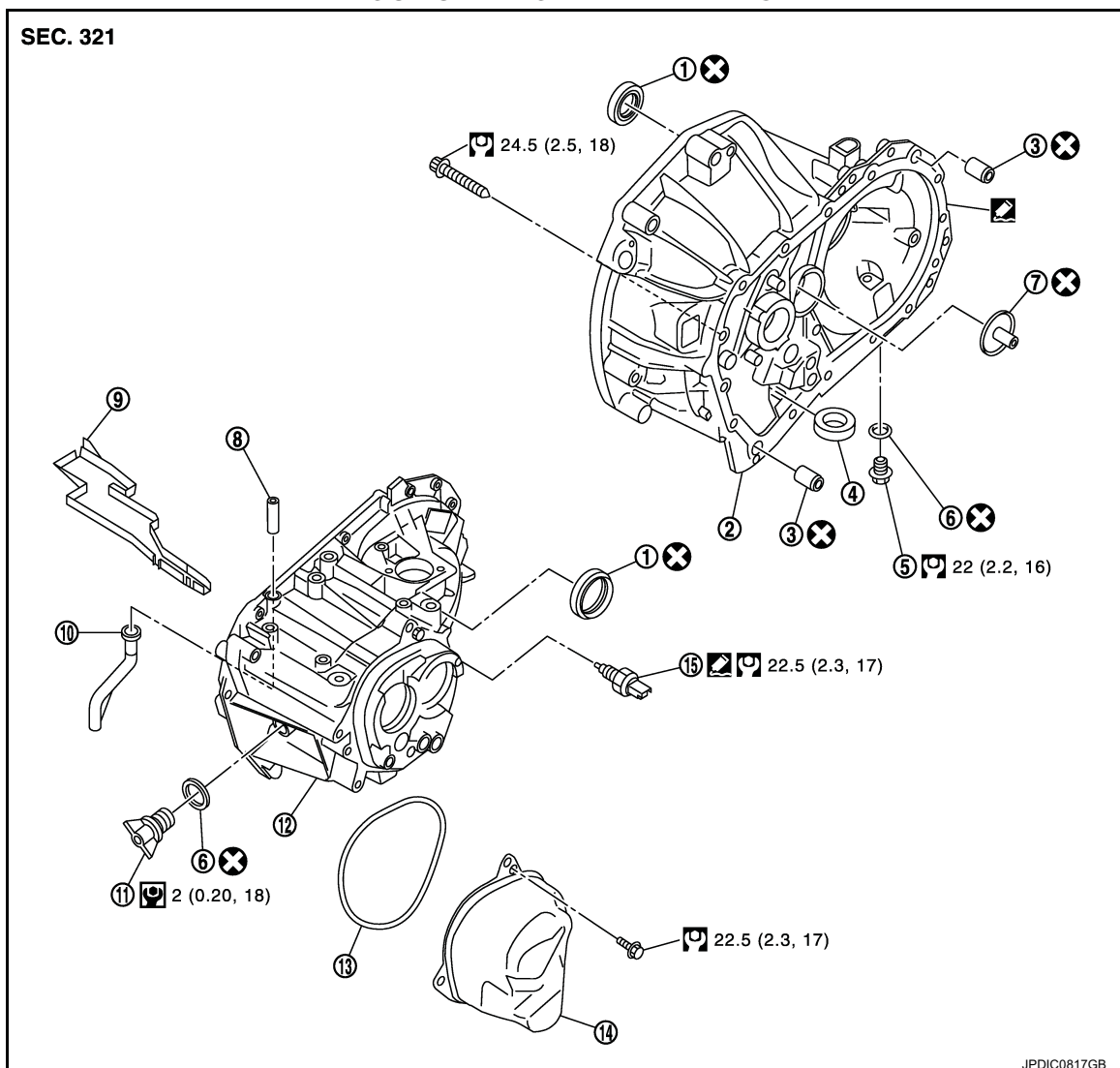
TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

WITHOUT SPEEDOMETER DRIVE GEAR*

SEC. 321



JPDIC0817GB

1. Differential side oil seal	2. Clutch housing	3. Dowel pin
4. Magnet	5. Drain plug	6. Gasket
7. Oil channel	8. 2 way connector	9. Oil gutter
10. Air breather inner tube	11. Filler plug	12. Transaxle case
13. O-ring	14. Rear housing	15. Position switch

 : Apply Genuine Liquid Gasket, Three Bond 1215 or an equivalent.

 : Always replace after every disassembly.

 : N·m (kg-m, ft-lb)

 : N·m (kg-m, it-lb)

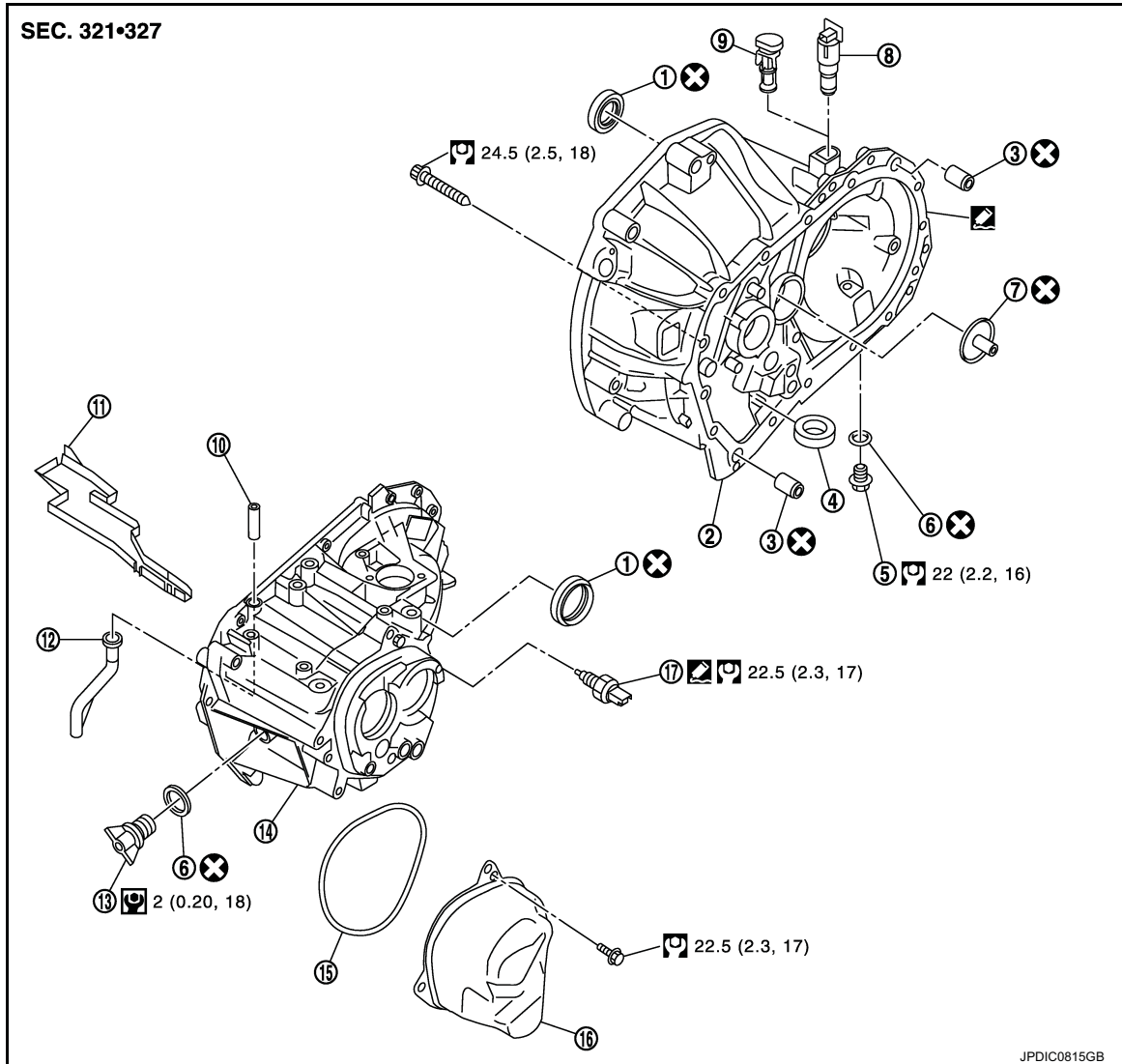
*: Refer to [TM-100. "General Specifications"](#) for the application of the speedometer drive gear.

TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

WITH SPEEDOMETER DRIVE GEAR*



1. Differential side oil seal	2. Clutch housing	3. Dowel pin
4. Magnet	5. Drain plug	6. Gasket
7. Oil channel	8. Speed sensor (without ABS)	9. Plug (with ABS)
10. 2 way connector	11. Oil gutter	12. Air breather inner tube
13. Filler plug	14. Transaxle case	15. O-ring
16. Rear housing	17. Position switch	

: Apply Genuine Liquid Gasket, Three Bond 1215 or an equivalent.

: Always replace after every disassembly.

: N·m (kg-m, ft-lb)

: N·m (kg-m, it-lb)

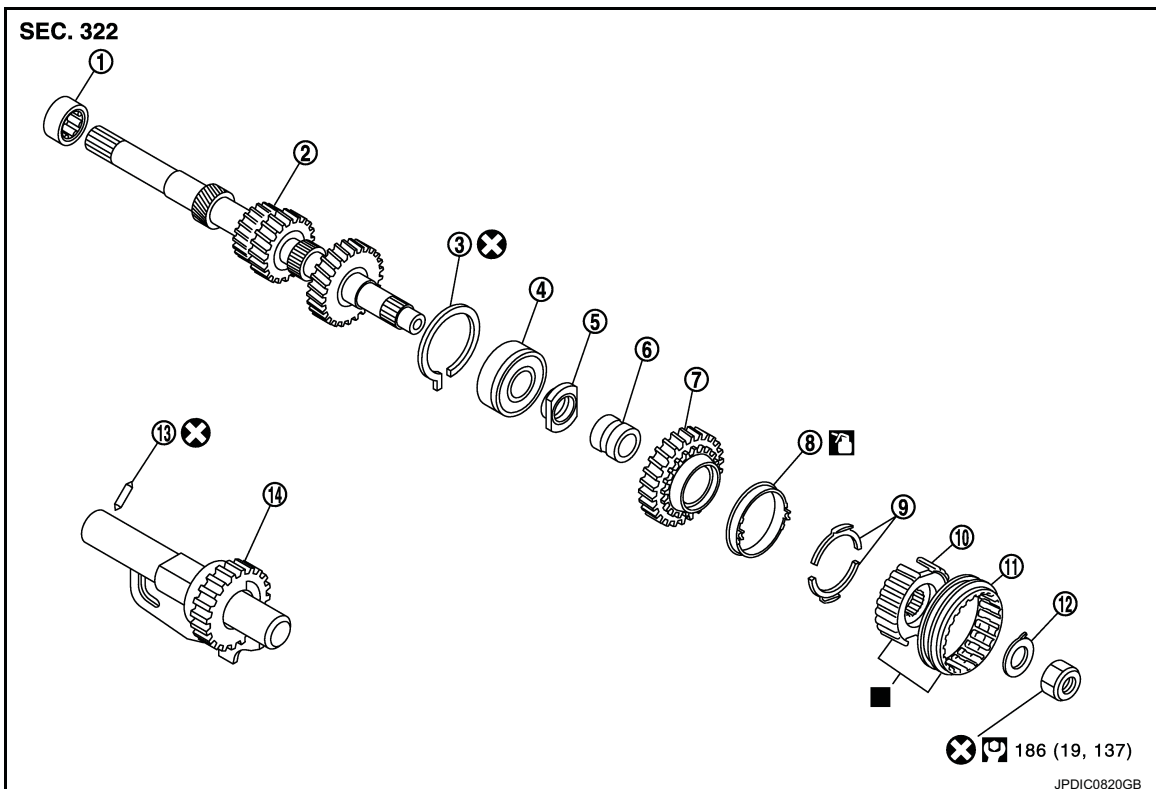
*: Refer to [TM-100, "General Specifications"](#) for the application of the speedometer drive gear.

SHAFT AND GEAR

TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]



1. Input shaft front bearing	2. Input shaft	3. Snap ring
4. Input shaft rear bearing	5. Adapter plate	6. Bushing
7. 5th input gear	8. 5th-reverse baulk ring	9. Synchronizer lever
10. 5th-reverse synchronizer hub	11. 5th-reverse coupling sleeve	12. Lock washer
13. Retaining pin	14. Reverse gear	



: Apply gear oil.



: Always replace after every disassembly.



: N·m (kg-m, ft-lb)

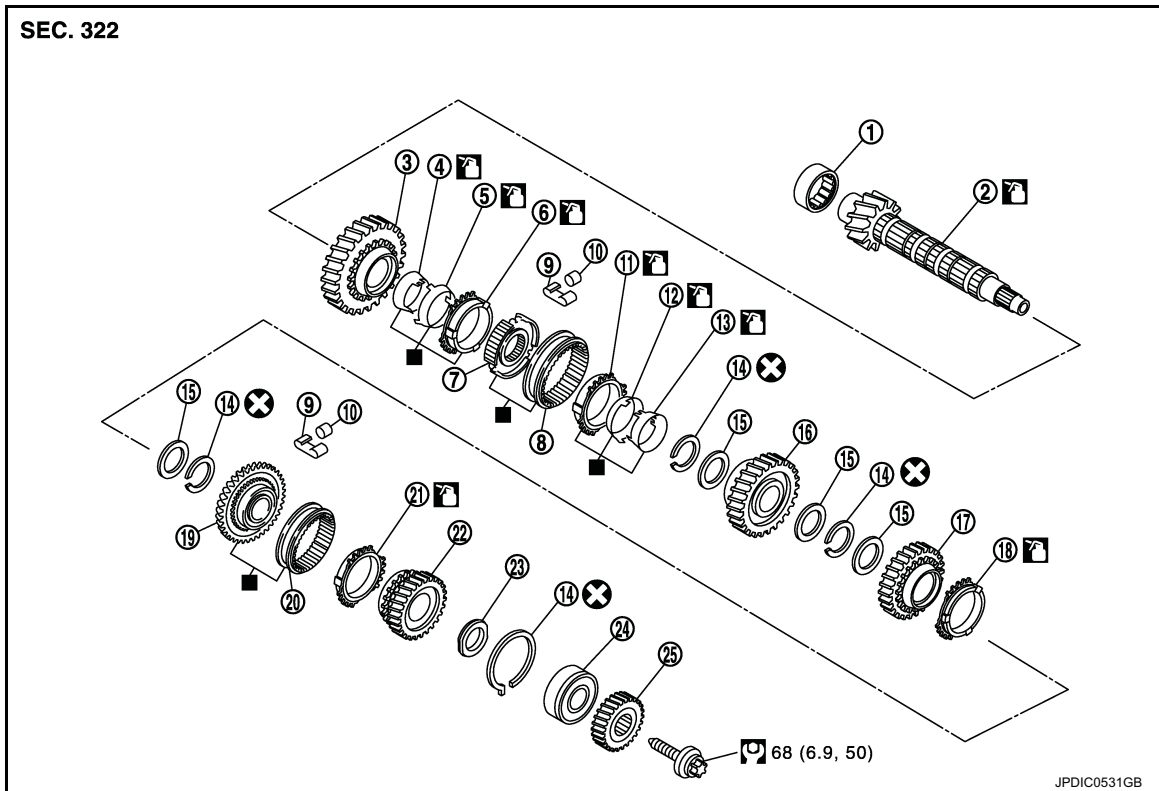


: Replace the parts as a set.

TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]



1. Mainshaft front bearing	2. Mainshaft	3. 1st main gear
4. 1st inner baulk ring	5. 1st synchronizer cone	6. 1st outer baulk ring
7. 1st-2nd synchronizer hub	8. 1st-2nd coupling sleeve	9. Spring
10. Insert key	11. 2nd outer baulk ring	12. 2nd synchronizer cone
13. 2nd inner baulk ring	14. Snap ring	15. Thrust washer
16. 2nd main gear	17. 3rd main gear	18. 3rd baulk ring
19. 3rd-4th synchronizer hub	20. 3rd-4th coupling sleeve	21. 4th baulk ring
22. 4th main gear	23. Spacer	24. Mainshaft rear bearing
25. 5th main gear		



: Apply gear oil.



: Always replace after every disassembly.



: N·m (kg-m, ft-lb)



: Replace the parts as a set.

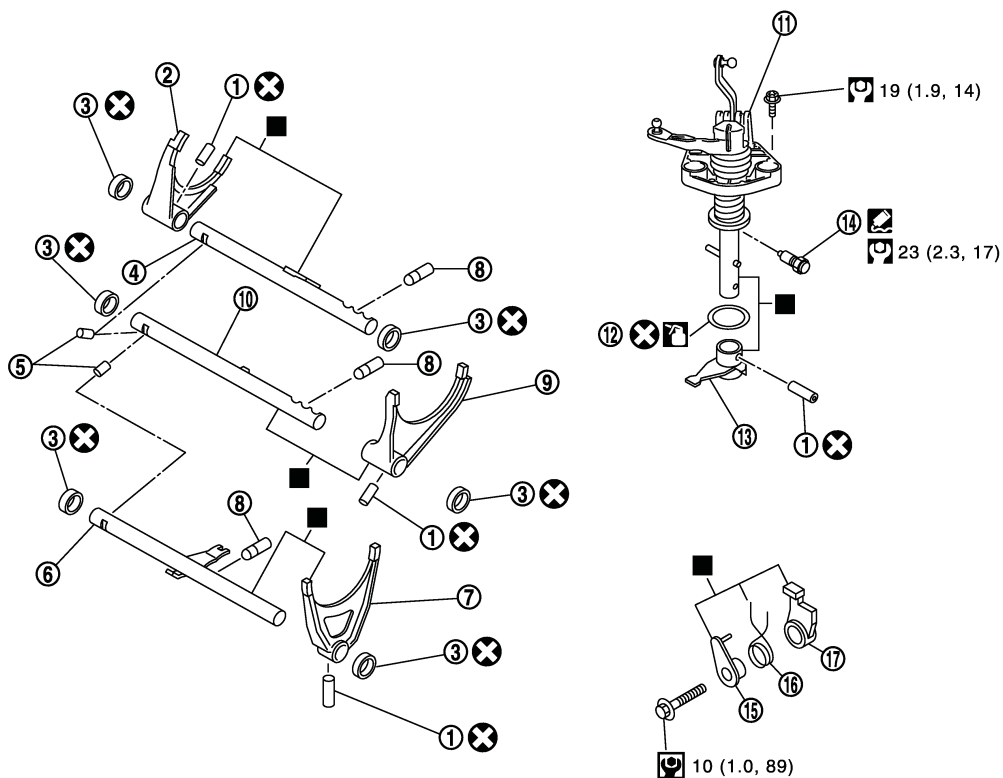
SHIFT FORK AND FORK ROD

TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

SEC.328



JPDIC0485GB

1. Retaining pin	2. 1st-2nd shift fork	3. Bushing
4. 1st-2nd fork rod	5. Lock pin	6. 5th-reverse fork rod
7. 5th-reverse shift fork	8. Check ball	9. 3rd-4th shift fork
10. 3rd-4th fork rod	11. Control shaft	12. O-ring
13. Selector	14. Check ball plug	15. Bushing
16. Spring	17. Gear catch	

: Apply Genuine Liquid Gasket, Three Bond 1215 or an equivalent.

: Apply gear oil.

: Always replace after every disassembly.

: N·m (kg-m, ft-lb)

: N·m (kg-m, it-lb)

: Replace the parts as a set.

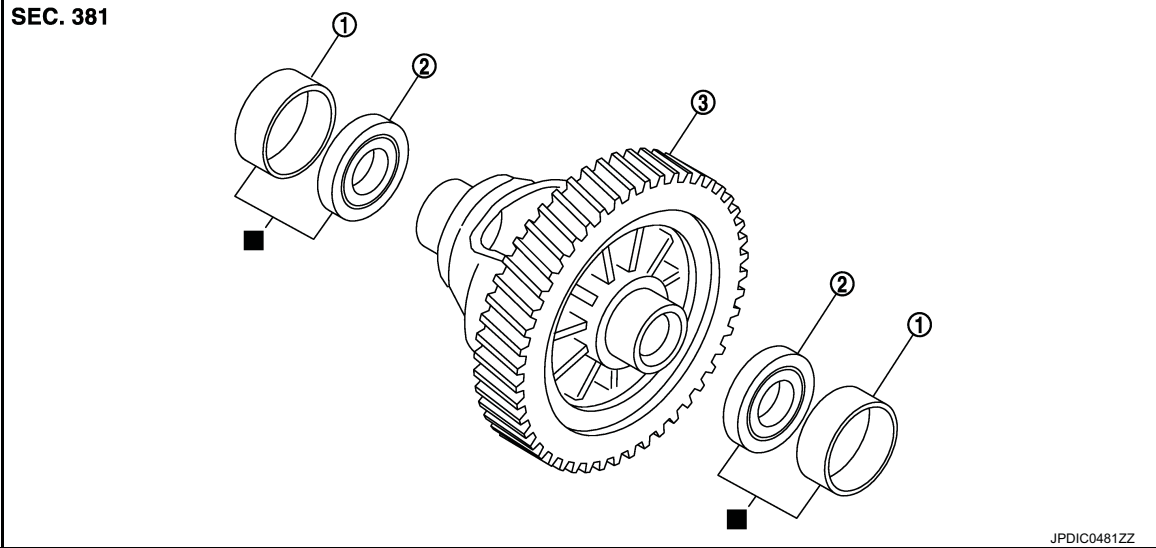
FINAL DRIVE

TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

WITHOUT SPEEDOMETER DRIVE GEAR*

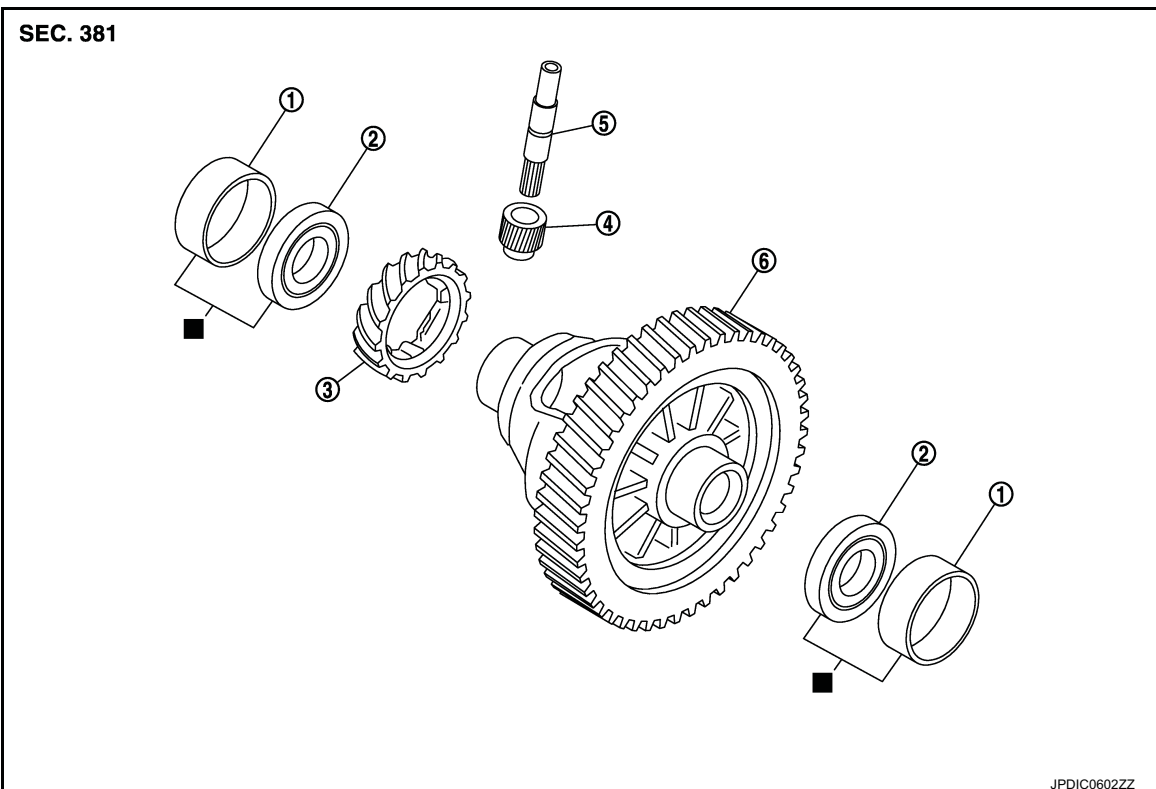


1. Differential side bearing outer race 2. Differential side bearing 3. Final drive

■ : Replace the parts as a set.

*: Refer to [TM-100. "General Specifications"](#) for the application of the speedometer drive gear.

WITH SPEEDOMETER DRIVE GEAR*



1. Differential side bearing outer race 2. Differential side bearing 3. Speedometer drive gear
4. Pinion gear 5. Pinion shaft 6. Final drive

■ : Replace the parts as a set.

*: Refer to [TM-100. "General Specifications"](#) for the application of the speedometer drive gear.

TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

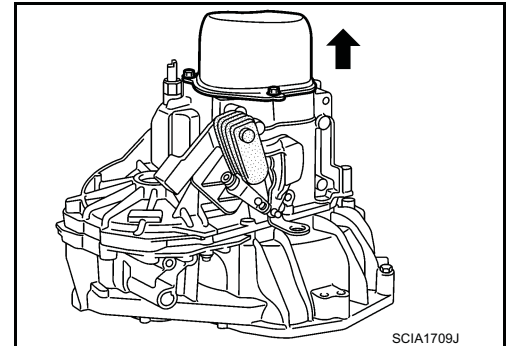
TYPE 2 : Disassembly

INFOID:000000006288032

1. Remove drain plug and gasket from clutch housing, using a socket [Commercial service tool] and drain gear oil.
2. Remove filler plug and gasket from transaxle case.
3. Remove rear housing and O-ring.

CAUTION:

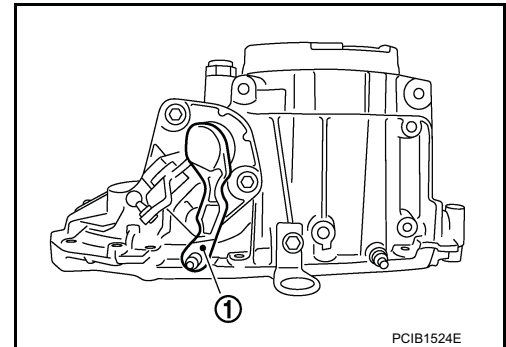
Remove to axial direction of input shaft (←) because rear housing oil channel is inserted to input shaft center hole.



4. Shift the shifter lever A (1) to the 3rd gear position.

NOTE:

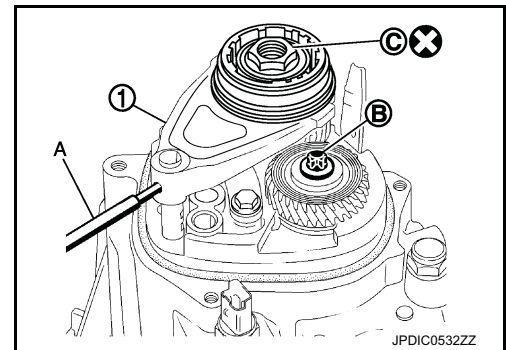
- If it is not shifted to the 3rd gear position, transaxle case cannot be removed from clutch housing.
- The 3rd gear position means that shifter lever A is fully rotated clockwise and it is returned approximately 10 degrees.



5. Remove 5th-reverse shift fork (1) and 5th-reverse coupling sleeve, as per the following procedure.
 - a. Remove retaining pin from 5th-reverse shift fork, using a pin punch (A).
 - b. Press 5th-reverse shift fork, shift to 5th, and then engage it with 3rd gear.
 - c. Remove mounting bolt (B).
 - d. Remove mounting nut (C) and lock washer.

CAUTION:

Never use an impact wrench for removal, or otherwise each gear may be damaged.

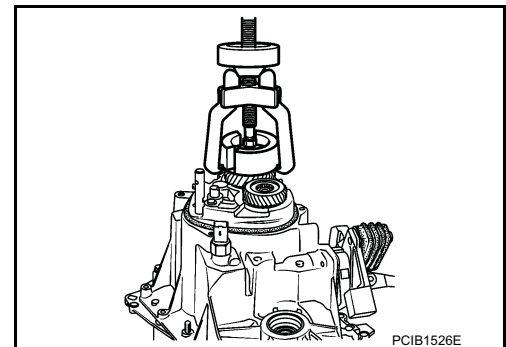


- e. Remove 5th-reverse shift fork and 5th-reverse coupling sleeve from 5th-reverse synchronizer hub.
6. Remove 5th-reverse synchronizer hub from input shaft, using a puller [Commercial service tool].

CAUTION:

Set claw of the puller to the wider side of the hub when setting the puller in 5th-reverse synchronizer hub.

7. Remove synchronizer levers, 5th-reverse baulk ring, 5th input gear, bushing, and adapter plate from input shaft.



TRANSAXLE ASSEMBLY

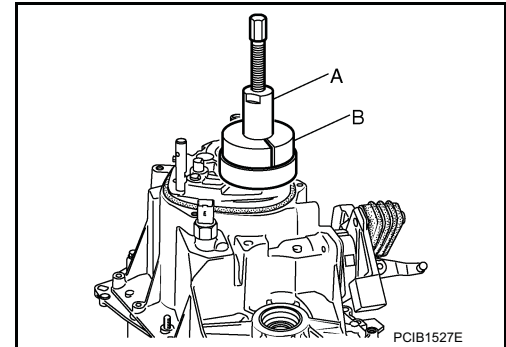
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

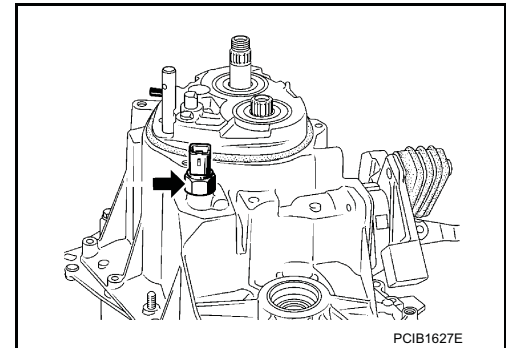
8. Remove 5th main gear from mainshaft, using the pullers.

A : Puller [SST: KV32300QAC]

B : Puller [SST: KV32300QAD]

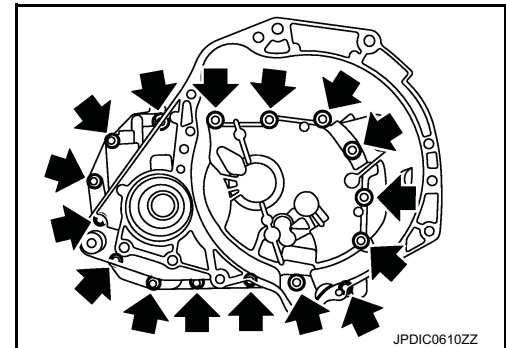


9. Remove position switch from transaxle case.

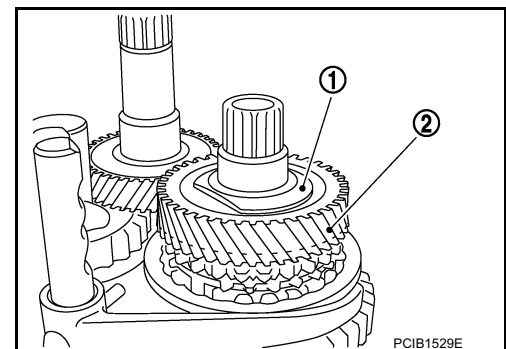


10. Remove transaxle case mounting bolts (←).

11. Remove transaxle case from clutch housing.

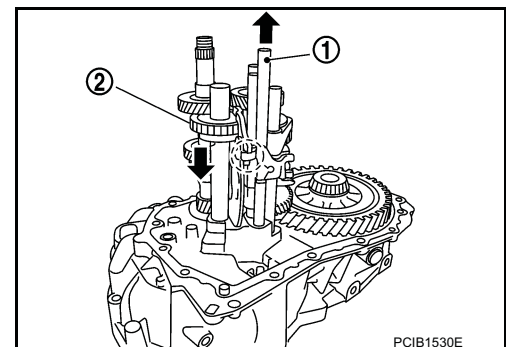


12. Remove spacer (1) and 4th main gear (2) from mainshaft.



13. Remove 5th-reverse fork rod (1), as per the following procedure.

- Pull 5th-reverse fork rod up until it contacts claw (⌢) of reverse gear (2).
- Press gear portion of reverse gear down, and then remove 5th-reverse fork rod from clutch housing.

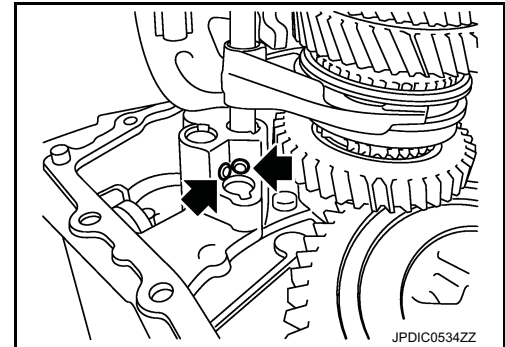
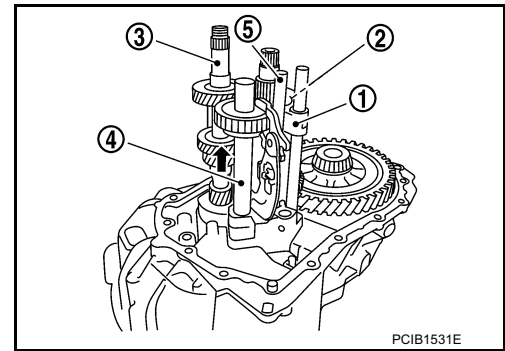


TRANSAXLE ASSEMBLY

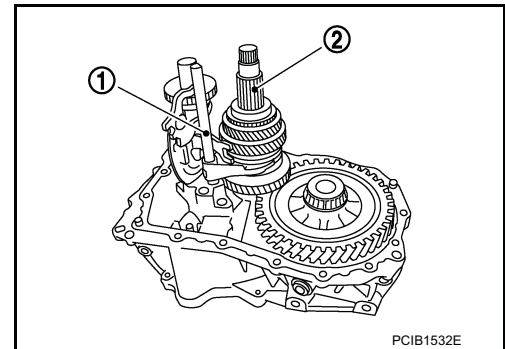
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

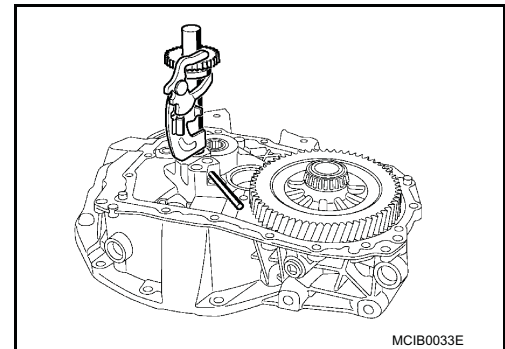
14. Remove 3rd-4th fork rod assembly (1), 3rd-4th coupling sleeve (2), and input shaft assembly (3), as per the following procedure.
 - a. Remove 4th baulk ring, insert keys, and springs from mainshaft.
 - b. Pull gear of reverse gear (4) up.
 - c. Pull 1st-2nd fork rod (5) up, and then maintain the neutral position.
 - d. Remove 3rd-4th fork rod assembly, 3rd-4th coupling sleeve, and input shaft assembly from clutch housing at the same time.
15. Remove retaining pin from 3rd-4th shift fork, using a pin punch.
16. Remove 3rd-4th shift fork from 3rd-4th shift fork rod.
17. Remove lock pins (◀▶) from clutch housing.



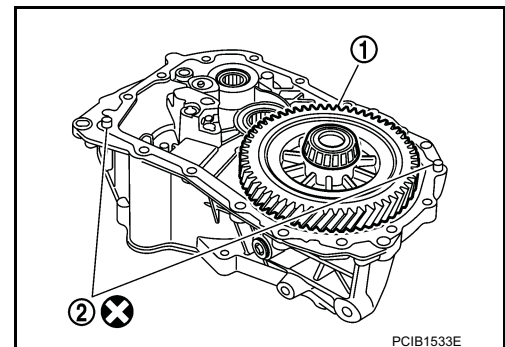
18. Remove 1st-2nd fork rod assembly (1) and mainshaft assembly (2) from clutch housing at the same time.
19. Remove retaining pin from 1st-2nd shift fork, using a pin punch.
20. Remove 1st-2nd shift fork from 1st-2nd shift fork rod.



21. Remove retaining pin from reverse gear, using a pin punch.
22. Remove reverse gear from clutch housing.



23. Remove final drive (1) from clutch housing.
24. Remove magnet and dowel pins (2) from clutch housing.



TRANSAXLE ASSEMBLY

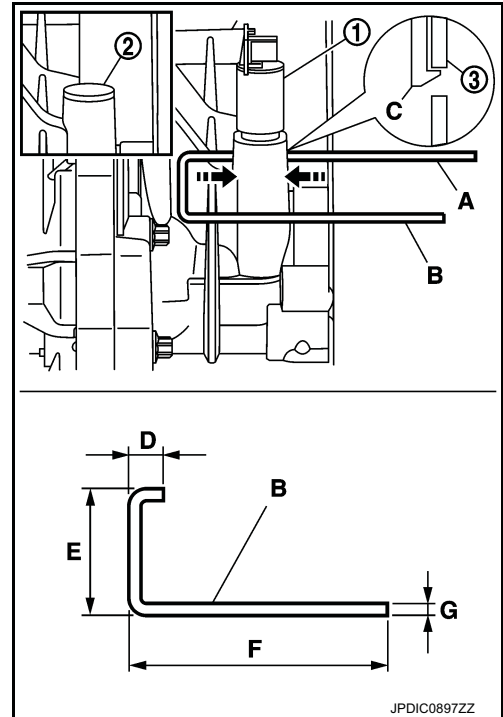
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

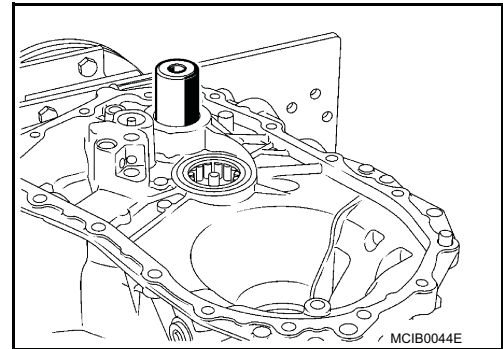
25. Remove speed sensor (1) or plug (2) from clutch housing (3), as per the following procedure. (With speedometer drive gear)

- C : The claw of speed sensor or plug
 D : 15 mm (0.59 in)
 E : 45 mm (1.77 in)
 F : 95 mm (3.74 in) or more
 G : 4 mm (0.16 in)

- a. Set the suitable drift (A) and (B) to the holes of clutch housing as shown in the figure.
 b. While pressing the suitable drift (A) and (B) in the direction of the arrow shown in the figure, remove speed sensor from clutch housing.
 26. Remove pinion gear and pinion shaft from clutch housing. (With speedometer drive gear)

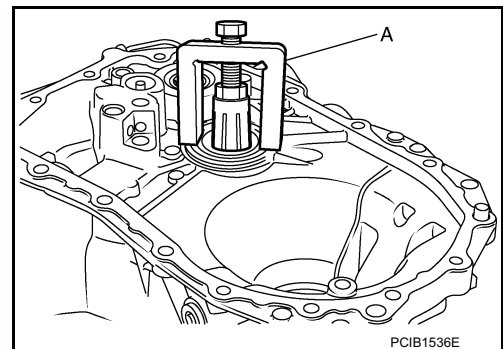


27. Remove input shaft front bearing from clutch housing, using a drift [Commercial service tool].

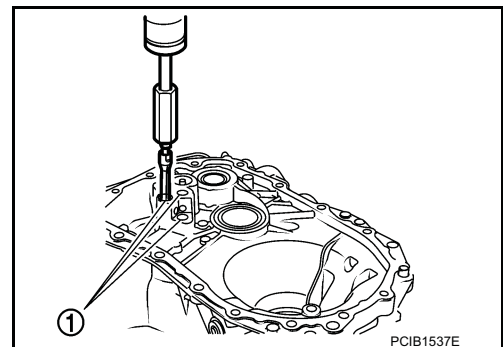


28. Cut oil channel tube at the root.

29. Remove mainshaft front bearing and oil channel from clutch housing, using the valve seat remover (A) [SST: KV11011S0].



30. Remove bushings (1) from clutch housing, using a bearing remover [Commercial service tool].



TRANSAXLE ASSEMBLY

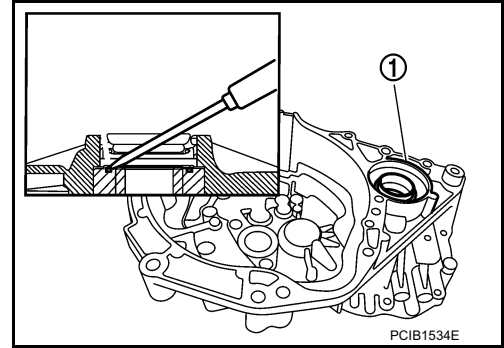
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

31. Remove differential side oil seals (1) from clutch housing and transaxle case, using a screwdriver.

CAUTION:

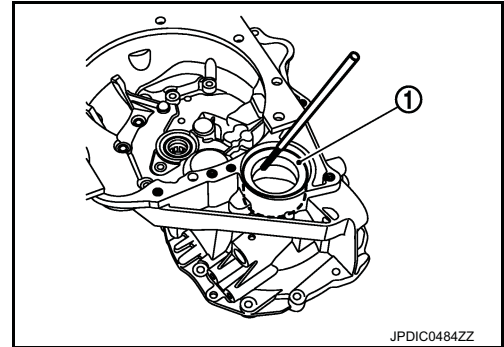
Never damage transaxle case and clutch housing.



32. Remove differential side bearing outer races (1) from clutch housing and transaxle case, using a brass rod.

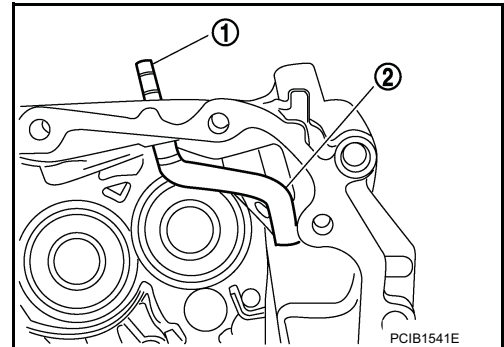
CAUTION:

Never damage transaxle case and clutch housing.



33. Pull 2 way connector (1) straight to remove it from air breather inner tube (2).

34. Remove air breather inner tube from transaxle case.

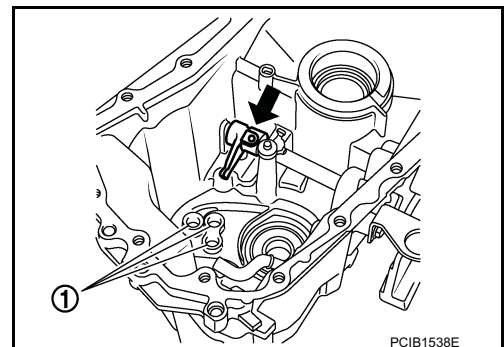


35. Remove bushings (1) from transaxle case, using a bearing remover [Commercial service tool].

36. Remove retaining pin (➡) from selector, using a pin punch.

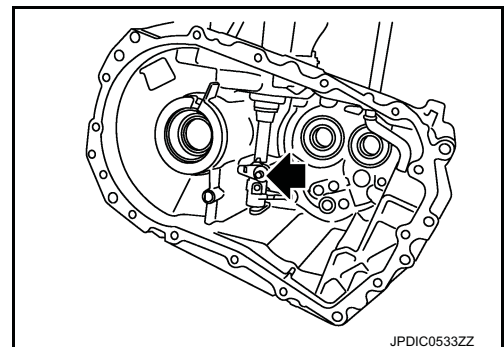
37. Remove selector from control shaft.

38. Remove oil gutter from transaxle case.



39. Remove mounting bolt (➡), and then remove bushing, spring, and gear catch from transaxle case.

40. Remove check ball plug from transaxle case.

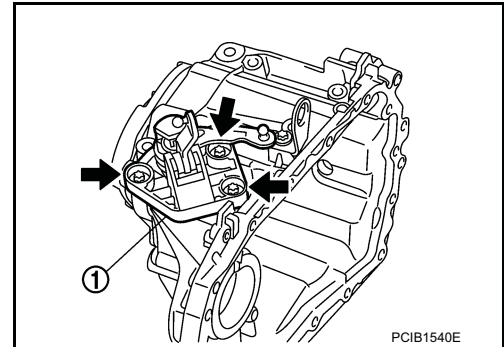


TRANSAXLE ASSEMBLY

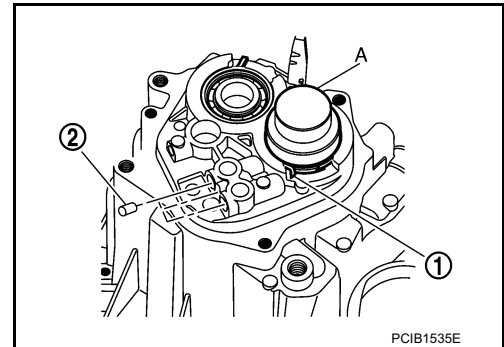
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

41. Remove mounting bolts (➡), and then remove control shaft (1) from transaxle case.
42. Remove O-ring from control shaft.



43. Expand snap rings (1) and remove input shaft rear bearing and mainshaft rear bearing from transaxle case, using the drift (A) [SST: ST35300000].
44. Remove snap rings from transaxle case.
45. Remove check balls (2) from transaxle case.



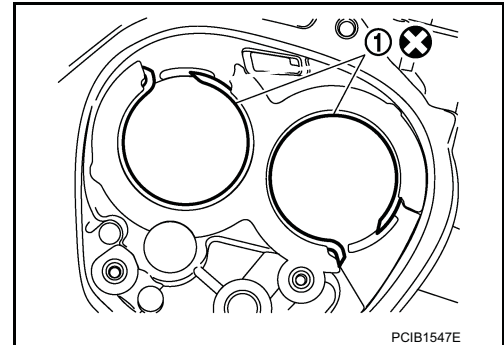
TYPE 2 : Assembly

INFOID:000000006288033

1. Install snap rings (1) along transaxle case groove so that notch mates with housing as shown in the figure.

CAUTION:

Check snap ring installing direction. Never misassemble.

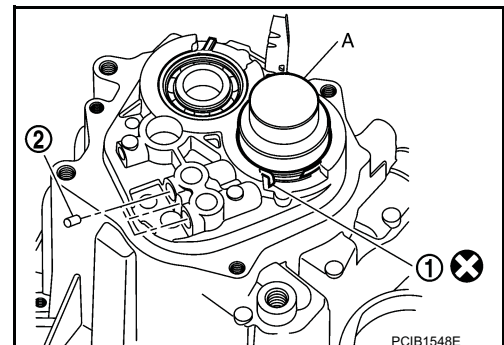


2. Expand snap rings (1) and install input shaft rear bearing and mainshaft rear bearing to transaxle case, using the drift (A) [SST: ST35300000].

CAUTION:

Check that snap ring is correctly installed within bearing groove.

3. Install check balls (2) to transaxle case.

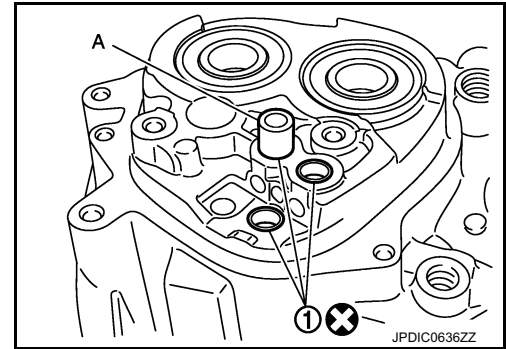


TRANSAXLE ASSEMBLY

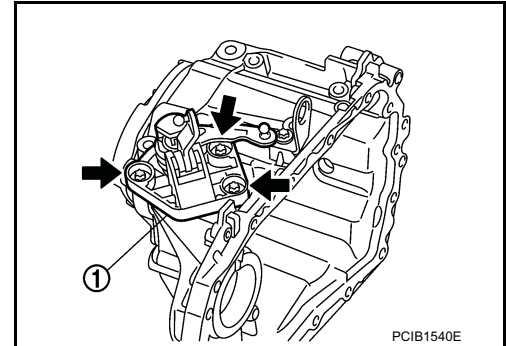
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

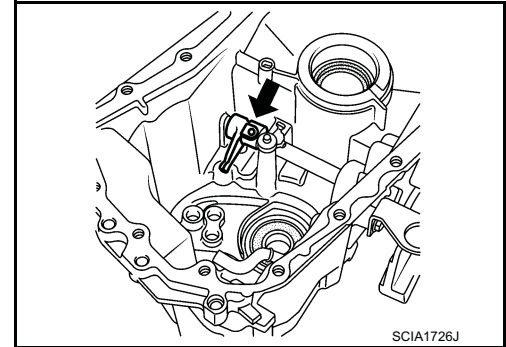
4. Install bushings (1) until they reach transaxle case, using a drift (A) [Commercial service tool].
5. Apply gear oil to O-ring, and then install it to control shaft.
CAUTION:
Never reuse O-ring.



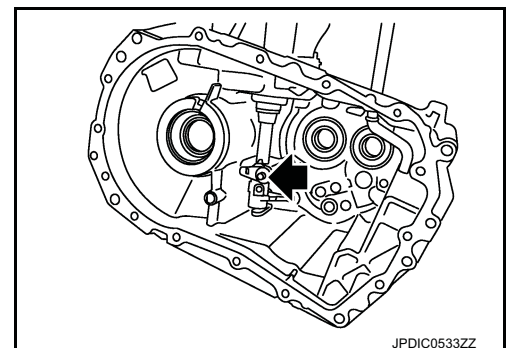
6. Install control shaft (1) to transaxle case, and tighten mounting bolts (⬅) to the specified torque.
CAUTION:
Replace control shaft and selector as a set.



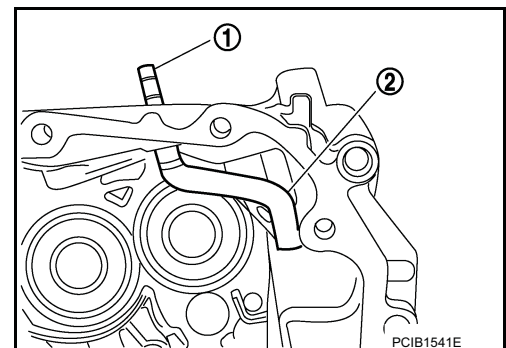
7. Install selector to control shaft, and then install retaining pin (⬅) to selector, using a pin punch.
CAUTION:
 - Be careful with the orientation of selector.
 - Replace control shaft and selector as a set.
 - Never reuse retaining pin.



8. Install gear catch, spring, and bushing to transaxle case, and then tighten mounting bolt (⬅) to the specified torque.
CAUTION:
Replace gear catch, spring, and bushing as a set.
9. Install oil gutter to transaxle case.



10. Install air breather inner tube (2) to transaxle case.
CAUTION:
Never damage air breather inner tube.
NOTE:
It is easier to install when air breather inner tube end is wrapped and narrowed by tape. Remove tape after installation.
11. Insert 2 way connector (1) straight, and then install it to air breather inner tube.
CAUTION:
Check air breather inner tube for twists after installing.



TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

12. Install differential side oil seals (1) to clutch housing and transaxle case, using the drift [Stamping number: B.vi 1666-B] of the drift set [SST: KV32500QAA].

B : Transaxle case side

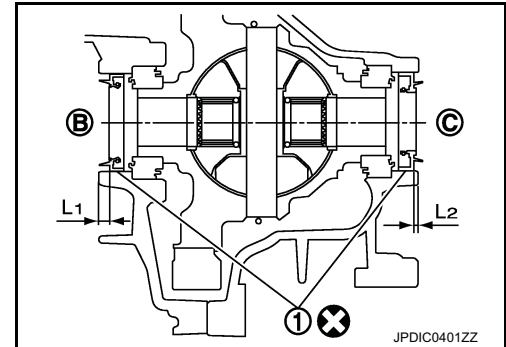
C : Clutch housing side

Dimension "L1" : 5.7 – 6.3 mm (0.224 – 0.248 in)

Dimension "L2" : 2.4 – 3.0 mm (0.094 – 0.118 in)

CAUTION:

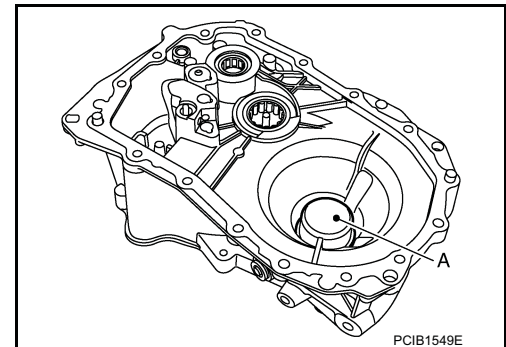
- Never incline differential side oil seal.
- Never damage clutch housing and transaxle case.



13. Install differential side bearing outer races until they reach clutch housing and transaxle case, using the drift (A) [SST: KV32300QAE].

CAUTION:

Replace differential side bearing outer race and differential side bearing as a set.

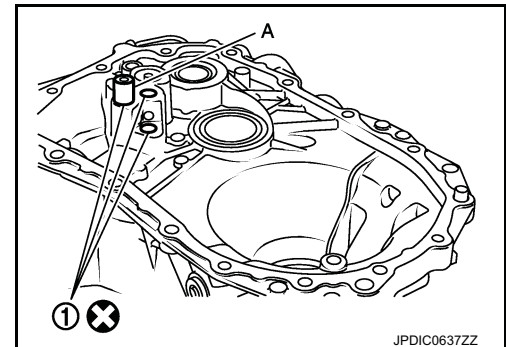


14. Install bushings (1) until they reach clutch housing, using a drift (A) [Commercial service tool].

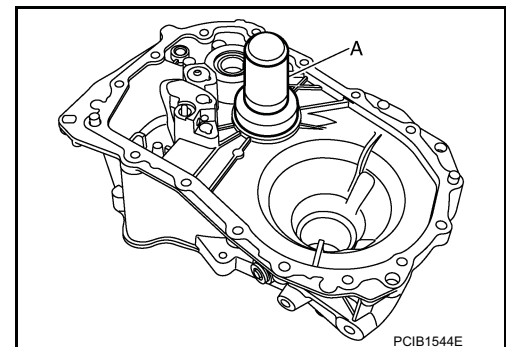
15. Install oil channel to clutch housing.

CAUTION:

Never reuse oil channel.



16. Install mainshaft front bearing so that it becomes even to clutch housing surface, using the drift (A) [SST: ST33400001].

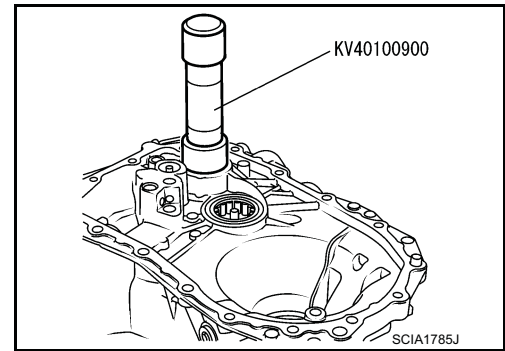


TRANSAXLE ASSEMBLY

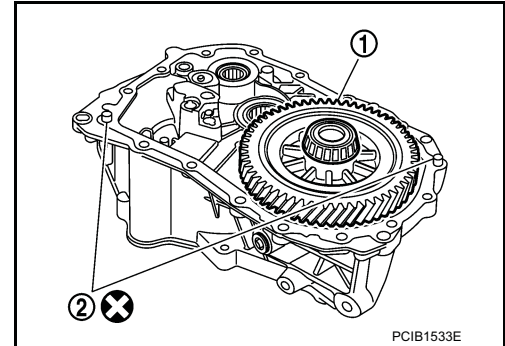
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

17. Install input shaft front bearing so that it becomes even to clutch housing surface, using the drift [SST].
18. Install pinion gear and pinion shaft to clutch housing. (With speedometer drive gear)
19. Install speed sensor (without ABS) or plug (with ABS). (With speedometer drive gear)



20. Install final drive (1) to clutch housing.
21. Install dowel pins (2) and magnet to clutch housing.



22. Install reverse gear to clutch housing, and then install retaining pin to clutch housing, using a pin punch.

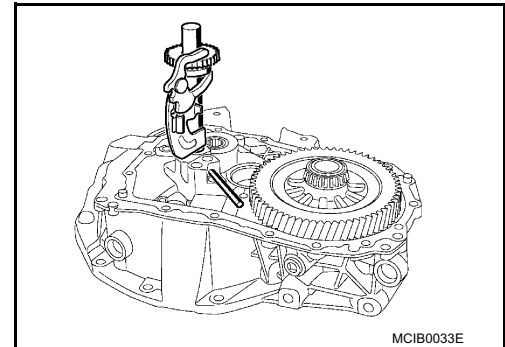
CAUTION:

Never reuse retaining pin.

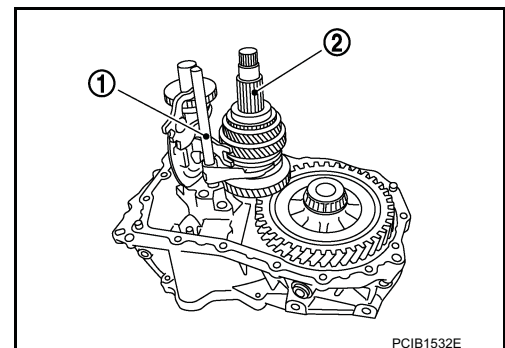
23. Install 1st-2nd shift fork to 1st-2nd fork rod, and then install retaining pin to 1st-2nd shift fork.

CAUTION:

- **Never reuse retaining pin.**
- **Replace 1st-2nd fork rod and 1st-2nd shift fork as a set.**



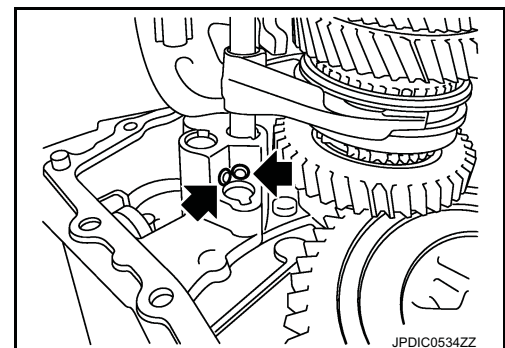
24. Set 1st-2nd fork rod assembly (1) onto mainshaft assembly (2), and then install them to clutch housing.



25. Install lock pins (➡) to clutch housing.
26. Install 3rd-4th shift fork to 3rd-4th fork rod, and then install retaining pin to 3rd-4th shift fork.

CAUTION:

- **Never reuse retaining pin.**
- **Replace 3rd-4th fork rod and 3rd-4th shift fork as a set.**



TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

27. Install 3rd-4th fork rod assembly (1), 3rd-4th coupling sleeve (2), and input shaft assembly (3) to clutch housing, as per the following procedure.

- Pull 1st-2nd fork rod (4) up, and then maintain the neutral position.
- Set 3rd-4th fork rod assembly onto 3rd-4th coupling sleeve, and then install them together with input shaft assembly to clutch housing.

CAUTION:

- Set lock pin (3rd-4th fork rod side) onto 1st-2nd fork rod groove and then install 3rd-4th fork rod assembly.

- Be careful with the orientation of 3rd-4th coupling sleeve.

A : 4th main gear side

B : 3rd main gear side

- Install 3rd input gear of input shaft assembly so that it is set under reverse main gear of 3rd-4th coupling sleeve.
- Replace 3rd-4th coupling sleeve and 3rd-4th synchronizer hub as a set.

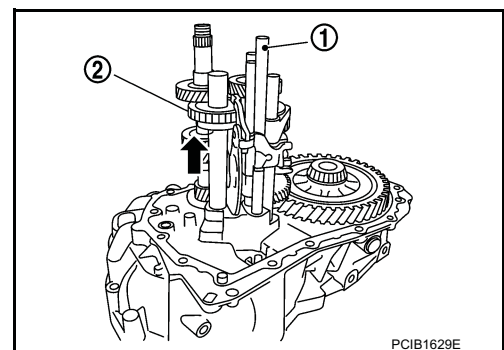
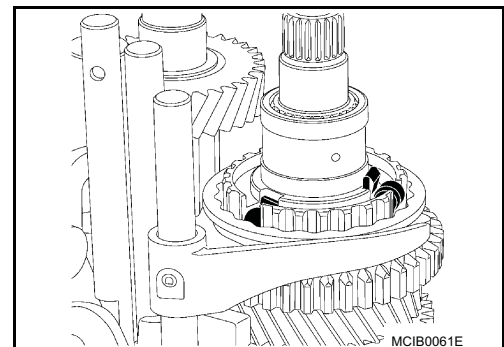
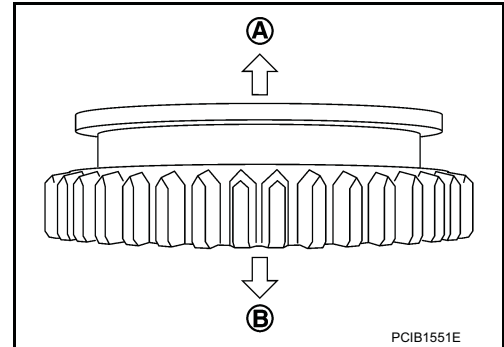
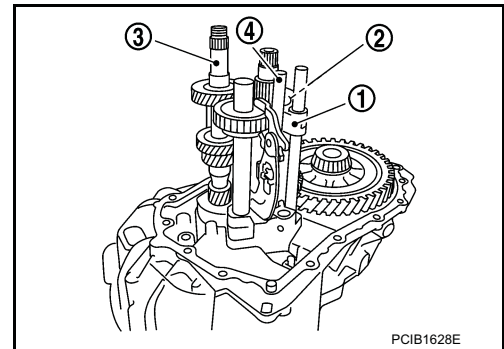
- Install springs and insert keys to 3rd-4th synchronizer hub.
- Apply gear oil to 4th baulk ring.
- Install 4th baulk ring.

28. Install 5th-reverse fork rod (1) to clutch housing, as per the following procedure.

CAUTION:

Replace 5th-reverse fork rod and 5th-reverse shift fork as a set.

- Pull gear of reverse gear (2) up.
- Temporarily install 5th-reverse fork rod to clutch housing.



TRANSAXLE ASSEMBLY

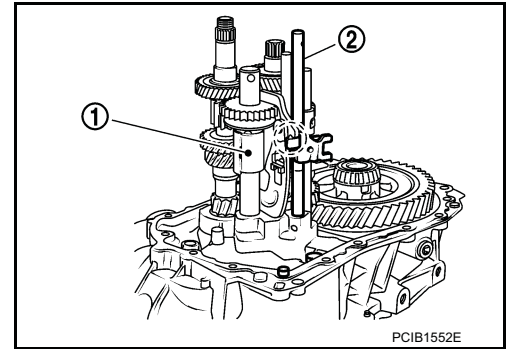
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

- c. Press gear of reverse gear (1) down and then install 5th-reverse fork rod (2) to clutch housing.

CAUTION:

Set levers of 5th-reverse fork rod so as to align with reverse gear groove (○).

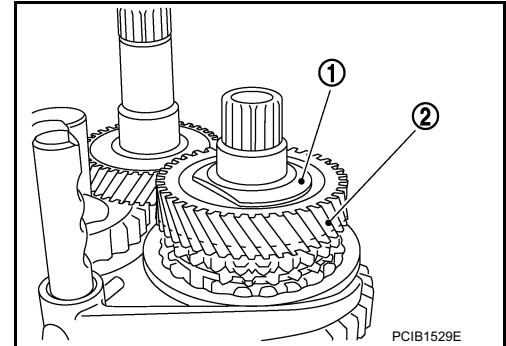


29. Install 4th main gear (2) and spacer (1) to mainshaft.

CAUTION:

Install spacer so that spacer protrusion faces to transaxle rear side.

30. Press 3rd-4th shift fork down and then shift 3rd-4th coupling sleeve to 3rd gear side.



31. Shift the shifter lever A (1) to the 3rd gear position.

NOTE:

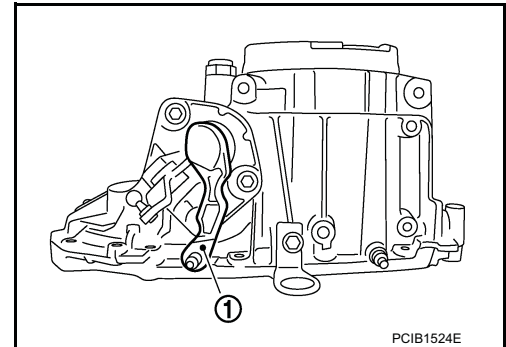
- If it is not shifted to the 3rd gear position, transaxle case cannot be installed to clutch housing.
- The 3rd gear position means that shifter lever A is fully rotated clockwise and it is returned approximately 10 degrees.

32. Apply recommended sealant to transaxle case mounting surface of clutch housing.

- Use Genuine Liquid Gasket, Three Bond 1215 or an equivalent.

CAUTION:

- Never allow old liquid gasket, moisture, oil, or foreign matter to remain on mounting surface.
- Check that mounting surface is not damaged.
- Apply a continuous bead of liquid gasket to the mounting surface.



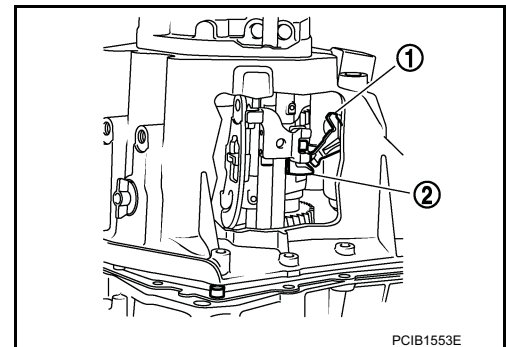
33. Install transaxle case to clutch housing. If it is difficult to install, slightly rotate shifter lever A counterclockwise, and then install.

1 : Selector

2 : Shift fork

CAUTION:

- Never disrupt liquid gasket bead with transaxle case or other objects during installation.
- Be careful to align the lever of 5th-reverse fork rod with reverse gear groove.



TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

34. Rotate input shaft so that bearing and shaft fit each other, and then tighten transaxle mounting bolts (➡) to the specified torque.

35. Apply recommended sealant to position switch thread and check ball plug thread. Tighten them to transaxle case and them to the specified torque.

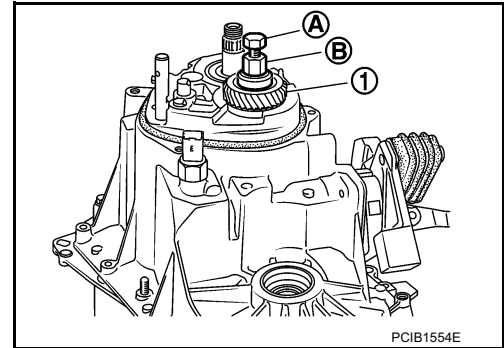
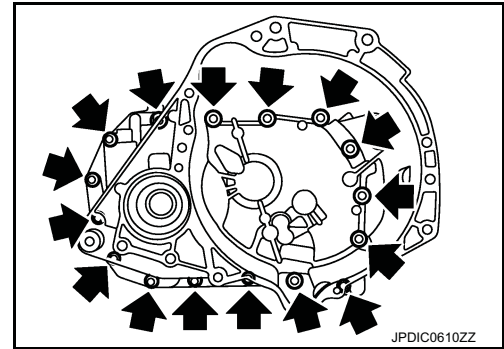
- Use Genuine Liquid Gasket, Three Bond 1215 or an equivalent.

CAUTION:

Never allow old liquid gasket, moisture, oil, or foreign matter to remain on thread.

36. Apply gear oil to mainshaft spline.

37. Install 5th main gear (1) to mainshaft, using a suitable bolt (A) [M10 x 1.0] and a suitable nut (B).

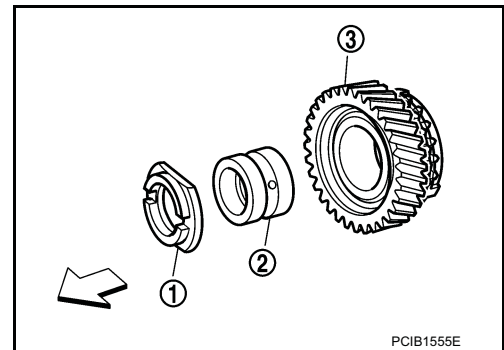


38. Install adapter plate (1), bushing (2), and 5th input gear (3) to input shaft.

CAUTION:

Be careful with the orientation of adapter plate.

➡ : Transaxle case side



39. Install 5th-reverse synchronizer hub, 5th-reverse coupling sleeve, and 5th-reverse shift fork, as per the following procedure.

- Apply gear oil to 5th-reverse baulk ring.
- Install 5th-reverse baulk ring (1) to 5th input gear.

➡ : 5th-reverse synchronizer hub side

CAUTION:

Be careful with the orientation of 5th-reverse baulk ring.

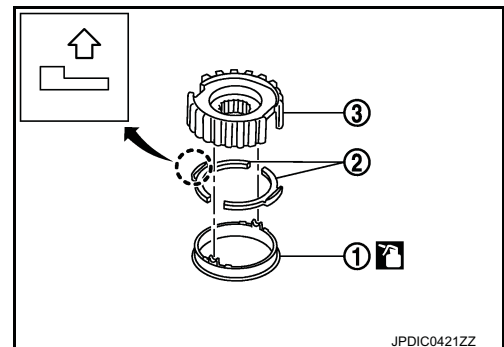
c. Install synchronizer levers (2) to 5th-reverse synchronizer hub (3).

CAUTION:

- Replace 5th-reverse synchronizer hub and 5th-reverse coupling sleeve as a set.
- Be careful with the orientation of synchronizer lever.

d. Install 5th-reverse synchronizer hub assembly and lock washer to input shaft.

CAUTION:



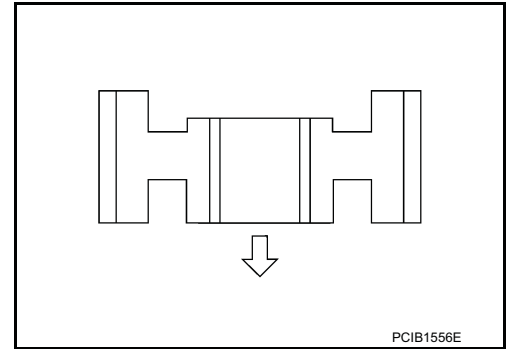
TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

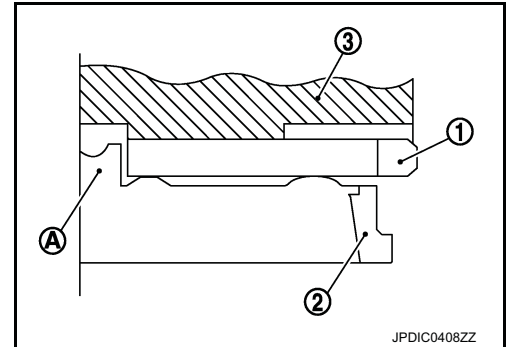
- Be careful with the orientation of 5th-reverse synchronizer hub.

⇐ : 5th input gear side



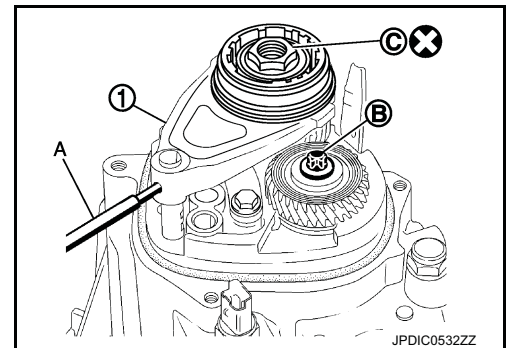
- Never allow synchronizer lever (1) to mount on to 5th-reverse baulk ring (2) protrusion (A).

3 : 5th-reverse synchronizer hub



- Set 5th-reverse shift fork (1) to 5th-reverse coupling sleeve, and then install them to 5th-reverse fork rod and input shaft.

A : Pin punch
B : Mounting bolt
C : Mounting nut



CAUTION:

- Be careful with the orientation of 5th-reverse coupling sleeve.

⇐ : 5th input gear side

- Replace 5th-reverse synchronizer hub and 5th-reverse coupling sleeve as a set.
- Replace 5th-reverse shift fork and 5th-reverse fork rod as a set.

- Check that the gear position is in the 3rd position. Press 5th-reverse shift fork and shift to 5th gear.
- Tighten mounting bolt to the specified torque.
- Tighten mounting nut to the specified torque.

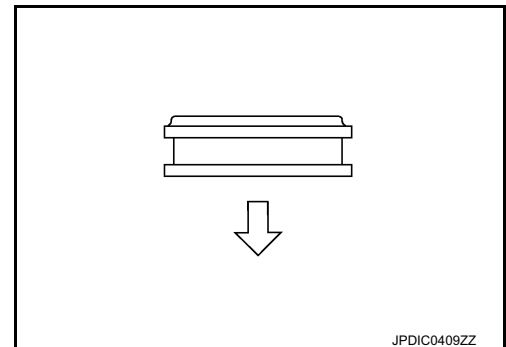
CAUTION:

Never reuse mounting nut.

- Install retaining pin to 5th-reverse shift fork, using a pin punch.

CAUTION:

Never reuse retaining pin.

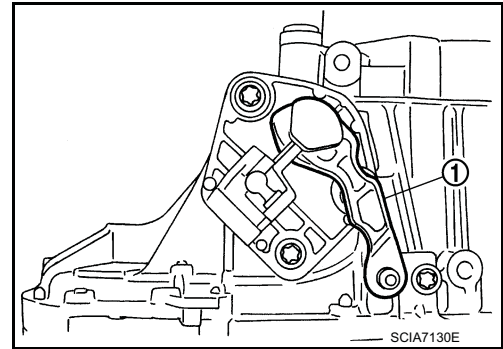


TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

40. Shift the shifter lever A (1) to the neutral position.
41. Install O-ring to rear housing.



42. Install rear housing to transaxle case, and tighten bolts (⬅) to the specified torque.

CAUTION:

Never pinch O-ring when installing rear housing.

43. Install drain plug, as per the following procedure.

- a. Install gasket to drain plug.

CAUTION:

Never reuse gasket.

- b. Install drain plug to clutch housing, using a socket [Commercial service tool].

- c. Tighten drain plug to the specified torque.

44. Install filler plug, as per the following procedure.

- a. Install gasket to filler plug, and then install them to transaxle case.

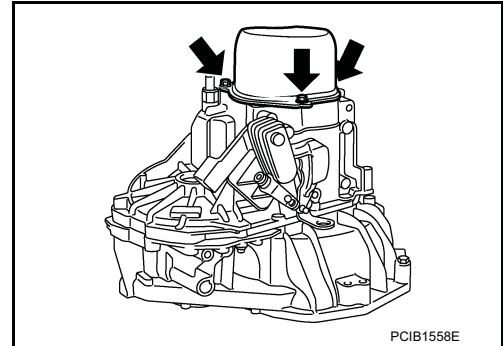
CAUTION:

Never reuse gasket.

- b. Tighten filler plug to the specified torque.

CAUTION:

Fill with gear oil before tightening filler plug to the specified torque.

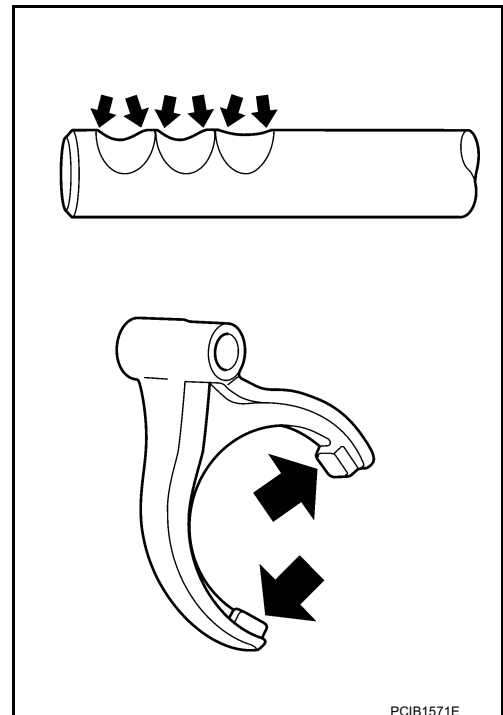


TYPE 2 : Inspection

INFOID:000000006288124

INSPECTION AFTER DISASSEMBLY

Check contact surface and sliding surface of fork rod and shift fork for excessive wear, uneven wear, bend, and damage. Replace if necessary.



INPUT SHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

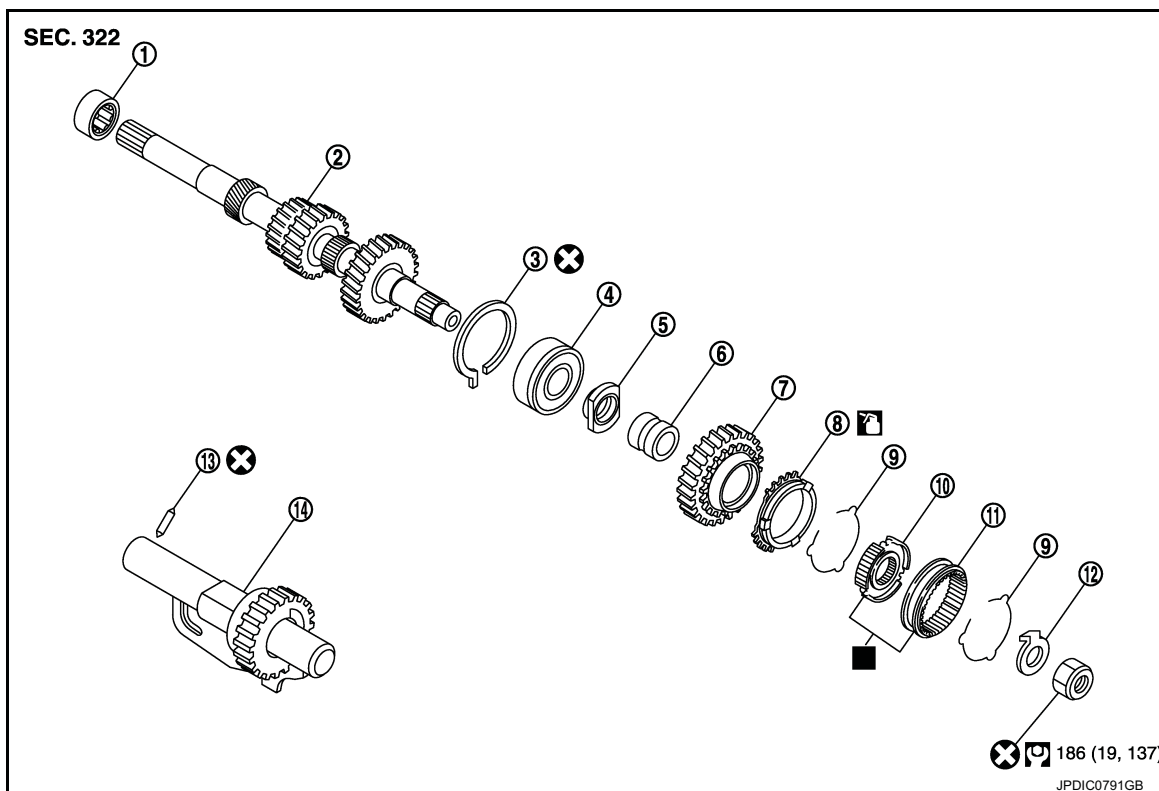
[5MT: RS5F91R]

INPUT SHAFT AND GEAR

TYPE 1

TYPE 1 : Exploded View

INFOID:0000000006056583



1. Input shaft front bearing	2. Input shaft	3. Snap ring
4. Input shaft rear bearing	5. Adapter plate	6. Bushing
7. 5th input gear	8. 5th baulk ring	9. Spread spring
10. 5th-reverse synchronizer hub	11. 5th-reverse coupling sleeve	12. Lock washer
13. Retaining pin	14. Reverse gear	

: Apply gear oil.

: Always replace after every disassembly.

: N·m (kg-m, ft-lb)

: Replace the parts as a set.

TYPE 1 : Disassembly

INFOID:0000000006056584

Refer to [TM-50, "TYPE 1 : Disassembly"](#) for disassembly procedure.

TYPE 1 : Assembly

INFOID:0000000006056585

Refer to [TM-55, "TYPE 1 : Assembly"](#) for assembly procedure.

TYPE 1 : Inspection

INFOID:0000000006056586

INSPECTION AFTER DISASSEMBLY

Input Shaft and Gear

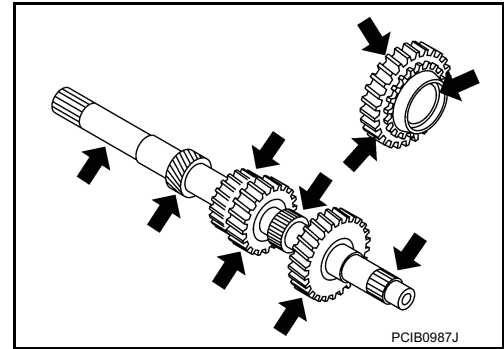
INPUT SHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

Check the following items and replace if necessary.

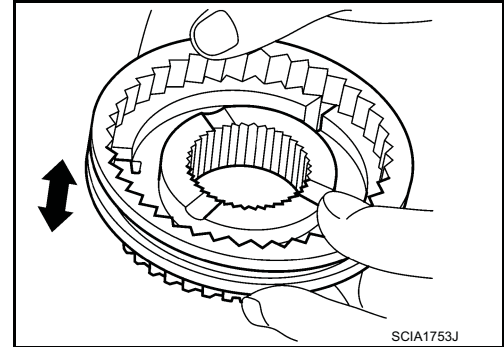
- Damage, peeling, bend, uneven wear, and distortion of shaft
- Excessive wear, damage, and peeling of gear



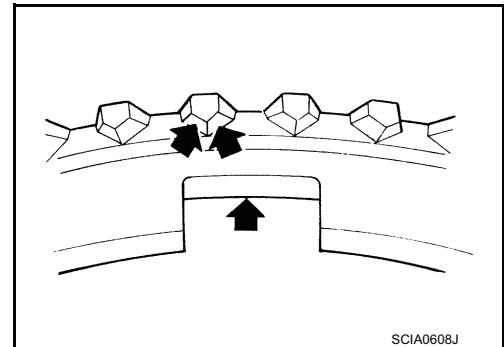
Synchronizer

Check for the following and replace if necessary.

- Contact surface breakage, damage, and unusual wear of coupling sleeve and synchronizer hub.
- Coupling sleeve and synchronizer hub move smoothly.

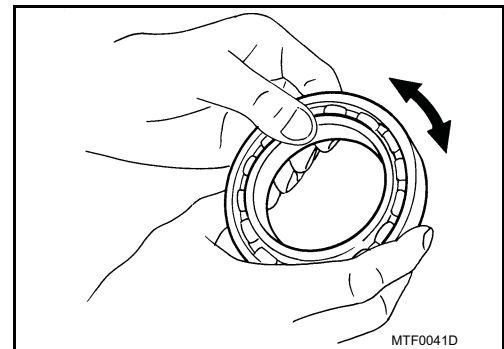


- Breakage, damage, and excessive wear of baulk ring cam surface.



Bearing

Check bearing for damage and unsmooth rotation. Replace if necessary.



TYPE 2

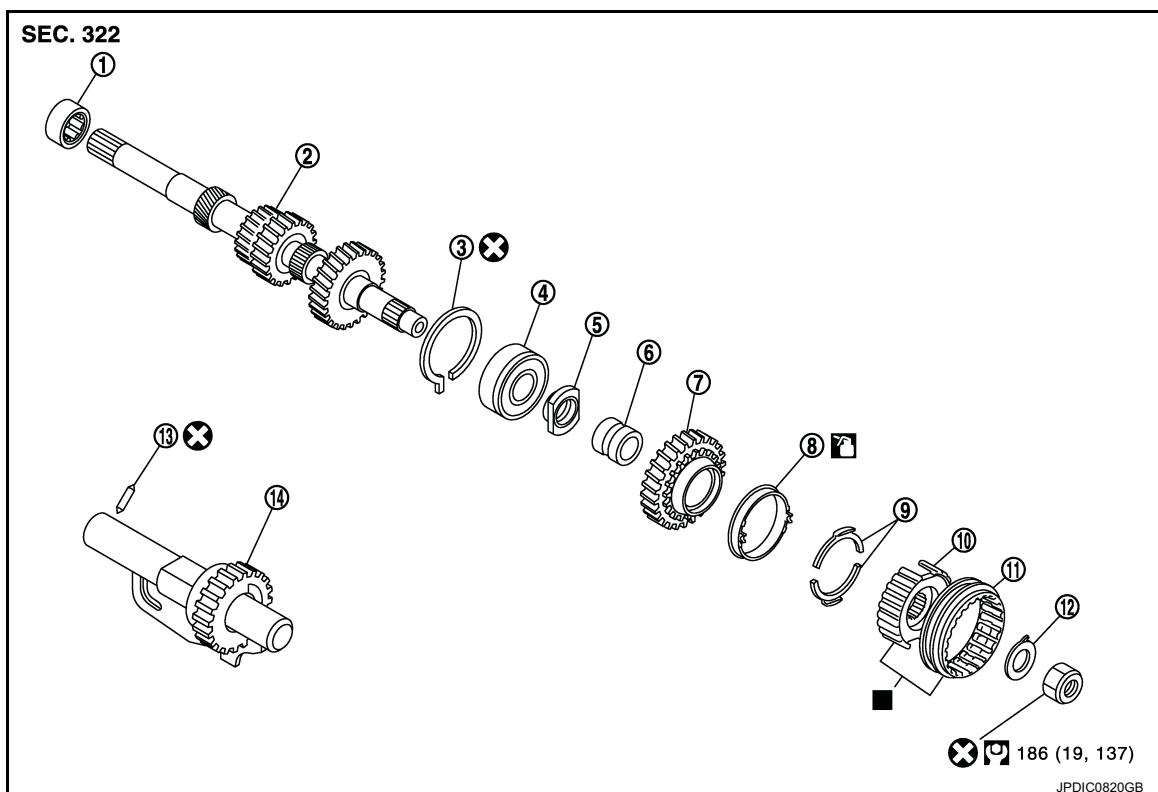
INPUT SHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

TYPE 2 : Exploded View

INFOID:000000006288034



1. Input shaft front bearing	2. Input shaft	3. Snap ring
4. Input shaft rear bearing	5. Adapter plate	6. Bushing
7. 5th input gear	8. 5th-reverse baulk ring	9. Synchronizer lever
10. 5th-reverse synchronizer hub	11. 5th-reverse coupling sleeve	12. Lock washer
13. Retaining pin	14. Reverse gear	



: Apply gear oil.



: Always replace after every disassembly.



: N·m (kg-m, ft-lb)



: Replace the parts as a set.

TYPE 2 : Disassembly

INFOID:000000006288125

Refer to [TM-70, "TYPE 2 : Disassembly"](#) for disassembly procedure.

TYPE 2 : Assembly

INFOID:000000006288126

Refer to [TM-75, "TYPE 2 : Assembly"](#) for assembly procedure.

TYPE 2 : Inspection

INFOID:000000006288127

INSPECTION AFTER DISASSEMBLY

Input Shaft and Gear

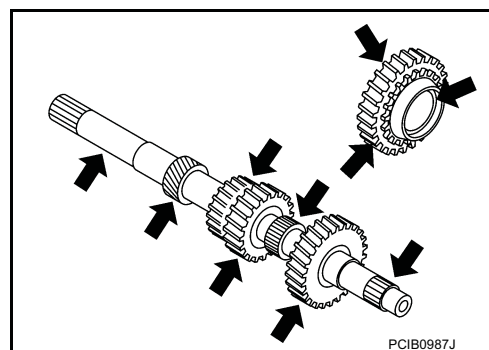
INPUT SHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

Check the following items and replace if necessary.

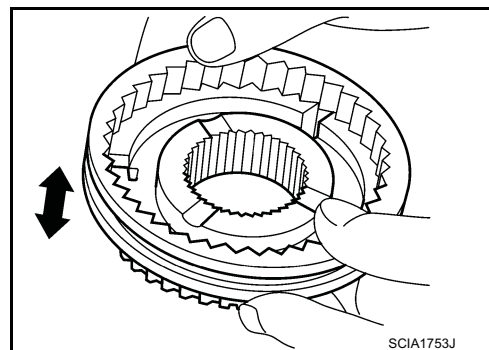
- Damage, peeling, bend, uneven wear, and distortion of shaft
- Excessive wear, damage, and peeling of gear



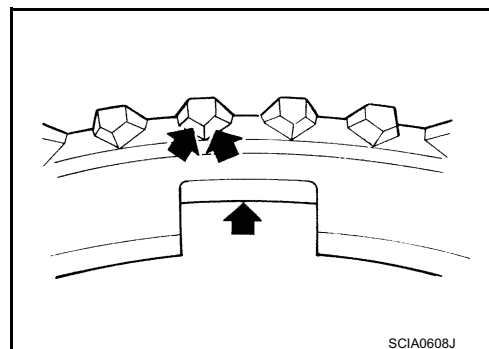
Synchronizer

Check for the following and replace if necessary.

- Contact surface breakage, damage, and unusual wear of coupling sleeve, synchronizer hub, and synchronizer lever.
- Coupling sleeve and synchronizer hub move smoothly.

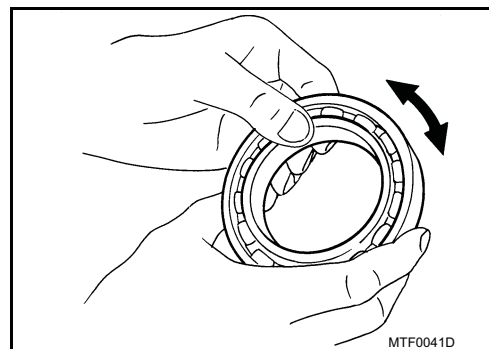


- Breakage, damage, and excessive wear of baulk ring cam surface and synchronizer lever contact surface.



Bearing

Check bearing for damage and unsmooth rotation. Replace if necessary.



MAINSHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

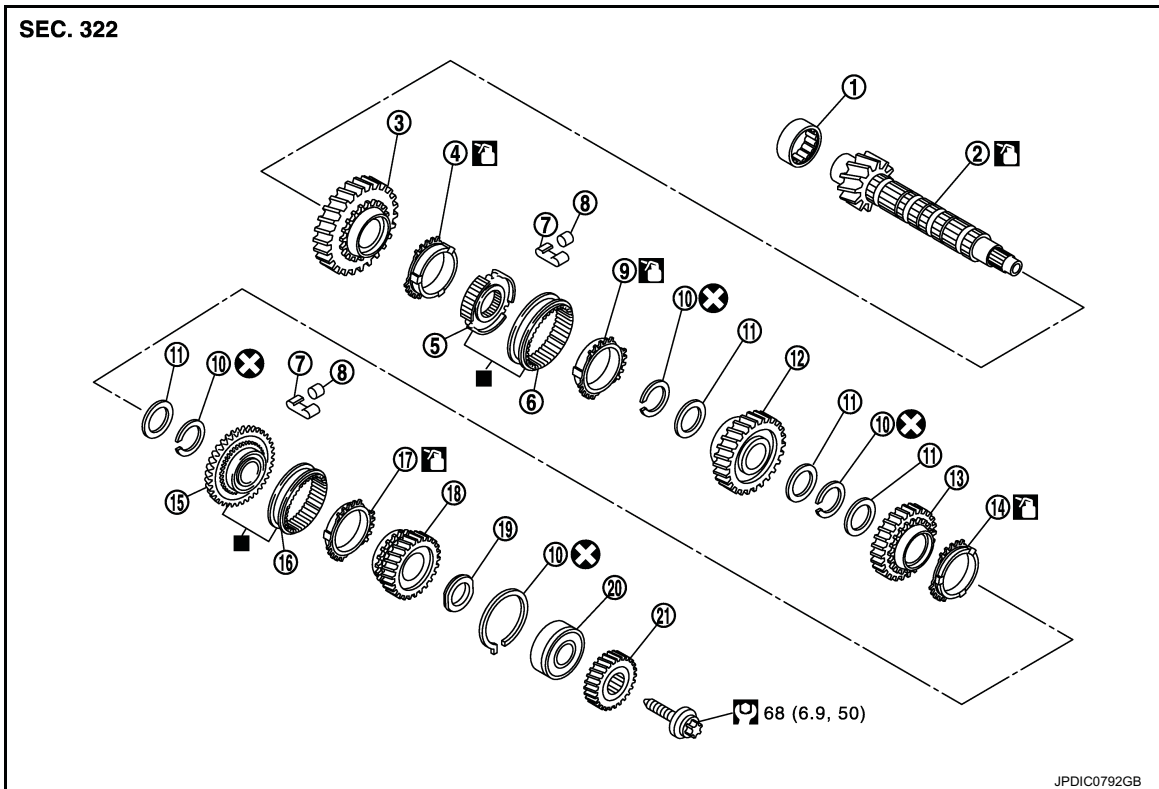
[5MT: RS5F91R]

MAINSHAFT AND GEAR

TYPE 1

TYPE 1 : Exploded View

INFOID:000000006056587



1. Mainshaft front bearing	2. Mainshaft	3. 1st main gear
4. 1st baulk ring	5. 1st-2nd synchronizer hub	6. 1st-2nd coupling sleeve
7. Spring	8. Insert key	9. 2nd baulk ring
10. Snap ring	11. Thrust washer	12. 2nd main gear
13. 3rd main gear	14. 3rd baulk ring	15. 3rd-4th synchronizer hub
16. 3rd-4th coupling sleeve	17. 4th baulk ring	18. 4th main gear
19. Spacer	20. Mainshaft rear bearing	21. 5th main gear



: Apply gear oil.



: Always replace after every disassembly.



: N·m (kg-m, ft-lb)



: Replace the parts as a set.

TYPE 1 : Disassembly

INFOID:000000006056588

CAUTION:

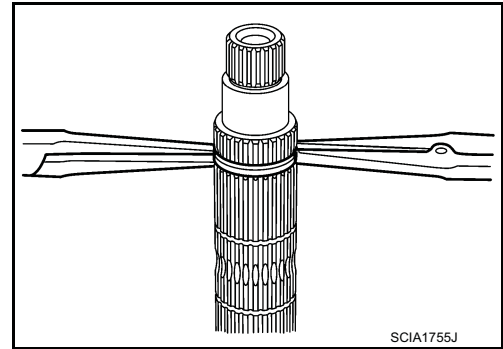
- Fix mainshaft in a vise with backplate, and then remove gears and snap rings.

MAINSHAFT AND GEAR

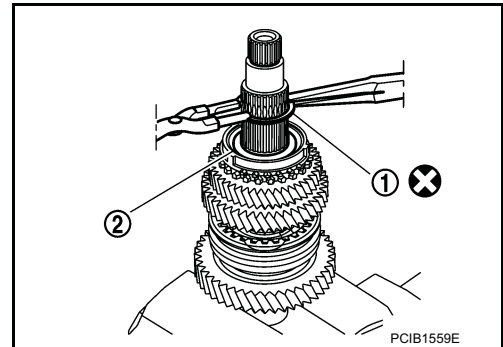
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

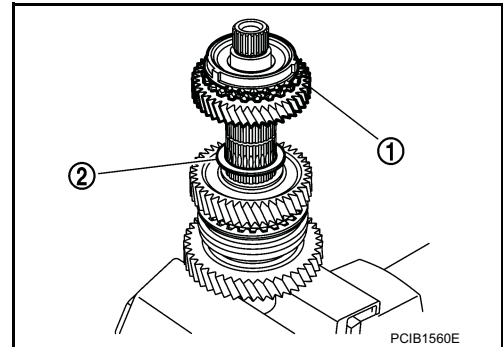
- For removal of snap ring, set snap ring pliers and flat pliers at both sides of snap ring. While expanding snap ring with snap ring pliers, move snap ring with flat pliers.
- Disassemble gear components putting direction marks on the parts that never affect any functions.



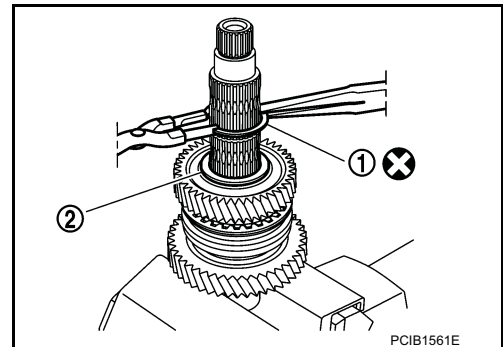
1. Remove 3rd-4th synchronizer hub and 3rd baulk ring.
2. Remove snap ring (1) and thrust washer (2).



3. Remove 3rd main gear (1) and thrust washer (2).



4. Remove snap ring (1) and thrust washer (2).

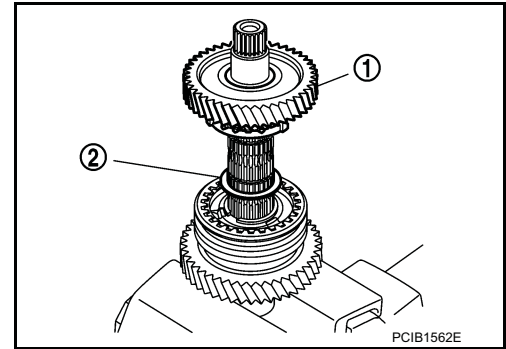


A
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< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

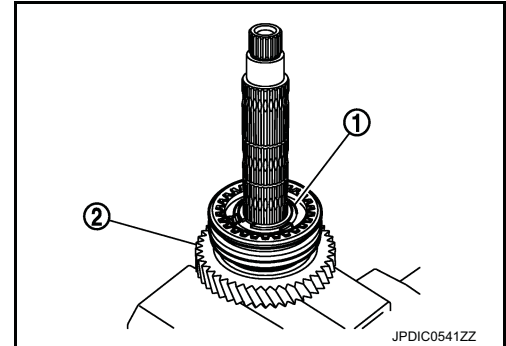
5. Remove 2nd main gear (1) and thrust washer (2).



6. Remove snap ring (1), and then remove 2nd baulk ring.

7. Remove 1st-2nd coupling sleeve, insert keys, springs, and 1st-2nd synchronizer hub.

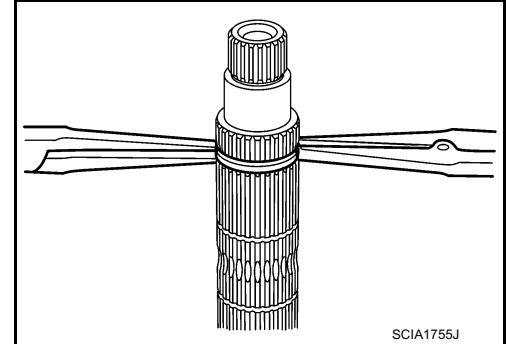
8. Remove 1st baulk ring and 1st main gear (2).



INFOID:000000006056589

Note the following items, and assemble in the reverse order of disassembly.

- **Never reuse snap ring.**
- **For installation of snap ring, set snap ring pliers and flat pliers at both sides of snap ring. While expanding snap ring with snap ring pliers, move snap ring with flat pliers.**
- **Check that snap ring is securely installed to the groove.**
- **Apply gear oil to 1st baulk ring, 2nd baulk ring, and 3rd baulk ring.**

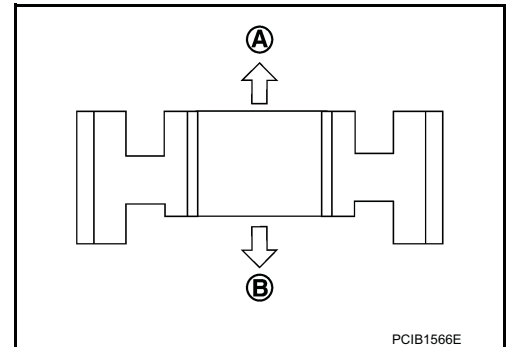


- **Be careful with the orientation of 1st-2nd synchronizer hub.**

A : 1st main gear side

B : 2nd main gear side

- **Replace 1st-2nd synchronizer hub and 1st-2nd coupling sleeve as a set.**



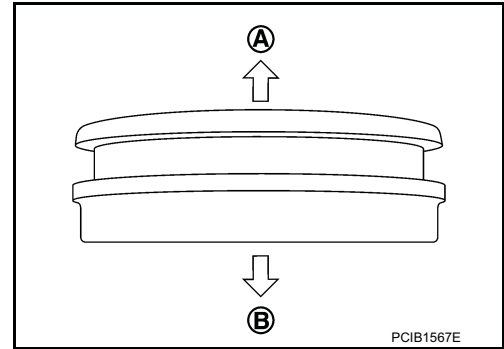
MAINSHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

- Be careful with the orientation of 1st-2nd coupling sleeve.

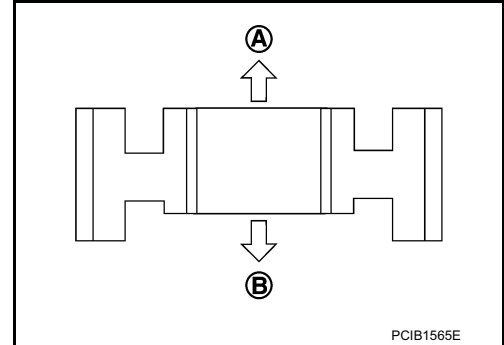
A : 2nd main gear side
B : 1st main gear side



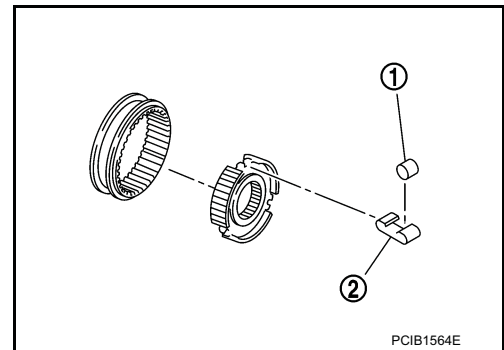
- Be careful with the orientation of 3rd-4th synchronizer hub.

A : 4th main gear side
B : 3rd main gear side

- Replace 3rd-4th synchronizer hub and 3rd-4th coupling sleeve as a set.



- Be careful with the orientation of insert key (1) and spring (2).



INFOID:000000006056590

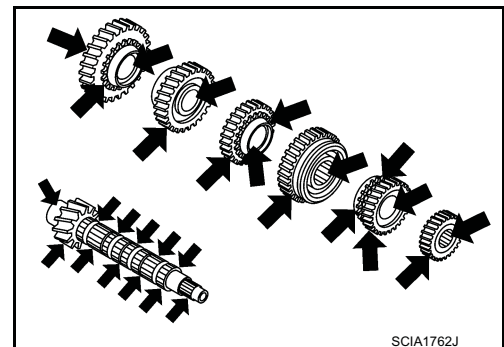
TYPE 1 : Inspection

INSPECTION AFTER DISASSEMBLY

Mainshaft and Gear

Check the following items and replace if necessary.

- Damage, peeling, bend, uneven wear, and distortion of shaft
- Excessive wear, damage, and peeling of gear



Synchronizer

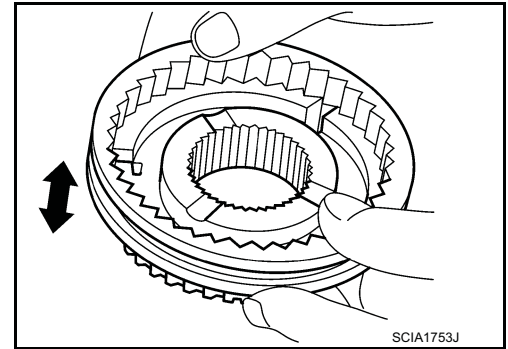
Check the following items and replace if necessary.

MAINSHAFT AND GEAR

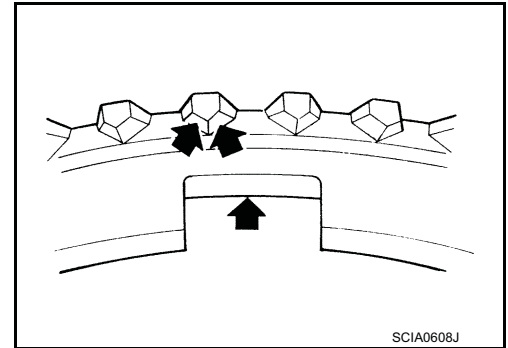
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

- Contact surface breakage, damage, and unusual wear of coupling sleeve, synchronizer hub, insert key, and spring.
- Coupling sleeve and synchronizer hub move smoothly.

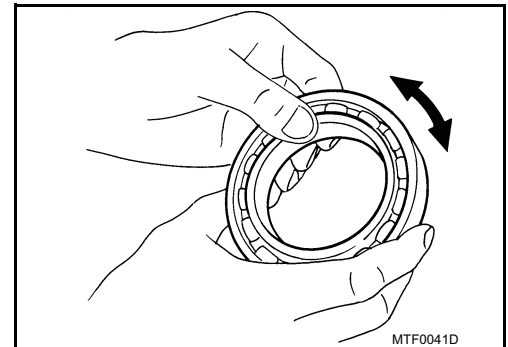


- Breakage, damage, and excessive wear of baulk ring cam surface and insert contact surface



Bearing

Check bearing for damage and unsmooth rotation. Replace if necessary.



TYPE 2

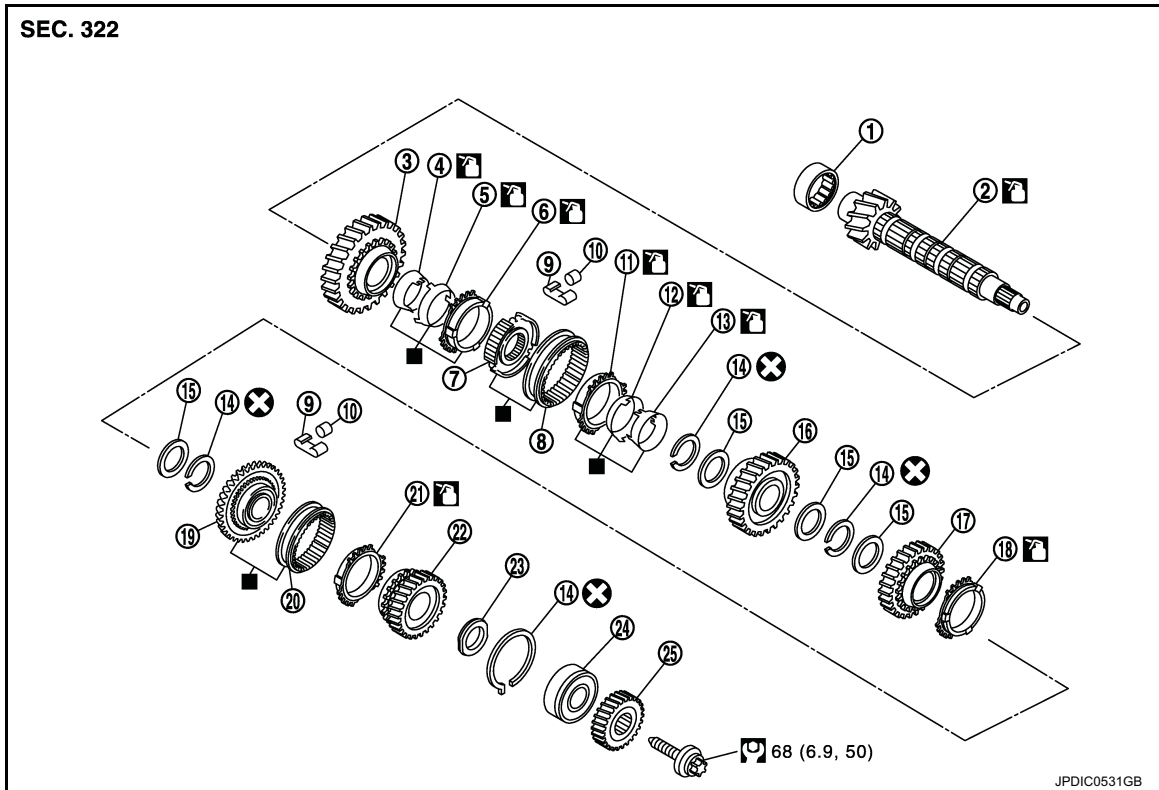
MAINSHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

TYPE 2 : Exploded View

INFOID:000000006288035



1. Mainshaft front bearing	2. Mainshaft	3. 1st main gear
4. 1st inner baulk ring	5. 1st synchronizer cone	6. 1st outer baulk ring
7. 1st-2nd synchronizer hub	8. 1st-2nd coupling sleeve	9. Spring
10. Insert key	11. 2nd outer baulk ring	12. 2nd synchronizer cone
13. 2nd inner baulk ring	14. Snap ring	15. Thrust washer
16. 2nd main gear	17. 3rd main gear	18. 3rd baulk ring
19. 3rd-4th synchronizer hub	20. 3rd-4th coupling sleeve	21. 4th baulk ring
22. 4th main gear	23. Spacer	24. Mainshaft rear bearing
25. 5th main gear		



: Apply gear oil.



: Always replace after every disassembly.



: N·m (kg-m, ft-lb)



: Replace the parts as a set.

TYPE 2 : Disassembly

INFOID:000000006288128

CAUTION:

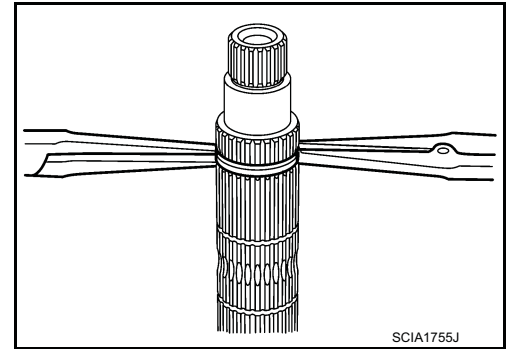
- Fix mainshaft in a vise with backplate, and then remove gears and snap rings.

MAINSHAFT AND GEAR

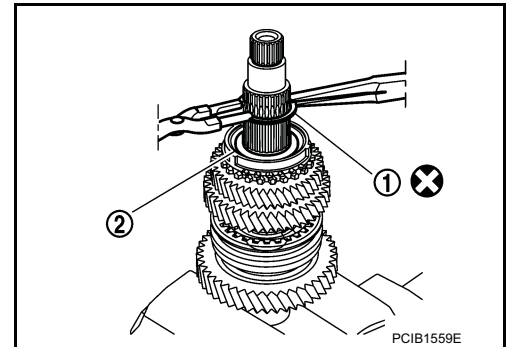
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

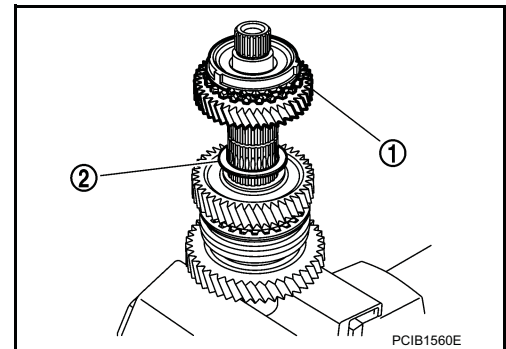
- For removal of snap ring, set snap ring pliers and flat pliers at both sides of snap ring. While expanding snap ring with snap ring pliers, move snap ring with flat pliers.
- Disassemble gear components putting direction marks on the parts that never affect any functions.



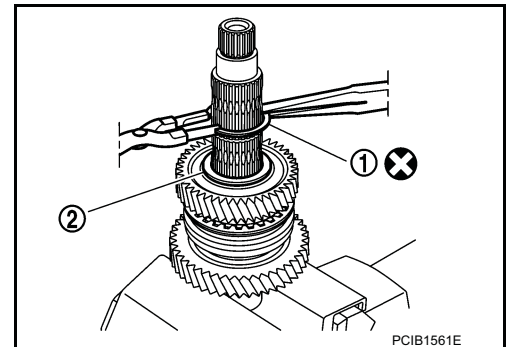
1. Remove 3rd-4th synchronizer hub and 3rd baulk ring.
2. Remove snap ring (1) and thrust washer (2).



3. Remove 3rd main gear (1) and thrust washer (2).



4. Remove snap ring (1) and thrust washer (2).

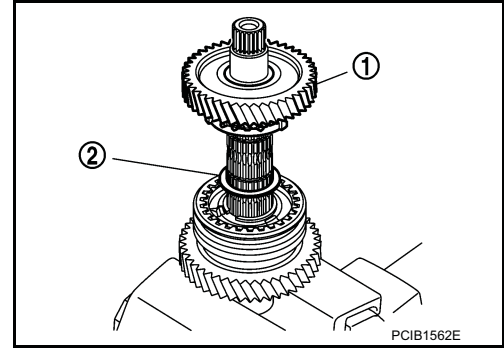


MAINSHAFT AND GEAR

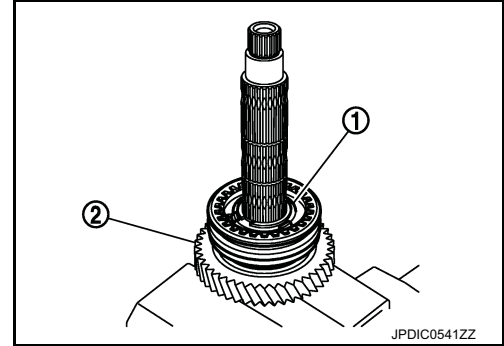
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

5. Remove 2nd main gear (1) and thrust washer (2).



6. Remove snap ring (1), and then remove 2nd inner baulk ring, 2nd synchronizer cone, and 2nd outer baulk ring.
7. Remove 1st-2nd coupling sleeve, insert keys, springs, and 1st-2nd synchronizer hub.
8. Remove 1st outer baulk ring, 1st synchronizer cone, 1st inner baulk ring, and 1st main gear (2).



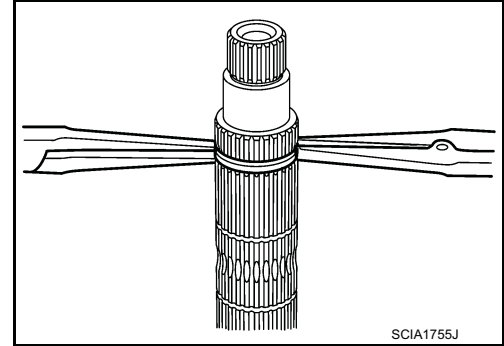
TYPE 2 : Assembly

INFOID:000000006288036

Note the following items, and assemble in the reverse order of disassembly.

CAUTION:

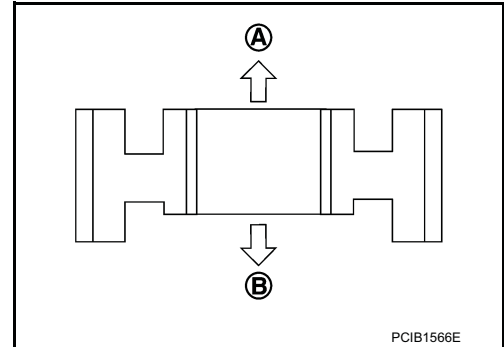
- **Never reuse snap ring.**
- **For installation of snap ring, set snap ring pliers and flat pliers at both sides of snap ring. While expanding snap ring with snap ring pliers, move snap ring with flat pliers.**
- **Check that snap ring is securely installed to the groove.**
- **Apply gear oil to 1st outer baulk ring, 1st synchronizer cone, 1st inner baulk ring, 2nd outer baulk ring, 2nd synchronizer cone, 2nd inner baulk ring, and 3rd baulk ring.**
- **Replace 1st outer baulk ring, 1st synchronizer cone, and 1st inner baulk ring as a set.**
- **Replace 2nd outer baulk ring, 2nd synchronizer cone, and 2nd inner baulk ring as a set.**



- **Be careful with the orientation of 1st-2nd synchronizer hub.**

A : 1st main gear side
B : 2nd main gear side

- **Replace 1st-2nd synchronizer hub and 1st-2nd coupling sleeve as a set.**



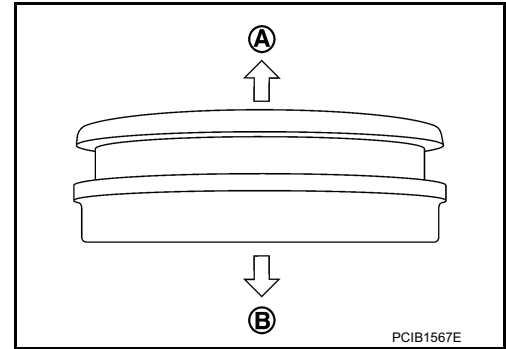
MAINSHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

- Be careful with the orientation of 1st-2nd coupling sleeve.

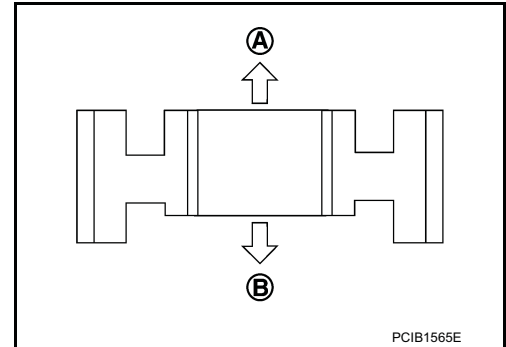
A : 2nd main gear side
B : 1st main gear side



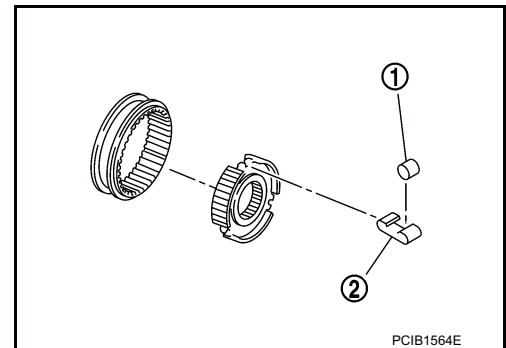
- Be careful with the orientation of 3rd-4th synchronizer hub.

A : 4th main gear side
B : 3rd main gear side

- Replace 3rd-4th synchronizer hub and 3rd-4th coupling sleeve as a set.



- Be careful with the orientation of insert key (1) and spring (2).



INFOID:000000006288129

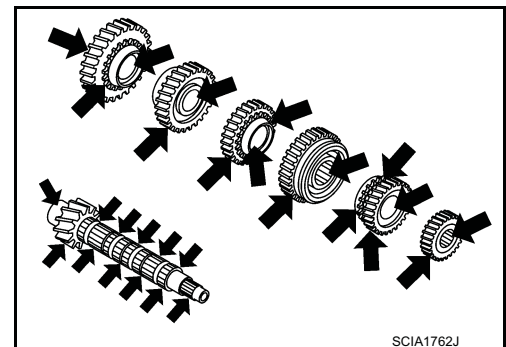
TYPE 2 : Inspection

INSPECTION AFTER DISASSEMBLY

Mainshaft and Gear

Check the following items and replace if necessary.

- Damage, peeling, bend, uneven wear, and distortion of shaft
- Excessive wear, damage, and peeling of gear



Synchronizer

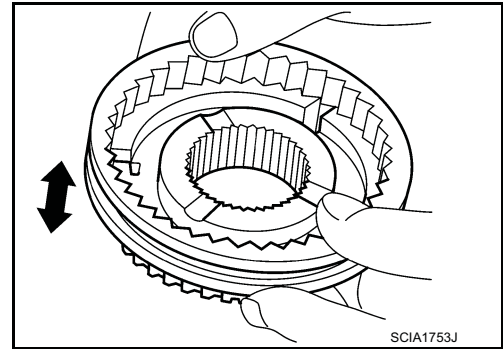
Check the following items and replace if necessary.

MAINSHAFT AND GEAR

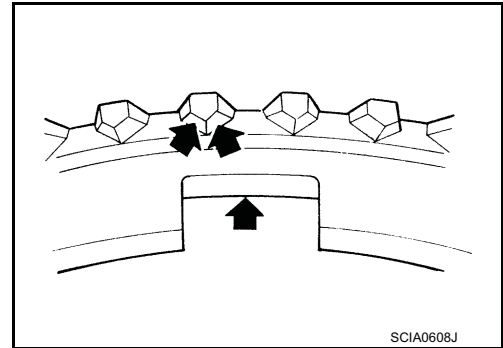
< UNIT DISASSEMBLY AND ASSEMBLY >

[5MT: RS5F91R]

- Contact surface breakage, damage, and unusual wear of coupling sleeve, synchronizer hub, insert key, and spring.
- Coupling sleeve and synchronizer hub move smoothly.

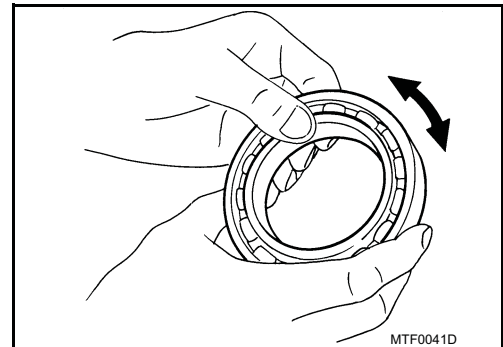


- Breakage, damage, and excessive wear of baulk ring cam surface and insert contact surface



Bearing

Check bearing for damage and unsmooth rotation. Replace if necessary.



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FINAL DRIVE

< UNIT DISASSEMBLY AND ASSEMBLY >

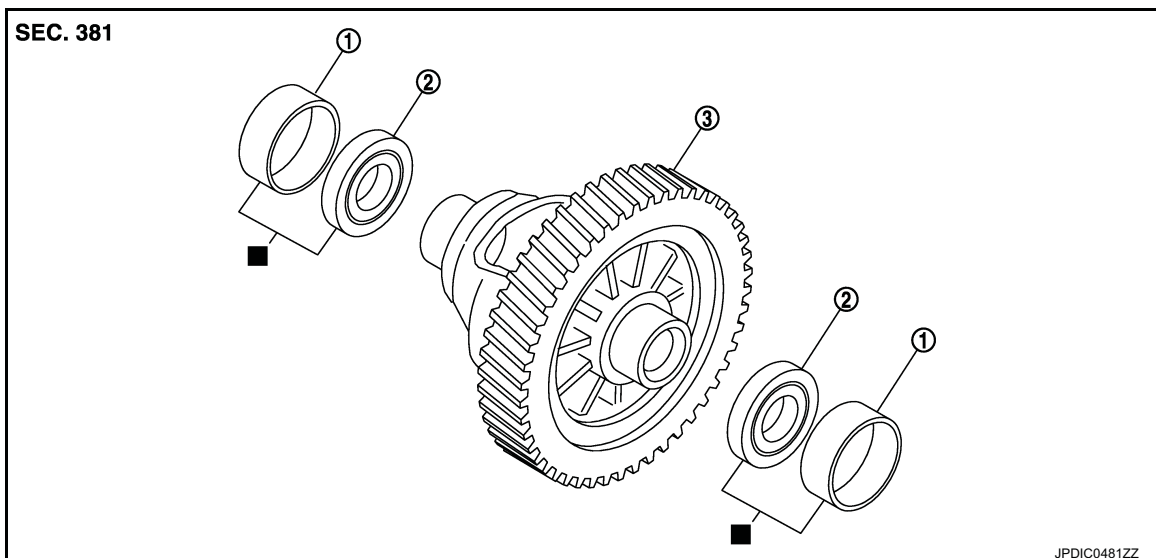
[5MT: RS5F91R]

FINAL DRIVE

Exploded View

INFOID:000000006056591

WITHOUT SPEEDOMETER DRIVE GEAR*

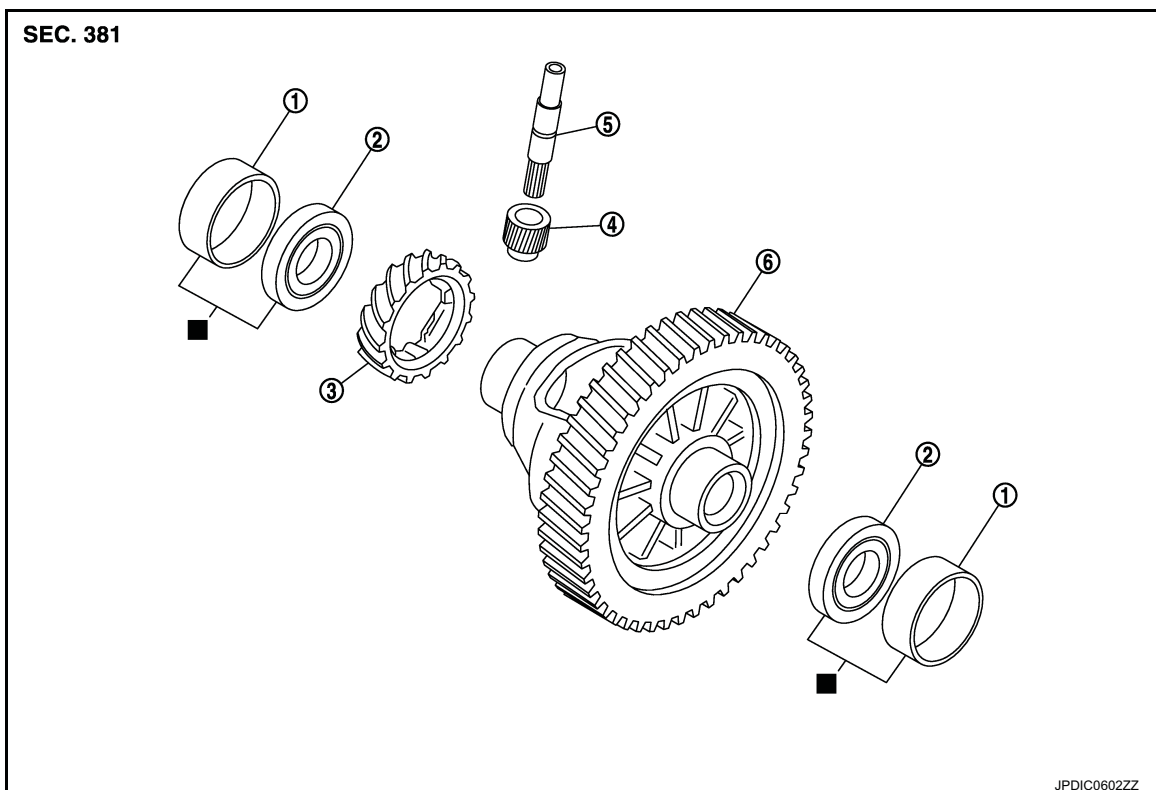


1. Differential side bearing outer race 2. Differential side bearing 3. Final drive

■ : Replace the parts as a set.

*: Refer to [TM-100, "General Specifications"](#) for the application of the speedometer drive gear.

WITH SPEEDOMETER DRIVE GEAR*



1. Differential side bearing outer race 2. Differential side bearing 3. Speedometer drive gear
4. Pinion gear 5. Pinion shaft 6. Final drive

■ : Replace the parts as a set.

FINAL DRIVE

< UNIT DISASSEMBLY AND ASSEMBLY >

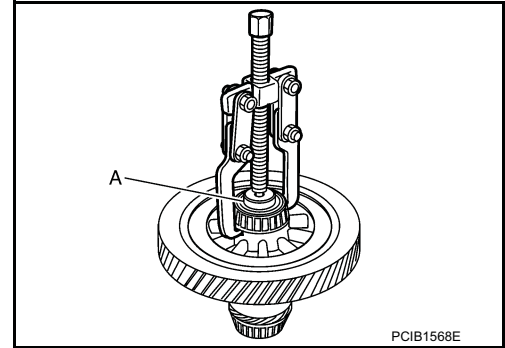
[5MT: RS5F91R]

*: Refer to [TM-100, "General Specifications"](#) for the application of the speedometer drive gear.

Disassembly

INFOID:000000006056592

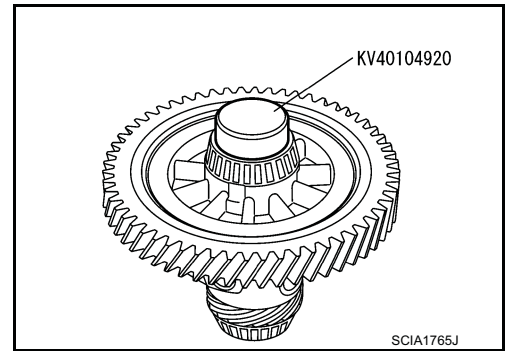
1. Remove differential side bearings, using the drift (A) [SST: ST33052000] and a puller [Commercial service tool].
2. Remove speedometer drive gear. (With speedometer drive gear)



Assembly

INFOID:000000006056593

1. Install differential side bearings, using the drift [SST].
CAUTION:
Replace differential side bearing outer race and differential side bearing as a set.
2. Install speedometer drive gear. (With speedometer drive gear)



Inspection

INFOID:000000006056594

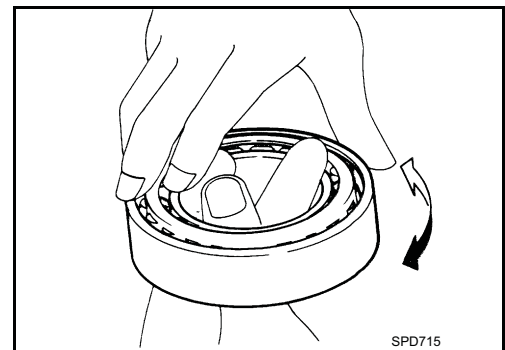
INSPECTION AFTER DISASSEMBLY

Gear and Final Drive

Check the sliding surfaces for wear, crack, or damage. Replace if necessary.

Bearing

Check bearing for damage and unsmooth rotation. Replace if necessary.



SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[5MT: RS5F91R]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specifications

INFOID:000000006056595

Transaxle type			RS5F91R									
Engine type			HR12DE					HR12DDR	HR15DE		K9K	
Model code number			1HC0A	1HC0C	1HC0E	1HC1B	1HC2B 1HC4B	3HD2B	1HS1C	1HS2B	1HA0E	
Number of speed			5									
Synchromesh type			Warner									
Shift pattern			1 3 5 2 4 R N SCIA0821E									
Gear ratio	1st		3.7273								3.3636	
	2nd		2.0476								1.8636	
	3rd		1.3929								1.3214	
	4th		1.0294		1.0968			1.0294		1.0968	0.9667	
	5th		0.8205		0.8919			0.8205		0.8919	0.7381	
	Reverse		3.5455									
	Final gear		4.5000	4.0667	3.7333	3.4375			4.0667	3.4375	3.7333	
Number of teeth	In-put gear	1st	11									
		2nd	21								22	
		3rd	28									
		4th	34		31			34		31	30	
		5th	39		37			39		37	42	
		Reverse	11									
	Main gear	1st	41								37	
		2nd	43								41	
		3rd	39								37	
		4th	35		34			35		34	29	
		5th	32		33			32		33	31	
		Reverse	39									
	Reverse idler gear		26									
	Final gear	Final gear / Pin-ion	63/14	61/15	56/15	55/16			61/15	55/16	56/15	
		Side gear / Pin-ion mate gear	13/9									
	Oil capacity (Reference)			ℓ (Imp pt)		Approx. 2.67 (4-3/4)						

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[5MT: RS5F91R]

Transaxle type		RS5F91R								
Engine type		HR12DE					HR12DDR	HR15DE		K9K
Model code number		1HC0A	1HC0C	1HC0E	1HC1B	1HC2B 1HC4B	3HD2B	1HS1C	1HS2B	1HA0E
Re- marks	Reverse brake	Not installed				Installed				
	Double-cone synchro- nizer	—				1st and 2nd				
	Speedometer drive gear	Installed			Not installed					Installed

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PRECAUTION

PRECAUTIONS FOR EUROPE

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

INFOID:000000007562523

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. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

The vehicle may be equipped with a passenger air bag deactivation switch. Because no rear seat exists where a rear-facing child restraint can be placed, the switch is designed to turn off the passenger air bag so that a rear-facing child restraint can be used in the front passenger seat. The switch is located in the center of the instrument panel, near the ashtray. When the switch is turned to the ON position, the passenger air bag is enabled and could inflate for certain types of collision. When the switch is turned to the OFF position, the passenger air bag is disabled and will not inflate. A passenger air bag OFF indicator on the instrument panel lights up when the passenger air bag is switched OFF. The driver air bag always remains enabled and is not affected by the passenger air bag deactivation switch.

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the "SRS AIR BAG".
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.
- The vehicle may be equipped with a passenger air bag deactivation switch which can be operated by the customer. When the passenger air bag is switched OFF, the passenger air bag is disabled and will not inflate. When the passenger air bag is switched ON, the passenger air bag is enabled and could inflate for certain types of collision. After SRS maintenance or repair, make sure the passenger air bag deactivation switch is in the same position (ON or OFF) as when the vehicle arrived for service.

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

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, 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.

FOR EUROPE : Precautions Necessary for Steering Wheel Rotation After Battery Disconnection

INFOID:000000007562514

CAUTION:

Comply with the following cautions to prevent any error and malfunction.

- Before removing and installing any control units, first turn the 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.

PRECAUTIONS

< PRECAUTION >

[4AT: RE4F03C]

- **Always use CONSULT 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.**

For vehicle with 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 operation procedure below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.

NOTE:

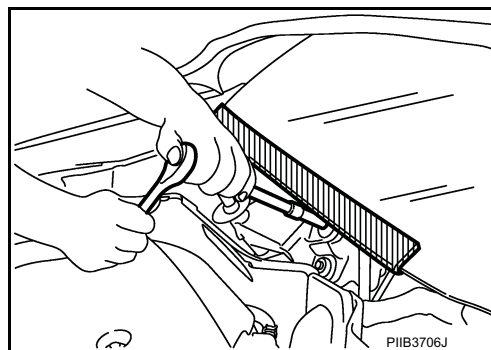
Supply power using jumper cables if battery is discharged.

2. Turn the 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 ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the ignition switch is turned to LOCK position.)
6. Perform self-diagnosis check of all control units using CONSULT.

FOR EUROPE : Precaution for Procedure without Cowl Top Cover

INFOID:000000007562520

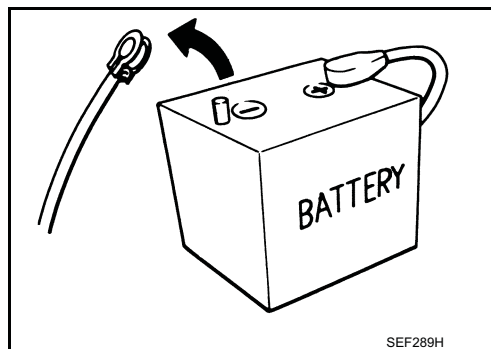
When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



FOR EUROPE : General Precautions

INFOID:000000007217916

- **Turn the ignition switch OFF and disconnect the battery cable from the negative terminal before connecting or disconnecting the A/T assembly harness connector. Because battery voltage is applied to TCM even if ignition switch is turned OFF.**

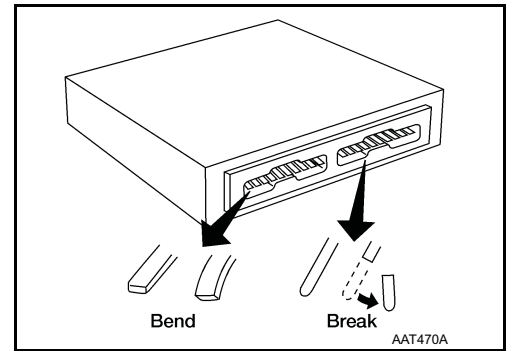


PRECAUTIONS

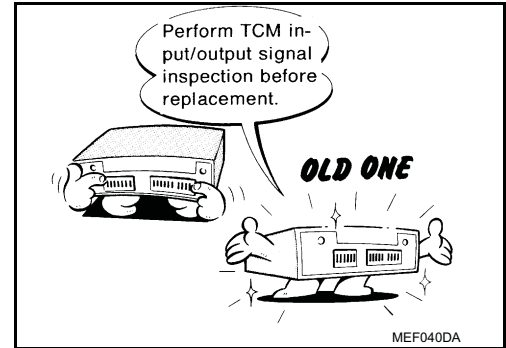
< PRECAUTION >

[4AT: RE4F03C]

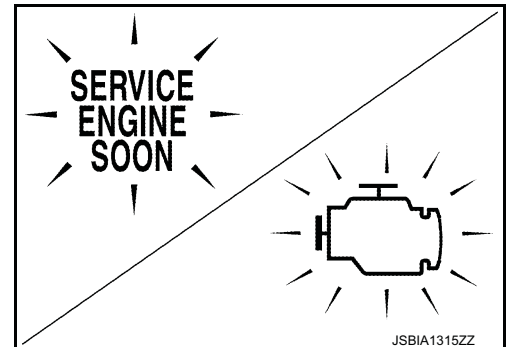
- When connecting or disconnecting pin connectors into or from TCM, do not damage pin terminals (bend or break). Check that there are not any bends or breaks on TCM pin terminal, when connecting pin connectors.



- Perform TCM input/output signal inspection and check whether TCM functions normally or not before replacing TCM. Refer to [TM-149, "Reference Value"](#).



- Perform "DTC (Diagnostic Trouble Code) CONFIRMATION PROCEDURE".
If the repair is completed DTC should not be displayed in the "DTC CONFIRMATION PROCEDURE".



- Always use the specified brand of ATF. Refer to [MA-29, "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 ATF.

FOR EUROPE : On Board Diagnosis (OBD) System of A/T and Engine

INFOID:000000007217917

The ECM has an on board diagnostic system. It will light up the malfunction indicator lamp (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 EGR 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.

PRECAUTIONS

< PRECAUTION >

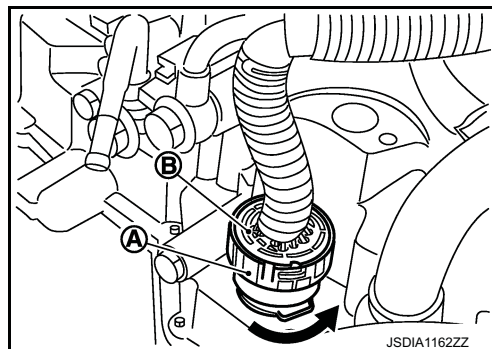
[4AT: RE4F03C]

FOR EUROPE : Removal and Installation Procedure for A/T Assembly Connector

INFOID:000000007217918

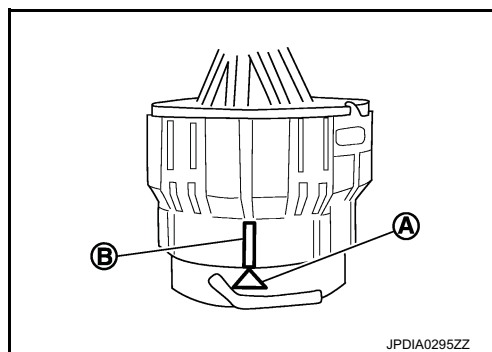
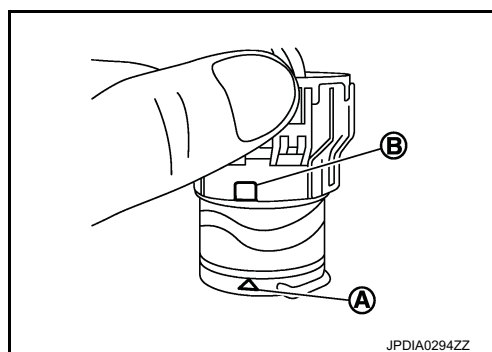
REMOVAL

Rotate bayonet ring (A) counterclockwise. Pull out A/T assembly harness connector (B) upward and remove it.



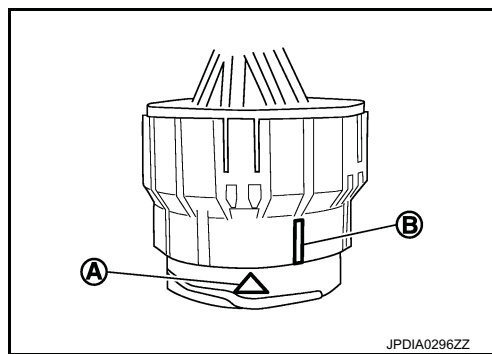
INSTALLATION

1. Align marking (A) on A/T assembly harness connector terminal body with marking (B) on bayonet ring. Insert A/T assembly harness connector. Then rotate bayonet ring clockwise.
2. Rotate bayonet ring clockwise until marking (A) on A/T assembly harness connector terminal body is aligned with the slit (B) on bayonet ring as shown in the figure (correctly fitting condition). Install A/T assembly harness connector to A/T assembly harness connector terminal body.



CAUTION:

- Securely align marking (A) on A/T assembly 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.



FOR EUROPE : Service Notice or Precaution

INFOID:000000007217919

OBD SELF-DIAGNOSIS

- A/T self-diagnosis is performed by the TCM in combination with the ECM. The results can be read through the blinking pattern of the A/T CHECK indicator or the malfunction indicator (MI). Refer to the table on

PRECAUTIONS

< PRECAUTION >

[4AT: RE4F03C]

"SELF-DIAGNOSTIC RESULTS" for the indicator used to display each self-diagnostic result. Refer to [TM-143, "CONSULT Function \(TRANSMISSION\)"](#).

- The self-diagnostic results indicated by the MI are automatically stored in both the ECM and TCM memories. **Always perform the procedure on "How to Erase DTC" to complete the repair and avoid unnecessary blinking of the MI. Refer to [TM-140, "Description"](#).**

For details of OBD, refer to [EC-40, "DIAGNOSIS DESCRIPTION : 1st Trip Detection Logic and Two Trip Detection Logic"](#). (HR15DE)

- **Certain systems and components, especially those related to OBD, may use the new style slide-locking type harness connector. For description and how to disconnect, refer to [PG-9, "Harness Connector"](#).**

EXCEPT FOR EUROPE

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

INFOID:000000007562522

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. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

Always observe the following items for preventing accidental activation.

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

EXCEPT FOR EUROPE : Precautions Necessary for Steering Wheel Rotation After Battery Disconnection

INFOID:000000007562515

CAUTION:

Comply with the following cautions to prevent any error and malfunction.

- **Before removing and installing any control units, first turn the 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 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.**

For vehicle with 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 operation procedure below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.

NOTE:

PRECAUTIONS

< PRECAUTION >

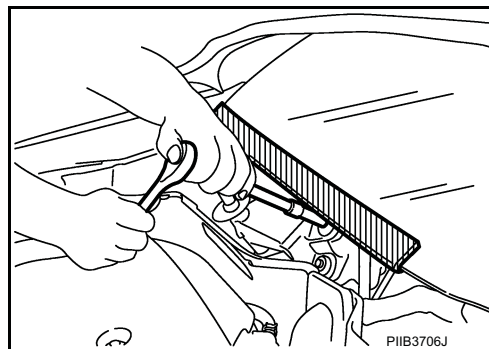
[4AT: RE4F03C]

- Supply power using jumper cables if battery is discharged.
- Turn the ignition switch to ACC position.
(At this time, the steering lock will be released.)
- Disconnect both battery cables. The steering lock will remain released with both battery cables disconnected and the steering wheel can be turned.
- Perform the necessary repair operation.
- When the repair work is completed, re-connect both battery cables. With the brake pedal released, turn the ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the ignition switch is turned to LOCK position.)
- Perform self-diagnosis check of all control units using CONSULT.

EXCEPT FOR EUROPE : Precaution for Procedure without Cowl Top Cover

INFOID:000000007562521

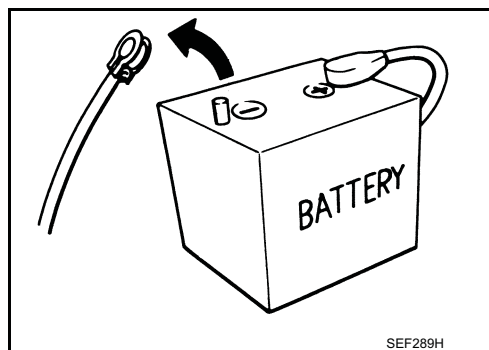
When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



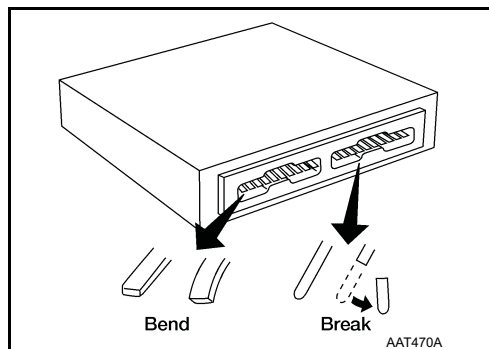
EXCEPT FOR EUROPE : General Precautions

INFOID:000000006440455

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



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

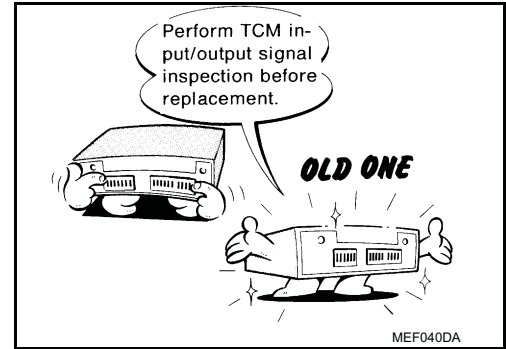


PRECAUTIONS

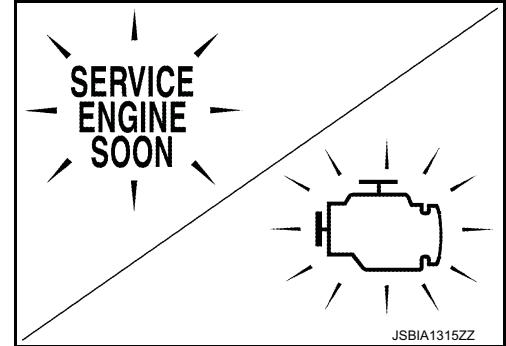
< PRECAUTION >

[4AT: RE4F03C]

- Perform TCM input/output signal inspection and check whether TCM functions normally or not before replacing TCM. Refer to [TM-149, "Reference Value"](#).



- Perform "DTC (Diagnostic Trouble Code) CONFIRMATION PROCEDURE".
If the repair is completed DTC should not be displayed in the "DTC CONFIRMATION PROCEDURE".



- Always use the specified brand of ATF. Refer to [MA-29, "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 ATF.

EXCEPT FOR EUROPE : On Board Diagnosis (OBD) System of A/T and Engine

INFOID:000000006440453

The ECM has an on board diagnostic system. It will light up the malfunction indicator lamp (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 EGR 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.

EXCEPT FOR EUROPE : Removal and Installation Procedure for A/T Assembly Connector

INFOID:000000006440454

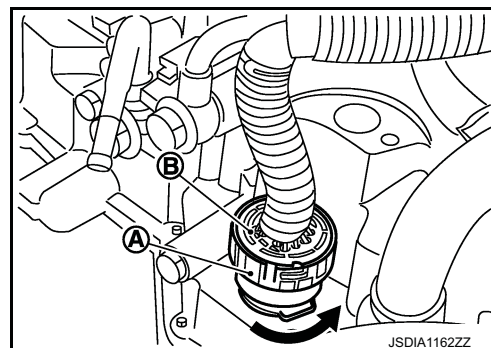
REMOVAL

PRECAUTIONS

< PRECAUTION >

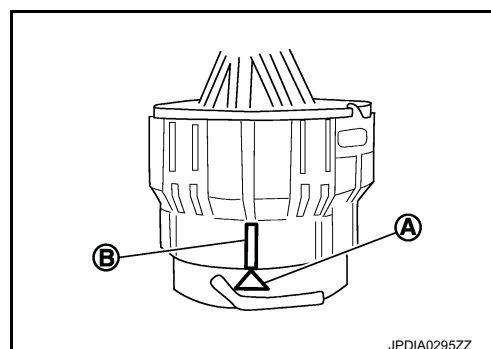
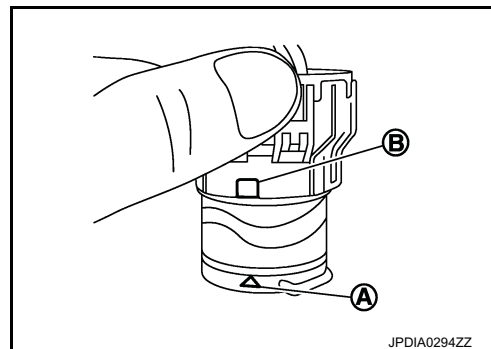
[4AT: RE4F03C]

Rotate bayonet ring (A) counterclockwise. Pull out A/T assembly harness connector (B) upward and remove it.



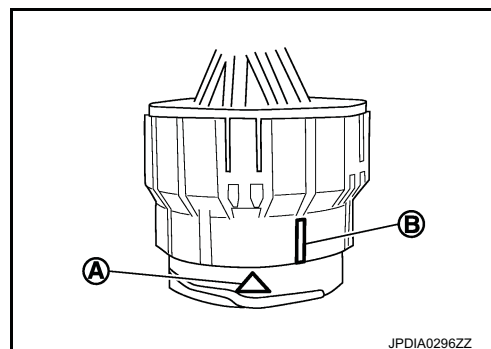
INSTALLATION

1. Align marking (A) on A/T assembly harness connector terminal body with marking (B) on bayonet ring. Insert A/T assembly harness connector. Then rotate bayonet ring clockwise.
2. Rotate bayonet ring clockwise until marking (A) on A/T assembly harness connector terminal body is aligned with the slit (B) on bayonet ring as shown in the figure (correctly fitting condition). Install A/T assembly harness connector to A/T assembly harness connector terminal body.



CAUTION:

- Securely align marking (A) on A/T assembly 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.



EXCEPT FOR EUROPE : Service Notice or Precaution

INFOID:000000006440456

OBD SELF-DIAGNOSIS

- A/T self-diagnosis is performed by the TCM in combination with the ECM. The results can be read through the blinking pattern of the A/T CHECK indicator or the malfunction indicator (MI). Refer to the table on "SELF-DIAGNOSTIC RESULTS" for the indicator used to display each self-diagnostic result. Refer to [TM-143, "CONSULT Function \(TRANSMISSION\)"](#).
- The self-diagnostic results indicated by the MI are automatically stored in both the ECM and TCM memories.

PRECAUTIONS

< PRECAUTION >

[4AT: RE4F03C]

Always perform the procedure on “How to Erase DTC” to complete the repair and avoid unnecessary blinking of the MI. Refer to [TM-140, "Description"](#).

For details of OBD, refer to [EC4-40, "DIAGNOSIS DESCRIPTION : 1st Trip Detection Logic and Two Trip Detection Logic"](#). (HR15DE)

- **Certain systems and components, especially those related to OBD, may use the new style slide-locking type harness connector. For description and how to disconnect, refer to [PG-9, "Harness Connector"](#).**

PREPARATION

< PREPARATION >

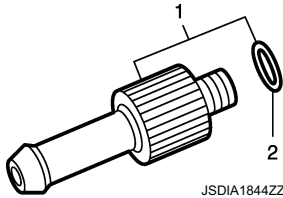
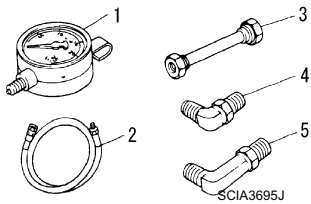
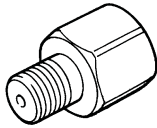
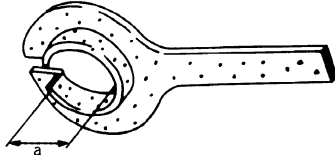
[4AT: RE4F03C]

PREPARATION

PREPARATION

Special Service Tools

INFOID:000000006314640

Tool number Tool name	Description
1. KV311039S0 Charging pipe set 2. KV31103920* O-ring	A/T fluid changing and adjustment 
ST2505S001 Oil pressure gauge set 1. ST25051001 Oil pressure gauge 2. ST25052000 Hose 3. ST25053000 Joint pipe 4. ST25054000 Adapter 5. ST25055000 Adapter	Measuring line pressure 
KV31103600 Joint pipe adapter (With ST25054000)	Measuring line pressure 
KV38107900 Protector a: 32 mm (1.26 in) dia.	Installing drive shaft 

*: The O-ring is a unit part and is set as a SST.

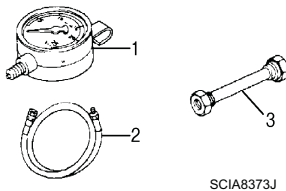
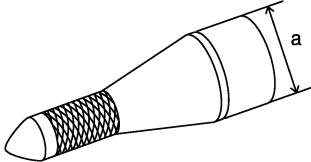
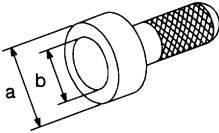
Commercial Service Tools

INFOID:000000006314641

PREPARATION

< PREPARATION >

[4AT: RE4F03C]

Tool number Tool name	Description
Oil pressure gauge set 1. Oil pressure gauge 2. Hose 3. Joint pipe  SCIA8373J	Measuring line pressure
31197EU50A Drive plate location guide a: 25 mm (0.98in) dia.  JPDIA0676ZZ	Installing transaxle assembly
Drift a: 56 mm (2.20 in) dia. b: 50 mm (1.97 in) dia.  NT115	Installing differential side oil seal

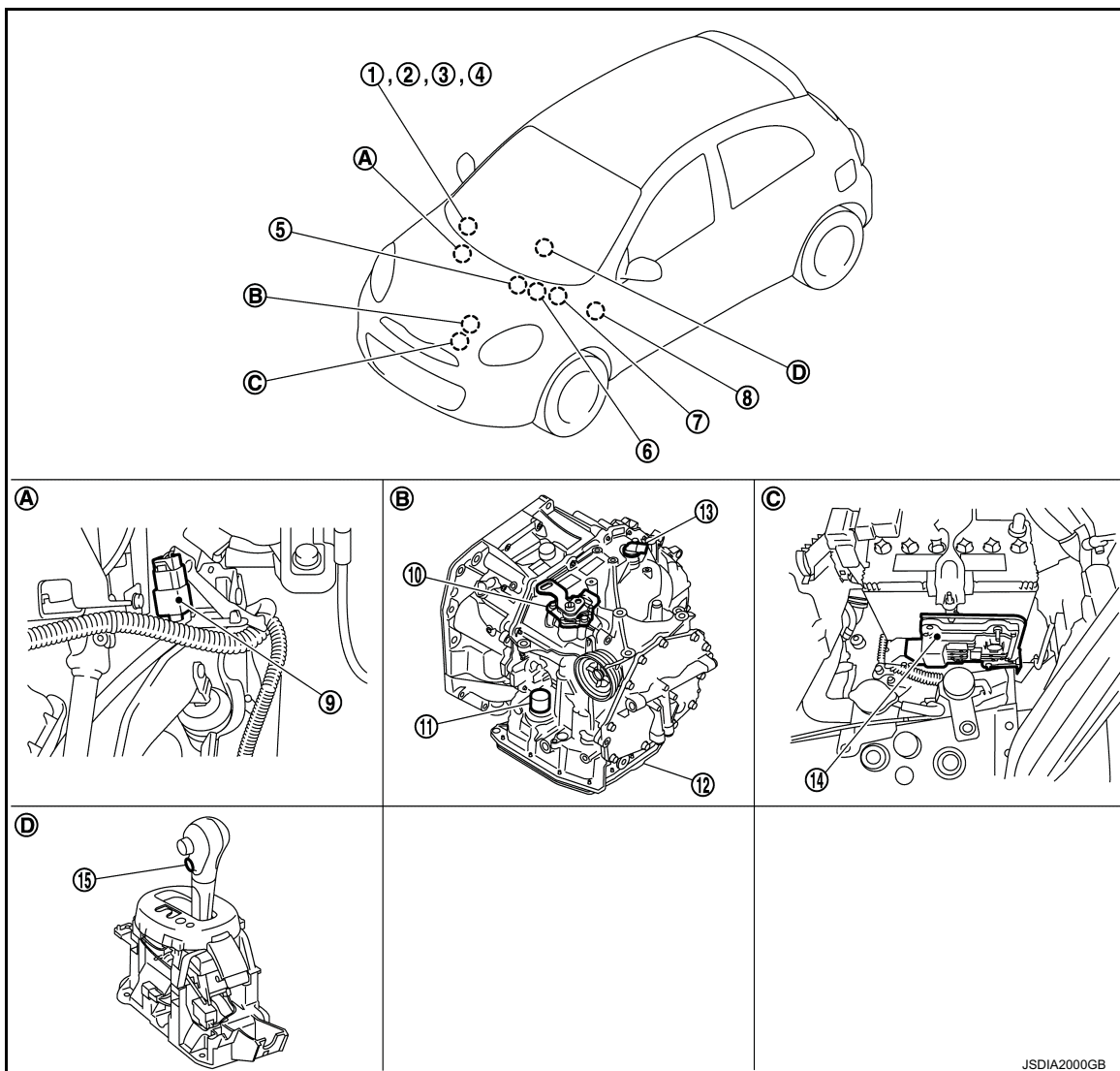
SYSTEM DESCRIPTION

COMPONENT PARTS

A/T CONTROL SYSTEM

A/T CONTROL SYSTEM : Component Parts Location

INFOID:000000006346238



1. Combination meter	2. O/D OFF indicator lamp (On the combination meter)	3. Shift position indicator (On the combination meter)
4. Malfunction indicator lamp (MIL)*1 (On the combination meter)	5. ABS actuator and electric unit (control unit)*2 Refer to BRC-26, "Component Parts Location" [Without VDC/ESP (with ABS)], BRC-129, "Component Parts Location" [With VDC (ESP)]	6. IPDM E/R Refer to PCS-8, "Component Parts Location" (With Intelligent Key system), PCS-76, "Component Parts Location" (Without Intelligent Key system)
7. ECM Refer to EC3-484, "Component Parts Location" (HR12DE), EC4-15, "Component Parts Location" (HR15DE)	8. BCM Refer to BCS-9, "BODY CONTROL SYSTEM : Component Parts Location" (With Intelligent Key system), BCS-203, "BODY CONTROL SYSTEM : Component Parts Location" (Without Intelligent Key system)	9. Stop lamp switch
10. Transmission range switch	11. A/T unit connector	12. Control valve assembly

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

13. Output speed sensor	14. TCM	15. Overdrive control switch
A. Brake pedal, upper	B. Transaxle assembly	C. Engine room
D. A/T shift selector		

NOTE:

The following components are included in control valve assembly (12).

- A/T fluid temperature sensor
- Input speed sensor
- Low clutch solenoid valve
- 2-4 brake solenoid valve
- Select switch ON-OFF solenoid valve
- High clutch/low & reverse brake solenoid valve
- Torque converter clutch solenoid valve
- Line pressure solenoid valve
- ROM assembly

*1: HR15DE

*2: With VDC (ESP) or without VDC/ESP (with ABS)

A/T CONTROL SYSTEM : Component Description

INFOID:000000006288153

Name	Function
TCM	TM-115, "A/T CONTROL SYSTEM : TCM"
Transmission range switch	TM-115, "A/T CONTROL SYSTEM : Transmission Range Switch"
Input speed sensor	TM-115, "A/T CONTROL SYSTEM : Input Speed Sensor"
Output speed sensor	TM-115, "A/T CONTROL SYSTEM : Output Speed Sensor"
A/T fluid temperature sensor	TM-116, "A/T CONTROL SYSTEM : A/T Fluid Temperature Sensor"
Low clutch solenoid valve	TM-116, "A/T CONTROL SYSTEM : Low Clutch Solenoid Valve"
2-4 brake solenoid valve	TM-117, "A/T CONTROL SYSTEM : 2-4 Brake Solenoid Valve"
Select ON-OFF solenoid valve	TM-117, "A/T CONTROL SYSTEM : Select Switch On-Off Solenoid Valve"
High clutch/low & reverse brake solenoid valve	TM-117, "A/T CONTROL SYSTEM : High Clutch/Low & Reverse Brake Solenoid Valve"
Torque converter clutch solenoid valve	TM-117, "A/T CONTROL SYSTEM : Torque Converter Clutch Solenoid Valve"
Line pressure solenoid valve	TM-117, "A/T CONTROL SYSTEM : Line Pressure Solenoid Valve"
Accelerator pedal position sensor	TM-118, "A/T CONTROL SYSTEM : Accelerator Pedal Position Sensor"
Overdrive control switch	TM-118, "A/T CONTROL SYSTEM : Overdrive Control Switch"
O/D OFF indicator lamp	TM-118, "A/T CONTROL SYSTEM : O/D OFF Indicator Lamp"
Stop lamp switch	BRC-28, "Stop Lamp Switch"
ECM	• For purposes including improving the feeling when shifting speeds and preventing drops in engine speed, control signals are exchanged between the ECM and TCM, and real-time cooperative control is performed according to the vehicle driving conditions. (Integrated control for engine and A/T) - Engine and A/T integrated control signal NOTE: General term for the communication (torque-down permission, torque-down request, etc.) exchanged between the ECM and TCM. • The TCM receives the following signal via CAN communications from the ECM for judging the vehicle driving conditions. - Engine speed signal - Accelerator pedal position signal - Closed throttle position signal
BCM	The TCM receives the following signal via CAN communications from the BCM for judging the vehicle driving conditions. • Stop lamp switch signal

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

Name	Function
ABS actuator and electric unit (control unit)	The TCM receives the following signal via CAN communications from the ABS actuator and electric unit (control unit) for judging the vehicle driving conditions. • Vehicle speed signal (ABS) • ABS operation signal
Combination meter	The TCM receives the following signal via CAN communications from the combination meter for judging the driving request from the driver. • Overdrive control switch signal

A/T CONTROL SYSTEM : TCM

INFOID:000000006288154

- The vehicle driving status is judged based on the signals from the sensors, switches, and other control units, and the optimal transaxle control is performed.
- The primary control consists of the following 8 control types.
 - Line pressure control
 - Gear shift control
 - Shift control
 - Lock-up control
 - Control between each control unit and the A/T (CAN communications control)
 - Self-diagnosis function
 - Fail-safe function
 - Communications control with CONSULT

A/T CONTROL SYSTEM : Transmission Range Switch

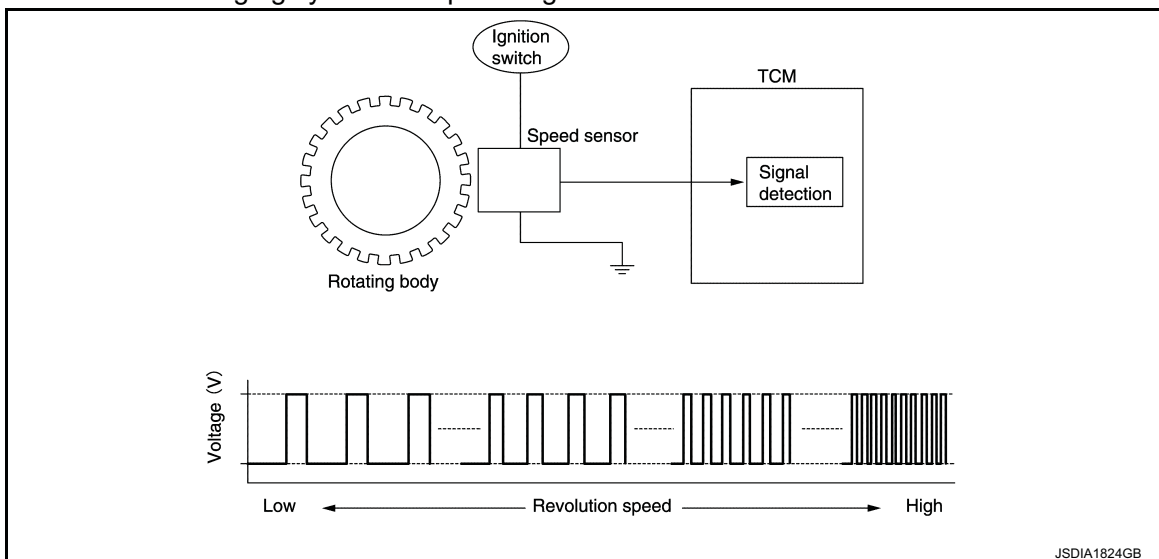
INFOID:000000006288155

- The transmission range switch is installed to upper part of transaxle case.
- The transmission range switch detects the selector lever position.

A/T CONTROL SYSTEM : Input Speed Sensor

INFOID:000000006288156

- The input speed sensor is installed to control valve.
- The input speed sensor detects input shaft speed.
- The input speed sensor generates ON-OFF pulses (short waveform signal) in proportion to the rotating speed, such that the changing cycle is shorter when the rotating speed increases. The TCM judges the rotating speed from the changing cycle of this pulse signal.



A/T CONTROL SYSTEM : Output Speed Sensor

INFOID:000000006288157

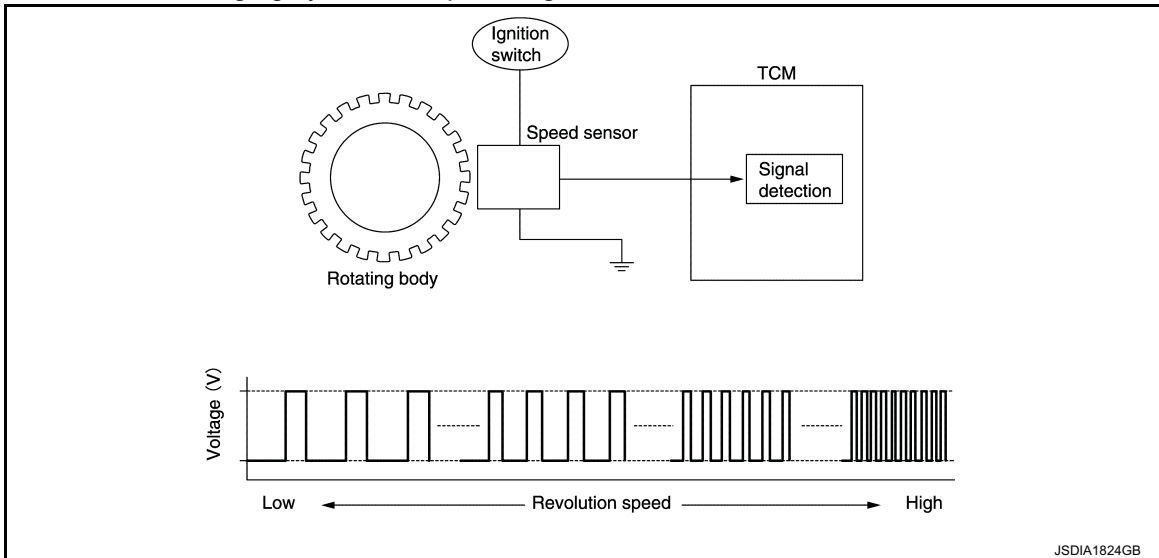
- The output speed sensor is installed to the back side of transaxle case.
- The output speed sensor detects output gear speed. The TCM judges the vehicle speed from the rotating speed of the output gear.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

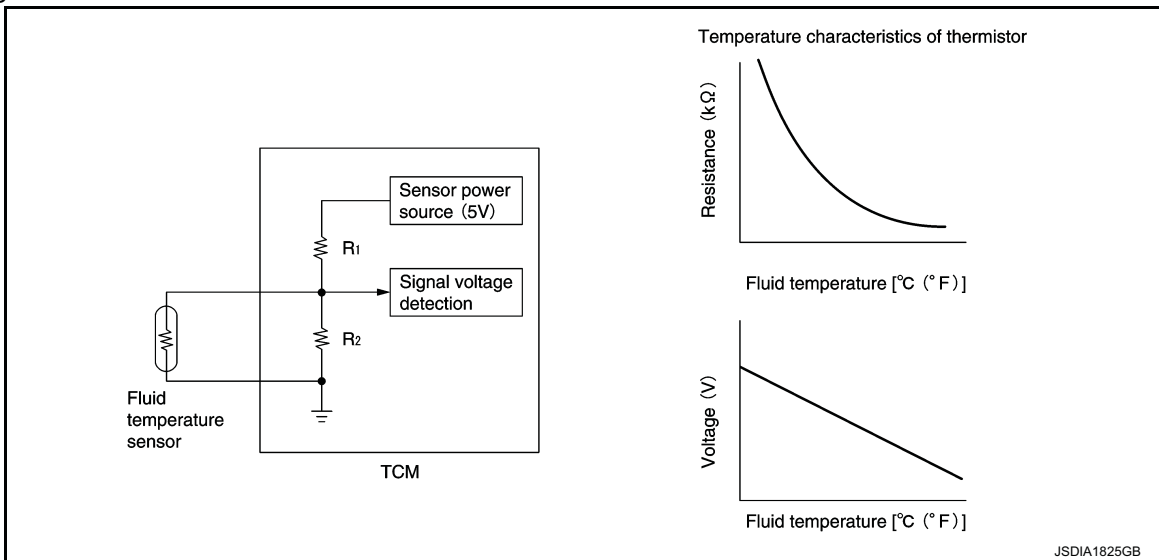
- The output speed sensor generates ON-OFF pulses (short waveform signal) in proportion to the rotating speed, such that the changing cycle is shorter when the rotating speed increases. The TCM judges the rotating speed from the changing cycle of this pulse signal.



A/T CONTROL SYSTEM : A/T Fluid Temperature Sensor

INFOID:000000006288158

- A/T fluid temperature sensor is installed to control valve.
- A/T fluid temperature sensor detects A/T fluid temperature in oil pan.
- The fluid temperature sensor uses a thermistor, and changes the signal voltage by converting changes in the A/T fluid temperature to a resistance value. The TCM judges the A/T fluid temperature based on that signal voltage.



A/T CONTROL SYSTEM : Low Clutch Solenoid Valve

INFOID:000000006288159

- The low clutch solenoid valve is installed to control valve.
- The low clutch solenoid valve adjusts the pressure to the low clutch engage pressure and disengage pressure. For information about the low clutch, refer to [TM-114, "A/T CONTROL SYSTEM : Component Description"](#).
- The low clutch solenoid valve utilizes a linear solenoid valve [N/H (normal high) type].

NOTE:

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

A/T CONTROL SYSTEM : 2-4 Brake Solenoid Valve

INFOID:000000006288160

- 2-4 brake solenoid valve is installed to control valve.
- The 2-4 brake solenoid valve adjusts the pressure of the 2-4 brake band engage and disengage pressures. For information about the 2-4 brake band, refer to [TM-114, "A/T CONTROL SYSTEM : Component Description"](#).
- The 2-4 brake solenoid valve utilizes a linear solenoid valve [N/L (normal low) type].

NOTE:

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

A/T CONTROL SYSTEM : Select Switch On-Off Solenoid Valve

INFOID:000000006288161

- The select switch ON-OFF solenoid valve is installed to control valve.
- The selector switch ON-OFF solenoid valve controls the switch valve that switches the oil pressure applied to the low & reverse brake and the reverse clutch.
- The selector switch ON-OFF solenoid valve utilizes an ON-OFF solenoid valve.

NOTE:

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

A/T CONTROL SYSTEM : High Clutch/Low & Reverse Brake Solenoid Valve

INFOID:000000006288162

- The high clutch/low & reverse brake solenoid valve is installed to control valve.
- The high clutch/low & reverse brake solenoid valve adjusts the pressure to the high clutch and low & reverse brake engage pressure and disengage pressure.
- The high clutch/low & reverse brake solenoid valve utilizes a linear solenoid valve [N/H (normal high) type].

NOTE:

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

A/T CONTROL SYSTEM : Torque Converter Clutch Solenoid Valve

INFOID:000000006288163

- The torque converter solenoid valve is installed to control valve.
- The torque converter solenoid valve controls the lock-up control valve. For information about the lock-up control valve, refer to [TM-114, "A/T CONTROL SYSTEM : Component Description"](#).
- The high clutch solenoid valve utilizes a linear solenoid valve [N/H (normal low) type].

NOTE:

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

A/T CONTROL SYSTEM : Line Pressure Solenoid Valve

INFOID:000000006288164

- The line pressure solenoid valve is installed to control valve.
- The line pressure solenoid valve controls the line pressure control valve. For information about the line pressure control valve, refer to [TM-114, "A/T CONTROL SYSTEM : Component Description"](#).
- The line pressure solenoid valve utilizes a linear solenoid valve [N/H (normal high) type].

NOTE:

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

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

A/T CONTROL SYSTEM : Accelerator Pedal Position Sensor

INFOID:000000006288165

- The accelerator pedal position sensor is installed above the accelerator pedal.
- The accelerator pedal position sensor detects the amount that the accelerator pedal is depressed.
- The accelerator pedal position sensor converts the amount of accelerator pedal depression into a voltage signal. The ECM judges the throttle position based on this voltage signal, and sends it via CAN communication to the TCM.

A/T CONTROL SYSTEM : Overdrive Control Switch

INFOID:000000006288166

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

A/T CONTROL SYSTEM : O/D OFF Indicator Lamp

INFOID:000000006288167

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

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

A/T SHIFT LOCK SYSTEM

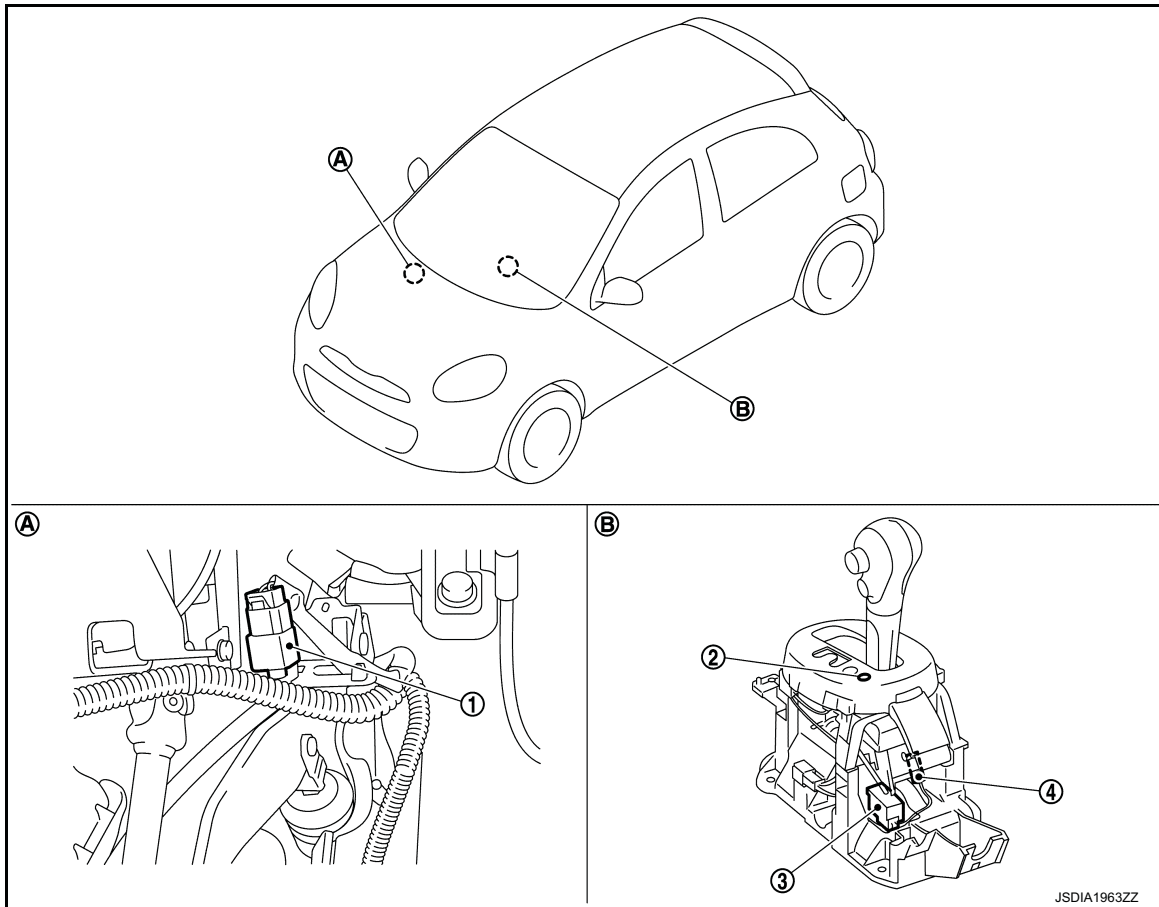
COMPONENT PARTS

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

A/T SHIFT LOCK SYSTEM : Component Parts Location

INFOID:000000006288168



1. Stop lamp switch	2. Shift lock release button	3. Shift lock solenoid
4. Park position switch		
A: Brake pedal, upper	B: A/T shift selector	

A/T SHIFT LOCK SYSTEM : Component Description

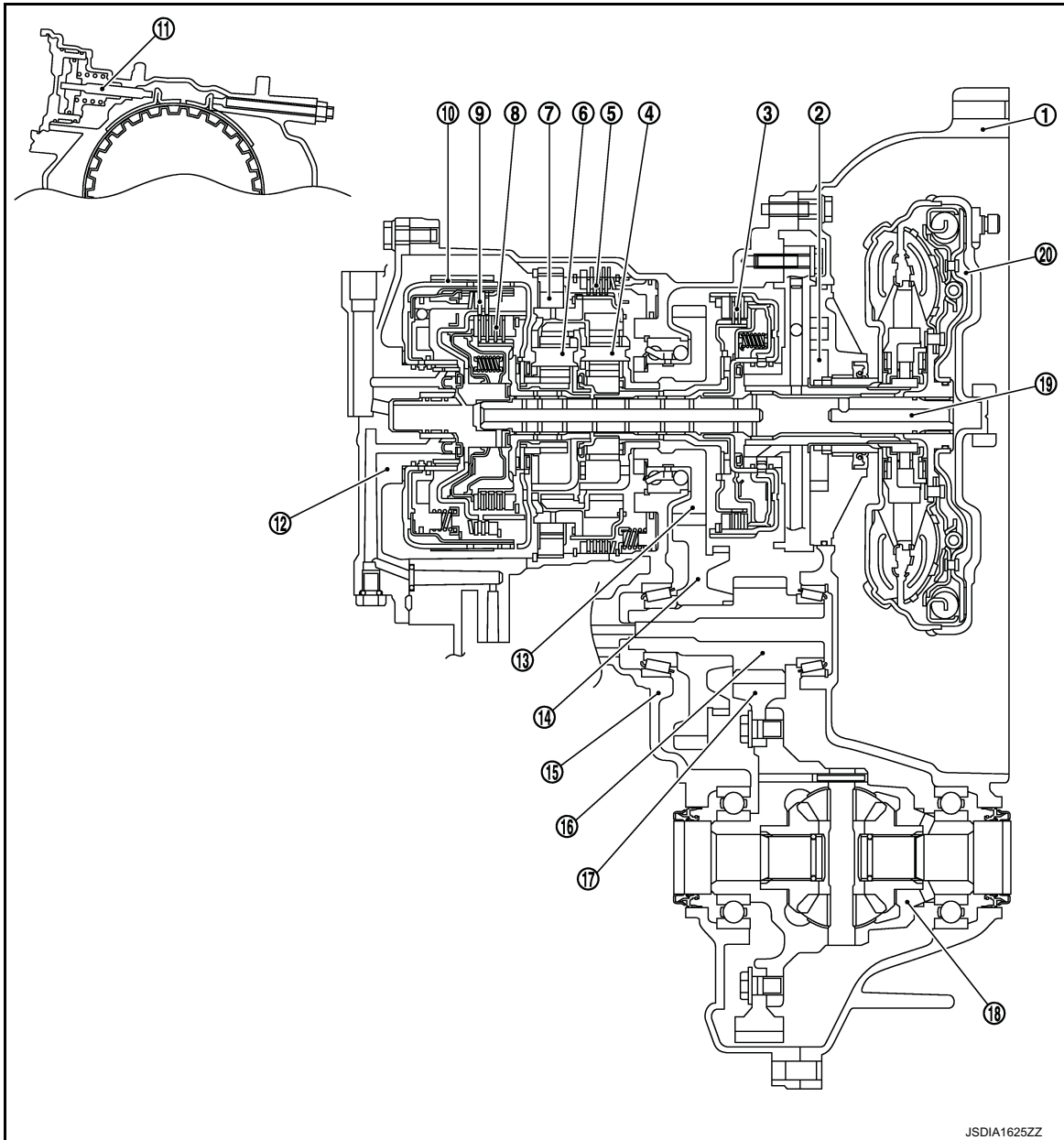
INFOID:000000006288169

Component	Function
Shift lock solenoid	It operates according to the signal from the stop lamp switch and moves the lock lever.
Lock lever	- Rotates according to shift lock solenoid activation and releases the shift lock. - 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 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	Forcibly releases the shift lock when pressed.
Stop lamp switch	- The stop lamp switch turns ON when the brake pedal is depressed. - When the stop lamp switch turns ON, the shift lock solenoid is energized.

STRUCTURE AND OPERATION

Cross-Sectional View

INFOID:000000006280529

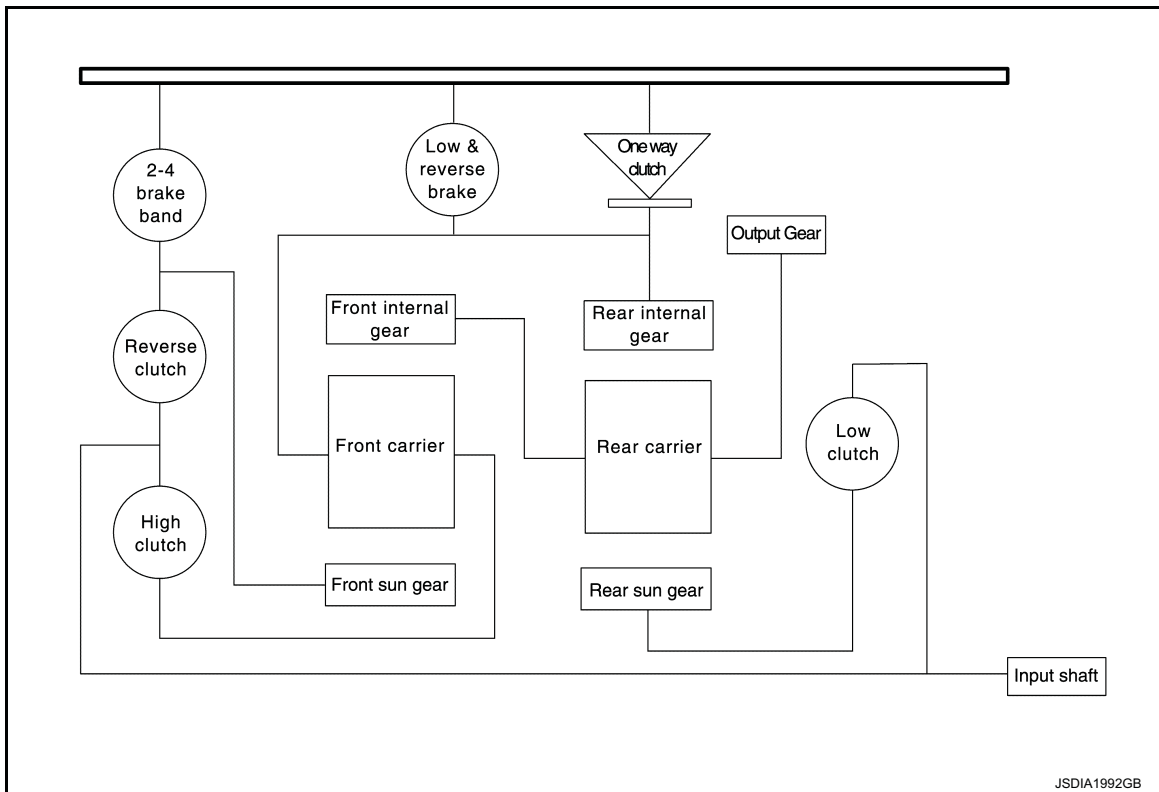


JSDIA1625ZZ

1. Converter housing	2. Oil pump	3. Low clutch
4. Rear planetary gear	5. Low & reverse brake	6. Front planetary gear
7. Low one-way clutch	8. High clutch	9. Reverse clutch
10. 2-4 brake band (Brake band)	11. Band servo piston	12. Side cover
13. Output gear	14. Idler gear	15. Transaxle case
16. Reduction pinion gear	17. Final gear	18. Differential case
19. Input shaft	20. Torque converter	

System Diagram

INFOID:0000000006280530



System Description

INFOID:000000006288175

DESCRIPTION

With the use of 2 sets of planetary gears, A/T enables 4-speed transmission for forward and 1-speed transmission for backward, depending on the combination of 3 sets of multiple-disc clutches, a set of multiple-disc brakes, a set of one-way clutches and a set of brake bands.

CLUTCH/BRAKE AND BAND CHART

×: Operated

Shift position		Clutch/brake					
		L/C	L&R/B	2-4/B (B/B)	H/C	R/C	OWC
P							
R			×			×	
N							
D	1GR	×					×
	2GR	×		×			
	3GR	×			×		
	4GR			×	×		
2		×					×
1		×		×			

*: Operates during “progressive” acceleration.

P POSITION (PARKING MECHANISM)

When the selector lever is shifted to the “P” position, the parking pole engages with the parking gear (integrated with the idler gear), fixing the output shaft in place.

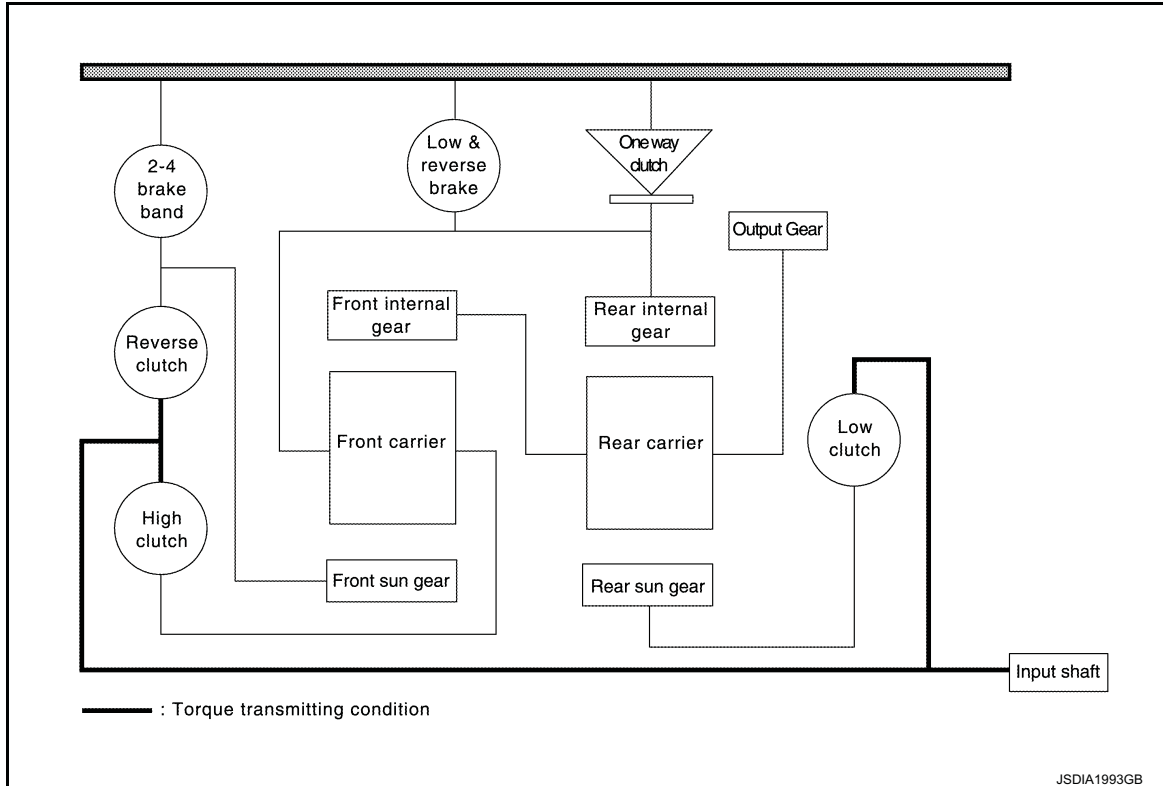
STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

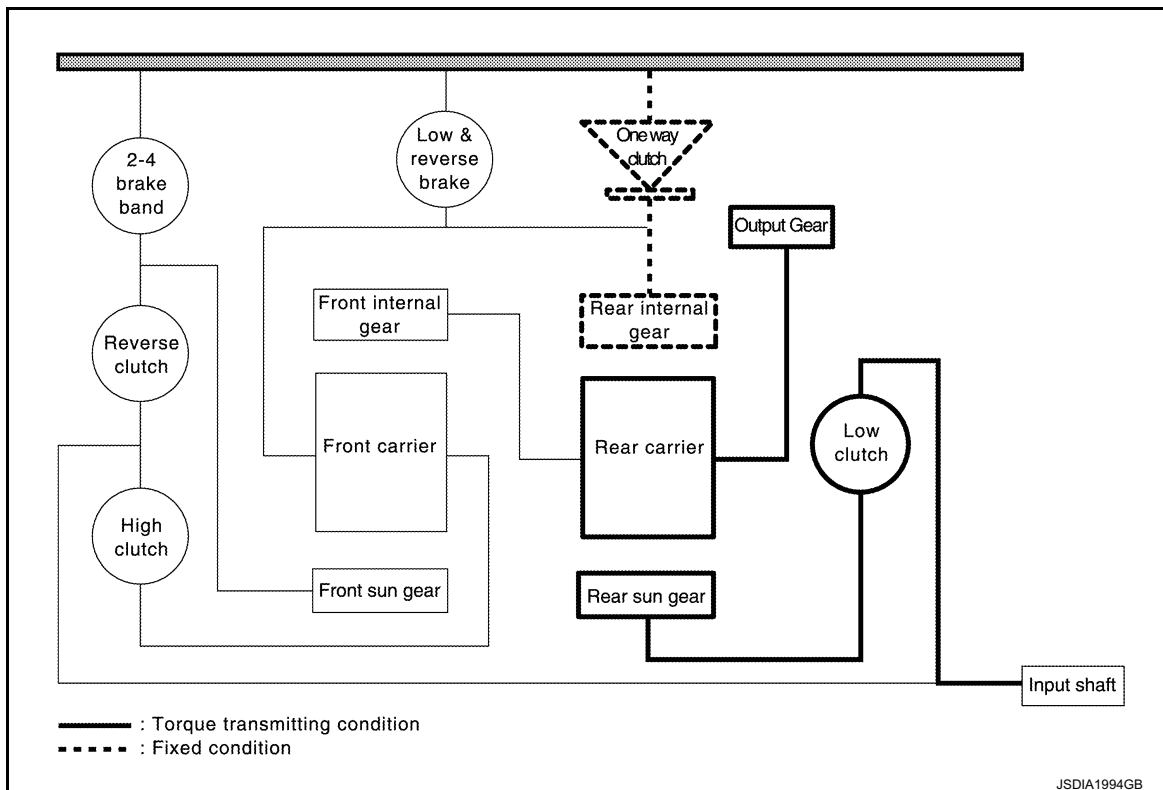
TRACTION TRANSMISSION OF EACH RANGE

"P" position, "N" position



The drive force from the input shaft is not transmitted because all clutches and bands are released.

"1" position, "D1" position



STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

- The drive force from the input shaft is transmitted via the engaged low clutch and turns the rear sun gear forwards. This causes the rear internal gear to turn backwards, however it is stopped by the one-way clutch. The rear gear turns forward and the force is transmitted to the output gear after being slowed down.

NOTE:

When coasting, because the front carrier is able to turn forward, engine braking does not occur.

- The status of each planetary gear is as shown below.

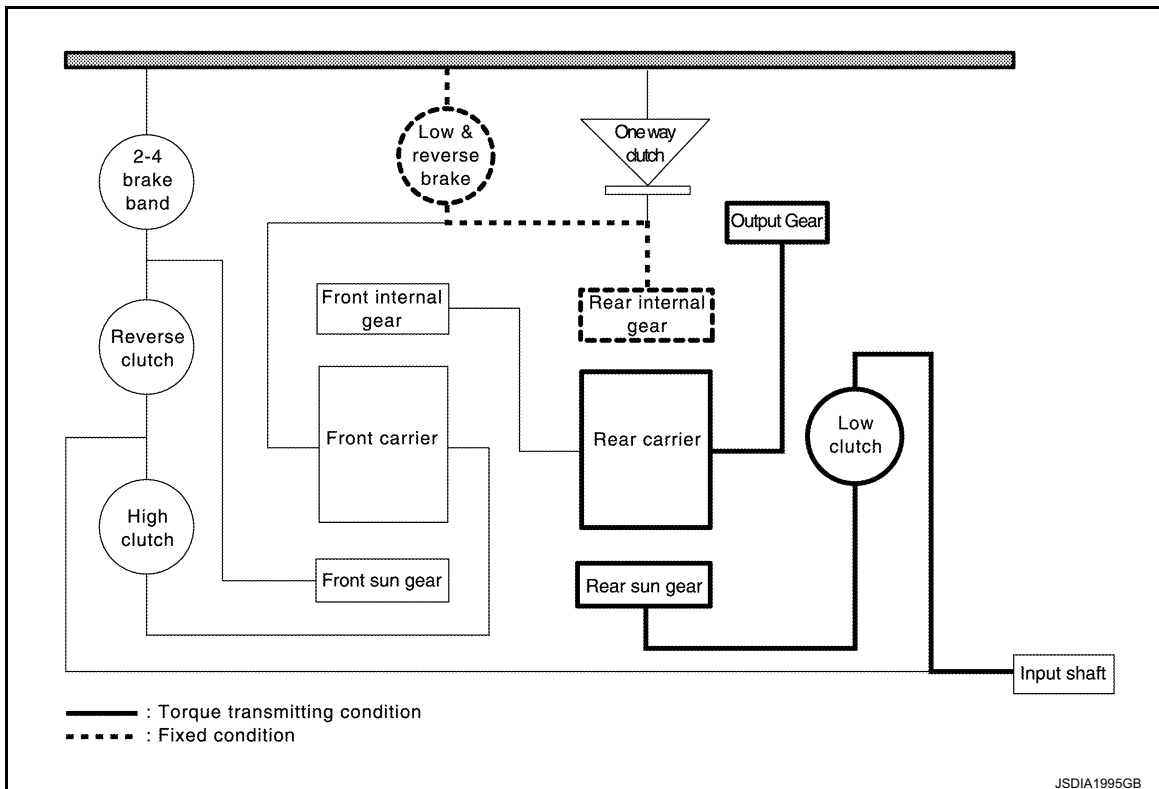
Front planetary gear

Name	Front sun gear	Front carrier	Front internal gear
Condition	—	Fixed	—
Rotating direction	Reverse	Stopped	Forward
Speed	—	—	—

Rear planetary gear

Name	Rear sun gear	Rear carrier	Rear internal gear
Condition	Input	Output	Fixed
Rotating direction	Forward	Forward	Stopped
Speed	Same speed as input shaft	Slower than rear sun gear	—

“1” position, “D1” position, engine brake



- The drive force from the input shaft is transmitted via the engaged low clutch and turns the rear sun gear forwards. This causes the rear internal gear to turn backwards, however it is stopped by the one-way clutch. The rear carrier turns forward and the force is transmitted to the output gear after being slowed down.
- The status of each planetary gear is as shown below.

Front planetary gear

Name	Front sun gear	Front carrier	Front internal gear
Condition	—	Fixed	—
Rotating direction	Reverse	Stopped	Forward
Speed	—	—	—

STRUCTURE AND OPERATION

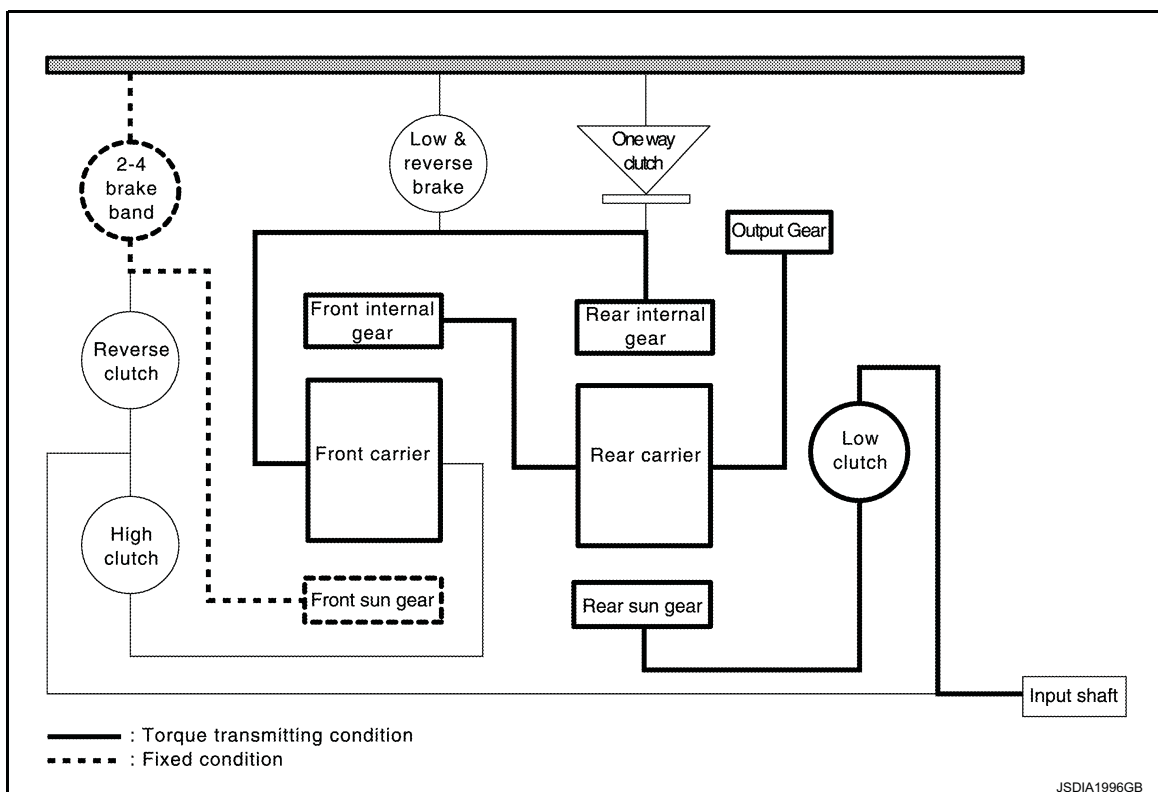
< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

Rear planetary gear

Name	Rear sun gear	Rear carrier	Rear internal gear
Condition	Input	Output	Fixed
Rotating direction	Forward	Forward	Stopped
Speed	Same speed as input shaft	Slower than rear sun gear	—

“2” position, “D2” position



- In 1st gear, the front sun gear is turning in reverse. However the 2-4 brake operates and fixes the front sun gear in place. When this happens, the front carrier turns in the forward direction. As a result, when the front internal gear transmits force to the output gear, it turns forward at a faster speed than when in 1st gear.
- Because the rear internal gear and front carrier are turning forward, the one-way clutch turns freely.
- The status of each planetary gear is as shown below.

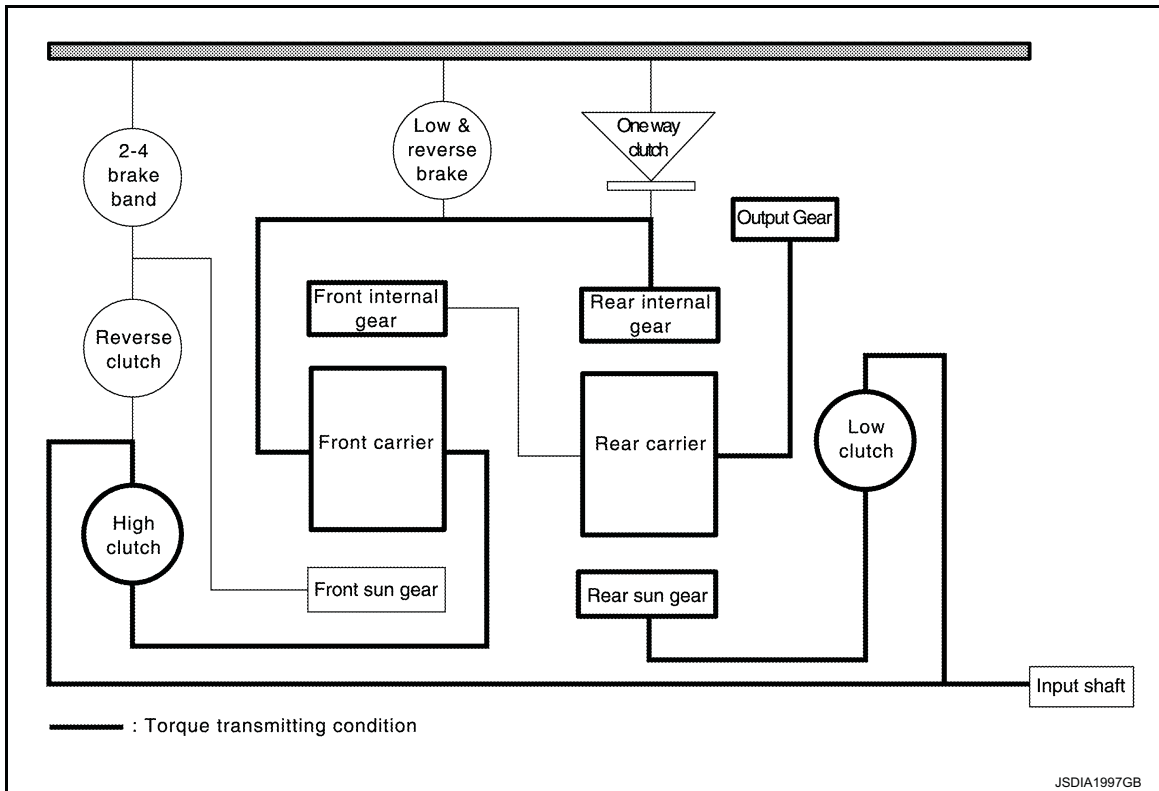
Front planetary gear

Name	Front sun gear	Front carrier	Front internal gear
Condition	Fixed	Output	Input
Rotating direction	Stopped	Forward	Forward
Speed	—	Slower than front internal gear	Same speed as rear carrier

Rear planetary gear

Name	Rear sun gear	Rear carrier	Rear internal gear
Condition	Input	Output	Input
Rotating direction	Forward	Forward	Forward
Speed	Same speed as input shaft	Slower than rear sun gear	Slower than rear carrier

“D3” position



- The low clutch and high clutch that are connected to the input shaft are engaged, creating a single power transmitting mechanism and rotating while engaged.
- The status of each planetary gear is as shown below.

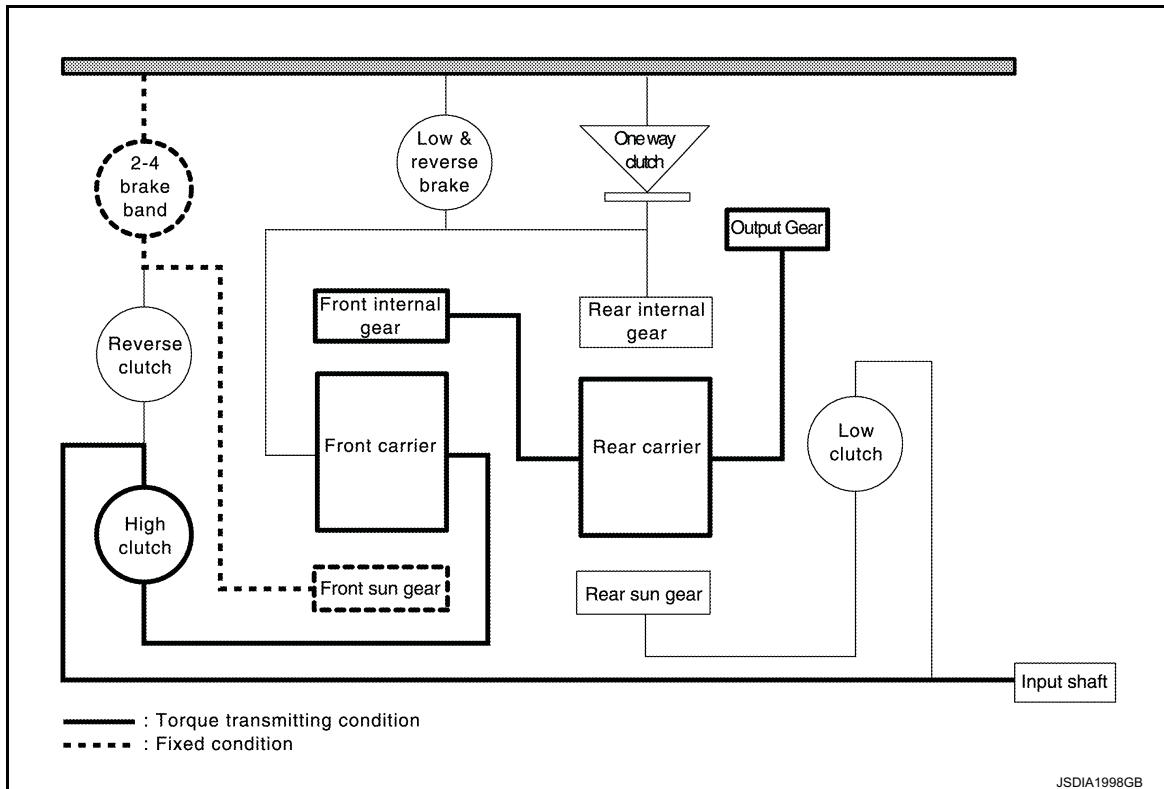
Front planetary gear

Name	Front sun gear	Front carrier	Front internal gear
Condition	—	Input	—
Rotating direction	Forward	Forward	Forward
Speed	Same speed as input shaft	Same speed as input shaft	Same speed as input shaft

Rear planetary gear

Name	Rear sun gear	Rear carrier	Rear internal gear
Condition	Input	Output	—
Rotating direction	Forward	Forward	Forward
Speed	Same speed as input shaft	Same speed as input shaft	Same speed as input shaft

“D4” position



- The drive force input from the input shaft is transmitted by forward rotation of the engaged high clutch to the front carrier. Operation of the 2-4 brake fastens the front sun gear in place, causing the front carrier to turn forward. As a result, the front internal gear turns faster, the rear carrier turns forward, and force is transmitted to the output gear.
- The status of each planetary gear is as shown below.

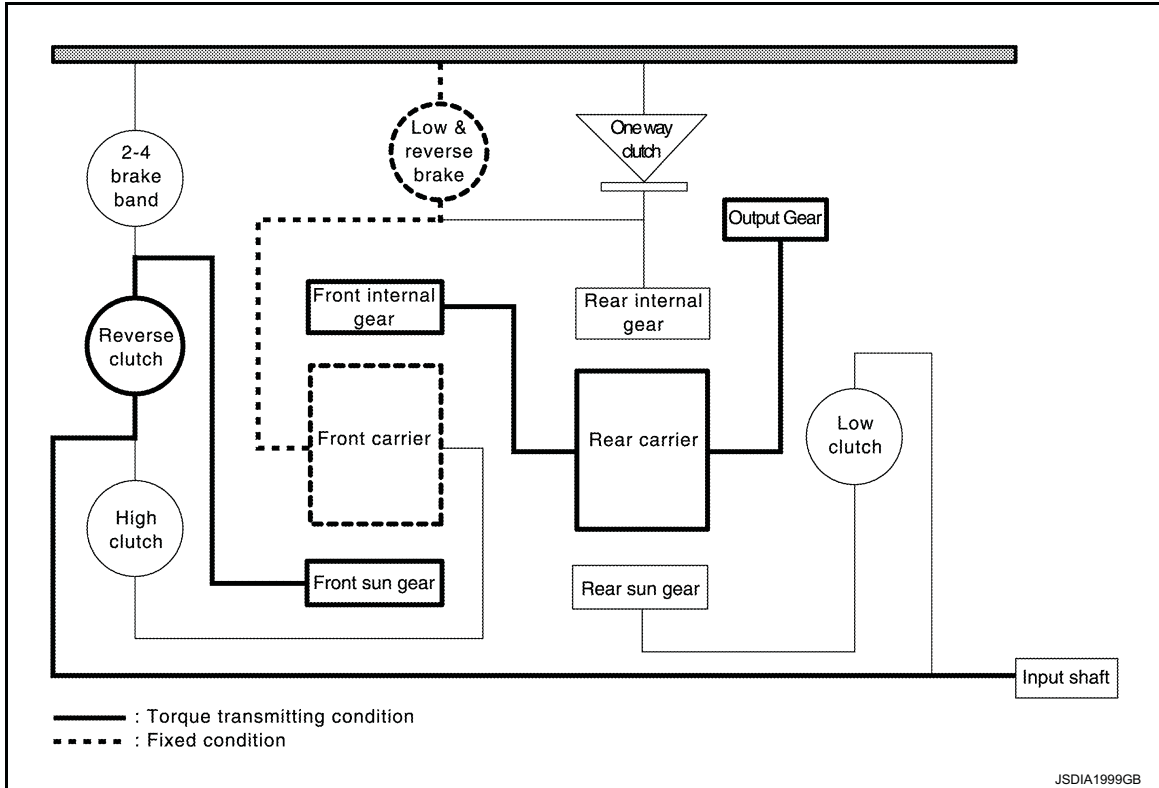
Front planetary gear

Name	Front sun gear	Front carrier	Front internal gear
Condition	Fixed	Input	Output
Rotating direction	Stopped	Forward	Forward
Speed	—	Same speed as input shaft	Faster than front carrier

Rear planetary gear

Name	Rear sun gear	Rear carrier	Rear internal gear
Condition	—	Output	Input
Rotating direction	Forward	Forward	Forward
Speed	Faster than input shaft	Faster than input shaft	Same speed as input shaft

“R” position



- The drive force from the input shaft is transmitted by forward rotation of the engaged reverse clutch to the front sun gear. Engagement of the low & reverse brake fastens the front carrier in place, causing the front internal gear to turn in reverse and transmitting force by reverse rotation to the output gear.
- The status of each planetary gear is as shown below.

Front planetary gear

Name	Front sun gear	Front carrier	Front internal gear
Condition	Input	Fixed	Output
Rotating direction	Forward	Stopped	Reverse
Speed	Same speed as input shaft	—	Slower than input shaft

Rear planetary gear

Name	Rear sun gear	Rear carrier	Rear internal gear
Condition	—	Fixed	Fixed
Rotating direction	Reverse	Reverse	Stopped
Speed	Faster than input shaft	Slower than input shaft	—

Component Description

INFOID:000000006288176

Name (abbreviation)	FUNCTION
Torque converter	Amplifies the drive force from the engine and transmits it to the transmission input shaft.
Oil pump	Driven by the engine, this component supplies oil to the torque converter, control valve assembly, and lubricated parts.
4-point gear	Transmits drive force from the transmission mechanism to the output gear, idler gear, reduction gear, and final gear.
Low clutch (L/C)	Connects the rear sun gear and input shaft
High clutch (H/C)	Connects the front carrier and input shaft
Reverse clutch (R/C)	Connects the front sun gear and input shaft
Low & reverse brake (L&R/B)	Fastens the rear internal gear and front carrier in place.
2-4 brake (2-4/B)	Brake band that fastens the front sun gear in place.

STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

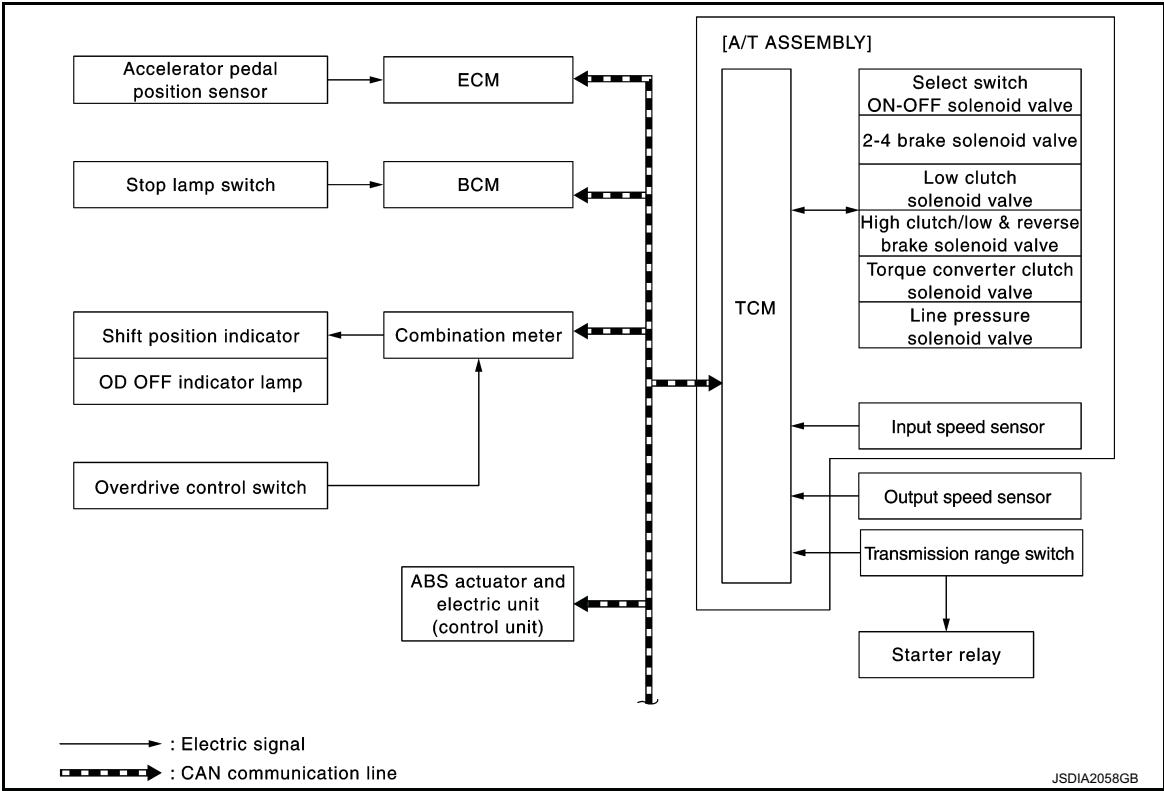
[4AT: RE4F03C]

Name (abbreviation)	FUNCTION
One-way clutch (OWC)	This clutch prevents reverse turning of the front carrier and rear internal gear. It operates not hydraulically but mechanically.
Planetary gear	Transmits drive force to various positions by engagement and release of the clutches and bands.

SYSTEM
A/T CONTROL SYSTEM

A/T CONTROL SYSTEM : System Diagram

INFOID:000000006280533



A/T CONTROL SYSTEM : System Description

INFOID:000000006280534

SYSTEM DESCRIPTION

- The A/T senses vehicle operating conditions through various sensors or signals. It always controls the optimum shift position and reduces shifting and lock-up shocks.
- Receives input signals transmitted from various switches and sensors.
- Determines required line pressure, shifting point, lock-up operation, etc.
- Transmits required output signals to the respective solenoids.

INPUT/OUTPUT SIGNAL CHART

Sensor (or signal)	TCM function	Actuator
Engine speed signal Engine torque signal Accelerator pedal position signal Closed throttle position signal Stop lamp switch signal Transmission range switch O/D switch signal A/T fluid temperature sensor Input speed sensor Output speed sensor Vehicle speed signal	Line pressure control (TM-133) Shift change control (TM-135) Shift pattern control (TM-136) Lock-up control (TM-137) Fail-safe control (TM-130) Self-diagnosis (TM-143) CONSULT communication line (TM-143) CAN communication line (TM-199)	Line pressure solenoid valve Torque converter clutch solenoid valve Low clutch solenoid valve 2-4 brake solenoid valve High clutch/low & reverse brake solenoid valve Select switch ON-OFF solenoid valve Shift position indicator O/D OFF indicator lamp

INPUT/OUTPUT SIGNAL OF TCM

SYSTEM

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

Control item		Line pressure control	Shift change control	Shift pattern control	Lock-up control	Fail-safe function*
Input	Engine speed signal (CAN communication line)	X	X	X	X	X
	Engine torque signal (CAN communication line)	X	X			
	Accelerator pedal position signal (CAN communication line)	X	X	X	X	X
	Closed throttle position signal (CAN communication line)	X		X	X	X
	Stop lamp switch signal (CAN communication line)	X	X		X	X
	Transmission range switch	X	X	X	X	X
	O/D switch signal (CAN communication line)		X			
	A/T fluid temperature sensor	X	X	X	X	X
	Input speed sensor	X	X		X	X
	Output pressure sensor	X	X	X	X	X
Output	Line pressure solenoid valve	X		X		X
	Torque converter clutch solenoid valve			X	X	X
	Low clutch solenoid valve		X			X
	2-4 brake solenoid valve		X			X
	High clutch/low & reverse brake solenoid valve		X			X
	Select switch ON-OFF solenoid valve		X			X
	Shift position indicator (CAN communication line)		X			
	O/D OFF indicator lamp (CAN communication line)			X		

*: If these input and output signals are different, the TCM triggers the fail-safe function.

A/T CONTROL SYSTEM : Fail-Safe

INFOID:000000006280535

TCM is equipped with an electrical fail-safe mode. The operation can be continued even if the signal circuit of the main electronically controlled input/output parts are damaged.

If the vehicle shows following behaviors including “poor acceleration”, a malfunction of the applicable system is detected by TCM and the vehicle may be in a fail-safe mode. At this time, check the DTC code and perform inspection and repair according to the malfunction diagnosis procedures.

FAIL-SAFE FUNCTION

DTC	Vehicle behavior	Vehicle condition
P0705 P0706	• “D” position (The shifting can be performed) • “R” position can be performed • Back-up lamp is OFF • Large shift shock • Lock-up is prohibited • Slip lock-up is prohibited	—
P0713	The gear is fixed in a position of error detection	During driving
	Locks in 3GR	Other than the above

SYSTEM

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

DTC	Vehicle behavior	Vehicle condition
P0717 P0720	- The gear is fixed in a position of error detection - Lock-up is prohibited - Slip lock-up is prohibited	During driving
	- Locks in 3GR - Lock-up is prohibited - Slip lock-up is prohibited	Other than the above
P0731	- Locks in 2GR or 3GR - Lock-up is prohibited	—
P0732	- Locks in 3GR - Lock-up is prohibited	—
P0733 P0734	- The gear is fixed in neutral until vehicle speed decreases to below 5 km/h (3 MPH) and in 2GR when reaching 5 km/h (3 MPH) or more - Lock-up is prohibited	—
P0740 P0743 P0744	Lock-up is prohibited	—
P0973 P0974	- The gear is fixed in neutral until vehicle speed decreases to below 5 km/h (3 MPH) and in 2GR when reaching 5 km/h (3 MPH) or more - Lock-up is prohibited	—
P1735	Locks in 2GR	—
P1736	Locks in 3GR	—
P1737 P1738	The gear is fixed in neutral until vehicle speed decreases to below 5 km/h (3 MPH) and in 2GR when reaching 5 km/h (3 MPH) or more	—
P1744	Slip lock-up is prohibited	—
P17A1 P17A2 P17A3	- Locks in 4GR - Lock-up is prohibited	—
P17A4	- The gear is fixed in neutral until vehicle speed decreases to below 5 km/h (3 MPH) and in 2GR or 3GR when reaching 5 km/h (3 MPH) or more - Lock-up is prohibited	—
P17AA P17AB	- Locks in 3GR - Lock-up is prohibited	—
P17AD P17AE	- The gear is fixed in neutral until vehicle speed decreases to below 5 km/h (3 MPH) and in 3GR when reaching 5 km/h (3 MPH) or more - Lock-up is prohibited	—
P17B0 P17B1	- Locks in 3GR - Lock-up is prohibited	—
U0073	- The gear is fixed in 3GR until vehicle speed decreases to below 5 km/h (3 MPH) and in 2GR when reaching 5 km/h (3 MPH) or more - Lock-up is prohibited - Slip lock-up is prohibited	—
U0100	- Locks in 3GR - Lock-up is prohibited - Slip lock-up is prohibited	During driving
	- Locks in 2GR - Lock-up is prohibited - Slip lock-up is prohibited	Other than the above
U0155	O/D OFF prohibited	—

A

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SYSTEM

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

DTC	Vehicle behavior	Vehicle condition
U0300	- Locks in 3GR - Lock-up is prohibited - Slip lock-up is prohibited	During driving
	- Locks in 2GR - Lock-up is prohibited - Slip lock-up is prohibited	Other than the above

A/T CONTROL SYSTEM : Protection Control

INFOID:000000006280536

The TCM becomes the protection control status temporarily to protect the safety when the safety of TCM and transmission is lost. It automatically returns to the normal status if the safety is secured.

The TCM is equipped with the following protection control.

REVERSE INHIBIT CONTROL

Intercepts the torque transmission and shifts to the neutral status if the selector lever is shifted to “R” position while the vehicle moves forward at the vehicle speed 10 km/h (7 MPH) or more.

Operation detection conditions	- Vehicle speed: 10 km/h (7 MPH) or more (when driving forward) - Selector lever is shifted to “R” position.
Control when activated	Neutral
Recovery condition	- Vehicle speed: 7 km/h (4 MPH) or less and - Engine speed: 2,800 rpm or less
Vehicle behavior	- The torque transmission cannot be performed - There is a shock just before a vehicle stop

TCM HIGH TEMPERATURE PROTECTION CONTROL

When the ATF becomes hot, the shifting pattern is changed for preventing fluid temperature rise.

Operation detection conditions	ATF temp.: 125°C (257°F) or more
Control when activated	Change the shift pattern so that higher upshift may be achieved.
Recovery condition	ATF temp.: 119°C (246°F) or less
Vehicle behavior	Upshifts at a higher vehicle speed than usual.

TORQUE-DOWN CONTROL WHEN CONTINUOUS STALL OCCURS IN D POSITION

If the accelerator pedal is continually depressed for a certain length of time when the selector lever is in the “D” position and the vehicle is parked, the engine output is limited for protecting the transaxle.

Operation detection conditions	The following conditions continue for 20 seconds or more - Selector lever is in the “D” position or “R” position and the vehicle is stopped and - Engine speed: 2,300 – 2,850 rpm
Control when activated	Limits engine output
Recovery condition	- Selector lever is shifted to a position other than “D” or “R” or - The accelerator pedal is released
Vehicle behavior	- Decreased starting performance - Engine speed hunching when the accelerator pedal is depressed

O/D PROHIBIT CONTROL AT LOW TEMPERATURES

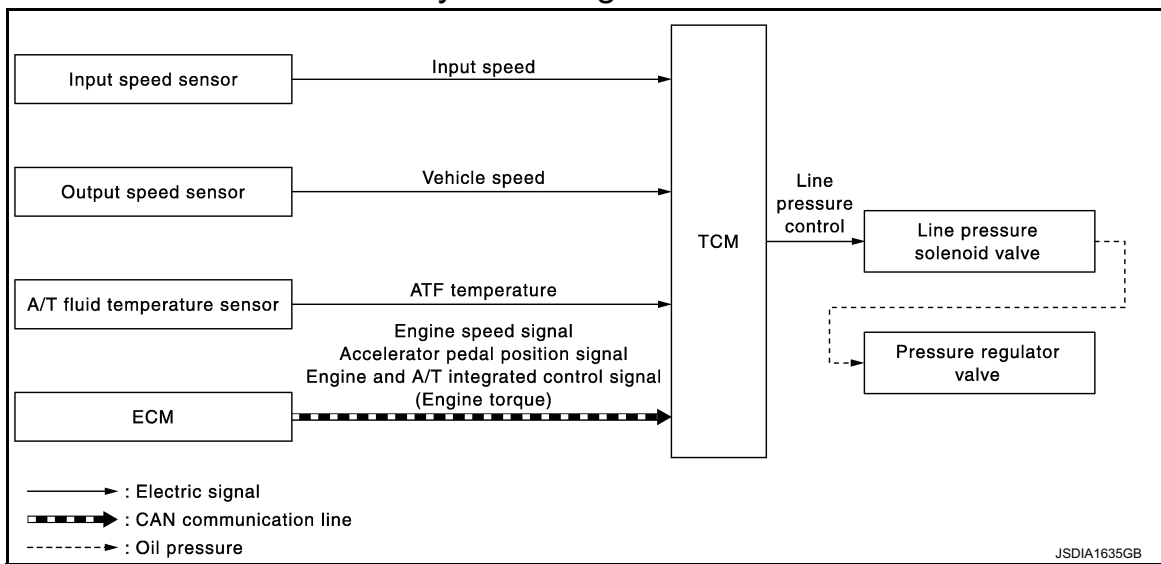
When the ATF temperature is low immediately after engine start, shifting to 4GR is prohibited for protecting the transaxle and allowing the exhaust gas characteristics to warm up quickly.

Operation detection conditions	- ATF temp.: 0°C (32°F) or less or - ATF temp.: less than 40°C (104°F) (when IGN is ON) - Vehicle speed: 65 km/h (40 MPH) or less 3GR
Control when activated	4GR prohibited
Recovery condition	Less than 130 seconds following IGN ON - ATF temp.: 40°C (104°F) or more or - Vehicle speed: 65 km/h or higher After 130 seconds following IGN ON - ATF temp.: 0°C (32°F) or more
Vehicle behavior	Shifts up only as far as 3GR.

LINE PRESSURE CONTROL

LINE PRESSURE CONTROL : System Diagram

INFOID:000000006280537



LINE PRESSURE CONTROL : System Description

INFOID:000000006280538

- When an engine and A/T integrated control signal (engine torque) equivalent to the engine drive force is transmitted from the ECM to the TCM, the TCM controls the line pressure solenoid valve. This line pressure solenoid controls the pressure regulator valve as the signal pressure and adjusts the pressure of the operating oil discharged from the oil pump to the line pressure most appropriate to the driving state.
- The TCM has stored in memory a number of patterns for the optimum line pressure characteristic for the driving state.
- In order to obtain the most appropriate line pressure characteristic to meet the current driving state, the TCM controls the line pressure solenoid current value and thus controls the line pressure.

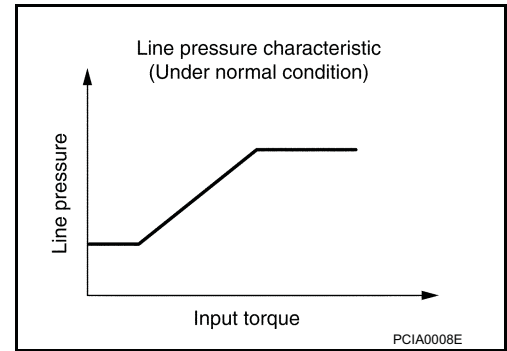
Normal Control

SYSTEM

< SYSTEM DESCRIPTION >

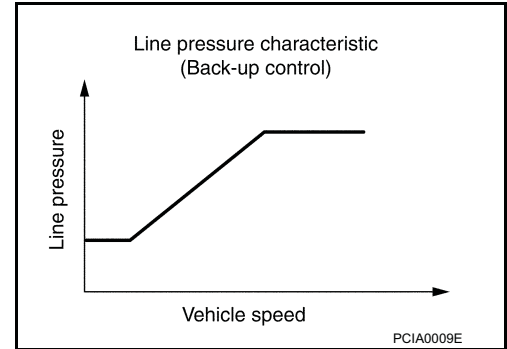
[4AT: RE4F03C]

Each clutch is adjusted to the necessary pressure to match the engine drive force.



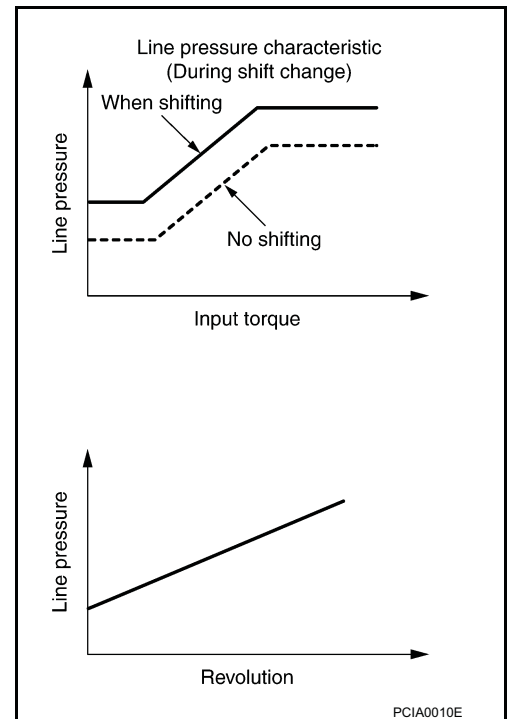
Back-up Control (Engine Brake)

When the select operation is performed during driving and the A/T is shifted down, the line pressure is set according to the vehicle speed.



During Shift Change

The necessary and adequate line pressure for shift change is set. For this reason, line pressure pattern setting corresponds to engine torque and gearshift selection. Also, line pressure characteristic corresponds to engine speed, during engine brake operation.



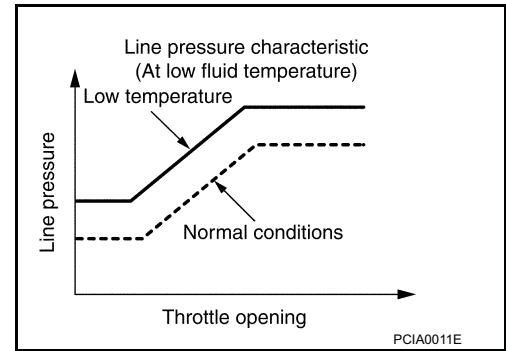
At Low Fluid Temperature

SYSTEM

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

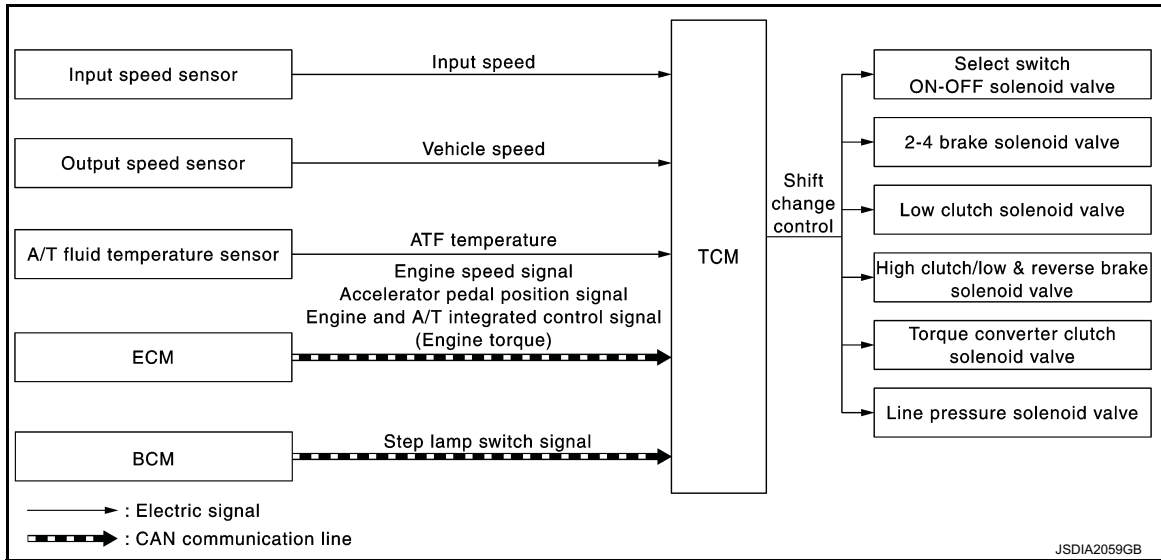
When the A/T fluid temperature drops below the prescribed temperature, in order to speed up the action of each friction element, the line pressure is set higher than the normal line pressure characteristic.



SHIFT CHANGE CONTROL

SHIFT CHANGE CONTROL : System Diagram

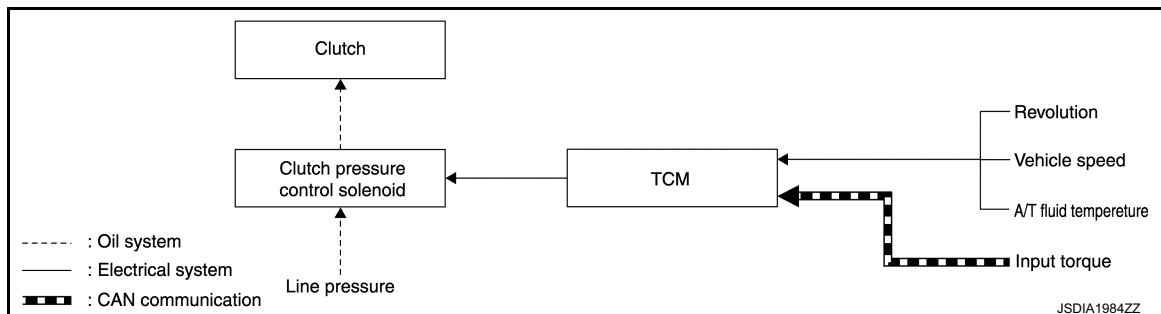
INFOID:000000006280539



SHIFT CHANGE CONTROL : System Description

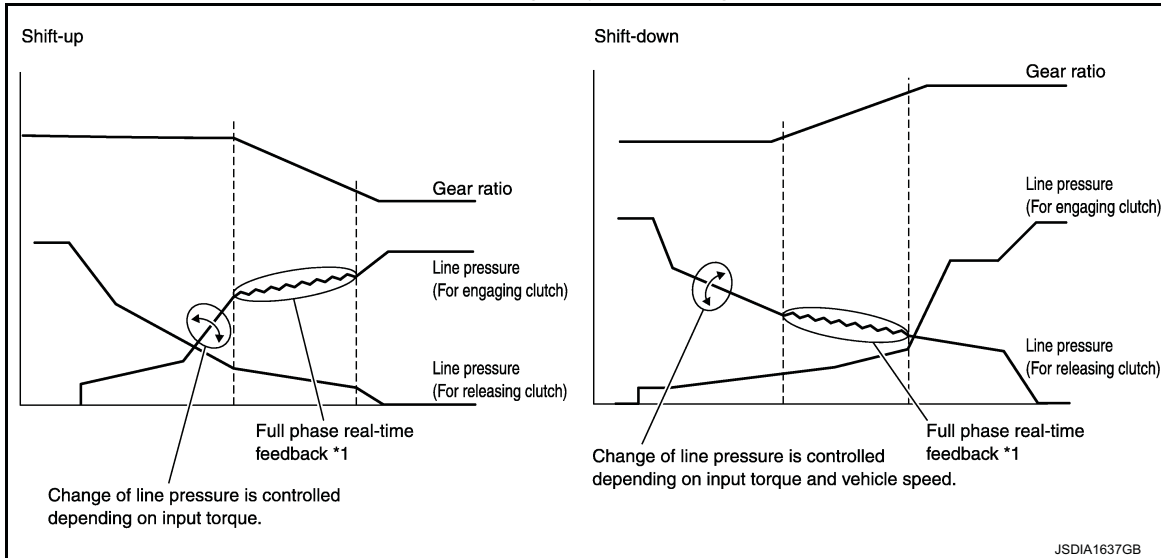
INFOID:000000006280540

The clutch pressure control solenoid is controlled by the signals from the switches and sensors. Thus, the clutch pressure is adjusted to be appropriate to the engine load state and vehicle driving state. It becomes possible to finely control the clutch hydraulic pressure with high precision and a smoother shift change characteristic is attained.



The clutch is controlled with the optimum timing and oil pressure by the engine speed, engine torque information, etc.

Shift Change System Diagram

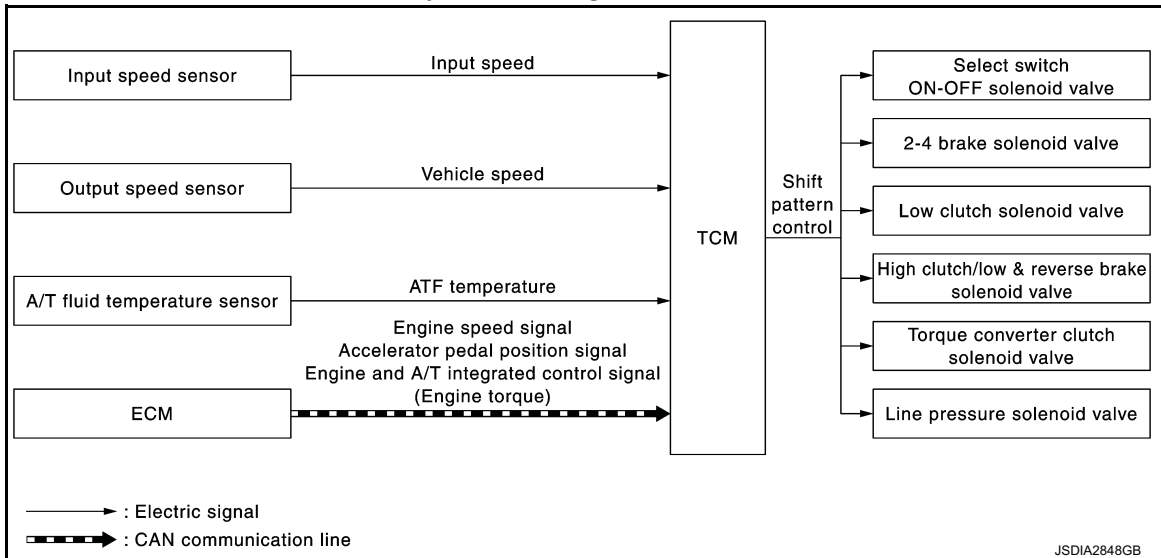


*1: Full phase real-time feedback control monitors movement of gear ratio at gear change, and controls oil pressure in real-time to achieve the best gear ratio.

SHIFT PATTERN CONTROL

SHIFT PATTERN CONTROL : System Diagram

INFOID:000000006280541



SHIFT PATTERN CONTROL : System Description

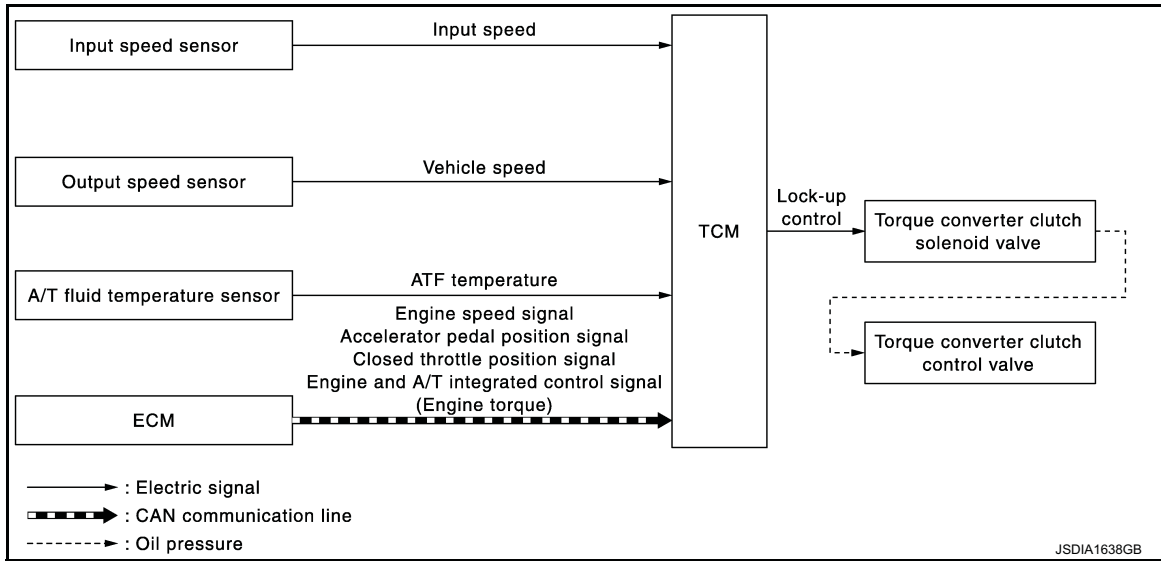
INFOID:000000006280542

Shift pattern control automatically selects the shift pattern (such as road environment and driving style) suitable for the various situations so as to allow the vehicle to be driven efficiently and smoothly.

LOCK-UP CONTROL

LOCK-UP CONTROL : System Diagram

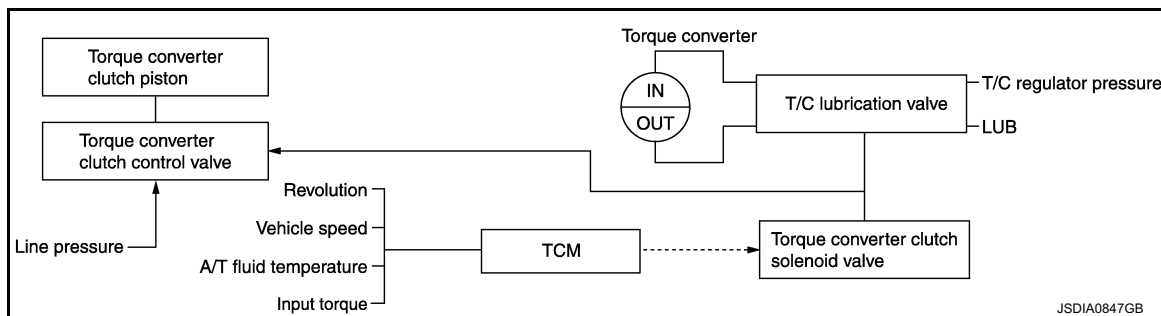
INFOID:000000006280543



LOCK-UP CONTROL : System Description

INFOID:000000006280544

- 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, and the torque converter clutch control valve engages or releases the torque converter clutch piston.



Lock-up Operation Condition Table

Selector lever	"D" position		
Gear position	4	3	2
Lock-up	×	×	—
Slip lock-up	×	×	×

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 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 and lock-up apply pressure is generated. In this way, the torque converter clutch piston is pressed and coupled.

Smooth Lock-up Control

When shifting from the lock-up released state to the lock-up applied state, the current output to the torque converter clutch solenoid is controlled with the TCM. In this way, when shifting to the lock-up applied state, the torque converter clutch is temporarily set to the half-clutched state to reduce the shock.

Half-clutched State

- The current output from the TCM to the torque converter clutch solenoid is varied to steadily increase the torque converter clutch solenoid pressure.
In this way, the lock-up apply pressure gradually rises and while the torque converter clutch piston is put into half-clutched states, the torque converter clutch piston operating pressure is increased and the coupling is completed smoothly.

Slip Lock-up Control

- In the slip region, the torque converter clutch solenoid current is controlled with the TCM to put it into the half-clutched state. This absorbs the engine torque fluctuation and lock-up operates from low speed.
This raises the fuel efficiency for 2GR, 3GR, and 4GR.

SHIFT LOCK SYSTEM

SHIFT LOCK SYSTEM : System Description

INFOID:000000006280545

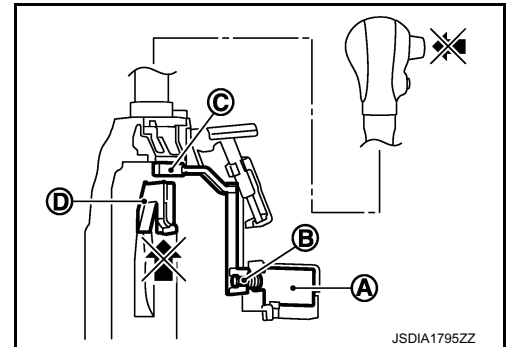
- Shift lock prevents an unintentional start of the vehicle that may be caused by an incorrect operation while selector lever is in the "P" position.
- Selector lever can be shifted from the "P" position to another position when the following conditions are satisfied.
 - Ignition switch is ON.
 - Stop lamp switch is ON (brake pedal is depressed)
 - Selector lever knob button is pressed

SHIFT LOCK OPERATION AT "P" POSITION

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

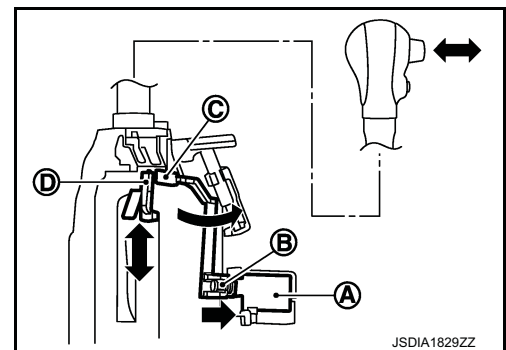
The shift lock solenoid (A) is turned OFF (not energized) and the solenoid rod (B) is extended with the spring when the brake pedal is not depressed (no selector operation allowed) with the ignition switch ON.

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 Detent rod (D). For these reasons, the selector lever cannot be shifted from the "P" position.



When Brake Pedal Is Depressed (Shift Operation Allowed)

The shift lock solenoid (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 Detent rod (D) can be moved. For these reasons, the selector lever can be shifted to other positions.



"P" POSITION HOLD MECHANISM (IGNITION SWITCH LOCK)

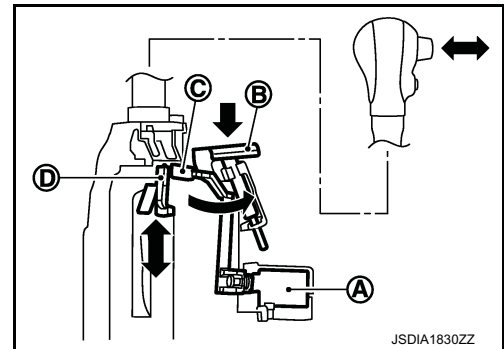
SYSTEM

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

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.

D : Detent rod



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 SYSTEM

KEY LOCK SYSTEM : System Description

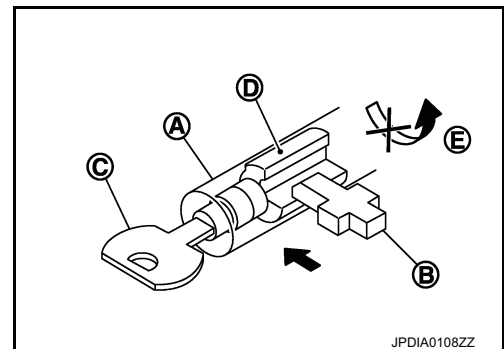
INFOID:000000006280546

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.

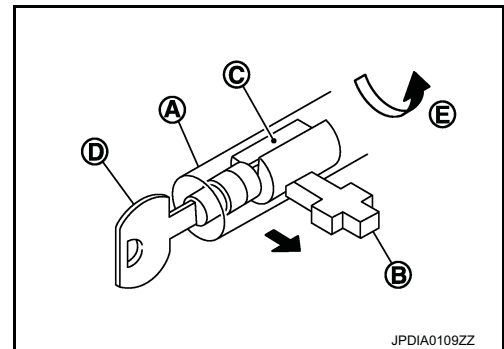
Key Lock Status

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).



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).



ON BOARD DIAGNOSTIC (OBD) SYSTEM

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

ON BOARD DIAGNOSTIC (OBD) SYSTEM

Description

INFOID:000000006314398

- This system is applied only to HR15DE.
- This is an on board diagnosis system which records diagnosis information related to the exhaust gases. It detects malfunctions related to sensors and actuators. The malfunctions are indicated by means of the malfunction indicator lamp (MIL) and are stored as DTC in the ECU memory. The diagnosis information can be checked using a diagnosis tool (GST: Generic Scan Tool).

OBD FUNCTION

INFOID:000000006314399

The GST is connected to the diagnosis connector on the vehicle and communicates with the on board control units to perform diagnosis. The diagnosis connector is the same as for CONSULT. Refer to [GI-59, "CONSULT Function and System Application*1"](#).

DIAGNOSIS SYSTEM (TCM)

DIAGNOSIS DESCRIPTION

DIAGNOSIS DESCRIPTION : 1 Trip Detection Diagnosis and 2 Trip Detection Diagnosis

INFOID:000000006314400

NOTE:

"Start the engine and turn OFF the ignition switch after warm-up." This is defined as 1 trip.

1 TRIP DETECTION DIAGNOSIS

When initial malfunction is detected, TCM memorizes DTC. In these diagnoses, some illuminate MIL and some do not. Refer to [TM-159, "DTC Index"](#).

2 TRIP DETECTION DIAGNOSIS

When initial malfunction is detected, TCM memorizes DTC of the 1st trip. MIL does not light at this stage. <1 trip>

If the same malfunction is detected again in next driving, TCM memorizes DTC. When DTC is memorized, MIL lights. <2 trip>

"Trip" of the "2 trip detection diagnosis" indicates the driving mode that executes self-diagnosis during driving.

×: Check possible —: Check not possible

Item	DTC at the 1st trip		DTC		MIL	
	Display at the 1st trip	Display at the 2nd trip	Display at the 1st trip	Display at the 2nd trip	Illumination at the 1st trip	Illumination at the 2nd trip
1 trip detection diagnosis (Refer to TM-159, "DTC Index")	—	—	×	—	×	—
2 trip detection diagnosis (Refer to TM-159, "DTC Index")	×	—	—	×	—	×

DIAGNOSIS DESCRIPTION : DTC and DTC of 1st Trip

INFOID:000000006314401

2 TRIP DETECTION DIAGNOSIS THAT ILLUMINATES MIL

- The DTC number of the 1st trip is the same as the DTC number.
- When a malfunction is detected at the 1st trip, TCM memorizes DTC of the 1st trip. MIL does not light at this stage. If the same malfunction is not detected at the 2nd trip (conforming to necessary driving conditions), DTC at the 1st trip is erased from TCM. If the same malfunction is detected at the 2nd trip, TCM memorizes DTC and MIL lights at the same time.
- The DTC of the 1st trip is specified in Service \$01 of SAE J1979/ISO 15031-5. Since detection of DTC at the 1st trip does not illuminate MIL, warning for a problem is not given to a driver.
- For procedure to delete DTC and 1st trip DTC from TCM, refer to [TM-143, "CONSULT Function \(TRANSMISSION\)"](#).
- If DTC of the 1st trip is detected, it is necessary to check the cause according to the "Diagnosis flow". Refer to [TM-181, "Diagnosis Flow"](#).

DIAGNOSIS DESCRIPTION : Malfunction Indicator Lamp (MIL)

INFOID:000000006314402

- TCM not only detects DTC, but also sends the MIL signal to ECM through CAN communication. ECM sends the MIL signal to the combination meter through CAN communication according to the signal, and illuminates MIL.
- For malfunction indicator lamp (MIL) description, refer to [EC4-46, "DIAGNOSIS DESCRIPTION : Malfunction Indicator \(MI\)"](#) (HR15DE).

DIAGNOSIS DESCRIPTION : Counter System

INFOID:000000006314403

RELATION BETWEEN DTC AT 1ST TRIP/DTC/MIL AND DRIVING CONDITIONS (FOR 2 TRIP DETECTION DIAGNOSIS THAT ILLUMINATES MIL)

- When initial malfunction is detected, TCM memorizes DTC of the 1st trip. MIL does not light at this stage.
- If the same malfunction is detected at the 2nd trip, TCM memorizes DTC and MIL lights at the same time.
- Then, MIL goes after driving the vehicle for 3 trips under "Driving condition B" without malfunction.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

- DTC is displayed until 40 trips of "Driving condition A" are satisfied without detecting the same malfunction. DTC is erased when 40 trips are satisfied.
- When the self-diagnosis result is acceptable at the 2nd trip (conforming to driving condition B), DTC of the 1st trip is erased.

COUNTER SYSTEM LIST

Item	Driving condition	Trip
MIL (OFF)	B	3
DTC (clear)	A	40
DTC at 1st trip (clear)	B	1

DRIVING CONDITION

Driving condition A

Driving condition A is the driving condition that provides warm-up.

In specific, count-up is performed when all of the following conditions are satisfied.

- Engine speed is 400 rpm or more.
- After start of the engine, the water temperature increased by 20 °C (36 °F) or more.
- Water temperature was 70 °C (158 °F) or more.
- The ignition switch was changed from ON to OFF.

NOTE:

- If the same malfunction is detected regardless of the driving condition, reset the A counter.
- When the above is satisfied without detecting the same malfunction, count up the A counter.
- When MIL goes off due to the malfunction and the A counter reaches 40, the DTC is erased.

Driving condition B

Driving condition B is the driving condition that performs all diagnoses once.

In specific, count-up is performed when all of the following conditions are satisfied.

- Engine speed is 400 rpm or more.
- Water temperature was 70 °C (158 °F) or more.
- In closed loop control, vehicle speed of 70 – 120 km/h (43 – 75 MPH) continued for 60 seconds or more.
- In closed loop control, vehicle speed of 30 – 60 km/h (19 – 37 MPH) continued for 10 seconds or more.
- In closed loop control, vehicle speed of 4 km/h (2 MPH) or less and idle determination ON continued for 12 seconds or more.
- After start of the engine, 22 minutes or more have passed.
- The condition that the vehicle speed is 10km/h (6 MPH) or more continued for 10 seconds or more in total.
- The ignition switch was changed from ON to OFF.

NOTE:

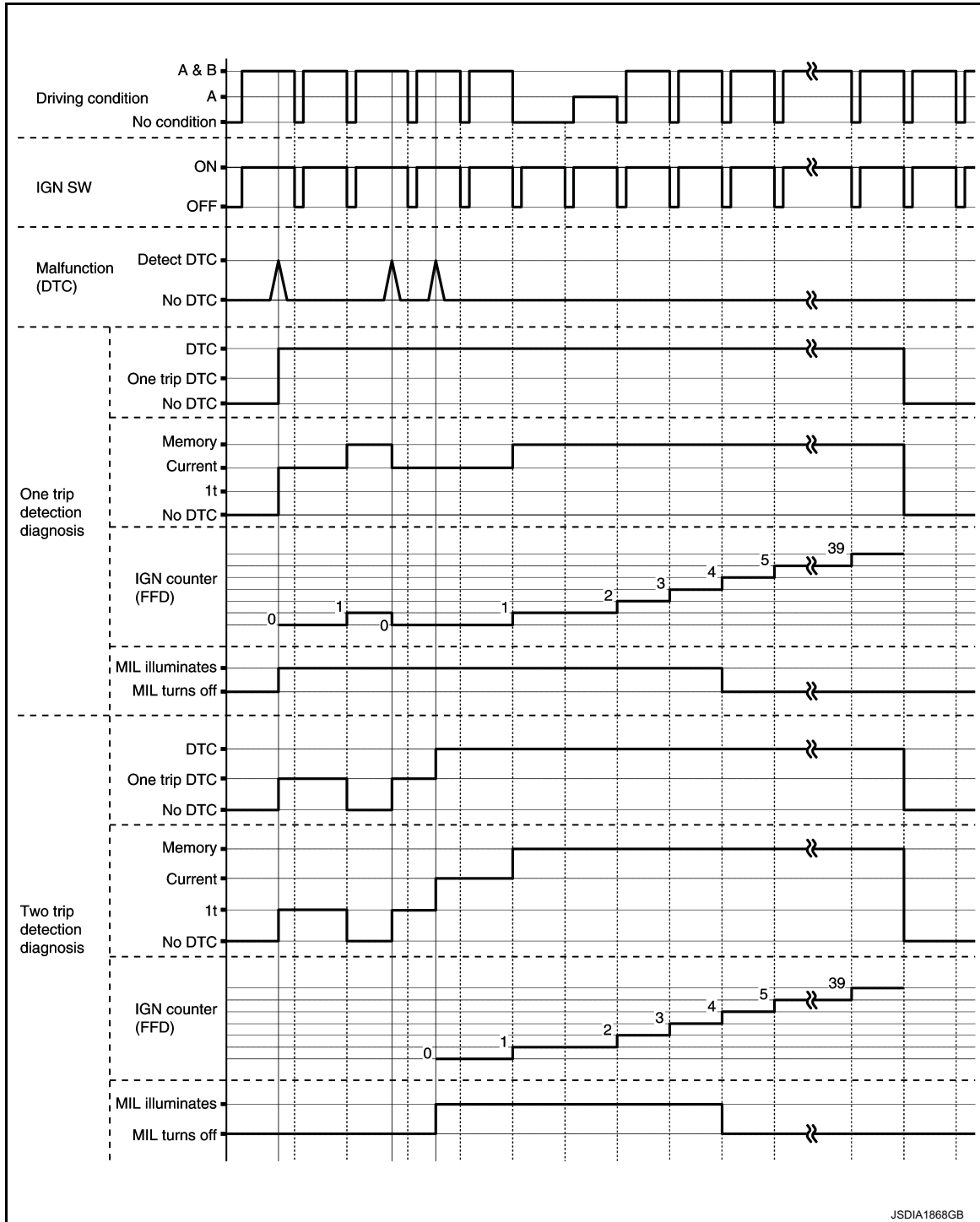
- If the same malfunction is detected regardless of the driving condition, reset the B counter.
- When the above is satisfied without detecting the same malfunction, count up the B counter.
- When the B counter reaches 3 without malfunction, MIL goes off.
- When the B counter is counted once without detecting the same malfunction after TCM memorizes DTC of the 1st trip, DTC of the 1st trip is erased.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

TIME CHART



CONSULT Function (TRANSMISSION)

INFOID:000000006280548

CONSULT APPLICATION ITEMS

Diagnostic test mode	Function
Work Support	This mode enables a technician to adjust some devices faster and more accurately.
Self Diagnostic Results	Retrieve DTC from ECU and display diagnostic items.
Data Monitor	Monitor the input/output signal of the control unit in real time.
CAN Diagnosis	This mode displays a network diagnosis result about CAN by a diagram.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

Diagnostic test mode	Function
CAN Diagnostic Support Monitor	It monitors the starts of CAN communication.
DTC & SRT confirmation	The status of system monitoring tests and the self-diagnosis status/result can be confirmed.
ECU Identification	Display the ECU identification number (part number etc.) of the selected system.
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.
Special Function	Other results or histories, etc. that are recorded in ECU are displayed.

*: Although "Function Test" and "Special Function" are selectable, do not use its.

WORK SUPPORT

Display Items List

Item name	Description
ERASE CALIBRATION DATA	Erases the "CALIBRATION DATA" stored by the TCM.
ERASE LEARNING VALUE	Erases the "LEARNING VALUE" stored by the TCM.
ERASE MEMORY DATA	Erases both the "CALIBRATION DATA" and "LEARNING VALUE".

SELF DIAGNOSTIC RESULTS

Refer to [TM-159, "DTC Index"](#).

DTC at 1st trip and method to read DTC

- DTC (P0705, P0711, P0720, etc.) is specified by SAE J2012/ISO 15031-6.
- DTC and DTC at 1st trip are displayed on "Self Diagnostic results" of CONSULT.
When DTC is currently detected, "CRNT" is displayed. If "PAST" is displayed, it shows a malfunction occurred in the past. The trip number of drive without malfunction of concerned DTC can be confirmed with "IGN counter" inside "FFD".
- When the DTC at the 1st trip is detected, the "timing" is displayed as "1t".

DTC deletion method

NOTE:

If the ignition switch is left ON after repair, turn OFF the ignition switch and wait for 10 seconds or more. Then, turn ignition ON again. (Engine stop)

1. Touch "TRANSMISSION" of CONSULT.
2. Touch "Self Diagnostic Result".
3. Touch "Erase". (DTC memorized in TCM is erased.)

IGN counter

The ignition counter is displayed in "FFD" and the number of times of satisfied "Driving condition A" is displayed after normal recovery of DTC. Refer to [TM-141, "DIAGNOSIS DESCRIPTION : Counter System"](#).

- If malfunction (DTC) is currently detected, "0" is displayed.
- After normal recovery, every time "Driving condition A" is satisfied, the display value increases from 1 → 2 → 3...38 → 39.
- When MIL turns OFF due to the malfunction and the counter reaches 40, the DTC is erased.

NOTE:

The counter display of "40" cannot be checked.

DATA MONITOR

Display Items List

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

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

Monitored item (Unit)	Monitor Item Selection			Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	SELECTION FROM ITEM	
VHCL/S SE-A/T (km/h or mph)	X	X	▼	Displays the vehicle speed calculated by the TCM from the output shaft revolution.
ESTM VSP SIG (km/h or mph)	X	—	▼	Displays the vehicle speed signal received via CAN communication.
THROTTLE POSI (0.0/8)	X	—	▼	Displays the throttle position received via CAN communication.
ACCELE POSI (0.0/8)	X	X	▼	Displays the accelerator position estimated value received via CAN communication.
CLSD THL POS (On/Off)	X	—	▼	Displays the reception status of idle switch signal received via CAN communication.
W/O THL POS (On/Off)	X	—	▼	Displays the kick down condition signal status received via CAN communication.
BRAKESW (On/Off)	X	—	▼	Displays the reception status of stop lamp switch signal received via CAN communication.
ENGINE SPEED (rpm)	X	X	▼	Displays the engine speed received via CAN communication.
INPUT SPEED (rpm)	X	X	▼	Displays the input speed calculated from low clutch drum revolution.
OUTPUT REV (rpm)	X	X	▼	Displays the output speed calculated from the pulse signal of output speed sensor.
FLUID TEMP (°C or °F)	X	X	▼	Displays the ATF temperature of oil pan calculated from the signal voltage of A/T fluid temperature sensor.
BATTERY VOLT (V)	X	—	▼	Displays the power supply voltage of TCM.
RANGE SW 1 (On/Off)	X	—	▼	Displays the operation status of transmission range switch.
RANGE SW 2 (On/Off)	X	—	▼	
RANGE SW D (On/Off)	X	—	▼	
RANGE SW N (On/Off)	X	—	▼	
RANGE SW R (On/Off)	X	—	▼	
RANGE SW P (On/Off)	X	—	▼	
OD CONT SW (On/Off)	X	—	▼	Displays the reception status of overdrive control switch signal received via CAN communication.
POWERSHIFT SW (On/Off)	X	—	▼	- Displays the reception status of POWER mode signal received via CAN communication. - Not mounted but displayed.
ABS SIGNAL (On/Off)	X	—	▼	Displays the reception status of ABS operation signal received via CAN communication.
GEAR	—	X	▼	Displays the current transmission gear position recognized by TCM.
TC SLIP SPEED (rpm)	—	X	▼	Displays the revolution difference between input speed and engine speed.
GEAR RATIO	—	X	▼	Displays the gear ratio calculated from input speed and output speed.
SLCT LVR POSI	—	X	▼	Displays the shift positions recognized by TCM.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

Monitored item (Unit)	Monitor Item Selection			Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	SELECTION FROM ITEM	
LINE PRES SOL (A)	—	X	▼	Displays the command current from TCM to the line pressure solenoid.
TCC SOLENOID (A)	—	X	▼	Displays the command current from TCM to the torque converter clutch solenoid.
L/C SOLENOID (A)	—	X	▼	Displays the command current from TCM to the low clutch solenoid.
H/C SOLENOID (A)	—	X	▼	Displays the command current from TCM to the high clutch/low & reverse brake solenoid.
24/B SOLENOID (A)	—	X	▼	Displays the command current from TCM to the 2-4 brake solenoid.
LR/B SOLENOID (A)	—	X	▼	Displays the command current from TCM to the low & reverse brake solenoid.
THL REVERSAL SIN (0.0/8)	—	—	▼	Displays the accelerator position estimated value that reversed a bit received via CAN communication.
ATF TEMP SEN (V)	—	—	▼	Displays the signal voltage of A/T fluid temperature sensor.
L/P SOL MON (A)	—	—	▼	Monitors the command current from TCM to the line pressure solenoid, and displays the monitor value.
TCC SOL MON (A)	—	—	▼	Monitors the command current from TCM to the torque converter clutch solenoid, and displays the monitor value.
L/C SOL MON (A)	—	—	▼	Monitors the command current from TCM to the low clutch solenoid, and displays the monitor value.
H/C SOL MON (A)	—	—	▼	Monitors the command current from TCM to the high clutch/low & reverse brake solenoid, and displays the monitor value.
24/B SOL MON (A)	—	—	▼	Monitors the command current from TCM to the 2-4 brake solenoid, and displays the monitor value.
LR/B SOL MON (A)	—	—	▼	Monitors the command current from TCM to the low & reverse brake solenoid, and displays the monitor value.
ENGINE TORQUE (Nm)	—	—	▼	Displays the engine torque estimated value received via CAN communication.
ENG TORQUE D (Nm)	—	—	▼	Displays the engine torque estimated value reflected the requested torque of each control unit received via CAN communication.
INPUT TRQ S (Nm)	—	—	▼	Displays the input torque using for the oil pressure calculation process of shift change control.
INPUT TRQ L/P (Nm)	—	—	▼	Displays the input torque using for the oil pressure calculation process of line pressure control.
TRGT PRES L/P (kPa, kg/cm ² or psi)	—	—	▼	Displays the target oil pressure value of torque converter clutch solenoid valve calculated by the oil pressure calculation process of lock-up control.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

Monitored item (Unit)	Monitor Item Selection			Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	SELECTION FROM ITEM	
TRGT PRES TCC (kPa, kg/cm ² or psi)	—	—	▼	Displays the target oil pressure value of torque converter clutch solenoid valve calculated by the oil pressure calculation process of lock-up control.
TRGT PRES L/C (kPa, kg/cm ² or psi)	—	—	▼	Displays the target oil pressure value of low clutch solenoid valve calculated by the oil pressure calculation process of shift change control.
TRGT PRES H/C (kPa, kg/cm ² or psi)	—	—	▼	Displays the target oil pressure value of high clutch/low & reverse brake solenoid valve calculated by the oil pressure calculation process of shift change control.
TRG PRES 24/B (kPa, kg/cm ² or psi)	—	—	▼	Displays the target oil pressure value of 2-4 brake solenoid valve calculated by the oil pressure calculation process of shift change control.
TRGT PRES LR/B (kPa, kg/cm ² or psi)	—	—	▼	Displays the target oil pressure value of low & reverse brake solenoid valve calculated by the oil pressure calculation process of shift change control.
SHIFT PATTERN	—	—	▼	Displays the gear change data using the shift pattern control.
VEHICLE SPEED (km/h or mph)	—	—	▼	Displays the vehicle speed for control using the control of TCM.
DRV CST JUDGE (DRIVE/COAST)	—	—	▼	Displays the judgment results of “driving” or “coasting” judged by TCM.
SHIFT IND SIGNAL	—	—	▼	Displays the transmission value of shift position signal transmitted via CAN communication.
F-SAFE IND/L (On/Off)	—	—	▼	Displays the transmission status of A/T CHECK indicator lamp signal transmitted via CAN communication.
ATF WARN LAMP (On/Off)	—	—	▼	- Displays the transmission status of ATF temperature signal transmitted via CAN communication. - Not mounted but displayed.
ON OFF SOL (On/Off)	—	—	▼	Displays the command status from TCM to select switch ON-OFF solenoid.
ON OFF SOL MON (On/Off)	—	—	▼	Monitors the command value from TCM to the select switch ON-OFF solenoid, and displays the monitor status.
NEXT GR POSI	—	—	▼	Displays the target gear position of gear change that is calculated based on the vehicle speed information and throttle information.
SHIFT MODE	—	—	▼	Displays the transmission driving mode recognized by TCM.
LOCK-UP PATTERN	—	—	▼	Displays the status of lock-up.
THROTTLE FAIL (On/Off)	—	—	▼	Displays the reception status of engine torque signal received via CAN communication.
MIL (On/Off)	—	—	▼	Displays the status of malfunctioning indicator.
PRESS SEN (BRAKE) (bar)	—	—	▼	Not mounted but displayed.
G SEN CALIBRATION (COMP/INCOMP)	—	—	▼	- Displays the status of “Work Support” “G SENSOR CALIBRATION”. - Not mounted but displayed.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[4AT: RE4F03C]

Monitored item (Unit)	Monitor Item Selection			Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	SELECTION FROM ITEM	
N IDLE LEARNING (COMP/INCOMP)	—	—	▼	- Displays the status of “N IDLE LEARNING”. - Not mounted but displayed.
N IDLE STATUS (On/Off)	—	—	▼	- Displays the control status of idle neutral control. - Not mounted but displayed.

DTC & SRT CONFIRMATION

DTC Work Support

Item name	Description	Check item
1ST GR FNCTN P0731	Following items for “1GR function ratio” can be confirmed. - Self-diagnosis status (whether the diagnosis is being performed or not) - Self-diagnostic results (OK or NG)	- Low clutch solenoid valve 2-4 brake solenoid valve
2ND GR FNCTN P0732	Following items for “2GR function ratio” can be confirmed. - Self-diagnosis status (whether the diagnosis is being performed or not) - Self-diagnostic results (OK or NG)	High clutch/low & reverse brake solenoid valve
3RD GR FNCTN P0733	Following items for “3GR function ratio” can be confirmed. - Self-diagnosis status (whether the diagnosis is being performed or not) - Self-diagnostic results (OK or NG)	- Select switch ON-OFF solenoid valve - Line pressure solenoid valve
4TH GR FNCTN P0734	Following items for “4GR function ratio” can be confirmed. - Self-diagnosis status (whether the diagnosis is being performed or not) - Self-diagnostic results (OK or NG)	- Output speed sensor - Input speed sensor - Each clutch and brake - Hydraulic control circuit
R POSITION FNCTN	Following items for “Reverse position function” can be confirmed. - Self-diagnosis status (whether the diagnosis is being performed or not) - Self-diagnostic results (OK or NG)	- High clutch/low & reverse brake solenoid valve - Select switch ON-OFF solenoid valve - Line pressure solenoid valve - Output speed sensor - Input speed sensor - Each clutch and brake - Hydraulic control circuit - Control valve assembly
TCC SOL FUNCTN CHECK	Following items for “TCC solenoid function” can be confirmed. - Self-diagnosis status (whether the diagnosis is being performed or not) - Self-diagnostic results (OK or NG)	- Harness or connectors - Torque converter clutch solenoid valve - Torque converter - Input speed sensor - Hydraulic control circuit

ECU DIAGNOSIS INFORMATION

TCM

Reference Value

INFOID:000000006280550

VALUES ON DIAGNOSIS TOOL

NOTE:

- The CONSULT electrically displays shift timing and lock-up timing (that is, operation timing of each solenoid).
Check for time difference between actual shift timing and the CONSULT display. If the difference is noticeable, mechanical parts (except solenoids, sensors, etc.) may be malfunctioning. Check mechanical parts in accordance with the specified diagnostic procedures.
- Shift schedule (that implies gear position) on CONSULT may slightly differ from that described in Service Manual. This occurs for the following reasons:
 - Actual shift schedule has more or less tolerance or allowance
 - Shift schedule in Service Manual refers to the point where shifting starts
 - Gear position on CONSULT indicates the point where shifting completes
- Display of solenoid valves on CONSULT changes at the start of shifting, while gear position is displayed upon completion of shifting (which is computed by TCM).

CONSULT MONITOR ITEM

Item name	Condition	Value / Status (Approx.)
VHCL/S SE-A/T	During driving	Approximately equals the speedometer reading.
ESTM VSP SIG	During driving	Approximately equals the speedometer reading.
THROTTLE POSI	Accelerator pedal is released	0.0/8
	Accelerator pedal is fully depressed	8.0/8
ACCELE POSI	Accelerator pedal is released	0.0/8
	Accelerator pedal is fully depressed	8.0/8
CLSD THL POS	Accelerator pedal is released	On
	Accelerator pedal is fully depressed	Off
W/O THL POS	Accelerator pedal is fully depressed	On
	Accelerator pedal is released	Off
BRAKESW	Brake pedal is depressed	On
	Brake pedal is released	Off
ENGINE SPEED	Engine running	Closely equals the tachometer reading.
INPUT SPEED	During driving (lock-up ON)	Approximately equals the engine speed.
OUTPUT REV	During driving (lock-up ON)	Tachometer / Gear ratio
TC SLIP SPEED	During driving	Engine speed – Input speed
FLUID TEMP	Ignition switch is ON	Temperature of ATF in the transaxle is indicated.
BATTERY VOLT	Ignition switch is ON	Battery voltage (11 V – 14 V)
RANGE SW 1	Selector lever in "1" position	On
	Other than the above	Off
RANGE SW 2	Selector lever in "2" position	On
	Other than the above	Off
RANGE SW D	Selector lever in "D" position	On
	Other than the above	Off

TCM

< ECU DIAGNOSIS INFORMATION >

[4AT: RE4F03C]

Item name	Condition	Value / Status (Approx.)
RANGE SW R	Selector lever in "R" position	On
	Other than the above	Off
RANGE SW P	Selector lever in "P" position	On
	Other than the above	Off
OD CONT SW	When overdrive control switch is depressed	On
	When overdrive control switch is released	Off
POWERSHIFT SW*	Power mode	On
	Other than the above	Off
ABS SIGNAL	ABS operates	On
	Other than the above	Off
GEAR	During driving	1st, 2nd, 3rd, 4th
TC SLIP SPEED	Slip lock-up is active*1	90 rpm
GEAR RATIO	Driving with 1GR	2.861
	Driving with 2GR	1.562
	Driving with 3GR	1.000
	Driving with 4GR	0.697
LINE PRES SOL	During driving	0 – 0.8 A
TCC SOLENOID	Slip lock-up is active	0.2 – 0.4 A
	Lock-up is active	0.8 A
	Other than the above	0 A
L/C SOLENOID	Low clutch is disengaged	1.0 A
	Low clutch is engaged	0 A
H/C SOLENOID	High clutch is disengaged	1.0 A
	High clutch is engaged	0 A
24/B SOLENOID	2-4 brake is engaged	1.0 A
	2-4 brake is disengaged	0 A
LR/B SOLENOID	Low&reverse brake is engaged	0 A
	Low&reverse brake is disengaged	1.0 A
THL REVERSAL SIN	Accelerator pedal is released	8.0/8
	Accelerator pedal is fully depressed	0.0/8
ATF TEMP SEN	0°C (32°F) – 20°C (68°F) – 80°C (176°F)	3.3 – 2.7 – 0.9 V
L/P SOL MON	During driving	0 – 0.8 A
TCC SOL MON	Slip lock-up is active	0.2 – 0.4 A
	Lock-up is active	1.0 A
	Other than the above	0 A
L/C SOL MON	Low clutch is disengaged	1.0 A
	Low clutch is engaged	0 A
H/C SOL MON	High clutch is disengaged	1.0 A
	High clutch is engaged	0 A
24/B SOL MON	2-4 brake is engaged	1.0 A
	2-4 brake is disengaged	0 A
LR/B SOL MON	Low&reverse brake is engaged	0 A
	Low&reverse brake is disengaged	1.0 A

TCM

< ECU DIAGNOSIS INFORMATION >

[4AT: RE4F03C]

Item name	Condition	Value / Status (Approx.)
ENGINE TORQUE	During driving	Changes the value according to the acceleration or deceleration.
ENG TORQUE D	During driving	Changes the value according to the acceleration or deceleration.
INPUT TRQ S	During driving	Changes the value according to the acceleration or deceleration.
INPUT TRQ L/P	During driving	Changes the value according to the acceleration or deceleration.
TRGT PRES L/P	Selector lever in "P", "R" and "N" positions	646 – 2,000 kPa
	Selector lever in "D" position	420 – 1,300 kPa
	Other than the above	0 kPa
TRGT PRES TCC	Slip lock-up is active	0 – 250 kPa
	Lock-up is active	1,279 kPa
	Other than the above	–500 kPa
TRGT PRES L/C	Low clutch is engaged	1,300 kPa
	Low clutch is disengaged	0 kPa
TRGT PRES H/C	High clutch is disengaged	1,300 kPa
	High clutch is engaged	0 kPa
TRGT PRES 24/B	2-4 brake is engaged	1,300 kPa
	2-4 brake is disengaged	0 kPa
TRGT PRES LR/B	Low&reverse brake is engaged ("D" position)	1,300 kPa
	Low&reverse brake is engaged ("R" position)	2,000 kPa
	Low&reverse brake is disengaged	0 kPa
SHIFT PATTERN	During normal driving (without shift changes)	0xFF
VEHICLE SPEED	During driving	Approximately equals the speedometer reading.
DRV CST JUDGE	Accelerator pedal is depressed	DRIVE
	Accelerator pedal is released	COAST
SHIFT IND SIGNAL	When the selector lever is positioned in between each position.	Off
	Selector lever in "P" position	P
	Selector lever in "R" position	R
	Selector lever in "N" position	N
	Selector lever in "D" position	D
	Selector lever in "D" position: 3GR	3
	Selector lever in "D" and "2" positions: 2GR	2
	Selector lever in "D" and "1" positions: 1GR	1
F-SAFE IND/L	For 2 seconds after the ignition switch is turned ON	On
	Other than the above	Off
ATF WARN LAMP	When TCM transmits the ATF indicator lamp signal	On
	Other than the above	Off
ON/OFF SOL	Selector lever in "P" and "N" positions	On
	Other than the above	Off
ON OFF SOL MON	Selector lever in "P", "N", "D1" and "1" positions	On
	Other than the above	Off
NEXT GR POSI	During driving	1st, 2nd, 3rd, 4th

A

B

C

TM

E

F

G

H

I

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K

L

M

N

O

P

TCM

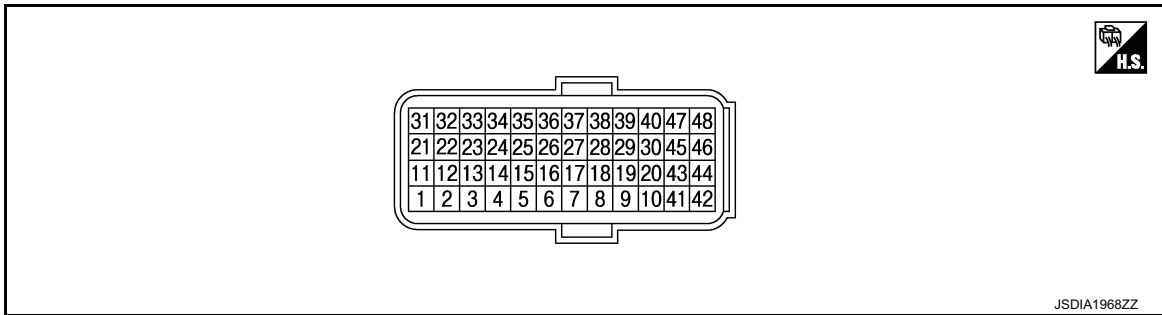
< ECU DIAGNOSIS INFORMATION >

[4AT: RE4F03C]

Item name	Condition	Value / Status (Approx.)
SHIFT MODE	- Engine warming up - TSC, VDC operations	1
	- Engine cold - TSC, VDC operations	2
	ATF temperature: approx. 130 °C (266 °F)	3
	Other than the above	0
LOCK-UP PATTERN	Lock-up is active	2
	Other than the above	0
THROTTLE FAIL	When TCM receives unusual engine torque signal	On
	Other than the above	Off

*: HR12DE

TERMINAL LAYOUT



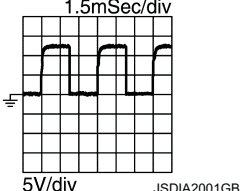
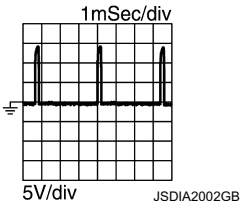
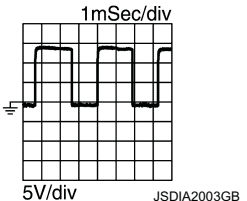
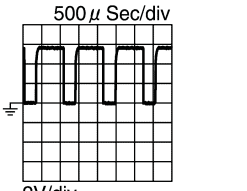
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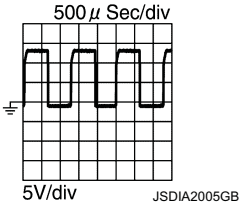
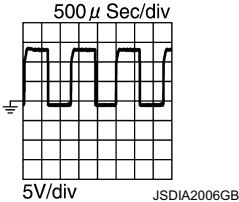
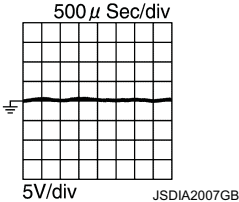
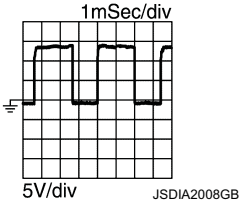
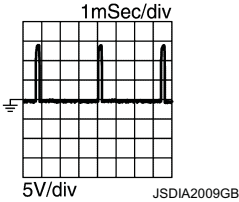
Terminal No. (Wire color)		Conditions		Operation or operation conditions		Standard
+	—	Signal	Input/ Output			
1 (L/R)	Ground	Select switch ON-OFF solenoid valve	Output	Ignition switch ON	Selector lever: "P", "N" "D1" and "1" positions	10 – 16 V
					Other than the above	Approx. 0 V
2 (W)	Ground	1 position switch	Input	Ignition switch ON	Selector lever: "1" position	10 – 16 V
					Other than the above	Approx. 0 V
3 (R/B)	Ground	2 position switch	Input		Selector lever: "2" position	10 – 16 V
					Other than the above	Approx. 0 V
4 (W/B)	Ground	D position switch	Input		Selector lever: "D" position	10 – 16 V
					Other than the above	Approx. 0 V
5 (L/B)	Ground	N position switch	Input		Selector lever: "N" position	10 – 16 V
					Other than the above	Approx. 0 V
6 (O)	Ground	R position switch	Input		Selector lever: "R" position	10 – 16 V
					Other than the above	Approx. 0 V
7 (Y)	Ground	P position switch	Input	Ignition switch ON	Selector lever: "P" position	10 – 16 V
					Other than the above	Approx. 0 V
11 (B)	Ground	Sensor ground	Input	Always		Approx. 0 V

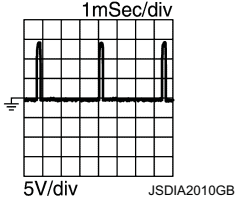
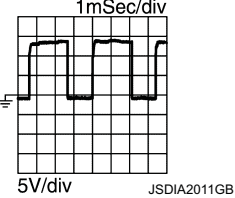
TCM

< ECU DIAGNOSIS INFORMATION >

[4AT: RE4F03C]

Terminal No. (Wire color)		Conditions		Operation or operation conditions		Standard
+	—	Signal	Input/ Output			
12 (G/W)	Ground	A/T fluid temperature sensor	Output	Ignition switch ON	A/T fluid temperature: Approx. 20°C (68°F)	Approx. 2.01 – 2.05 V
					A/T fluid temperature: Approx. 50°C (122°F)	Approx. 1.45 – 1.50 V
					A/T fluid temperature: Approx. 80°C (176°F)	Approx. 0.90 – 0.94 V
21 (R/W)	—	ROM ASSY (CHIP SELECT)	—	—	—	—
22 (V)	—	ROM ASSY (DATA I/O)	—	—	—	—
23 (P)	—	CAN-L	Input/ Output	—	—	—
24 (BR)	Ground	Output speed sensor	Input	- Selector lever: "1" position - While driving at 20 km/h (12 MPH)	Approx. 640 Hz 	
26 (LG)	Ground	Sensor power supply	Output	Ignition switch: ON	Approx. 5.0 V	
				Ignition switch: OFF	Approx. 0 V	
30 (BR/B)	Ground	Low clutch solenoid valve	Output	Vehicle is running with the selector lever in the "1" position.		
				- Engine started - Vehicle is stopped - Selector lever: "P" position		
31 (L/W)	—	ROM ASSY (CLOCK)	—	—	—	—
33 (L)	—	CAN-H	Input/ Output	—	—	—
35 (SB)	Ground	Input speed sensor	Input	- Selector lever: "1" position - While driving at 20 km/h (12 MPH)	Approx. 880 Hz 	

Terminal No. (Wire color)		Conditions		Operation or operation conditions	Standard
+	—	Signal	Input/ Output		
37 (BR/W)	Ground	Line pressure solenoid valve	Output	- Selector lever: "1" position - While driving at 20 km/h (12 MPH)	
38 (G)	Ground	Lock-up solenoid valve	Output	- Selector lever: "D" position - accelerate to more than 60 km/h (37 MPH) - Throttle position: 0.0/8 - Check the pulse in 60 km/h (37 MPH)	
				- Engine started - Vehicle is stopped - Selector lever: "P" position	
39 (G/B)	Ground	2-4 brake solenoid valve	Output	- Selector lever: "D" position - accelerate to more than 20 km/h (12 MPH) - Throttle position: 0.0/8 - Check the pulse in 20 km/h (12 MPH)	
				- Engine started - Vehicle is stopped - Selector lever: "P" position	

Terminal No. (Wire color)		Conditions		Operation or operation conditions	Standard
+	—	Signal	Input/ Output		
40 (Y/B)	Ground	High clutch/low & reverse brake solenoid valve	Output	1. Selector lever: "D" position 2. accelerate to more than 40 km/h (25 MPH) 3. Throttle position: 0.0/8 4. Check the pulse in 40 km/h (25 MPH)	
				- Engine started - Vehicle is stopped - Selector lever: "P" position	
41 (B)	Ground	Ground	Output	Always	Approx. 0 V
42 (B)	Ground	Ground	Output	Always	Approx. 0 V
45 (LG)	Ground	Power (backup)	Input	Always	10 – 16 V
47 (R)	Ground	Power supply	Input	Ignition switch: ON	10 – 16 V
				Ignition switch: OFF	Approx. 0 V
48 (R)	Ground	Power supply	Input	Ignition switch: ON	10 – 16 V
				Ignition switch: OFF	Approx. 0 V

Fail-Safe

INFOID:000000006420191

TCM is equipped with an electrical fail-safe mode. The operation can be continued even if the signal circuit of the main electronically controlled input/output parts are damaged.

If the vehicle shows following behaviors including "poor acceleration", a malfunction of the applicable system is detected by TCM and the vehicle may be in a fail-safe mode. At this time, check the DTC code and perform inspection and repair according to the malfunction diagnosis procedures.

FAIL-SAFE FUNCTION

DTC	Vehicle behavior	Vehicle condition
P0705 P0706	"D" position (The shifting can be performed) "R" position can be performed - Back-up lamp is OFF - Large shift shock - Lock-up is prohibited - Slip lock-up is prohibited	—
P0713	The gear is fixed in a position of error detection	During driving
	Locks in 3GR	Other than the above
P0717 P0720	- The gear is fixed in a position of error detection - Lock-up is prohibited - Slip lock-up is prohibited	During driving
	- Locks in 3GR - Lock-up is prohibited - Slip lock-up is prohibited	Other than the above

TCM

< ECU DIAGNOSIS INFORMATION >

[4AT: RE4F03C]

DTC	Vehicle behavior	Vehicle condition
P0731	- Locks in 2GR or 3GR - Lock-up is prohibited	—
P0732	- Locks in 3GR - Lock-up is prohibited	—
P0733 P0734	- The gear is fixed in neutral until vehicle speed decreases to below 5 km/h (3 MPH) and in 2GR when reaching 5 km/h (3 MPH) or more - Lock-up is prohibited	—
P0740 P0743 P0744	Lock-up is prohibited	—
P0973 P0974	- The gear is fixed in neutral until vehicle speed decreases to below 5 km/h (3 MPH) and in 2GR when reaching 5 km/h (3 MPH) or more - Lock-up is prohibited	—
P1735	Locks in 2GR	—
P1736	Locks in 3GR	—
P1737 P1738	The gear is fixed in neutral until vehicle speed decreases to below 5 km/h (3 MPH) and in 2GR when reaching 5 km/h (3 MPH) or more	—
P1744	Slip lock-up is prohibited	—
P17A1 P17A2 P17A3	- Locks in 4GR - Lock-up is prohibited	—
P17A4	- The gear is fixed in neutral until vehicle speed decreases to below 5 km/h (3 MPH) and in 2GR or 3GR when reaching 5 km/h (3 MPH) or more - Lock-up is prohibited	—
P17AA P17AB	- Locks in 3GR - Lock-up is prohibited	—
P17AD P17AE	- The gear is fixed in neutral until vehicle speed decreases to below 5 km/h (3 MPH) and in 3GR when reaching 5 km/h (3 MPH) or more - Lock-up is prohibited	—
P17B0 P17B1	- Locks in 3GR - Lock-up is prohibited	—
U0073	- The gear is fixed in 3GR until vehicle speed decreases to below 5 km/h (3 MPH) and in 2GR when reaching 5 km/h (3 MPH) or more - Lock-up is prohibited - Slip lock-up is prohibited	—
U0100	- Locks in 3GR - Lock-up is prohibited - Slip lock-up is prohibited	During driving
	- Locks in 2GR - Lock-up is prohibited - Slip lock-up is prohibited	Other than the above
U0155	O/D OFF prohibited	—
U0300	- Locks in 3GR - Lock-up is prohibited - Slip lock-up is prohibited	During driving
	- Locks in 2GR - Lock-up is prohibited - Slip lock-up is prohibited	Other than the above

Protection Control

INFOID:000000006420192

The TCM becomes the protection control status temporarily to protect the safety when the safety of TCM and transmission is lost. It automatically returns to the normal status if the safety is secured.
The TCM is equipped with the following protection control.

REVERSE INHIBIT CONTROL

Intercepts the torque transmission and shifts to the neutral status if the selector lever is shifted to "R" position while the vehicle moves forward at the vehicle speed 10 km/h (7 MPH) or more.

Operation detection conditions	- Vehicle speed: 10 km/h (7 MPH) or more (when driving forward) - Selector lever is shifted to "R" position.
Control when activated	Neutral
Recovery condition	- Vehicle speed: 7 km/h (4 MPH) or less and - Engine speed: 2,800 rpm or less
Vehicle behavior	- The torque transmission cannot be performed - There is a shock just before a vehicle stop

TCM HIGH TEMPERATURE PROTECTION CONTROL

When the ATF becomes hot, the shifting pattern is changed for preventing fluid temperature rise.

Operation detection conditions	ATF temp.: 125°C (257°F) or more
Control when activated	Change the shift pattern so that higher upshift may be achieved.
Recovery condition	ATF temp.: 119°C (246°F) or less
Vehicle behavior	Upshifts at a higher vehicle speed than usual.

TORQUE-DOWN CONTROL WHEN CONTINUOUS STALL OCCURS IN D POSITION

If the accelerator pedal is continually depressed for a certain length of time when the selector lever is in the "D" position and the vehicle is parked, the engine output is limited for protecting the transaxle.

Operation detection conditions	The following conditions continue for 20 seconds or more - Selector lever is in the "D" position or "R" position and the vehicle is stopped and - Engine speed: 2,300 – 2,850 rpm
Control when activated	Limits engine output
Recovery condition	- Selector lever is shifted to a position other than "D" or "R" or - The accelerator pedal is released
Vehicle behavior	- Decreased starting performance - Engine speed hunching when the accelerator pedal is depressed

O/D PROHIBIT CONTROL AT LOW TEMPERATURES

When the ATF temperature is low immediately after engine start, shifting to 4GR is prohibited for protecting the transaxle and allowing the exhaust gas characteristics to warm up quickly.

Operation detection conditions	- ATF temp.: 0°C (32°F) or less or - ATF temp.: less than 40°C (104°F) (when IGN is ON) - Vehicle speed: 65 km/h (40 MPH) or less 3GR
Control when activated	4GR prohibited
Recovery condition	Less than 130 seconds following IGN ON - ATF temp.: 40°C (104°F) or more or - Vehicle speed: 65 km/h or higher After 130 seconds following IGN ON - ATF temp.: 0°C (32°F) or more
Vehicle behavior	Shifts up only as far as 3GR.

DTC Inspection Priority Chart

INFOID:000000006280553

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

Priority	Detected items (DTC)	Reference
1	U0073 COMMUNICATION BUS A OFF	TM-194, "DTC Logic"
	U0100 LOST COMMUNICATION (ECM A)	TM-195, "DTC Logic"
	U0140 LOST COMMUNICATION (BCM)	TM-194, "DTC Logic"
	U0155 LOST COMMUNICATION (IPC)	TM-197, "DTC Logic"
	U0300 CAN COMM DATA	TM-198, "DTC Logic"
	U1000 CAN COMM CIRCUIT	TM-199, "DTC Logic"
	U1117 LOST COMMUNICATION (ABS)	TM-200, "DTC Logic"
	P0863 CONTROL UNIT (CAN)	TM-195, "DTC Logic"
2	P0740 TORQUE CONVERTER	TM-232, "DTC Logic"
	P0743 TORQUE CONVERTER	TM-234, "DTC Logic"
	P0962 PRESSURE CONTROL SOLENOID A	TM-239, "DTC Logic"
	P0963 PRESSURE CONTROL SOLENOID A	TM-241, "DTC Logic"
	P0973 SHIFT SOLENOID A	TM-243, "DTC Logic"
	P0974 SHIFT SOLENOID A	TM-245, "DTC Logic"
	P17AA LOW CLUTCH SOLENOID	TM-265, "DTC Logic"
	P17AB LOW CLUTCH SOLENOID	TM-267, "DTC Logic"
	P17AD 2-4 BRAKE SOLENOID	TM-269, "DTC Logic"
	P17AE 2-4 BRAKE SOLENOID	TM-271, "DTC Logic"
	P17B0 HIGH CLUTCH/ LOW & REVERSE BRAKE SOLENOID	TM-273, "DTC Logic"
	P17B1 HIGH CLUTCH/ LOW & REVERSE BRAKE SOLENOID	TM-275, "DTC Logic"
3	P062F EEPROM	TM-201, "DTC Logic"
	P0705 TRANSMISSION RANGE SENSOR A	TM-201, "DTC Logic"
	P0706 TRANSMISSION RANGE SENSOR A	TM-208, "DTC Logic"
	P0711 TRANSMISSION FLUID TEMPERATURE SENSOR A	TM-211, "DTC Logic"
	P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A	TM-213, "DTC Logic"
	P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A	TM-215, "DTC Logic"
	P0717 INPUT SPEED SENSOR A	TM-217, "DTC Logic"
	P0720 OUTPUT SPEED SENSOR	TM-220, "DTC Logic"
	P1701 TCM	TM-247, "DTC Logic"

TCM

< ECU DIAGNOSIS INFORMATION >

[4AT: RE4F03C]

Priority	Detected items (DTC)	Reference
4	P0744 TORQUE CONVERTER	TM-236, "DTC Logic"
	P1744 TORQUE CONVERTER	TM-252, "DTC Logic"
	P0731 1GR INCORRECT RATIO	TM-223, "DTC Logic"
	P0732 2GR INCORRECT RATIO	TM-226, "DTC Logic"
	P0733 3GR INCORRECT RATIO	TM-228, "DTC Logic"
	P0734 4GR INCORRECT RATIO	TM-230, "DTC Logic"
	P17A0 R RANGE INCORRECT	TM-254, "DTC Logic"
	P17A1 1GR INCORRECT RATIO	TM-256, "DTC Logic"
	P17A2 2GR INCORRECT RATIO	TM-259, "DTC Logic"
	P17A3 3GR INCORRECT RATIO	TM-261, "DTC Logic"
	P17A4 4GR INCORRECT RATIO	TM-263, "DTC Logic"
	P1735 1GR INTERLOC	TM-248, "DTC Logic"
	P1736 2GR INTERLOCK	TM-249, "DTC Logic"
	P1737 3GR INTERLOCK	TM-250, "DTC Logic"
	P1738 4GR INTERLOCK	TM-251, "DTC Logic"

DTC Index

INFOID:000000006280554

NOTE:

- If some DTCs are displayed at the same time, perform inspections one by one based on the priority as per the following list. Refer to [TM-158, "DTC Inspection Priority Chart"](#).
- The IGN counter is indicated in Freeze frame data (FFD). Refer to [TM-143, "CONSULT Function \(TRANSMISSION\)"](#).

×: Applicable —: Not Applicable

DTC*1, *2		Items (CONSULT screen terms)	Trip	MI*3	Reference
GST*3	CONSULT only "TRANSMISSION"				
P062F	P062F	EEPROM	1	×	TM-201
P0705	P0705	TRANSMISSION RANGE SENSOR A	2	×	TM-202
P0706	P0706	TRANSMISSION RANGE SENSOR A	2	×	TM-208
P0711	P0711	TRANSMISSION FLUID TEMPERATURE SENSOR A	2	×	TM-211
P0712	P0712	TRANSMISSION FLUID TEMPERATURE SENSOR A	2	×	TM-213
P0713	P0713	TRANSMISSION FLUID TEMPERATURE SENSOR A	2	×	TM-215
P0717	P0717	INPUT SPEED SENSOR A	2	×	TM-217
P0720	P0720	OUTPUT SPEED SENSOR	2	×	TM-220
P0731	P0731	1GR INCORRECT RATIO	2	×	TM-223
P0732	P0732	2GR INCORRECT RATIO	2	×	TM-226
P0733	P0733	3GR INCORRECT RATIO	2	×	TM-228
P0734	P0734	4GR INCORRECT RATIO	2	×	TM-230
P0740	P0740	TORQUE CONVERTER	2	×	TM-232
P0743	P0743	TORQUE CONVERTER	2	×	TM-234
P0744	P0744	TORQUE CONVERTER	2	×	TM-236
—	P0863	CONTROL UNIT (CAN)	1	—	TM-238
P0962	P0962	PRESSURE CONTROL SOLENOID A	2	×	TM-239
P0963	P0963	PRESSURE CONTROL SOLENOID A	2	×	TM-241

TCM

< ECU DIAGNOSIS INFORMATION >

[4AT: RE4F03C]

DTC*1, *2		Items (CONSULT screen terms)	Trip	MI*3	Reference
GST*3	CONSULT only "TRANSMISSION"				
P0973	P0973	SHIFT SOLENOID A	2	×	TM-243
P0974	P0974	SHIFT SOLENOID A	2	×	TM-245
P1701	P1701	TCM	1	×	TM-247
P1735	P1735	1GR INTERLOC	2	×	TM-248
P1736	P1736	2GR INTERLOCK	2	×	TM-249
P1737	P1737	3GR INTERLOCK	2	×	TM-250
P1738	P1738	4GR INTERLOCK	2	×	TM-251
P1744	P1744	TORQUE CONVERTER	2	×	TM-252
—	P17A0	R RANGE INCORRECT	2	—	TM-254
P17A1	P17A1	1GR INCORRECT RATIO	2	×	TM-256
P17A2	P17A2	2GR INCORRECT RATIO	2	×	TM-259
P17A3	P17A3	3GR INCORRECT RATIO	2	×	TM-261
P17A4	P17A4	4GR INCORRECT RATIO	2	×	TM-263
P17AA	P17AA	LOW CLUTCH SOLENOID	2	×	TM-265
P17AB	P17AB	LOW CLUTCH SOLENOID	2	×	TM-267
P17AD	P17AD	2-4 BRAKE SOLENOID	2	×	TM-269
P17AE	P17AE	2-4 BRAKE SOLENOID	2	×	TM-271
P17B0	P17B0	HIGH CLUTCH/LOW & REVERSE BRAKE SOLENOID	2	×	TM-273
P17B1	P17B1	HIGH CLUTCH/LOW & REVERSE BRAKE SOLENOID	2	×	TM-275
U0073	U0073	COMMUNICATION BUS A OFF	1	×	TM-194
U0100	U0100	LOST COMMUNICATION (ECM A)	2	×	TM-195
—	U0140	LOST COMMUNICATION (BCM)	1	—	TM-196
—	U0155	LOST COMMUNICATION (IPC)	1	—	TM-197
U0300	U0300	CAN COMM DATA	1	×	TM-198
—	U1000	CAN COMM CIRCUIT	1	—	TM-199
—	U1117	LOST COMMUNICATION (ABS)	1	—	TM-200

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

*2: The items are the same as those of 1st trip freeze frame data.

*3: HR15DE

WIRING DIAGRAM

A/T CONTROL SYSTEM

Application Notice

INFOID:000000006882060

Wiring diagram type	Destination
TYPE A	• Models for Thailand • Models for general area from Thailand plant* • Models for China • Models for India (HR12DE engine models): Vehicle production: From May 2010 to April 2011
TYPE B	• Models for Australia • Models for New Zealand • Models for Hong Kong • Models for India (K9K engine models): Vehicle production: From October 2010 to April 2011 • Models for Europe (Without stop/start system): Vehicle production: From July 2010 to June 2011 • Models for general area from India plant*
TYPE D	• Models for India: Vehicle production: From May 2011 • Models for Lebanon and Jordan • Models for Europe: Vehicle production: From July 2011

*: Refer to [GI-26, "Information About Identification or Model Code"](#) to identify a production plant.

TYPE A

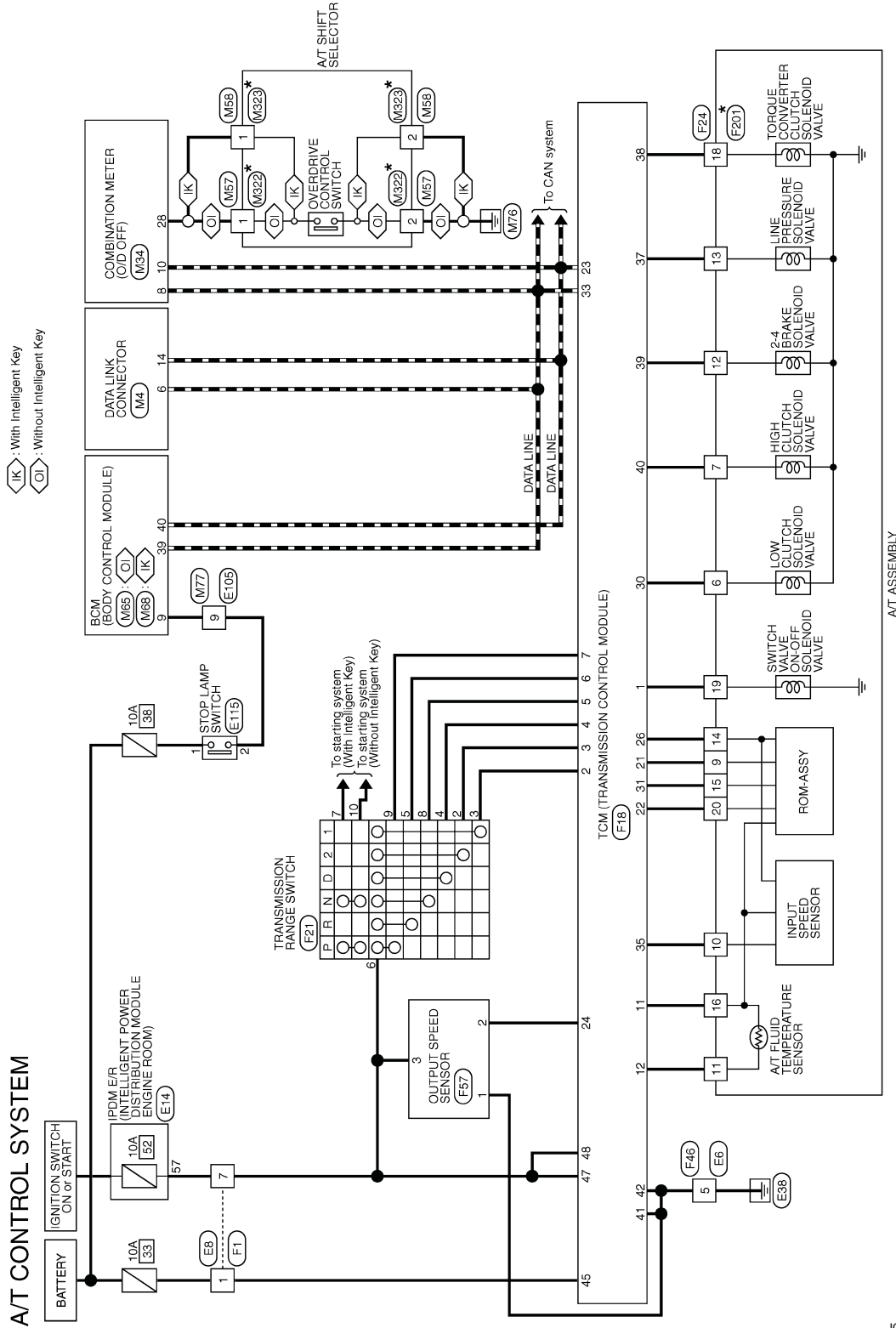
A/T CONTROL SYSTEM

< WIRING DIAGRAM >

[4AT: RE4F03C]

TYPE A : Wiring Diagram

INFOID:000000006280555



*: This connector is not shown in "Harness Layout".

2010/05/24

JCDWM1087GB

A/T CONTROL SYSTEM

Connector No.	E18
Connector Name	WIRE TO WIRE
Connector Type	TH24MW-NH



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	SB	- [With CVT]
2	SB	- [With M/T]
3	Y	-
5	B	-
6	P	-
7	L	-
10	R	-
11	L	-
12	BR	-
13	B	-
14	BR	-
15	V	-
16	Y	-
17	G	-
18	R	-
19	V	-
20	BG	-
21	W	-
22	LG	- [For China or with D-Jetronic engine and A/C]
23	GR	- [For Thailand with M/T]
23	SB	- [For China or with D-Jetronic engine and A/C]
24	B	- [For Thailand with M/T]

Connector No.	E18
Connector Name	WIRE TO WIRE
Connector Type	NS12MGY-CS



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	G	-
3	V	-
4	G	-
5	BG	- [For China]
5	L	- [Except for China]
6	GR	-
7	R	-
8	B	-
9	BR	- [For China]
9	P	- [For India]
9	G	- [Except for India and China]
10	SB	-
11	L	-
12	V	-

Connector No.	E14
Connector Name	POWER IN INTELLIGENT POWER DISTRIBUTION MODULE (POWER ROOM)
Connector Type	NS12PBR-OS



57	56	55	54	53
64	63	62	61	60
59	58	57	56	55

Terminal No.	Color of Wire	Signal Name [Specification]
53	BG	- [For China]
53	LG	- [Except for China]
54	GR	-
55	B	-
56	BR	-
57	R	-
58	P	-
59	R	-
61	G	-
63	Y	-
64	V	-

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CSI6-TM4



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	R	-
2	R	-
3	W	-
4	BR	- [For China]
4	P	- [For India]
4	G	- [Except for India and China]
5	R	-
6	LG	-
7	P	-
8	L	-
9	O	- [For India]
9	BG	- [Except for India]
10	Y	-
18	SB	-
28	BR	-
35	SB	-
36	LG	-
42	BG	-
43	P	-
51	V	-
52	P	-
53	GR	-
54	SB	-
55	LG	-
56	R	- [For China]
56	L	- [Except for China]
58	R	-
59	P	-
60	G	-
61	O	- [For India]
61	BG	- [Except for India]
62	G	-
63	R	-
64	W	-
65	L	-
66	Y	-
68	R	-
69	Y	-

70	G	-
71	SB	-
72	LG	-
75	L	-
76	B	-
80	L	-
81	P	-
82	GR	-
83	LG	-
84	V	-
85	Y	-
86	W	-
88	L	-
89	P	-
90	SHIELD	-
91	L	-
92	Y	-
93	L	- [With Intelligent Key]
93	Y	- [Without Intelligent Key]
94	V	-
95	W	-
96	W	-
97	SB	-
98	SB	-
99	P	-
100	GR	-

Connector No.	E115
Connector Name	STOP LAMP SWITCH
Connector Type	M04FW-LG



3	4
1	2

Terminal No.	Color of Wire	Signal Name [Specification]
1	SB	-
2	LG	-
3	BG	- [For China]
3	L	- [Except for China]
4	P	-

A/T CONTROL SYSTEM

< WIRING DIAGRAM >

[4AT: RE4F03C]

A/T CONTROL SYSTEM

Connector No.	F1
Connector Name	WIRE TO WIRE
Connector Type	MS12FGY-CS



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	LG	-
2	G	-
3	BR	-
4	G/W	-
5	R/W	-
6	R	-
7	R	-
8	B	-
9	BR	-
10	O	-
11	L/W	-
12	V	- [For China]
12	W	- [Except for China]

Connector No.	F18
Connector Name	TGM (TRANSMISSION CONTROL MODULE)
Connector Type	RH40FB-FZ28-L-LH



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	L/R	SELECT SWITCH ON-OFF SOL
2	W	1 RANGE SW
3	R/B	2 RANGE SW
4	W/B	D RANGE SW
5	L/B	N RANGE SW
6	O	R RANGE SW
7	Y	P RANGE SW
11	B	SENSOR GND
12	G/W	ATF TEMP SENSOR

21	R/W	SEL 1 (CHIP SELECT)
22	V	SEL 3 (DATA I/O)
23	P	CAN-L
24	BR	OUTPUT SPEED SENSOR
26	LG	SENSOR SPPLY (V)
30	BR/B	LOW CLUTCH SOL
31	L/W	SEL 2 (CLOCK)
33	L	CAN-H
35	SB	INPUT SPEED SENSOR
37	BR/W	LINE PRESSURE SOL
38	G	TORQUE CONVERTER CLUTCH SOL
39	G/B	2-4 BRAKE SOL
40	Y/B	HIGH CLUTCH SOL
41	B	GND
42	B	GND
45	LG	BATT
47	R	VIGN
48	R	VIGN

Connector No.	F21
Connector Name	TRANSMISSION RANGE SWITCH
Connector Type	YDX06FB-HS4



1	2	3	4	5	6
7	8	9	10		

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

Connector No.	F24
Connector Name	A/T ASSEMBLY
Connector Type	RK2ZFGY



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

Terminal No.	Color of Wire	Signal Name [Specification]
6	BR/B	LOW CLUTCH SOL
7	Y/B	HIGH CLUTCH SOL
9	R/W	SEL 1 (CHIP SELECT)
10	SB	INPUT SPEED SENSOR
11	G/W	ATF TEMP SENSOR
12	G/B	2-4 BRAKE SOL
13	BR/W	LINE PRESSURE SOL
14	LG	SENSOR SPPLY (V)
15	L/W	SEL 2 (CLOCK)
16	B	SENSOR GND
18	G	TORQUE CONVERTER CLUTCH SOL
19	L/R	SELECT SWITCH ON-OFF SOL
20	V	SEL 3 (DATA I/O)

Connector No.	F46
Connector Name	WIRE TO WIRE
Connector Type	TH24FW-NH



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	SB	- [With OVT]
1	L	- [With M/T]
2	SB	-
3	Y	-
5	B	-
6	P	-
7	L	-
10	R/W	-
11	L/R	-

12	BR/W	-
13	B	-
14	BR	-
15	BR	-
16	G/R	-
17	O	-
18	LG	-
19	L/W	-
20	P	-
21	W	-
22	R/B	-
22	BR	- [For China or with D-Jetronic engine and A/C]
23	GR	- [For China or with D-Jetronic engine and A/C]
23	SB	- [For Thailand with M/T]
24	B	-

Connector No.	F57
Connector Name	OUTPUT SPEED SENSOR
Connector Type	RK03FB



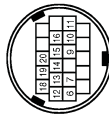
3	2	1

Terminal No.	Color of Wire	Signal Name [Specification]
1	B	VSP SENSOR GND
2	BR	VSP SENS
3	R	VSP POWER

JCDWM1089GB

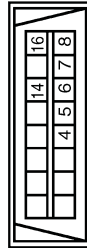
A/T CONTROL SYSTEM

Connector No.	F201
Connector Name	A/T ASSEMBLY
Connector Type	—



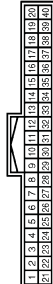
Terminal No.	Color of Wire	Signal Name [Specification]
6	—	—
7	—	—
9	—	—
10	—	—
11	—	—
12	—	—
13	—	—
14	—	—
15	—	—
16	—	—
18	—	—
19	—	—
20	—	—

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



Terminal No.	Color of Wire	Signal Name [Specification]
4	B/W	—
5	B/W	—
6	L	—
7	GR	—
8	O	— [For India]
8	BG	— [Except for India]
14	P	—
16	LG	—

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



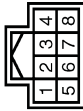
Terminal No.	Color of Wire	Signal Name [Specification]
1	R	BATTERY POWER SUPPLY
3	GR	IGNITION SIGNAL
4	W	FUEL LEVEL SENSOR SIGNAL
6	L	VEHICLE SPEED SENSOR SIGNAL
8	P	CAN-H
10	P	CAN-L
12	L	A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL
14	BR	ENGINE COOLANT TEMPERATURE SIGNAL [For India]
14	G	ENGINE COOLANT TEMPERATURE SIGNAL [Except for India]
15	GR	—
21	B	GROUND
22	B	GROUND
23	B/W	GROUND
24	Y	VEHICLE SPEED SENSOR GROUND
25	B	FUEL LEVEL SENSOR GROUND
26	GR	AMBIENT SENSOR SIGNAL
27	R	OVERDRIVE CONTROL/SPORT MODE SWITCH SIGNAL
28	P	METER SATELLITE SW A
29	W	METER SATELLITE SW B [For China]
30	SB	METER SATELLITE SW B [Except for China]
31	G	SECURITY SIGNAL
32	V	AIR BAG SIGNAL
34	BG	SEAT BELT BUCKLE SWITCH SIGNAL (DRIVER SIDE)
35	Y	ALTERNATOR SIGNAL
36	LG	BRAKE FLUID LEVEL SWITCH SIGNAL
37	SB	PARKING BRAKE SWITCH SIGNAL

Connector No.	M57
Connector Name	A/T SHIFT SELECTOR
Connector Type	TH40FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	P	—
2	B/W	—
3	SB	—
4	B	—
5	LG	—
6	B	—

Connector No.	M58
Connector Name	A/T SHIFT SELECTOR
Connector Type	TH40FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	P	—
2	B/W	—
3	SB	—
4	B	—
5	LG	—
6	B	—
7	P	—
8	R	—

Connector No.	M65
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
2	BR	COMBI SW INPUT 5
3	Y	COMBI SW INPUT 4
4	L	COMBI SW INPUT 3
5	G	COMBI SW INPUT 2
6	R	COMBI SW INPUT 1
7	Y	DR DOOR UNLK SENS
8	GR	KEY CYLINDER LOCK SW
9	W	STOP LAMP SW
10	G	REAR WINDOW DEF SW
11	L	IGN SW ACC
12	BR	PASSENGER DOOR SW [For China]
12	P	PASSENGER DOOR SW [Except for China]
13	LG	REAR RH DOOR SW
18	V	RECEIVER GND
19	LG	KYLS ENT RECEIV PWR SPLY
20	G	KYLS ENT RECEIV COMM
21	P	NATS ANT AMP
23	G	SECURITY IND LAMP
25	LG	NATS ANT AMP
27	W	A/C SW
28	SB	BLOWER FAN SW
29	BG	HAZARD SW [For China]
29	SB	HAZARD SW [Except for China]
31	W	KEY CYLINDER UNLOCK SW
32	P	COMBI SW OUTPUT 5
33	V	COMBI SW OUTPUT 4
34	W	COMBI SW OUTPUT 3
35	GR	COMBI SW OUTPUT 2
36	LG	COMBI SW OUTPUT 1
37	Y	KEY SW
38	O	IGN SW ON [For India]
38	BG	IGN SW ON [Except for India]
39	L	CAN-H
40	P	CAN-L

A/T CONTROL SYSTEM

< WIRING DIAGRAM >

[4AT: RE4F03C]

A/T CONTROL SYSTEM

Connector No.	M68
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	GR	REAR WINDOW DEF RELAY CONT
2	BR	COMBI SW INPUT 5
3	Y	COMBI SW INPUT 4
4	L	COMBI SW INPUT 3
5	G	COMBI SW INPUT 2
6	R	COMBI SW INPUT 1
9	W	STOP LAMP SW 1
11	L	ACC F/B
12	BR	PASSENGER DOOR SW [For China]
12	P	PASSENGER DOOR SW [Except for China]
13	LG	REAR RH DOOR SW
15	G	REAR WINDOW DEF SW
18	V	RECEIVER GND
19	LG	KYLS ENT RECEIV PWR SPLY
20	G	KYLS ENT RECEIV COMM
21	P	NATS ANT AMP
22	W	KYLS ENT RECEIV RSSI
23	G	SECURITY IND LAMP
25	LG	NATS ANT AMP
27	W	A/G SW
28	SB	BLOWER FAN SW
29	BG	HAZARD SW [For China]
30	SB	HAZARD SW [Except for China]
31	Y	DR DOOR UNLK SENS
32	P	COMBI SW OUTPUT 3
33	V	COMBI SW OUTPUT 4
34	W	COMBI SW OUTPUT 3
35	GR	COMBI SW OUTPUT 2
36	LG	COMBI SW OUTPUT 1
37	R	SHIFT P
38	O	IGN F/B [For India]
38	BG	IGN F/B [Except for India]
39	L	CAN-H
40	P	CAN-L

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	R	-
2	R	-
3	W	-
4	BR	-
5	R	-
6	LG	-
7	GR	-
8	O	- [For India]
8	BG	- [Except for India]
9	R	-
10	G	-
18	SB	- [With Intelligent Key]
18	P	- [Without Intelligent Key]
28	BR	-
35	R	-
36	Y	-
42	GR	-
43	LG	-
51	BR	-
52	P	-
53	GR	-
54	L	-
55	V	-
56	BR	- [For China]
56	L	- [Except for China]
58	BR	-
59	LG	-
60	LG	- [For China]
60	R	- [Except for China]
61	BG	- [For China]
61	Y	- [Except for China]
62	SB	-
63	R	-
64	V	-
65	R	-
66	G	-
66	R	-
68	Y	-

70	W	-
71	R	-
72	P	- [With auto A/G]
72	Y	- [With manual A/G]
75	L	-
76	B	-
80	L	-
81	P	-
82	GR	-
83	LG	-
84	Y	-
85	BR	- [For China]
85	W	- [Except for India and China]
88	R	-
89	L	-
89	P	-
90	SHIELD	-
91	P	-
92	BG	- [For China]
92	L	- [Except for China]
93	Y	- [With Intelligent Key]
93	L	- [Without Intelligent Key]
94	L	-
95	G	-
96	W	-
97	SB	-
98	R	-
99	P	-
100	R	-

Connector No.	M322
Connector Name	A/T SHIFT SELECTOR
Connector Type	TH08MW-NH



4	3	2	1
8	7	6	5

Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	-
2	Y	-
3	G	-
4	G	-
5	W	-
6	L	-

Connector No.	M323
Connector Name	A/T SHIFT SELECTOR
Connector Type	TH08MW-NH



4	3	2	1
8	7	6	5

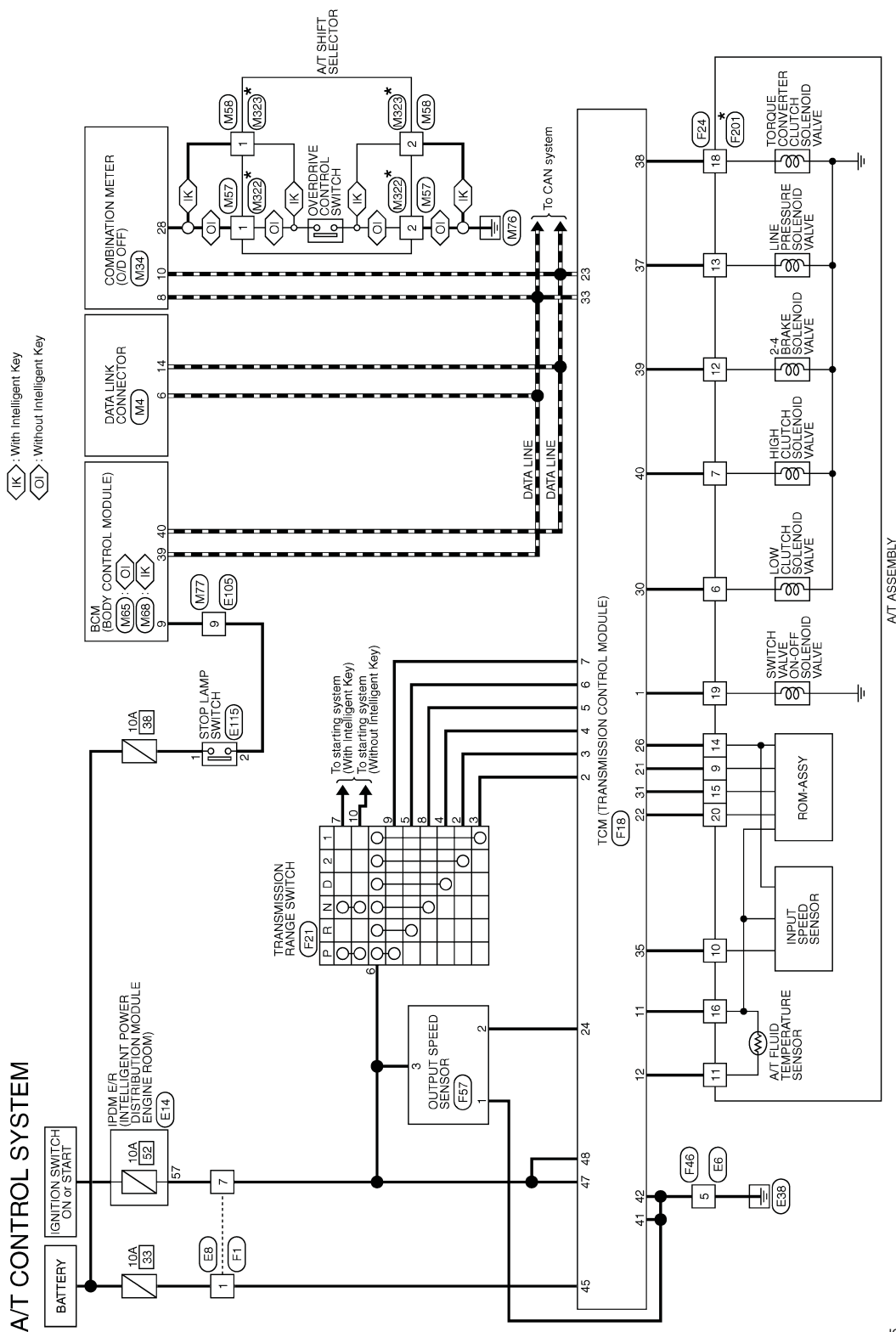
Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	-
2	Y	-
3	G	-
4	G	-
5	W	-
6	L	-
7	LG	-
8	R	-

TYPE B

JCDWM1091GB

< WIRING DIAGRAM >

TYPE B : Wiring Diagram



******: This connector is not shown in "Harness Layout".

2010/05/24

JCDWM1087GB

A/T CONTROL SYSTEM

< WIRING DIAGRAM >

[4AT: RE4F03C]

A/T CONTROL SYSTEM

Connector No.	E6
Connector Name	WIRE TO WIRE
Connector Type	TH24MW-NH



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	L	-
5	B	-
6	P	-
7	L	-
10	R	-
11	L	-
12	BR	-
13	B	-
15	V	-
16	Y	-
17	G	- [With gasoline engine]
17	B	- [With diesel engine]
18	R	- [With gasoline engine]
18	V	- [With diesel engine]
19	V	-
21	W	-
22	LG	-
23	GR	-

Connector No.	E8
Connector Name	WIRE TO WIRE
Connector Type	NS12MGY-CS



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

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

5	L	-
6	GR	-
7	R	-
8	B	-
9	G	- [For Australia, New Zealand and Hong Kong]
9	P	- [Except for Australia, New Zealand and Hong Kong]
10	SB	-
11	B	-
12	V	-

Connector No.	E14
Connector Name	SPM E/R INTELLIGENT POWER DISTRIBUTION MODULE (ENGINE ROOM)
Connector Type	NS12FER-CS



57	56	55	54	53
64	63	62	61	60
59	58			

Terminal No.	Color of Wire	Signal Name [Specification]
53	LG	-
54	GR	-
55	B	-
56	BR	-
57	R	- [With gasoline engine]
57	O	- [With diesel engine]
58	P	-
58	BR	-
59	R	-
59	W	-
60	W	-
61	G	-
63	Y	-
64	V	-

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH30FW-CS16-TM4



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

Terminal No.	Color of Wire	Signal Name [Specification]
4	G	- [For Australia, New Zealand and Hong Kong]
4	P	- [Except for Australia, New Zealand and Hong Kong]
6	LG	-
8	L	-
9	BG	- [For Australia, New Zealand and Hong Kong]
9	O	- [Except for Australia, New Zealand and Hong Kong]
10	Y	-
31	SHIELD	-
32	L	-
38	W	-
39	O	-
40	G	-
41	W	-
42	R	-
45	Y	-
46	B	-
51	V	-
52	P	-
53	GR	-
54	SB	-
55	LG	-
56	L	-
59	R	-
59	P	-
60	G	-
61	BG	- [For Australia, New Zealand and Hong Kong]
61	O	- [Except for Australia, New Zealand and Hong Kong]
62	G	-
63	R	-
64	W	-
65	L	-
66	Y	-
68	R	-
69	Y	-
70	G	-
71	SB	-
72	LG	-
73	R	-

74	BR	-
75	L	-
76	B	-
80	L	-
81	P	-
82	GR	-
83	LG	-
84	V	-
85	Y	-
86	W	-
88	L	-
89	P	-
90	SHIELD	-
91	L	-
92	Y	-
94	V	-
95	W	-
96	W	-
97	SB	-
98	SB	-
99	P	-
100	GR	-

Connector No.	E115
Connector Name	STOP LAMP SWITCH
Connector Type	MM4FW-LC



3	4
1	2

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

JCDWM1207GB

A/T CONTROL SYSTEM

Connector No.	F1
Connector Name	WIRE TO WIRE
Connector Type	NS12FGY-CS



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	LG	-
2	G	-
3	BR	-
4	G/W	-
5	R/W	-
6	R	-
7	R	-
8	B	-
9	BR	-
10	O	-
11	B	-
12	W	- [With gasoline engine]
	V	- [With diesel engine]

Connector No.	F18
Connector Name	TM (TRANSMISSION CONTROL MODULE)
Connector Type	RH40FB-RZ8-L-LH



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	L/R	SELECT SWITCH ON-OFF SOL
2	W	1 RANGE SW
3	R/B	2 RANGE SW
4	W/B	D RANGE SW
5	L/B	N RANGE SW
6	O	R RANGE SW
7	Y	P RANGE SW
11	B	SENSOR GND
12	G/W	ATF TEMP SENSOR

21	R/W	SEL 1 (CHIP SELECT)
22	V	SEL 3 (DATA I/O)
23	P	CAN-H
24	BR	OUTPUT SPEED SENSOR
25	LG	SENSOR SPLY (3V)
26	BR/B	LOW CLUTCH SOL
30	L/W	SEL 2 (CLOCK)
31	L/W	CAN-H
33	L	CAN-H
35	SB	INPUT SPEED SENSOR
37	BR/W	LINE PRESSURE SOL
38	G	TORQUE CONVERTER CLUTCH SOL
39	G/B	2-4 BRAKE SOL
40	Y/B	HIGH CLUTCH SOL
41	B	GND
42	B	GND
45	LG	BATT
47	R	VIGN
48	R	VIGN

Connector No.	F21
Connector Name	TRANSMISSION RANGE SWITCH
Connector Type	YDX06FB-HS4



1	2	3	4	5	6
7	8	9	10		

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

Connector No.	F24
Connector Name	A-T ASSEMBLY
Connector Type	RK2ZFGY



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

Terminal No.	Color of Wire	Signal Name [Specification]
6	BR/B	LOW CLUTCH SOL
7	Y/B	HIGH CLUTCH SOL
9	R/W	SEL 1 (CHIP SELECT)
10	SB	INPUT SPEED SENSOR
11	G/W	ATF TEMP SENSOR
12	G/B	2-4 BRAKE SOL
13	BR/W	LINE PRESSURE SOL
14	LG	SENSOR SPLY (3V)
15	L/W	SEL 2 (CLOCK)
16	B	SENSOR GND
18	G	TORQUE CONVERTER CLUTCH SOL
19	L/R	SELECT SWITCH ON-OFF SOL
20	V	SEL 3 (DATA I/O)

Connector No.	F46
Connector Name	WIRE TO WIRE
Connector Type	TH24FW-NH



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	L	-
5	B	-
6	P	-
7	L	-
10	R/W	-
11	L/R	-
12	BR/W	-
13	B	-
15	BR	-

16	G/R	-
17	O	- [With gasoline engine]
17	B	- [With diesel engine]
18	LG	- [With gasoline engine]
18	V	- [With diesel engine]
19	L/W	-
21	W	-
22	R/B	-
23	GR	-

Connector No.	F57
Connector Name	OUTPUT SPEED SENSOR
Connector Type	RK03FB



3	2	1

Terminal No.	Color of Wire	Signal Name [Specification]
1	B	VSP SENSOR GND
2	BR	VSP SENS
3	R	VSP POWER

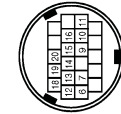
A/T CONTROL SYSTEM

< WIRING DIAGRAM >

[4AT: RE4F03C]

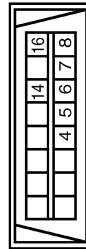
A/T CONTROL SYSTEM

Connector No.	E201
Connector Name	A/T ASSEMBLY
Connector Type	-



Terminal No.	Color of Wire	Signal Name [Specification]
6	-	-
7	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
18	-	-
19	-	-
20	-	-

Connector No.	M4
Connector Name	DATA LINK CONNECTOR
Connector Type	BD16FW



Terminal No.	Color of Wire	Signal Name [Specification]
4	B/W	-
5	B/W	-
6	L	-
7	GR	-
8	BG	- (For Australia, New Zealand and Hong Kong)
14	P	- (Except for Australia, New Zealand and Hong Kong)
16	LG	-

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



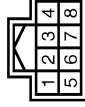
Terminal No.	Color of Wire	Signal Name [Specification]
1	R	BATTERY POWER SUPPLY
2	LG	STOP LAMP SWITCH SIGNAL
3	GR	IGNITION SIGNAL
4	W	FUEL LEVEL SENSOR SIGNAL
6	L	VEHICLE SPEED SENSOR SIGNAL
8	L	CAN-H
10	P	CAN-L
12	L	A/C AUTO AMP CONNECTION RECOGNITION SIGNAL
13	LG	PASSENGER AIR BAG OFF INDICATOR SIGNAL
14	G	EXTERIOR LIGHT SWITCH SIGNAL (For Australia, New Zealand and Hong Kong)
15	GR	EXTERIOR LIGHT SWITCH SIGNAL (For Australia, New Zealand and Hong Kong)
16	L/B	VEHICLE SPEED SIGNAL (2-PULSE)
17	SB	VEHICLE SPEED SIGNAL (B-PULSE) (With 4-speakers)
18	P	VEHICLE SPEED SIGNAL (B-PULSE) (With 6-speakers)
19	G	AUDIO EFFECT SIGNAL
20	SB	STEP LAMP CONTROL SIGNAL
21	B	GROUND
22	B	GROUND
23	B/W	GROUND
24	Y	AMBIENT SENSOR GROUND
25	B	VEHICLE SPEED SENSOR GROUND
26	GR	FUEL LEVEL SENSOR GROUND
27	R	AMBIENT SENSOR SIGNAL
28	P	OVERDRIVE CONTROL / SPORT MODE SWITCH SIGNAL
29	W	ENTER SWITCH SIGNAL
30	BG	SELECT SWITCH SIGNAL (For Australia, New Zealand and Hong Kong)
31	O	SELECT SWITCH SIGNAL (Except for Australia, New Zealand and Hong Kong)
32	G	SECURITY SIGNAL
33	V	AIR BAG SIGNAL
34	BG	SAFETY BELT REMINDER SIGNAL (For Australia, New Zealand and Hong Kong)
35	Y	SAFETY BELT REMINDER SIGNAL (Except for Australia, New Zealand and Hong Kong)
36	LG	ALTERNATOR SIGNAL
37	SB	BRAKE FLUID LEVEL SWITCH SIGNAL
38	L	PARKING BRAKE SWITCH SIGNAL
39	P	STEERING ANGLE SENSOR SIGNAL 1
39	P	STEERING ANGLE SENSOR SIGNAL 2

40	V	STEERING ANGLE SENSOR SIGNAL 3



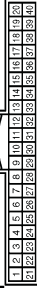
Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	B/W	-
3	SB	-
4	B	-
5	LG	-
6	B	-

Connector No.	M58
Connector Name	A/T SHIFT SELECTOR
Connector Type	TH08FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	B/W	-
3	SB	-
4	B	-
5	LG	-
6	B	-
7	P	-
8	R	-

Connector No.	M65
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FW-NH

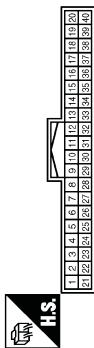


Terminal No.	Color of Wire	Signal Name [Specification]
2	BR	COMBI SW INPUT 5
3	Y	COMBI SW INPUT 4
4	L	COMBI SW INPUT 3
5	G	COMBI SW INPUT 2
6	R	COMBI SW INPUT 1
7	Y	DR DOOR UNLK SENS
8	W	STOP LAMP SW
10	G	REAR WINDOW DEF SW
11	L	IGN SW ACC
12	P	PASSENGER DOOR SW
13	LG	REAR RH DOOR SW
14	O	OPTICAL SENS (With OPT SENS)
14	O	L&R SENS SERIAL LINK (With L&R SENS)
16	L	DOOR LK STAT IND OUTPUT
17	SB	SENS PWR SPLY
18	V	RECEIV/SENS GND
19	LG	KYLS ENT RECEIV PWR SPLY
20	G	KYLS ENT RECEIV COMM
21	P	NATS ANT AMP
23	G	SECURITY IND LAMP CONT
24	SB	DONGLE/AUDIO LINK
25	LG	NATS ANT AMP
27	W	A/C SW
28	SB	BLOWER FAN SW
29	SB	HAZARD SW
32	P	COMBI SW OUTPUT 5
33	V	COMBI SW OUTPUT 4
34	W	COMBI SW OUTPUT 3
35	GR	COMBI SW OUTPUT 2
36	LG	COMBI SW OUTPUT 1
37	Y	KEY SW
38	O	IGN SW ON [For AUS and NZL]
38	O	IGN SW ON [Except for AUS and NZL]
39	L	CAN-H
40	P	CAN-L

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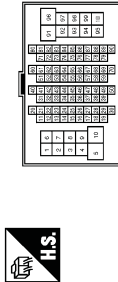
A/T CONTROL SYSTEM

Connector No.	M68
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	GR	REAR WINDOW DEF RELAY CONT
2	BR	COMBI SW INPUT 5
3	Y	COMBI SW INPUT 4
4	L	COMBI SW INPUT 3
5	G	COMBI SW INPUT 2
6	R	COMBI SW INPUT 1
7	W	STOP LAMP SW 1
11	L	ACC F/B
12	P	PASSENGER DOOR SW
13	LG	REAR RH DOOR SW
14	BG	OPTICAL SENS [For AUS, NZL and HKG]
14	O	L&R SENS SERIAL LINK [Exc. for AUS, NZL and HKG]
15	G	REAR WINDOW DEF SW
16	W	DIMMER
17	SB	SENS PWR SPLY
18	V	RECEIV/SENS GND
19	LG	KYLS ENT RECEIV PWR SPLY
20	G	KYLS ENT RECEIV COMM
21	P	NATS ANT AMP
22	W	KYLS ENT RECEIV RSSI
23	G	SECURITY IND LAMP CONT
24	SB	DONGLE LINK
25	LG	NATS ANT AMP
27	W	A/C SW
28	SB	BLOWER FAN SW
29	SB	HAZARD SW
31	Y	DR DOOR UNLK SENS
32	P	COMBI SW OUTPUT 5
33	V	COMBI SW OUTPUT 4
34	W	COMBI SW OUTPUT 3
35	GR	COMBI SW OUTPUT 2
36	LG	COMBI SW OUTPUT 1
37	R	CLUTCH PDL POS SW [With M/T without ASCD]
37	R	DETENT SW [Without M/T]
38	BG	IGN F/B [For AUS, NZL and HKG]
38	O	IGN F/B [Except for AUS, NZL and HKG]
39	L	CAN-H
40	P	CAN-L

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH60MW-CS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
4	BR	-
6	LG	-
8	BG	- [For Australia, New Zealand and Hong Kong]
8	O	- [Except for Australia, New Zealand and Hong Kong]
9	R	-
10	G	-
31	SHIELD	-
32	L	-
38	BR	-
39	L	-
40	G	-
41	W	-
42	R	-
45	Y	-
46	B	-
51	BR	-
52	P	-
53	GR	-
54	L	-
55	V	-
56	L	-
58	BR	-
59	LG	-
60	R	-
61	Y	-
62	SB	-
63	R	-
64	V	-
65	R	-
66	G	-
68	R	-
69	Y	-
70	W	-
71	R	-
72	P	- [With auto A/C]
72	Y	- [With manual A/C]
73	SB	-
74	GR	-

Connector No.	M323
Connector Name	A/T SHIFT SELECTOR
Connector Type	TH08MW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	-
2	Y	-
3	G	-
4	G	-
5	W	-
6	L	-
7	LG	-
8	R	-

Connector No.	M322
Connector Name	A/T SHIFT SELECTOR
Connector Type	TH08MW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	-
2	Y	-
3	G	-
4	G	-
5	W	-
6	L	-

TYPE D

TYPE D : Wiring Diagram

For connector terminal arrangements, harness layout, and alphabets in a (option abbreviation; if not described in wiring diagram), refer to [GI-12, "Connector Information"](#).

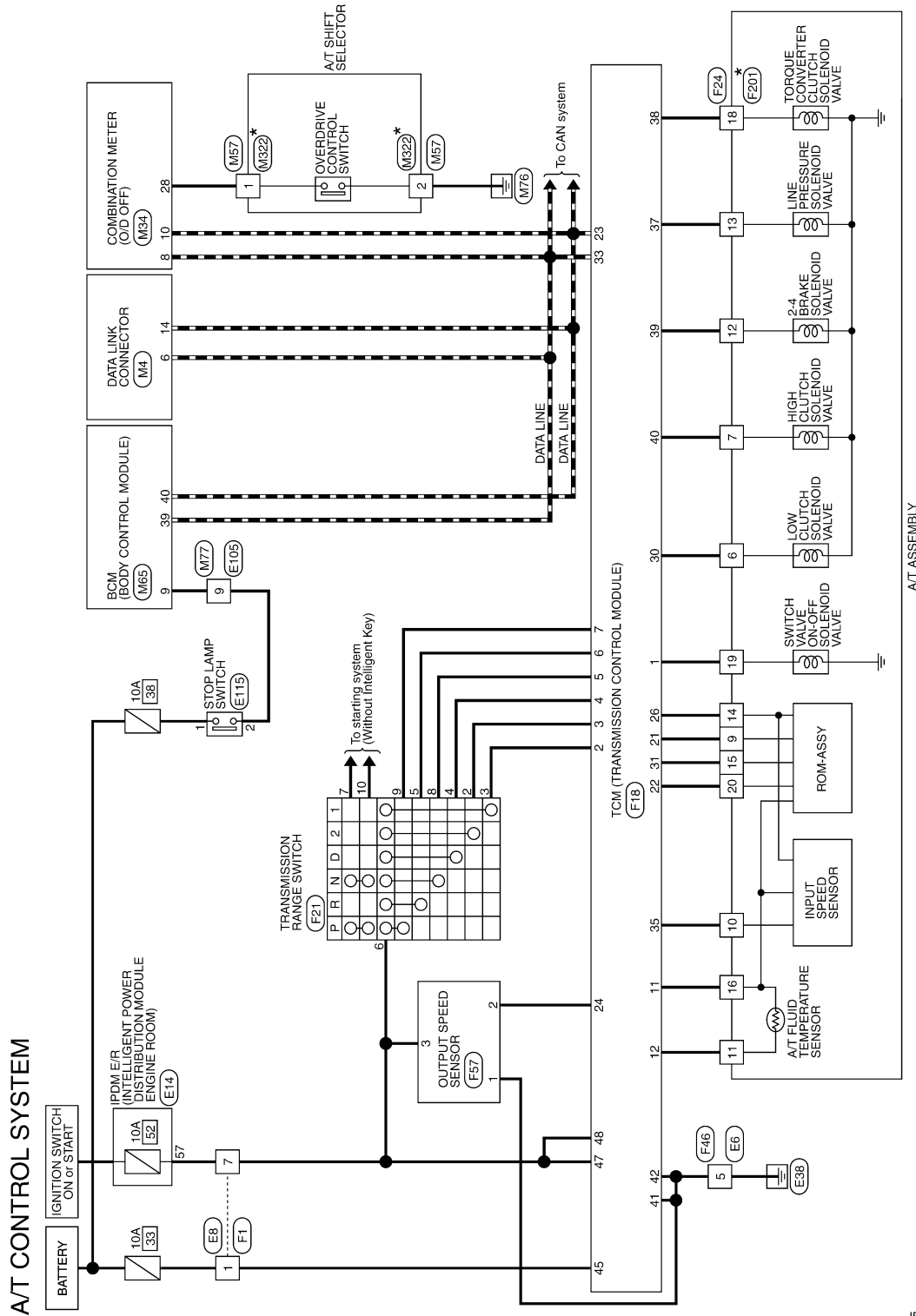
JCDWM1210GB

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A/T CONTROL SYSTEM

< WIRING DIAGRAM >

[4AT: RE4F03C]



2011/04/08

JRDWC0123GB

A/T SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[4AT: RE4F03C]

A/T SHIFT LOCK SYSTEM

Application Notice

INFOID:000000007644979

Wiring diagram type	Destination
TYPE A	• Models for Thailand • Models for general area from Thailand plant* • Models for China • Models for India (HR12DE engine models): Vehicle production: From May 2010 to April 2011
TYPE B	• Models for Australia • Models for New Zealand • Models for Hong Kong • Models for India (K9K engine models): Vehicle production: From October 2010 to April 2011 • Models for Europe (Without stop/start system): Vehicle production: From July 2010 to June 2011 • Models for general area from India plant*
TYPE D	• Models for India: Vehicle production: From May 2011 • Models for Lebanon and Jordan • Models for Europe: Vehicle production: From July 2011

*: Refer to [GI-26, "Information About Identification or Model Code"](#) to identify a production plant.

TYPE A

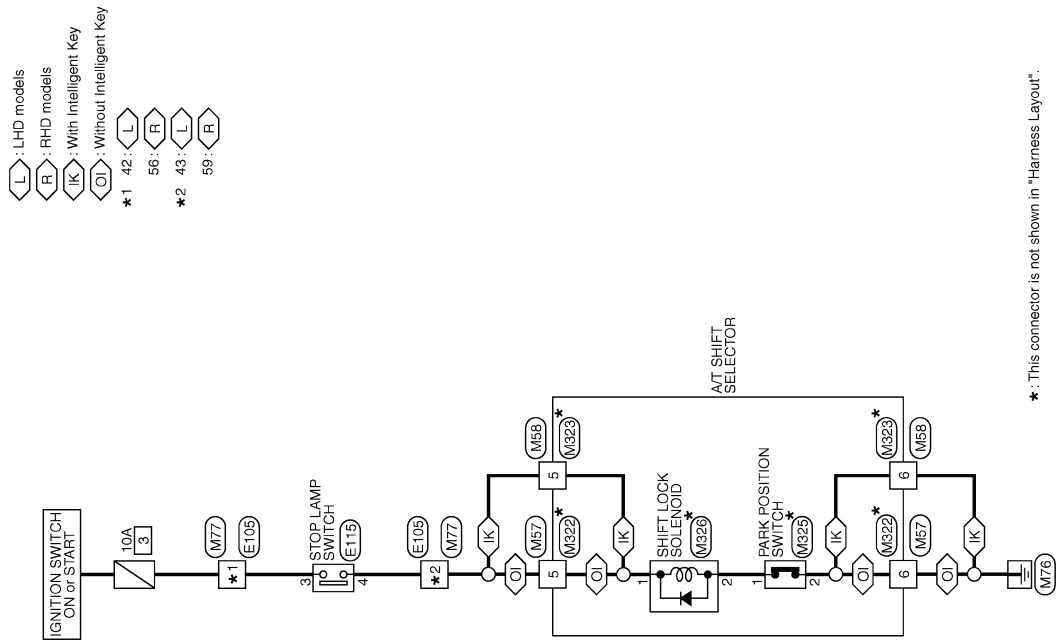
A/T SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[4AT: RE4F03C]

INFOID:0000000006280556

TYPE A : Wiring Diagram



★: This connector is not shown in "Harness Layout".

A/T SHIFT LOCK SYSTEM

2010/05/24

JCDWM1099GB

A/T SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[4AT: RE4F03C]

A/T SHIFT LOCK SYSTEM

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH08FW-CSI6-TM4



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

Terminal No.	Color of Wire	Signal Name [Specification]
1	R	-
2	R	-
3	W	-
4	BR	- [For China]
4	P	- [For India]
4	G	- [Except for India and China]
5	R	-
6	LG	-
7	P	-
8	L	-
9	O	- [For India]
9	BG	- [Except for India]
10	Y	-
18	SB	-
28	BR	-
35	SB	-
36	LG	-
42	BG	-
43	P	-
51	V	-
52	P	-
53	GR	-
54	SB	-
55	LG	-
56	R	-
56	L	- [For China]
58	R	-
59	P	-
60	G	-
61	O	-
61	BG	- [For India]
62	G	- [Except for India]
63	R	-
64	W	-
65	L	-
66	Y	-
68	R	-
69	Y	-

Connector No.	M57
Connector Name	A/T SHIFT SELECTOR
Connector Type	TH08FW-NH



1	2	3	4	5	6	7	8

Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	B/W	-
3	SB	-
4	B	-
5	LG	-
6	B	-

Connector No.	M58
Connector Name	A/T SHIFT SELECTOR
Connector Type	TH08FW-NH



1	2	3	4	5	6	7	8

Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	B/W	-
3	SB	-
4	B	-
5	LG	-
6	B	-
7	P	-
8	R	-

Connector No.	E115
Connector Name	STOP LAMP SWITCH
Connector Type	M04FW-LG



3	4	1	2

Terminal No.	Color of Wire	Signal Name [Specification]
1	SB	-
2	LG	-
3	BG	- [For China]
3	L	- [Except for China]
4	P	-

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A/T SHIFT LOCK SYSTEM

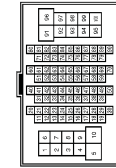
< WIRING DIAGRAM >

[4AT: RE4F03C]

TYPE B

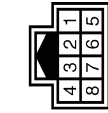
A/T SHIFT LOCK SYSTEM

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-GS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
1	R	-
2	R	-
3	W	-
4	BR	-
5	R	-
6	LG	-
7	GR	-
8	O	- [For India]
9	BG	- [Except for India]
10	G	-
11	G	-
12	SB	- [With Intelligent Key]
13	P	- [Without Intelligent Key]
14	BR	-
15	R	-
16	Y	-
17	GR	-
18	LG	-
19	P	-
20	BR	-
21	R	-
22	Y	-
23	GR	-
24	L	-
25	V	-
26	BR	- [For China]
27	L	- [Except for China]
28	BR	-
29	LG	-
30	LG	-
31	R	- [For China]
32	BG	- [Except for China]
33	Y	- [For China]
34	SB	- [Except for China]
35	R	-
36	V	-
37	G	-
38	R	-
39	G	-
40	R	-
41	Y	-
42	SB	-
43	R	-
44	V	-
45	G	-
46	R	-
47	Y	-

Connector No.	M323
Connector Name	A/T SHIFT SELECTOR
Connector Type	TH80MW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	-
2	Y	-
3	G	-
4	G	-
5	W	-
6	L	-
7	LG	-
8	R	-

Connector No.	M325
Connector Name	PARK POSITION SWITCH
Connector Type	-



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

Connector No.	M326
Connector Name	SHIFT LOCK SOLENOID
Connector Type	-



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

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A/T SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[4AT: RE4F03C]

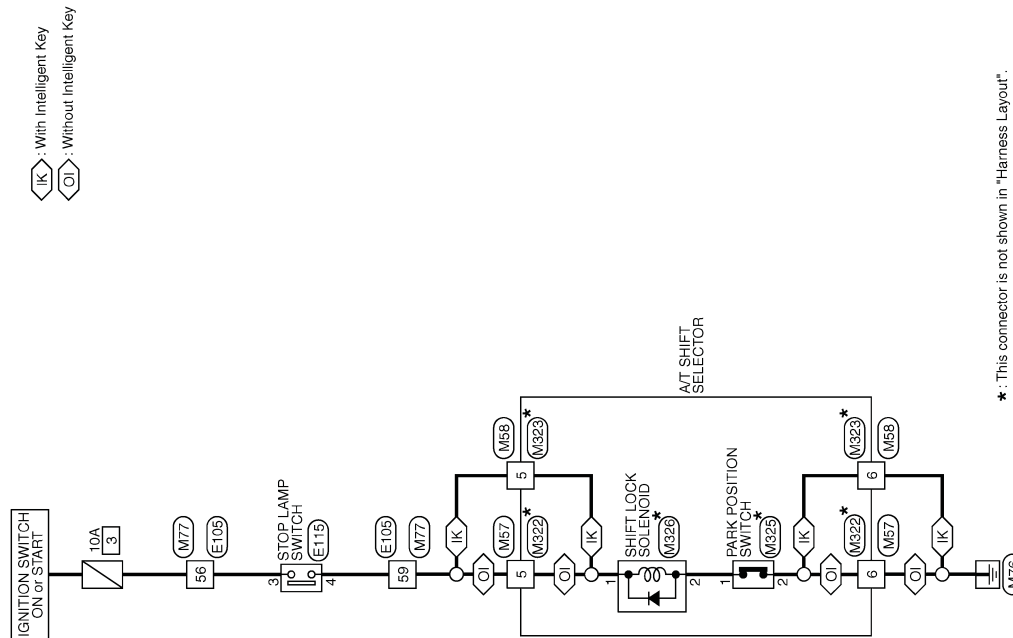
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TYPE B : Wiring Diagram

2010/08/25

JCDWM1217GB

A/T SHIFT LOCK SYSTEM



★: This connector is not shown in "Harness Layout".

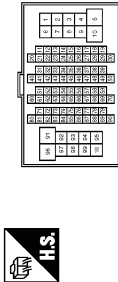
A/T SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[4AT: RE4F03C]

A/T SHIFT LOCK SYSTEM

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH08FW-CS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
4	G	- [For Australia, New Zealand and Hong Kong]
6	P	- [Except for Australia, New Zealand and Hong Kong]
8	LG	-
9	L	-
9	BG	- [For Australia, New Zealand and Hong Kong]
9	O	- [Except for Australia, New Zealand and Hong Kong]
10	Y	-
31	SHIELD	-
32	L	-
38	W	-
39	O	-
40	G	-
41	W	-
42	R	-
45	Y	-
46	B	-
51	V	-
52	P	-
53	GR	-
54	SB	-
55	LG	-
56	L	-
58	R	-
59	P	-
60	G	-
61	BG	- [For Australia, New Zealand and Hong Kong]
61	O	- [Except for Australia, New Zealand and Hong Kong]
62	G	-
63	R	-
64	W	-
65	L	-
66	Y	-
68	R	-
69	Y	-
70	G	-
71	SB	-
72	LG	-
73	R	-

74	BR	-
75	L	-
76	B	-
80	L	-
81	P	-
82	GR	-
83	LG	-
84	V	-
85	Y	-
86	W	-
88	L	-
89	P	-
90	SHIELD	-
91	L	-
92	Y	-
94	V	-
95	W	-
96	W	-
97	SB	-
98	SB	-
99	P	-
100	GR	-

Connector No.	E115
Connector Name	STOP LAMP SWITCH
Connector Type	MD4FW-LC



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

Connector No.	M57
Connector Name	A/T SHIFT SELECTOR
Connector Type	TH08FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	B/W	-
3	SB	-
4	B	-
5	LG	-
6	B	-

Connector No.	M58
Connector Name	A/T SHIFT SELECTOR
Connector Type	TH08FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	B/W	-
3	SB	-
4	B	-
5	LG	-
6	B	-
7	P	-
8	R	-

JCDWM1218GB

A/T SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[4AT: RE4F03C]

A/T SHIFT LOCK SYSTEM

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH08MW-CS-E-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
4	BR	-
6	LG	-
8	BG	- [For Australia, New Zealand and Hong Kong]
8	O	- [Except for Australia, New Zealand and Hong Kong]
9	R	-
10	G	-
31	SHIELD	-
32	L	-
38	BR	-
39	L	-
40	G	-
41	W	-
42	R	-
45	Y	-
46	B	-
51	BR	-
52	P	-
53	GR	-
54	L	-
55	V	-
56	L	-
58	BR	-
59	LG	-
60	R	-
61	Y	-
62	SB	-
63	R	-
64	V	-
65	R	-
66	G	-
68	R	-
69	Y	-
70	W	-
71	R	-
72	P	- [With auto A/C]
72	Y	- [With manual A/C]
73	SB	-
74	GR	-

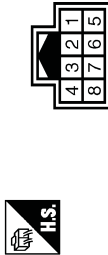
75	L	-
76	B	-
80	L	-
81	P	-
82	GR	-
83	LG	-
84	Y	-
85	W	-
86	R	-
88	L	-
89	P	-
90	SHIELD	-
91	P	-
92	L	-
94	L	-
95	G	-
96	W	-
97	SB	-
98	R	-
99	P	-
100	R	-

Connector No.	M322
Connector Name	A/T SHIFT SELECTOR
Connector Type	TH08MW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	-
2	Y	-
3	G	-
4	G	-
5	W	-
6	L	-

Connector No.	M323
Connector Name	A/T SHIFT SELECTOR
Connector Type	TH08MW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	-
2	Y	-
3	G	-
4	G	-
5	W	-
8	L	-
7	LG	-
8	R	-

Connector No.	M325
Connector Name	PARK POSITION SWITCH
Connector Type	-



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

Connector No.	M326
Connector Name	SHIFT LOCK SOLENOID
Connector Type	-



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

TYPE D

TYPE D : Wiring Diagram

For connector terminal arrangements, harness layout, and alphabets in a  (option abbreviation; if not described in wiring diagram), refer to [GI-12, "Connector Information"](#).

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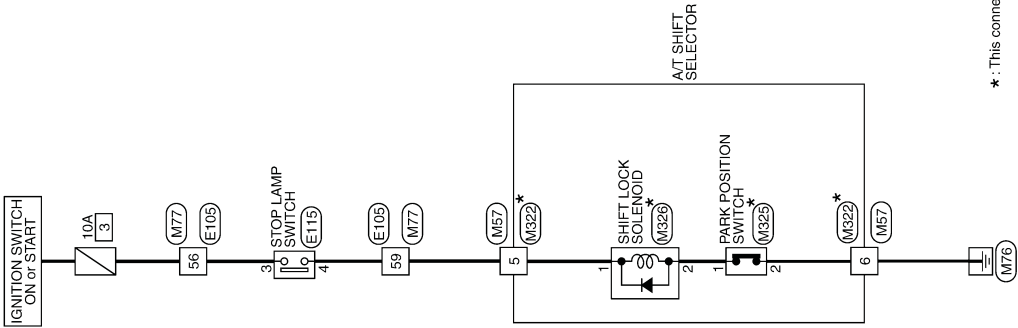
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A/T SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[4AT: RE4F03C]

A/T SHIFT LOCK SYSTEM



2011/04/08

JRDWC0124GB

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Diagnosis Flow

INFOID:000000006280557

1.OBTAIN INFORMATION ABOUT SYMPTOM

Refer to [TM-182, "Question sheet"](#) and interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred) as much as possible when the customer brings in the vehicle.

>> GO TO 2.

2.CHECK DTC

1. Before checking the malfunction, check whether any DTC exists.
2. If DTC exists, perform the following operations.
 - Record the DTC and freeze frame data. (Print out the data using CONSULT and affix them to the Work Order Sheet.)
 - Erase DTCs.
 - Check the relationship between the cause that is clarified with DTC and the malfunction information described by the customer. [TM-289, "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 exists. >>GO TO 3.
- Malfunction information exists, but no DTC. >>GO TO 4.
- No malfunction information, but DTC exists. >>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 [TM-155, "Fail-Safe"](#). When a malfunction symptom is reproduced, the question sheet is effective. Refer to [TM-182, "Question 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 [TM-155, "Fail-Safe"](#). When a malfunction symptom is reproduced, the question sheet is effective. Refer to [TM-182, "Question 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 [TM-158, "DTC Inspection Priority Chart"](#) when multiple DTCs are detected, and then determine the order for performing the diagnosis.

NOTE:

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

Is any DTC detected?

- YES >> GO TO 7.
- NO >> Check according to [GI-51, "Intermittent Incident"](#).

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

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[4AT: RE4F03C]

Use [TM-289, "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.

Question sheet

INFOID:000000006280558

DESCRIPTION

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

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

KEY POINTS

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

SEF907L

WORKSHEET SAMPLE

Question Sheet					
Customer name	MR/MS	Engine #		Manuf. Date	
		Incident Date		VIN	
		Model & Year		In Service Date	
		Trans.		Mileage	km / Mile
Symptoms		☐ Vehicle does not move (☐ Any position ☐ Particular position)			
		☐ No upshift (☐ 1GR → 2GR ☐ 2GR → 3GR ☐ 3GR → 4GR)			
		☐ No downshift (☐ 4GR → 3GR ☐ 3GR → 2GR ☐ 2GR → 1GR)			
		☐ Lock-up malfunction			
		☐ Shift point too high or too low			
		☐ Shift shock or slip			
		☐ Noise or vibration			
		☐ No kick down			
		☐ No pattern select			
		☐ Others			
Frequency		☐ All the time ☐ Under certain conditions ☐ Sometimes (times a day)			

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[4AT: RE4F03C]

Question Sheet																			
Weather conditions	☐ Not affected																		
	<table border="0"> <tr> <td>Weather</td> <td>☐ Fine</td> <td>☐ Cloud</td> <td>☐ Rain</td> <td>☐ Snow</td> <td>☐ Other ()</td> </tr> <tr> <td>Temp.</td> <td>☐ Hot</td> <td>☐ Warm</td> <td>☐ Cool</td> <td>☐ Cold</td> <td>☐ Temp. [Approx. °C (°F)]</td> </tr> <tr> <td>Humidity</td> <td>☐ High</td> <td>☐ Middle</td> <td>☐ Low</td> <td colspan="2"></td> </tr> </table>	Weather	☐ Fine	☐ Cloud	☐ Rain	☐ Snow	☐ Other ()	Temp.	☐ Hot	☐ Warm	☐ Cool	☐ Cold	☐ Temp. [Approx. °C (°F)]	Humidity	☐ High	☐ Middle	☐ Low		
	Weather	☐ Fine	☐ Cloud	☐ Rain	☐ Snow	☐ Other ()													
Temp.	☐ Hot	☐ Warm	☐ Cool	☐ Cold	☐ Temp. [Approx. °C (°F)]														
Humidity	☐ High	☐ Middle	☐ Low																
Transmission conditions	☐ Not affected																		
	<table border="0"> <tr> <td>☐ Cold</td> <td>☐ During warm-up</td> <td>☐ After warm-up</td> </tr> <tr> <td colspan="3">☐ Engine speed (rpm)</td> </tr> </table>	☐ Cold	☐ During warm-up	☐ After warm-up	☐ Engine speed (rpm)														
	☐ Cold	☐ During warm-up	☐ After warm-up																
☐ Engine speed (rpm)																			
Road conditions	☐ Not affected																		
	<table border="0"> <tr> <td>☐ In town</td> <td>☐ In suburbs</td> <td>☐ Freeway</td> <td>☐ Off road (Up / Down)</td> </tr> </table>	☐ In town	☐ In suburbs	☐ Freeway	☐ Off road (Up / Down)														
☐ In town	☐ In suburbs	☐ Freeway	☐ Off road (Up / Down)																
Driving conditions	☐ Not affected																		
	<table border="0"> <tr> <td>☐ At starting</td> <td>☐ While idling</td> <td>☐ While engine racing</td> <td>☐ At racing</td> <td>☐ While cruising</td> </tr> <tr> <td colspan="2">☐ While accelerating</td> <td>☐ While decelerating</td> <td colspan="2">☐ While turning (Right / Left)</td> </tr> <tr> <td colspan="5">☐ Vehicle speed [km/h (MPH)]</td> </tr> </table>	☐ At starting	☐ While idling	☐ While engine racing	☐ At racing	☐ While cruising	☐ While accelerating		☐ While decelerating	☐ While turning (Right / Left)		☐ Vehicle speed [km/h (MPH)]							
	☐ At starting	☐ While idling	☐ While engine racing	☐ At racing	☐ While cruising														
	☐ While accelerating		☐ While decelerating	☐ While turning (Right / Left)															
☐ Vehicle speed [km/h (MPH)]																			
Other conditions																			

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ADDITIONAL SERVICE WHEN REPLACING TCM

< BASIC INSPECTION >

[4AT: RE4F03C]

ADDITIONAL SERVICE WHEN REPLACING TCM

Description

INFOID:000000006314408

Always perform the following items when the TCM is replaced.

LOADING OF CALIBRATION DATA

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

CAUTION:

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

If the TCM is replaced in advance, perform "TRANSAXLE ASSEMBLY REPLACEMENT: Special Repair Requirement".

Work Procedure

INFOID:000000006314409

1.CHECK WORK CONTENTS

Replacing only the TCM>>GO TO 2.

Replacing the TCM after the transaxle assembly is replaced>>GO TO 2.

Replacing the transaxle assembly after the TCM is replaced>>GO TO 4.

2.LOAD CALIBRATION DATA

1. Shift the selector lever to the P position.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait for a minimum of 20 seconds.
4. Turn ignition switch ON.
5. Check that "P" is displayed on shift position indicator on combination meter.

NOTE:

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

Does the shift position indicator display "P"?

YES >> WORK END

NO >> GO TO 3.

3.DETECT MALFUNCTION ITEMS

Check the following items:

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

4.PERFORM TRANSAXLE ASSEMBLY REPLACEMENT

Perform "TRANSAXLE ASSEMBLY REPLACEMENT: Special Repair Requirement".

>> Refer to [TM-185, "Work Procedure"](#).

ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[4AT: RE4F03C]

ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

Description

INFOID:000000006314410

Perform the following work after the transaxle assembly is replaced.

ERASING AND LOADING OF CALIBRATION DATA

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

ERASING OF LEARNED VALUE DATA

- TCM learns indicated pressure for appropriate control of the transaxle assembly and records the learned values. For this reason, the learned values stored in TCM must be erased after replacing a transaxle assembly.

Work Procedure

INFOID:000000006314411

1. INITIALIZE TCM

④ With CONSULT

1. Set parking brake.
2. Turn ignition switch ON.
3. Select "Work Support" in "TRANSMISSION".
4. Select "ERASE MEMORY DATA".
5. While maintaining the conditions below, touch "Start".
 - Vehicle stop status
 - With engine stopped
 - Selector lever: "R" position
 - Accelerator pedal: Depressed

NOTE:

Select "Start" and complete within approximately 20 seconds.

Is "COMPLETED" displayed?

YES >> GO TO 2.

NO >> Turn ignition switch OFF and wait for a minimum of 20 seconds then perform the work again.

2. CHECK AFTER TCM IS INITIALIZED

④ With CONSULT

1. Turn ignition switch OFF with the selector lever in "R" position and wait for 20 seconds or more.
2. Turn ignition switch ON with the selector lever in "R" position.

CAUTION:

Never start the engine.

3. Select "Special function" in "TRANSMISSION".
4. Select "CALIB DATA".
5. Check that indicated value of "CALIB DATA" is equal to the value shown in the following table.

Item name	Display value
C/V CLB ID	00
UNIT CLB ID	00

Is the indicated value of "CALIB DATA" equal to the value shown in the table?

YES >> GO TO 3.

NO >> GO TO 1.

3. LOAD CALIBRATION DATA

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

NOTE:

Displayed approximately 5 seconds after the selector lever is moved to the "P" position.

Does shift position indicator display "P"?

ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[4AT: RE4F03C]

YES >> WORK END

NO >> GO TO 4.

4.DETECT MALFUNCTION ITEMS

Check the following items:

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

Is the inspection result normal?

YES >> GO TO 1.

NO >> Repair or replace the malfunctioning parts.

A/T FLUID

Changing

INFOID:000000006288177

A/T fluid : Refer to [TM-319, "General Specification"](#).Fluid capacity : Refer to [TM-319, "General Specification"](#).**CAUTION:**

- Use only Genuine NISSAN Matic S ATF. Never mix with other ATF.
- Using ATF other than Genuine NISSAN Matic S ATF will cause deterioration driveability and A/T durability, and may damage the A/T, which is not covered by the warranty.
- Always use shop paper. Never use shop cloth.
- Replace a drain plug gasket with new ones at the final stage of the operation when installing.
- Use caution when looking into the drain hole as there is a risk of dripping fluid entering the eye.
- After replacement, always perform an ATF leakage check.

1. Select "Data Monitor" in "TRANSMISSION" using CONSULT.
2. Select "FLUID TEMP", and check that the A/T fluid temperature is 40 °C (104°F) or less.
3. Check that the selector lever is in the "P" position, then completely engage the parking brake.
4. Lift up the vehicle.
5. Remove the drain plug and overflow tube, and then drain the ATF from the oil pan. Refer to [TM-308, "Removal and Installation"](#).
6. Install the charging pipe set (KV311039S0) (A) into the drain hole.

CAUTION:**Tighten the charging pipe by hand.**

7. Install the ATF changer hose (B) to the charging pipe.

CAUTION:**Press the ATF changer hose all the way onto the charging pipe until it stops.**

8. Fill approximately 3 liters (2-5/8 Imp qt) of the ATF.
9. Remove the ATF changer hose and charging pipe, then install the drain plug.

NOTE:

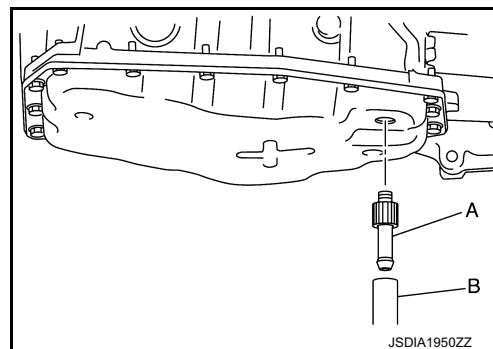
Perform this work quickly because ATF leaks.

10. Lift down the vehicle.
11. Start the engine.
12. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "1", and shift it to the "P" position.

NOTE:

Hold the lever at each position for 5 seconds.

13. Check that the CONSULT "Data Monitor" in "FLUID TEMP" is 35 to 45°C (95 to 113°F).
14. Stop the engine.
15. Lift up the vehicle.
16. Remove the drain plug, and then drain the ATF from the oil pan.
17. Repeat steps 6 to 16 (one time).
18. Install the overflow tube. Refer to [TM-308, "Removal and Installation"](#).

CAUTION:**Be sure to tighten to the specified torque. If it is not tightened to the specified torque, the tube may be damaged.**

< BASIC INSPECTION >

19. Install the charging pipe set (KV311039S0) (A) into the drain hole.

CAUTION:

Tighten the charging pipe by hand.

20. Install the ATF changer hose (B) to the charging pipe.

CAUTION:

Press the ATF changer hose all the way onto the charging pipe until it stops.

21. Fill approximately 3 liters (2-5/8 Imp qt) of the ATF.
22. Remove the ATF changer hose and charging pipe, then install the drain plug.

NOTE:

Perform this work quickly because ATF leaks.

23. Lift down the vehicle.

24. Start the engine.

25. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "1", and shift it to the "P" position.

NOTE:

Hold the lever at each position for 5 seconds.

26. Check that the CONSULT "Data Monitor" in "FLUID TEMP" is 35 to 45°C (95 to 113°F).

27. Lift up the vehicle.

28. Remove the drain plug and check that ATF is drained out from the overflow tube.

CAUTION:

Perform this work with the vehicle idling.

NOTE:

If the ATF is not drained out, refer to "Adjustment" and add ATF.

29. When the flow of ATF slows to a drip, tighten the drain plug to the specified torque. Refer to [TM-308, "Removal and Installation"](#).

CAUTION:

Never reuse drain plug gasket.

30. Lift down the vehicle.

31. Stop the engine.

Adjustment

INFOID:000000006288178

A/T fluid

: Refer to [TM-319, "General Specification"](#).

Fluid capacity

: Refer to [TM-319, "General Specification"](#).

CAUTION:

- Use only Genuine NISSAN Matic S ATF. Never mix with other ATF.
- Using ATF other than Genuine NISSAN Matic S ATF will cause deterioration driveability and A/T durability, and may damage the A/T, which is not covered by the warranty.
- During adjusting of the ATF level, check CONSULT so that the fluid temperature may be maintained from 35 to 45°C (95 to 113°F).
- Use caution when looking into the drain hole as there is a risk of dripping fluid entering the eye.

1. Check that the selector lever is in the "P" position, then completely engage the parking brake.

2. Start the engine.

3. Adjust the ATF to be approximately 40°C (104°F).

NOTE:

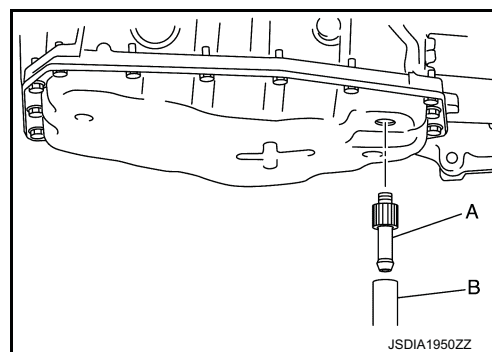
The ATF is largely affected by temperature. Therefore be sure to use CONSULT and check the "FLUID TEMP" under "TRANSMISSION" in "Data Monitor" while adjusting.

4. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "1", and shift it to the "P" position.

NOTE:

Hold the lever at each position for 5 seconds.

5. Lift up the vehicle.



6. Check that there is no ATF leakage.
7. Remove the drain plug. Refer to [TM-308, "Removal and Installation"](#).
8. Install the charging pipe set (KV311039S0) (A) into the drain plug hole.

CAUTION:

Tighten the charging pipe by hand.

9. Install the ATF changer hose (B) to the charging pipe.

CAUTION:

Press the ATF changer hose all the way onto the charging pipe until it stops.

10. Fill approximately 0.5 liters (1/2 Imp qt) of the ATF.
11. Remove the ATF changer hose from the charging pipe, and check that the ATF drains out from the charging pipe. If it does not drain out, perform charging again.

CAUTION:

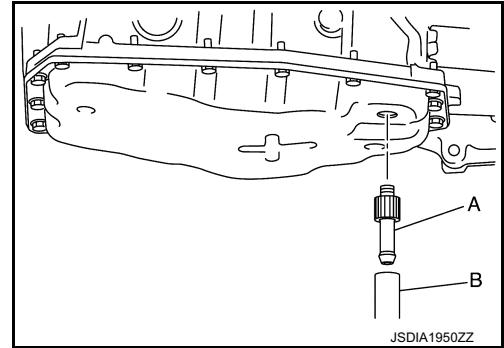
Perform this work with the vehicle idling.

12. When the flow of ATF slows to a drip, disconnect the charging pipe from the oil pan.
13. Tighten the drain plug to the specified torque. Refer to [TM-308, "Removal and Installation"](#).

CAUTION:

Never reuse drain plug gasket.

14. Lift down the vehicle.
15. Stop the engine.



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STALL TEST

< BASIC INSPECTION >

[4AT: RE4F03C]

STALL TEST

Inspection and Judgment

INFOID:000000006280565

INSPECTION

1. Inspect the amount of engine oil. Replenish the engine oil if necessary. Refer to [LU-30. "Inspection"](#) (HR15DE), [LU-6. "Inspection"](#) (HR12DE).
2. Drive for about 10 minutes to warm up the vehicle so that the A/T fluid temperature is 50 to 80°C (122 to 176°F).
3. Inspect the amount of ATF. Replenish if necessary. Refer to [TM-296. "Inspection"](#).
4. Securely engage the parking brake so that the tires do not turn.
5. Start the engine, apply foot brake, and place selector lever in "D" position.
6. Gradually press down the accelerator pedal while holding down the foot brake.
7. Quickly read off the stall speed, then quickly release the accelerator pedal.

CAUTION:

Never hold down the accelerator pedal for more than 5 seconds during this test.

Stall speed : Refer to [TM-320. "Stall Speed"](#).

8. Shift the selector lever to "N" position.
9. Cool down the ATF.

CAUTION:

Run the engine at idle for at least 1 minute.

10. Repeat steps 6 through 9 with selector lever in "1", "2" and "R" positions.

JUDGMENT OF STALL TEST

	Selector lever position				Possible location of malfunction
	"D"	"2"	"1"	"R"	
Stall speed	H	H	H	O	• Low clutch • one-way clutch
	O	O	H	H	Low and reverse brake
	O	O	O	H	Reverse clutch
	L	L	L	L	• Engine • Torque converter one-way clutch
	H	H	H	H	Line pressure low

O: Stall speed within standard value position

H: Stall speed higher than standard value

L: Stall speed lower than standard value

LINE PRESSURE TEST

< BASIC INSPECTION >

[4AT: RE4F03C]

LINE PRESSURE TEST

Inspection and Judgment

INFOID:000000006347268

INSPECTION

1. Inspect the amount of engine oil. Replenish the engine oil if necessary. Refer to [LU-30, "Inspection"](#) (HR15DE), [LU-6, "Inspection"](#) (HR12DE).
2. Drive for about 10 minutes to warm up the vehicle so that the A/T fluid temperature is to 50 to 80°C (122 to 176°F).
3. Inspect the amount of ATF. Replenish if necessary. Refer to [TM-296, "Inspection"](#).
4. Remove fluid pressure detection plug.

1 : "D" position fluid pressure detection plug

2 : "R" position fluid pressure detection plug

5. Install the joint pipe adapter (SST: KV31103600), adapter (SST: 25054000), oil pressure gauge set (commercial service tool).

NOTE:

When using oil pressure gauge, be sure to use O-ring attached to fluid 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 : [TM-320, "Line Pressure"](#)

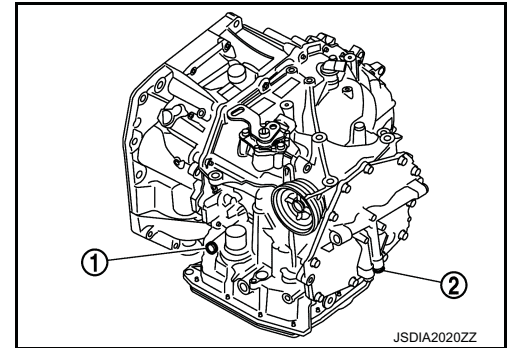
9. Install O-rig to fluid pressure detection plug.

CAUTION:

- Never reuse O-ring.
- Apply ATF to O-ring.

10. Install fluid pressure detection plug.

 : 7.4 N·m (1.70 lb-m, 66 in-lb)



JUDGMENT

Judgment		Possible cause
Idle speed	Low for all positions ("P", "R", "N", "D", "2", "1")	Possible causes include malfunctions in the pressure supply system and low oil pump output. For example • Oil pump wear • Pressure regulator valve or plug sticking or spring fatigue • Oil strainer ⇒ oil pump ⇒ pressure regulator valve passage oil leak • Engine idle speed too low
	Only low for a specific position	Possible causes include an oil pressure leak in a passage or device related to the position after the pressure is distributed by the manual valve.
	High	Possible causes include a sensor malfunction or malfunction in the line pressure adjustment function. For example • Accelerator pedal position signal malfunction • Line pressure solenoid malfunction (sticking in OFF state, filter clog, cut line) • Pressure regulator valve or plug sticking • Engine idle speed too high

LINE PRESSURE TEST

< BASIC INSPECTION >

[4AT: RE4F03C]

Judgment		Possible cause
Stall speed	Line pressure does not rise higher than the line pressure for idle.	Possible causes include a sensor malfunction or malfunction in the pressure adjustment function. For example • TCM malfunction • Line pressure solenoid malfunction (shorting, sticking in ON state) • Pressure regulator valve or plug sticking
	The pressure rises, but does not enter the standard position.	Possible causes include malfunctions in the pressure supply system and malfunction in the pressure adjustment function. For example • Oil pump wear • Line pressure solenoid malfunction (sticking, filter clog) • Pressure regulator valve or plug sticking
	Only low for a specific position	Possible causes include an oil pressure leak in a passage or device related to the position after the pressure is distributed by the manual valve.

A/T POSITION

Inspection and Adjustment

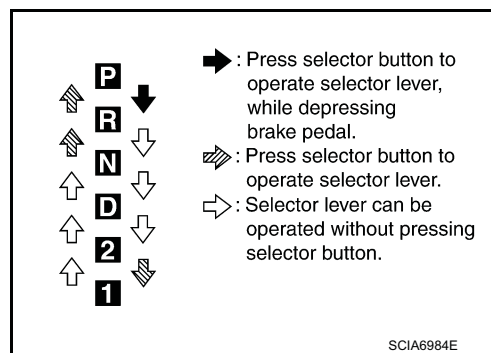
INFOID:000000006307317

INSPECTION

1. Shift the 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 the selector lever and check for excessive effort, sticking, noise or rattle.
4. Check that selector lever stops at each position with the feel of engagement when it is 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.
6. When selector button is pressed in "P", "R", "N", "D", "2" or "1" 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. Check that back-up lamps do not illuminate when selector lever is pushed toward the "R" position when in the "P" or "N" position.

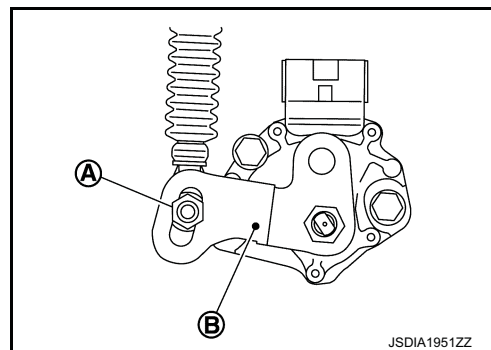
CAUTION:**Check the lighting without pressing shift button.**

9. Check that the engine can only be started with selector lever in the "P" and "N" positions.
10. Check that transaxle is locked completely in "P" position.



ADJUSTMENT

1. Move selector lever to "P" position.
CAUTION:
Turn wheels more than 1/4 rotations and apply the park lock.
2. Loosen the control cable nut (A).
3. Place manual lever (B) to "P" position.
CAUTION:
Never apply any force to manual lever.
4. Tighten the control cable nut. Refer to [TM-301, "Exploded View"](#).
CAUTION:
Fix manual lever when tightening.



DTC/CIRCUIT DIAGNOSIS

U0073 COMMUNICATION BUS A OFF

Description

INFOID:000000006479034

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

DTC Logic

INFOID:000000006282212

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0073	Control Module Communication Bus "A" Off	When the ignition switch is ON, TCM detects a bus-off error continuously for 2 seconds or more.	Harness or connector (CAN communication line is open or shorted)

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

Ⓔ With CONSULT

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

Is "U0073" detected?

- YES >> Go to [TM-194, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006282213

For the diagnosis procedure, refer to [LAN-20, "Trouble Diagnosis Flow Chart"](#).

U0100 LOST COMMUNICATION (ECM A)

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

U0100 LOST COMMUNICATION (ECM A)

Description

INFOID:000000006479033

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

DTC Logic

INFOID:000000006282215

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
U0100	Lost Communication With ECM/PCM "A"	When the ignition switch is ON, TCM is unable to receive the CAN communications signal from ECM continuously for 2 seconds or more.	• ECM • Harness or connector (CAN communication line is open or shorted)

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

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

Is "U0100" detected?

YES >> Go to [TM-195, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006282216

For the diagnosis procedure, refer to [LAN-20, "Trouble Diagnosis Flow Chart"](#).

U0140 LOST COMMUNICATION (BCM)

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

U0140 LOST COMMUNICATION (BCM)

Description

INFOID:000000006479032

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

DTC Logic

INFOID:000000006282218

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
U0140	Lost Communication With Body Control Module	When the ignition switch is ON, TCM is unable to receive the CAN communications signal from BCM continuously for 2 seconds or more.	• BCM • Harness or connector (CAN communication line is open or shorted)

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

Ⓐ With CONSULT

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

Is "U0140" detected?

- YES >> Go to [TM-196, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006282219

For the diagnosis procedure, refer to [LAN-20, "Trouble Diagnosis Flow Chart"](#).

U0155 LOST COMMUNICATION (IPC)

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

U0155 LOST COMMUNICATION (IPC)

Description

INFOID:000000006479031

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

DTC Logic

INFOID:000000006282221

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0155	Lost Communication With Instrument Panel Cluster (IPC) Control Module	When the ignition switch is ON, TCM is unable to receive the CAN communications signal from the combination meter continuously for 2 seconds or more.	- Combination meter - Harness or connector (CAN communication line is open or shorted)

DTC REPRODUCTION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

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

Is "U0155" detected?

YES >> Go to [TM-197, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006282222

For the diagnosis procedure, refer to [LAN-20, "Trouble Diagnosis Flow Chart"](#).

U0300 CAN COMMUNICATION DATA

Description

INFOID:000000006280567

The amount of data transmitted from each control unit is read.

DTC Logic

INFOID:000000006280568

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause
U0300	Internal Control Module Software Incompatibility	When the amount of data transmitted from each control unit is smaller than the specified amount.	Control units other than TCM.

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Start the engine and wait 2 seconds or more.
2. Check DTC.

Is "U0300" detected?

- YES >> Go to [TM-198, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006280569

1. CHECK CONTROL UNIT

Check the number of control units replaced before detecting "U0300".

Is the number of replaced control units one?

- YES >> Since the replaced control unit may be out of specifications, check the part number and specifications.
 NO >> GO TO 2.

2. INSPECTION CONTROL UNIT

 With CONSULT

1. Remove one of the replaced control units.
2. Install the previous control unit mounted before replacement.
3. Turn ignition switch ON and wait 2 seconds or more.
4. Perform "Self Diagnostic Results" in "TRANSMISSION".

Is "U0300" detected?

- YES >> Turn OFF the ignition switch to check the other control units using the same method.
 NO >> Since the removed control unit may be out of specifications, check the part number and specifications.

U1000 CAN COMM CIRCUIT

Description

INFOID:000000006280570

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

DTC Logic

INFOID:000000006280571

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

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

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Start the engine.
2. Run engine for at least 5 consecutive seconds at idle speed.
3. Perform "Self Diagnostic Results" in "TRANSMISSION".

 With GST

Follow the procedure "With CONSULT".

Is "U1000" detected?

- YES >> Go to [TM-199, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006487006

For the diagnosis procedure, refer to [LAN-20, "Trouble Diagnosis Flow Chart"](#).

U1117 LOST COMMUNICATION (ABS)

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

U1117 LOST COMMUNICATION (ABS)

Description

INFOID:000000006479030

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

DTC Logic

INFOID:000000006289038

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1117	Lost Communication With ABS	When the ignition switch is ON, TCM is unable to receive the CAN communications signal from ABS actuator control unit continuously for 2 seconds or more.	• ABS actuator & control module • Harness or connector (CAN communication line is open or shorted)

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

⑧ With CONSULT

1. Turn ignition switch ON, and wait for 5 seconds or more.
2. Check the DTC.

Is "U1117" detected?

- YES >> Go to [TM-200, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006289039

For the diagnosis procedure, refer to [LAN-20, "Trouble Diagnosis Flow Chart"](#).

P062F EEPROM

Description

INFOID:000000006282236

TCM checks the value read in FLASH ROM at ignition switch ON, and judges if there is writing failure to FLASH ROM or malfunction of FLASH ROM.

DTC Logic

INFOID:000000006282237

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P062F	Internal Control Module EEPROM Error	When the ignition switch is ON, an error detected is the memory back-up value from the TCM FLASH ROM.	Control valve ASSY (ROM-assembly)

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

- Shift the selector lever to the P position.
- Start engine.
- Check the first trip DTC.

Is "P062F" detected?

- YES >> Go to [TM-201. "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006282238

1. PERFORM DTC CONFIRMATION PROCEDURE

Refer to [GI-51. "Intermittent Incident"](#).

Is the inspection result normal?

- YES >> Replace the TCM. Refer to [TM-307. "Removal and Installation"](#).
 NO >> Repair or replace damaged parts.

P0705 TRANSMISSION RANGE SWITCH A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0705 TRANSMISSION RANGE SWITCH A

DTC Logic

INFOID:000000006282721

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0705	Transmission Range Sensor "A" Circuit Malfunction (PRNDL input)	The following diagnosis conditions are met and 2 or more position signals are ON at the same time for 5 seconds or more. • Diagnosis condition - TCM power supply voltage: 10 V <TCM power supply voltage <16 V	• Harness or connector (Short circuit between transmission position SW and TCM) • Transmission range switch

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Turn ignition switch ON.
2. Shift the selector lever to the entire position from P to 1. (Hold the selector lever at each position for 10 seconds or more.)
3. Check the first trip DTC.

Is "P0705" detected?

- YES >> Go to [TM-202, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006282722

1. CHECK TCM INPUT SIGNALS

 With CONSULT

1. Turn ignition switch ON.
2. Select "TRANSMISSION" "DATA MONITOR".
3. Select the "D position switch", "N position switch", "R position switch", "P position switch", "2 position switch", and "1 position switch".
4. Shift the selector lever to the entire position from P to 1, and check the ON/OFF operation of each monitor item.

Monitor item	Condition	Status
RANGE SW 1	Selector lever in "1" position	On
	Other than the above	Off
RANGE SW 2	Selector lever in "2" position	On
	Other than the above	Off
RANGE SW D	Selector lever in "D" position	On
	Other than the above	Off
RANGE SW N	Selector lever in "N" position	On
	Other than the above	Off
RANGE SW R	Selector lever in "R" position	On
	Other than the above	Off

P0705 TRANSMISSION RANGE SWITCH A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

Monitor item	Condition	Status
RANGE SW P	Selector lever in "P" position	On
	Other than the above	Off

ⓘ Without CONSULT.

1. Turn ignition switch OFF.
2. Disconnect the TCM connector.
3. Turn ignition switch ON.
4. Shift the selector lever to the entire position from P to 1, and check the voltage between the TCM harness connector terminal and ground.

TCM harness connector		Ground	Condition	Voltage
Connector	Terminal			
F18	2	Ground	Selector lever in “1” position	10 - 16 V
			Other than the above	Approx. 0 V
	3		Selector lever in “2” position	10 - 16 V
			Other than the above	Approx. 0 V
	4		Selector lever in “D” position	10 - 16 V
			Other than the above	Approx. 0 V
	5		Selector lever in “N” position	10 - 16 V
			Other than the above	Approx. 0 V
	6		Selector lever in “R” position	10 - 16 V
			Other than the above	Approx. 0 V
	7		Selector lever in “P” position	10 - 16 V
			Other than the above	Approx. 0 V

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO-1 [D position SW is "On" when selector is not in D position. (Or, connector terminal 4 is at 10 - 16 V.)]>> GO TO 2.

NO-2 [N position SW is "On" when selector is not in N position. (Or, connector terminal 5 is at 10 - 16 V.)]>> GO TO 4.

NO-3 [R position SW is "On" when selector is not in R position. (Or, connector terminal 6 is at 10 - 16 V.)]>> GO TO 6.

NO-4 [P position SW is "On" when selector is not in P position. (Or, connector terminal 7 is at 10 - 16 V.)]>> GO TO 8.

NO-5 [2 position SW is "On" when selector is not in 2 position. (Or, connector terminal 3 is at 10 - 16 V.)]>> GO TO 10.

NO-6 [1 position SW is "On" when selector is not in 1 position. (Or, connector terminal 2 is at 10 - 16 V.)]>> GO TO 12.

2.CHECK D POSITION SW CIRCUIT (PART 1)

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

P0705 TRANSMISSION RANGE SWITCH A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

TCM harness connector			Continuity
Connector	Terminal		
F18	4	2	Does not exist
		3	
		5	
		6	
		7	

Is the check result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CHECK D POSITION SW CIRCUIT (PART 2)

1. Disconnect the transmission range switch connector.
2. Turn the ignition switch ON.
3. Check the voltage between the TCM harness connector and ground.

TCM harness connector		Ground	Voltage
Connector	Terminal		
F18	4	Ground	Approx. 0 V

Is the check result normal?

YES >> GO TO 14.

NO >> Repair or replace the malfunctioning parts.

4.CHECK N POSITION SW CIRCUIT (PART 1)

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

TCM harness connector			Continuity
Connector	Terminal		
F18	5	2	Does not exist
		3	
		4	
		6	
		7	

Is the check result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.CHECK N POSITION SW CIRCUIT (PART 2)

1. Disconnect the transmission range switch connector.
2. Turn ignition switch ON.
3. Check the voltage between the TCM harness connector and ground.

TCM harness connector		Ground	Voltage
Connector	Terminal		
F18	5	Ground	Approx. 0 V

Is the check result normal?

YES >> GO TO 14.

NO >> Repair or replace the malfunctioning parts.

6.CHECK P POSITION SW CIRCUIT (PART 1)

P0705 TRANSMISSION RANGE SWITCH A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

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

TCM harness connector			Continuity
Connector	Terminal		
F18	7	2	Does not exist
		3	
		4	
		5	
		6	

Is the check result normal?

YES >> GO TO 7.

NO >> Repair or replace the malfunctioning parts.

7.CHECK P POSITION SW CIRCUIT (PART 2)

1. Disconnect the transmission range switch connector.
2. Turn ignition switch ON.
3. Check the voltage between the TCM harness connector and ground.

TCM harness connector		Ground	Voltage
Connector	Terminal		
F18	7	Ground	Approx. 0 V

Is the check result normal?

YES >> GO TO 14.

NO >> Repair or replace the malfunctioning parts.

8.CHECK R POSITION SW CIRCUIT (PART 1)

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

TCM harness connector			Continuity
Connector	Terminal		
F18	6	2	Does not exist
		3	
		4	
		5	
		7	

Is the check result normal?

YES >> GO TO 9.

NO >> Repair or replace the malfunctioning parts.

9.CHECK R POSITION SW CIRCUIT (PART 2)

1. Disconnect the transmission range switch connector.
2. Turn ignition switch ON.
3. Check the voltage between the TCM harness connector and ground.

TCM harness connector		Ground	Voltage
Connector	Terminal		
F18	6	Ground	Approx. 0 V

Is the check result normal?

P0705 TRANSMISSION RANGE SWITCH A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

YES >> GO TO 14.

NO >> Repair or replace the malfunctioning parts.

10. CHECK 2 POSITION SW CIRCUIT (PART 1)

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

TCM harness connector			Continuity
Connector	Terminal		
F18	3	2	Does not exist
		4	
		5	
		6	
		7	

Is the check result normal?

YES >> GO TO 11.

NO >> Repair or replace the malfunctioning parts.

11. CHECK 2 POSITION SW CIRCUIT (PART 2)

1. Disconnect the transmission range switch connector.
2. Turn ignition switch ON.
3. Check the voltage between the TCM harness connector and ground.

TCM harness connector		Ground	Voltage
Connector	Terminal		
F18	3	Ground	Approx. 0 V

Is the check result normal?

YES >> GO TO 14.

NO >> Repair or replace the malfunctioning parts.

12. CHECK 1 POSITION SW CIRCUIT (PART 1)

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

TCM harness connector			Continuity
Connector	Terminal		
F18	2	3	Does not exist
		4	
		5	
		6	
		7	

Is the check result normal?

YES >> GO TO 13.

NO >> Repair or replace the malfunctioning parts.

13. CHECK 1 POSITION SW CIRCUIT (PART 2)

1. Disconnect the transmission range switch connector.
2. Turn ignition switch ON.
3. Check the voltage between the TCM harness connector and ground.

P0705 TRANSMISSION RANGE SWITCH A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

TCM harness connector		Ground	Voltage
Connector	Terminal		
F18	2	Ground	Approx. 0 V

Is the check result normal?

YES >> GO TO 14.

NO >> Repair or replace the malfunctioning parts.

14.CHECK TRANSMISSION RANGE SWITCH

Check the transmission range switch. Refer to [TM-207. "Component Inspection \(Transmission Range Switch\)"](#).

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51. "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (Transmission Range Switch)

INFOID:0000000006282723

1.CHECK TRANSMISSION RANGE SWITCH

Check the continuity between the transmission range switch connector terminals.

Transmission range switch		Condition	Continuity
Terminal			
7	10	Selector lever in “P”, “N” position	Exists
		Other than the above	Does not exist
6	9	Selector lever in “1” position	Exists
		Other than the above	Does not exist
	5	Selector lever in “2” position	Exists
		Other than the above	Does not exist
	8	Selector lever in “D” position	Exists
		Other than the above	Does not exist
	4	Selector lever in “N” position	Exists
		Other than the above	Does not exist
	2	Selector lever in “R” position	Exists
		Other than the above	Does not exist
	3	Selector lever in “P” position	Exists
		Other than the above	Does not exist

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the transmission range switch. Replace the transaxle assembly. Refer to [TM-315. "Removal and Installation"](#).

P0706 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0706 TRANSMISSION RANGE SENSOR A

DTC Logic

INFOID:000000006282724

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0706	Transmission Range Sensor "A" Circuit Range/Performance	The following diagnosis conditions are met and the position signal is OFF continuously for 15 seconds or more. • Diagnosis condition - TCM power supply voltage: 10 V <TCM power supply voltage <16 V	• Harness or connector (Open circuit between transmission position SW and TCM) • Transmission position switch • Control cable

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch to ON.
2. Shift the selector lever to the entire position from P to 1. (Hold the selector lever at each position for 20 seconds or more.)
3. Check the first trip DTC.

Is "P0706" detected?

- YES >> Go to [TM-208, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006282725

1. CHECK CONTROL CABLE

Check the control cable. Refer to [TM-193, "Inspection and Adjustment"](#).

Is the check result normal?

- YES >> GO TO 2.
NO >> Adjust the control cable Refer to [TM-193, "Inspection and Adjustment"](#).

2. CHECK POWER CIRCUIT

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

Transmission range switch harness connector		Ground	Voltage
Connector	Terminal		
F21	6	Ground	10 - 16 V

Is the check result normal?

- YES >> GO TO 3.
NO >> GO TO 6.

3. CHECK CIRCUIT BETWEEN TRANSMISSION RANGE SWITCH AND TCM (PART 1)

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

P0706 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

3. Check the continuity between the transmission range switch harness connector and the TCM harness connector.

Transmission range switch harness connector		TCM harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F21	2	F18	3	Exists
	3		2	
	4		4	
	5		6	
	8		5	
	9		7	

Is the check result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.CHECK CIRCUIT BETWEEN TRANSMISSION RANGE SWITCH AND TCM (PART 2)

Check the continuity between the transmission range switch harness connector and ground.

Transmission range switch harness connector		Ground	Continuity
Connector	Terminal		
F21	2	Ground	Does not exist
	3		
	4		
	5		
	8		
	9		

Is the check result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.CHECK TRANSMISSION RANGE SWITCH

Check the transmission range switch. Refer to [TM-210. "Component Inspection \(Transmission Range Switch\)"](#).

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51. "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

6.CHECK CIRCUIT BETWEEN IPDM E/R AND TRANSMISSION RANGE SWITCH (PART 1)

1. Disconnect the IPDM E/R connector.
2. Check the continuity between the IPDM E/R harness connector and the transmission range switch.

IPDM E/R harness connector		Transmission range switch harness connector		Continuity
Connector	Terminal	Connector	Terminal	
E14	57	F21	6	Exists

Is the check result normal?

YES >> GO TO 7.

NO >> Repair or replace the malfunctioning parts.

7.CHECK CIRCUIT BETWEEN IPDM E/R AND TRANSMISSION RANGE SWITCH (PART 2)

Check the continuity between the IPDM E/R harness connector and ground.

P0706 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

IPDM E/R harness connector		Ground	Continuity
Connector	Terminal		
E14	57	Ground	Does not exist

Is the check result normal?

YES >> GO TO 8.

NO >> Repair or replace the malfunctioning parts.

8.DETECTION OF MALFUNCTION ITEMS

Check the following items:

- Harness open circuit or short circuit between the ignition switch and IPDM E/R. Refer to [PG-54, "TYPE A : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE A)* or [PG-130, "TYPE B : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE B)*.

*: Refer to [PG-15, "Application Notice"](#).

- 10 A fuse (No.52, IPDM E/R). Refer to [PG-334, "TYPE A : Fuse, Connector and Terminal Arrangement"](#) (TYPE A)* or [PG-335, "TYPE B : Fuse, Connector and Terminal Arrangement"](#) (TYPE B)*.

*: Refer to [PG-15, "Application Notice"](#).

- IPDM E/R

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (Transmission Range Switch)

INFOID:000000006282726

1.CHECK TRANSMISSION RANGE SWITCH

Check the continuity between the transmission range switch connector terminals.

Transmission range switch		Condition	Continuity
Terminal			
7	10	Selector lever in “P”, “N” position	Exists
		Other than the above	Does not exist
6	9	Selector lever in “1” position	Exists
		Other than the above	Does not exist
	5	Selector lever in “2” position	Exists
		Other than the above	Does not exist
	8	Selector lever in “D” position	Exists
		Other than the above	Does not exist
	4	Selector lever in “N” position	Exists
		Other than the above	Does not exist
	2	Selector lever in “R” position	Exists
		Other than the above	Does not exist
	3	Selector lever in “P” position	Exists
		Other than the above	Does not exist

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the transmission range switch. Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

P0711 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0711 TRANSMISSION FLUID TEMPERATURE SENSOR A

DTC Logic

INFOID:000000006282727

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0711	Transmission Fluid Temperature Sensor "A" Circuit Range/Performance	Under the following diagnosis conditions, the total time required for the A/T fluid temperature identified by the TCM to rise by 1°C (34°F) exceeds 10 minutes. • Diagnosis condition - Selector lever: D position - Vehicle speed: 10 km/h (7 MPH) or higher - Engine speed: 450 rpm or more - Throttle position: 1.0/8 or more - TCM power supply voltage: 10 V <TCM power supply voltage <16 V - A/T fluid temperature: 20°C (68°F) or less NOTE: Each time the A/T fluid temperature rises, the detection time is reset and diagnosis is started again.	A/T fluid temperature sensor

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for a total of 10 minutes or more.

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

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

Is "P0711" detected?

YES >> Go to [TM-211, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006282728

1. CHECK A/T FLUID TEMPERATURE SENSOR

1. Turn ignition switch OFF.
2. Disconnect the A/T unit connector.

P0711 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

3. Check the A/T fluid temperature sensor. Refer to [TM-212, "Component Inspection \(A/T Fluid Temperature Sensor\)"](#).

Is the check result normal?

- YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

Component Inspection (A/T Fluid Temperature Sensor)

INFOID:0000000006282729

1. CHECK A/T FLUID TEMPERATURE SENSOR

Measure the resistance between the A/T unit connector terminals.

A/T unit connector		Condition	Resistance
Terminal			
11	16	A/T fluid temperature: 20°C (68°F)	Approx. 6.5 kΩ
		A/T fluid temperature: 50°C (122°F)	Approx. 2.2 kΩ
		A/T fluid temperature: 80°C (176°F)	Approx. 0.87 kΩ

Is the check result normal?

- YES >> INSPECTION END
NO >> There is a malfunction of the A/T fluid temperature sensor. Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A

DTC Logic

INFOID:000000006282730

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0712	Transmission Fluid Temperature Sensor "A" Circuit Low	Under the following diagnosis conditions, the A/T fluid temperature identified by TCM is 180°C (356°F) or more continuously for 5 seconds or more. • Diagnosis condition - Ignition switch: ON - TCM power supply voltage: 10 V <TCM power supply voltage <16 V	• Harness or connector (Short circuit to ground in the fluid temperature sensor circuit) • A/T fluid temperature sensor

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON, and wait for 10 seconds or more.
2. Check the first trip DTC.

Is "P0712" detected?

- YES >> Go to [TM-213, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006282731

1. CHECK CIRCUIT BETWEEN TCM AND A/T UNIT

1. Turn ignition switch OFF.
2. Disconnect the TCM connector and A/T unit connector.
3. Check the continuity between TCM harness connector and ground.

TCM harness connector		Ground	Continuity
Connector	Terminal		
F18	12	Ground	Does not exist

Is the check result normal?

- YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2. CHECK FLUID TEMPERATURE SENSOR

Check the fluid temperature sensor. Refer to [TM-213, "Component Inspection \(A/T Fluid Temperature Sensor\)"](#).

Is the check result normal?

- YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

Component Inspection (A/T Fluid Temperature Sensor)

INFOID:000000006282732

1. CHECK A/T FLUID TEMPERATURE SENSOR

P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

Measure the resistance between the A/T unit connector terminals.

A/T unit connector		Condition	Resistance
Terminal			
11	16	A/T fluid temperature: 20°C (68°F)	Approx. 6.5 kΩ
		A/T fluid temperature: 50°C (122°F)	Approx. 2.2 kΩ
		A/T fluid temperature: 80°C (176°F)	Approx. 0.87 kΩ

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the A/T fluid temperature sensor. Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A

DTC Logic

INFOID:000000006282733

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0713	Transmission Fluid Temperature Sensor "A" Circuit High	Under the following diagnosis conditions, the A/T fluid temperature identified by TCM is – 40°C (–40°F) or less continuously for 5 seconds or more. • Diagnosis condition - Ignition switch: ON - Vehicle speed: 10 km/h (7 MPH) or more - Selector lever: D position - TCM power supply voltage: 10 V <TCM power supply voltage <16 V	• Harness or connector (Open circuit or short circuit to the power supply in the fluid temperature sensor circuit) • A/T fluid temperature sensor

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

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

Vehicle speed : 10 km/h (7 MPH) or more
Selector lever : D position

3. Check the first trip DTC.

Is "P0713" detected?

YES >> Go to [TM-213, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006282734

1. CHECK CIRCUIT BETWEEN TCM AND A/T UNIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect the TCM connector and A/T unit connector.
3. Check the continuity between the TCM harness connector and the A/T unit harness connector.

TCM harness connector		A/T unit harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F18	12	F24	11	Exists
	11		16	

Is the check result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2. CHECK CIRCUIT BETWEEN TCM AND A/T UNIT (PART 2)

1. Turn ignition switch ON.

P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

2. Check the voltage between the TCM harness connector and ground.

TCM harness connector		Ground	Voltage
Connector	Terminal		
F18	12	Ground	Approx. 0 V

Is the check result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning part.

3. CHECK FLUID TEMPERATURE SENSOR

Check the fluid temperature sensor. Refer to [TM-216, "Component Inspection \(A/T Fluid Temperature Sensor\)"](#).

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (A/T Fluid Temperature Sensor)

INFOID:000000006426158

1. CHECK A/T FLUID TEMPERATURE SENSOR

Measure the resistance between the A/T unit connector terminals.

A/T unit connector		Condition	Resistance
Terminal			
11	16	A/T fluid temperature: 20°C (68°F)	Approx. 6.5 kΩ
		A/T fluid temperature: 50°C (122°F)	Approx. 2.2 kΩ
		A/T fluid temperature: 80°C (176°F)	Approx. 0.87 kΩ

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the A/T fluid temperature sensor. Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

P0717 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0717 INPUT SPEED SENSOR A

DTC Logic

INFOID:000000006289049

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0717	Input/Turbine Speed Sensor "A" Circuit No Signal	Under the following diagnosis conditions, the input speed sensor value is less than 600 rpm continuously for 5 seconds or more. • Diagnosis condition - Engine speed: More than 1,500 rpm - Position: Other than P or N - Idle switch: OFF - Vehicle speed: More than 40 km/h (25 MPH) - TCM power supply voltage: 10 V <TCM power supply voltage <16 V	• Harness or connector (Open circuit or short circuit in the input speed sensor circuit) • Input speed sensor

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1.PREPARATION BEFORE WORK

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

>> GO TO 2.

2.CHECK DTC DETECTION

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

Engine speed	: More than 1,500 rpm
Accelerator pedal position	: 0.5/8.0 or more
Selector lever	: D position
Vehicle speed	: More than 40 km/h (25 MPH)

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

Is "P0717" detected?

YES >> Go to [TM-217. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006289050

1.CHECK INPUT SPEED SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the transaxle assembly connector.
3. Turn ignition switch ON.
4. Check the voltage between the transaxle assembly harness connector and ground.

P0717 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

Transaxle assembly harness connector		Ground	Voltage
Connector	Terminal		
F24	14	Ground	Approx. 5 V

Is the check result normal?

YES >> GO TO 2.

NO >> Check the TCM power supply. Refer to [TM-277. "Diagnosis Procedure"](#).

2.CHECK INPUT SPEED SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check the continuity between the transaxle assembly harness connector and ground.

Input speed sensor harness connector		Ground	Continuity
Connector	Terminal		
F24	16	Ground	Exists

Is the check result normal?

YES >> GO TO 3.

NO >> Check or repair the malfunction items.

3.CHECK INPUT SPEED SENSOR SIGNAL CIRCUIT

1. Disconnect the TCM connector.
2. Check the continuity between the TCM harness connector and the transaxle assembly harness connector.

TCM harness connector		Transaxle assembly harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F18	35	F24	10	Exists

Is the check result normal?

YES >> GO TO 4.

NO >> Check or repair the malfunction items.

4.CHECK INPUT SPEED SENSOR TCM CIRCUIT (CHECK 3)

Check the continuity between TCM harness connector and ground.

TCM harness connector		Ground	Continuity
Connector	Terminal		
F18	35	Ground	Does not exist

Is the check result normal?

YES >> GO TO 5.

NO >> Check or repair the malfunction items.

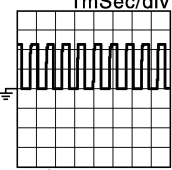
5.CHECK TCM INPUT SIGNALS

1. Connect all of the disconnected connectors.
2. Lift the vehicle.
3. Start the engine.
4. Check the frequency of the input speed sensor.

P0717 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

TCM connector		Ground	Condition	Standard
Connector	Terminal			
F18	35	Ground	- Selector lever: 1 position - While driving at 20km/h (12 MPH)	Approx. 880 Hz 1mSec/div  5V/div JSDIA1906GB

Is the check result normal?

- YES >> Perform a simulation test to judge the cause of the malfunction. Refer to [GI-51, "Intermittent Incident"](#).
- NO >> Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

P0720 OUTPUT SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0720 OUTPUT SPEED SENSOR

DTC Logic

INFOID:000000006289051

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0720	Output Speed Sensor Circuit	Under the following diagnosis conditions, the output speed sensor value is less than 100 rpm continuously for 5 seconds or more. • Diagnosis condition - Selector lever: Shift to a position other than P or N. - Throttle position: More than 0.0/8.0 - Input speed: More than 1,000 rpm	• Harness or connector (Open circuit or short circuit in the output speed sensor circuit) • Output speed sensor

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever : N position ⇒ D position
Throttle position : 0.5/8.0 or more
Engine speed : More than 1,500 rpm

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

Is "P0720" detected?

YES >> Go to [TM-220, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006289052

1. CHECK OUTPUT SPEED SENSOR POWER CIRCUIT (PART 1)

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

Output speed sensor harness connector		Ground	Voltage
Connector	Terminal		
F57	3	Ground	10 – 16V

Is the check result normal?

YES >> GO TO 2.

NO >> GO TO 6.

P0720 OUTPUT SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

2.CHECK OUTPUT SPEED SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check the continuity between the output speed sensor harness connector and ground.

Output speed sensor harness connector		Ground	Continuity
Connector	Terminal		
F57	1	Ground	Exists

Is the check result normal?

YES >> GO TO 3.

NO >> Check or repair the malfunction items.

3.CHECK OUTPUT SPEED SENSOR SIGNAL CIRCUIT (PART 1)

1. Disconnect the TCM connector.
2. Check the continuity between the output speed sensor harness connector and the TCM harness connector.

Output speed sensor harness connector		TCM harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F57	2	F18	24	Exists

Is the check result normal?

YES >> GO TO 4.

NO >> Check or repair the malfunction items.

4.CHECK OUTPUT SPEED SENSOR SIGNAL CIRCUIT (PART 2)

Check the continuity between the output speed sensor harness connector and ground.

Output speed sensor harness connector		Ground	Continuity
Connector	Terminal		
F57	2	Ground	Does not exist

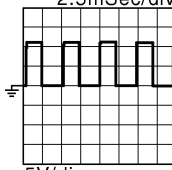
Is the check result normal?

YES >> GO TO 5.

NO >> Check or repair the malfunction items.

5.CHECK OUTPUT SPEED SENSOR SIGNAL

1. Connect all of the disconnected connectors.
2. Lift the vehicle.
3. Start the engine.
4. Check the frequency of the output speed sensor.

TCM connector		Ground	Condition	Standard
Connector	Terminal			
F18	24	Ground	• Selector lever: 1 position • While driving at 20 km/h (12 MPH)	Approx. 640 Hz 2.5mSec/div  5V/div JSDIA1904GB

Is the check result normal?

YES >> Perform a simulation test to judge the cause of the malfunction. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Replace the output speed sensor. Refer to [TM-310, "Removal and Installation"](#).

P0720 OUTPUT SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

6. CHECK OUTPUT SPEED SENSOR POWER CIRCUIT (PART 2)

1. Disconnect the IPDM E/R connector.
2. Check the continuity between the IPDM E/R harness connector terminal and the output speed sensor.

IPDM E/R harness connector		Output speed sensor harness connector		Continuity
Connector	Terminal	Connector	Terminal	
E14	57	F57	3	Exists

Is the check result normal?

YES >> GO TO 7.

NO >> Repair or replace the malfunctioning parts.

7. CHECK OUTPUT SPEED SENSOR POWER CIRCUIT (PART 3)

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

IPDM E/R harness connector		Ground	Continuity
Connector	Terminal		
E14	57	Ground	Does not exist

Is the check result normal?

YES >> GO TO 8.

NO >> Repair or replace the malfunctioning parts.

8. DETECTION OF MALFUNCTION ITEMS

Check the following items:

- Harness open circuit or short circuit between the ignition switch and IPDM E/R. Refer to [PG-54, "TYPE A : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE A)* or [PG-130, "TYPE B : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE B)*.
*: Refer to [PG-15, "Application Notice"](#).
- 10 A fuse (No.52, IPDM E/R). Refer to [PG-334, "TYPE A : Fuse, Connector and Terminal Arrangement"](#) (TYPE A)* or [PG-335, "TYPE B : Fuse, Connector and Terminal Arrangement"](#) (TYPE B)*.
*: Refer to [PG-15, "Application Notice"](#).
- IPDM E/R

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

P0731 1GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0731 1GR INCORRECT RATIO

Description

INFOID:000000006280593

This malfunction is detected when the A/T does not shift into 1GR position as instructed by TCM. This is not only caused by electrical malfunction (circuits open or shorted) but by mechanical malfunction such as control valve sticking, improper solenoid valve operation, etc.

DTC Logic

INFOID:000000006297433

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0731	Gear 1 Incorrect Ratio	Under the following diagnosis conditions, the gear ratio is 1.531 –1.593 (2GR ratio), 0.980 –1.020 (3GR ratio), or 0.683 –0.711 (4GR ratio) continuously for 2 seconds or more. • Diagnosis condition - Shifting is not in progress. - Input speed: 300 rpm or more - Output speed: 300 rpm or more - Engine speed: (Input speed – 50 rpm) or more - Selector lever: D position - Gear: 1GR - Throttle position: 3/8 or more	• Clutches and brakes • Hydraulic circuit • Control valve assembly
		Under the following diagnosis conditions, the gear ratio is 1.531 –1.593 (2GR ratio), 0.980 –1.020 (3GR ratio), or 0.683 –0.711 (4GR ratio) continuously for 2 seconds or more. • Diagnosis condition - Shifting is not in progress. - Input speed: 300 rpm or more - Output speed: 300 rpm or more - Engine speed: (Input speed – 50 rpm) or more - Selector lever: 1 position - Throttle position: 0.7/8 or more	• Clutches and brakes • Hydraulic circuit • Control valve assembly

DTC CONFIRMATION PROCEDURE

CAUTION:

- “**TM-225. "Diagnosis Procedure"**” must be performed before starting “DTC CONFIRMATION PROCEDURE”.
- Never perform “DTC CONFIRMATION PROCEDURE” before completing the repair, which may cause secondary malfunction.
- Always drive vehicle at a safe speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION (PART 1)

 With CONSULT

P0731 1GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

1. Select "1ST GR FNCTN P0731" in "DTC & SRT confirmation" in "TRANSMISSION".
2. Drive vehicle according to the following conditions.

Selector lever	: D position
Gear	: 1GR
Accelerator pedal position	: 3/8 or more
Vehicle speed	: 20 km/h (13 MPH) or more

3. Keep the current driving status for 2 seconds or more if CONSULT screen changes from "OUT OF CONDITION" to "TESTING".

CAUTION:

When "TESTING" is not indicated on CONSULT for a long time, check "Self Diagnostic Results" in "TRANSMISSION". When a DTC other than "P0731" is detected, check the DTC. Refer to [TM-159, "DTC Index"](#).

 With GST.

1. Drive vehicle and maintain the following conditions for 2 seconds or more.

Selector lever	: D position
Gear	: 1GR
Accelerator pedal position	: 3/8 or more
Vehicle speed	: 20 km/h (13 MPH) or more

2. Check the first trip DTC.

Is "OUT OF CONDITION", "STOP VEHICLE", or "COMPLETED RESULT NG" displayed? / Is "P0731" detected?

YES-1 (OUT OF CONDITION.)>>Perform "step 2" again.

YES-2 (STOP VEHICLE.)>>GO TO 3.

YES-3 (COMPLETED RESULT NG)>>Go to [TM-225, "Diagnosis Procedure"](#).

YES-4 ("P0731" is detected.)>>Go to [TM-225, "Diagnosis Procedure"](#).

NO >> GO TO 3.

3.CHECK DTC DETECTION (PART 2)

 With CONSULT

1. Select "1ST GR FNCTN P0731" in "DTC & SRT confirmation" in "TRANSMISSION".
2. Drive vehicle according to the following conditions.

Selector lever	: 1 position
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 20 km/h (13 MPH) or more

3. Keep the current driving status for 2 seconds or more if CONSULT screen changes from "OUT OF CONDITION" to "TESTING".

CAUTION:

When "TESTING" is not indicated on CONSULT for a long time, check "Self Diagnostic Results" in "TRANSMISSION". When a DTC other than "P0731" is detected, check the DTC. Refer to [TM-159, "DTC Index"](#).

 With GST.

1. Drive vehicle and maintain the following conditions for 2 seconds or more.

Selector lever	: 1 position
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 20 km/h (13 MPH) or more

2. Check the first trip DTC.

Is "OUT OF CONDITION", "STOP VEHICLE" or "COMPLETED RESULT NG" displayed? / Is "P0731" detected?

YES-1 (OUT OF CONDITION.)>>Perform step 3 again.

YES-2 (STOP VEHICLE.)>>GO TO 4.

YES-3 (COMPLETED RESULT NG)>>Go to [TM-225, "Diagnosis Procedure"](#).

YES-4 ("P0731" is detected.)>>Go to [TM-225, "Diagnosis Procedure"](#).

P0731 1GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

NO >> GO TO 4.

4.CHECK SYMPTOM

1. Stop the vehicle.
2. Drive vehicle in "D" position allowing it to shift from 1GR to 4GR and check shift timing and shift shock.

>> INSPECTION END

Diagnosis Procedure

INFOID:000000006297438

1.MALFUNCTION CAUSE SIMULATION TEST

Refer to [GI-51. "Intermittent Incident"](#).

Is the check result normal?

- YES >> Replace the transaxle assembly. Refer to [TM-315. "Removal and Installation"](#).
NO >> Repair or replace the malfunctioning parts.

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P0732 2GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0732 2GR INCORRECT RATIO

Description

INFOID:000000006280596

This malfunction is detected when the A/T does not shift into 2GR position as instructed by TCM. This is not only caused by electrical malfunction (circuits open or shorted) but by mechanical malfunction such as control valve sticking, improper solenoid valve operation, etc.

DTC Logic

INFOID:000000006297520

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0732	Gear 2 Incorrect Ratio	Under the following diagnosis conditions, the gear ratio is 2.804 – 2.918 (1GR ratio), 0.980 – 1.020 (3GR ratio), or 0.683 – 0.711 (4GR ratio) continuously for 2 seconds or more. • Diagnosis condition - Shifting is not in progress. - Input speed: 300 rpm or more - Output speed: 300 rpm or more - Engine speed: (Input speed – 50 rpm) or more - Selector lever: 2 position - Gear: 2GR - Throttle position: 0.7/8.0 or more	• Clutches and brakes • Hydraulic circuit • Control valve assembly

DTC CONFIRMATION PROCEDURE

CAUTION:

- **“[TM-227, "Diagnosis Procedure"](#)” must be performed before starting “DTC CONFIRMATION PROCEDURE”.**
- **Never perform “DTC CONFIRMATION PROCEDURE” before completing the repair, which may cause secondary malfunction.**
- **Always drive vehicle at a safe speed.**

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Select “2ND GR FNCTN P0732” in “DTC & SRT confirmation” in “TRANSMISSION”.
2. Drive vehicle according to the following conditions.

Selector lever	: 2 position
Gear	: 2GR
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 20 km/h (13 MPH) or more

3. Keep the current driving status for 2 seconds or more if CONSULT screen changes from “OUT OFCONDITION” to “TESTING”.

CAUTION:

When “TESTING” is not indicated on CONSULT for a long time, check “Self Diagnostic Results” in “TRANSMISSION”. When a DTC other than “P0732” is detected, check the DTC. Refer to [TM-159, "DTC Index"](#).

P0732 2GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]



With GST.

1. Drive vehicle and maintain the following conditions for 2 seconds or more.

Selector lever	: 2 position
Gear	: 2GR
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 20 km/h (13 MPH) or more

2. Check the first trip DTC.

Is "OUT OF CONDITION", "STOP VEHICLE", or "COMPLETED RESULT NG" displayed? / Is "P0732" detected?

YES-1 (OUT OF CONDITION.)>>Perform "step 2" again.

YES-2 (STOP VEHICLE.)>>GO TO 3.

YES-3 (COMPLETED RESULT NG)>>Go to [TM-227, "Diagnosis Procedure"](#).

YES-4 ("P0732" is detected.)>>Go to [TM-227, "Diagnosis Procedure"](#).

NO >> GO TO 3.

3.CHECK SYMPTOM

1. Stop the vehicle.
2. Drive vehicle in "D" position allowing it to shift from 1GR to 4GR and check shift timing and shift shock.

>> INSPECTION END

Diagnosis Procedure

INFOID:000000006297440

1.MALFUNCTION CAUSE SIMULATION TEST

Refer to [GI-51, "Intermittent Incident"](#).

Is the check result normal?

YES >> Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

NO >> Repair or replace the malfunctioning parts.

P0733 3GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0733 3GR INCORRECT RATIO

Description

INFOID:000000006280599

This malfunction is detected when the A/T does not shift into 3GR position as instructed by TCM. This is not only caused by electrical malfunction (circuits open or shorted) but by mechanical malfunction such as control valve sticking, improper solenoid valve operation, etc.

DTC Logic

INFOID:000000006301688

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0733	Gear 3 Incorrect Ratio	Under the following diagnosis conditions, the gear ratio is 2.804 – 2.918 (1GR ratio), 1.531 – 1.593 (2GR ratio), or 0.683 – 0.711 (4GR ratio) continuously for 2 seconds or more. • Diagnosis condition - Shifting is not in progress. - Input speed: 300 rpm or more - Output speed: 300 rpm or more - Engine speed: (Input speed – 50 rpm) or more - Selector lever: D position - Gear: 3GR - Throttle position: 0.7/8.0 or more	• Clutches and brakes • Hydraulic circuit • Control valve assembly

DTC CONFIRMATION PROCEDURE

CAUTION:

- **“[TM-229, "Diagnosis Procedure"](#)” must be performed before starting “DTC CONFIRMATION PROCEDURE”.**
- **Never perform “DTC CONFIRMATION PROCEDURE” before completing the repair, which may cause secondary malfunction.**
- **Always drive vehicle at a safe speed.**

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Select “3RD GR FNCTN P0733” in “DTC & SRT confirmation” in “TRANSMISSION”.
2. Drive vehicle according to the following conditions.

Selector lever	: D position (O/D OFF)
Gear	: 3GR
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 20 km/h (13 MPH) or more

3. Keep the current driving status for 2 seconds or more if CONSULT screen changes from “OUT OFCONDITION” to “TESTING”.

CAUTION:

When “TESTING” is not indicated on CONSULT for a long time, check “Self Diagnostic Results” in “TRANSMISSION”. When a DTC other than “P0733” is detected, check the DTC. Refer to [TM-159, "DTC Index"](#).

P0733 3GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

 With GST.

1. Drive vehicle and maintain the following conditions for 2 seconds or more.

Selector lever	: D position (O/D OFF)
Gear	: 3GR
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 20 km/h (13 MPH) or more

2. Check the first trip DTC.

Is "OUT OF CONDITION", "STOP VEHICLE", or "COMPLETED RESULT NG" displayed? / Is "P0733" detected?

YES-1 (OUT OF CONDITION.)>>Perform "step 2" again.

YES-2 (STOP VEHICLE.)>>GO TO 3.

YES-3 (COMPLETED RESULT NG)>>Go to [TM-229, "Diagnosis Procedure"](#).

YES-4 ("P0733" is detected.)>>Go to [TM-229, "Diagnosis Procedure"](#).

NO >> GO TO 3.

3.CHECK SYMPTOM

1. Stop the vehicle.

2. Drive vehicle in "D" position allowing it to shift from 1GR to 4GR and check shift timing and shift shock.

>> INSPECTION END

Diagnosis Procedure

INFOID:000000006297449

1.MALFUNCTION CAUSE SIMULATION TEST

Refer to [GI-51, "Intermittent Incident"](#).

Is the check result normal?

YES >> Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

NO >> Repair or replace the malfunctioning parts.

P0734 4GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0734 4GR INCORRECT RATIO

Description

INFOID:000000006280602

This malfunction is detected when the A/T does not shift into 4GR position as instructed by TCM. This is not only caused by electrical malfunction (circuits open or shorted) but by mechanical malfunction such as control valve sticking, improper solenoid valve operation, etc.

DTC Logic

INFOID:000000006301689

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0734	Gear 4 Incorrect Ratio	Under the following diagnosis conditions, the gear ratio is 2.804 – 2.918 (1GR ratio), 1.531 – 1.593 (2GR ratio), or 0.980 – 1.020 (3GR ratio) continuously for 2 seconds or more. • Diagnosis condition - Shifting is not in progress. - Input speed: 300 rpm or more - Output speed: 300 rpm or more - Engine speed: (Input speed – 50 rpm) or more - Selector lever: D position - Gear: 4GR - Throttle position: 0.7/8.0 or more	• Clutches and brakes • Hydraulic circuit • Control valve assembly

DTC CONFIRMATION PROCEDURE

CAUTION:

- **“[TM-231, "Diagnosis Procedure"](#)” must be performed before starting “DTC CONFIRMATION PROCEDURE”.**
- **Never perform “DTC CONFIRMATION PROCEDURE” before completing the repair, which may cause secondary malfunction.**
- **Always drive vehicle at a safe speed.**

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Select “4TH GR FNCTN P0734” in “DTC & SRT confirmation” in “TRANSMISSION”.
2. Drive vehicle according to the following conditions.

Selector lever	: D position
Gear	: 4GR
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 20 km/h (13 MPH) or more

3. Keep the current driving status for 2 seconds or more if CONSULT screen changes from “OUT OFCONDITION” to “TESTING”.

CAUTION:

When “TESTING” is not indicated on CONSULT for a long time, check “Self Diagnostic Results” in “TRANSMISSION”. When a DTC other than “P0734” is detected, check the DTC. Refer to [TM-159, "DTC Index"](#).

P0734 4GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]



With GST.

1. Drive vehicle and maintain the following conditions for 2 seconds or more.

Selector lever	: D position
Gear	: 4GR
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 20 km/h (13 MPH) or more

2. Check the first trip DTC.

Is "OUT OF CONDITION", "STOP VEHICLE", or "COMPLETED RESULT NG" displayed? / Is "P0734" detected?

YES-1 (OUT OF CONDITION.)>>Perform "step 2" again.

YES-2 (STOP VEHICLE.)>>GO TO 3.

YES-3 (COMPLETED RESULT NG)>>Go to [TM-231, "Diagnosis Procedure"](#).

YES-4 ("P0734" is detected.)>>Go to [TM-231, "Diagnosis Procedure"](#).

NO >> GO TO 3.

3.CHECK SYMPTOM

1. Stop the vehicle.
2. Drive vehicle in "D" position allowing it to shift from 1GR to 4GR and check shift timing and shift shock.

>> INSPECTION END

Diagnosis Procedure

INFOID:000000006297444

1.MALFUNCTION CAUSE SIMULATION TEST

Refer to [GI-51, "Intermittent Incident"](#).

Is the check result normal?

YES >> Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

NO >> Repair or replace the malfunctioning parts.

P0740 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0740 TORQUE CONVERTER

DTC Logic

INFOID:000000006301856

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0740	Torque Converter Clutch Circuit/Open	The follow diagnosis conditions are met, and the TCM torque converter clutch solenoid valve current monitor reading is 200 mA or less continuously for 0.5 seconds or more. • Diagnosis condition - Solenoid valve output current: 750 mA or more - TCM power supply voltage: 10 V < TCM power supply voltage < 16 V	• Harness or connector (Torque converter clutch solenoid valve circuit is open or shorted to power supply.) • Torque converter clutch solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever : D position
Vehicle speed : 45 km/h (28 MPH) or more

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

Is "P0740" detected?

YES >> Go to [TM-232, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006301857

1. CHECK CIRCUIT BETWEEN TCM AND THE A/T UNIT

1. Turn the ignition switch OFF.
2. Disconnect the TCM connector and the A/T unit connector.
3. Check the continuity between the TCM harness connector and the A/T unit harness connector.

TCM harness connector		A/T unit harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F18	38	F24	18	Exists

Is the check result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

P0740 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

Check the torque converter clutch solenoid valve. Refer to [TM-233. "Component Inspection \(Torque Converter Clutch Solenoid Valve\)"](#).

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51. "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (Torque Converter Clutch Solenoid Valve)

INFOID:000000006314406

1. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check the resistance between the A/T unit connector terminal and ground.

A/T unit connector Terminal	Ground	Condition	Resistance
18	Ground	A/T fluid temperature: 20°C (68°F)	Approx. 6.1 Ω
		A/T fluid temperature: 50°C (122°F)	Approx. 6.9 Ω
		A/T fluid temperature: 80°C (176°F)	Approx. 7.7 Ω

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the torque converter clutch solenoid valve. Replace the transaxle assembly. Refer to [TM-315. "Removal and Installation"](#).

P0743 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0743 TORQUE CONVERTER

DTC Logic

INFOID:000000006301859

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0743	Torque Converter Clutch Circuit Electrical	The following diagnosis conditions are met, and the TCM torque converter clutch solenoid valve current monitor reading is 200 mA or less continuously for 0.5 seconds or more. • Diagnosis condition - Solenoid valve output current: 750 mA or more - GND short circuit diagnosis occurs in the solenoid valve drive circuit. - TCM power supply voltage: 10 V < TCM power supply voltage < 16 V	• Harness or connector (Short circuit to ground in the torque converter clutch solenoid valve circuit) • Torque converter clutch solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever : D position
Vehicle speed : 45 km/h (28 MPH) or more

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

Is "P0743" detected?

YES >> Go to [TM-234, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006301860

1. CHECK CIRCUIT BETWEEN TCM AND A/T UNIT

1. Turn ignition switch OFF.
2. Disconnect the TCM connector and A/T unit connector.
3. Check the continuity between TCM harness connector and ground.

TCM harness connector		Ground	Continuity
Connector	Terminal		
F18	38	Ground	Does not exist

Is the check result normal?

YES >> GO TO 2.

P0743 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

NO >> Repair or replace the malfunctioning parts.

2.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check the torque converter clutch solenoid valve. Refer to [TM-235, "Component Inspection \(Torque Converter Clutch Solenoid Valve\)"](#).

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (Torque Converter Clutch Solenoid Valve)

INFOID:000000006428177

1.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check the resistance between the A/T unit connector terminal and ground.

A/T unit connector Terminal	Ground	Condition	Resistance
18	Ground	A/T fluid temperature: 20°C (68°F)	Approx. 6.1 Ω
		A/T fluid temperature: 50°C (122°F)	Approx. 6.9 Ω
		A/T fluid temperature: 80°C (176°F)	Approx. 7.7 Ω

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the torque converter clutch solenoid valve. Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

P0744 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0744 TORQUE CONVERTER

Description

INFOID:000000006301862

This DTC is detected when the torque converter clutch solenoid valve is electrically normal but the torque converter clutch does not engage. This is not due to an electrical malfunction (circuit open or shorted), but is instead due to a mechanical malfunction (sticking of the control valve, malfunction of the solenoid, etc.).

DTC Logic

INFOID:000000006301863

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0744	Torque Converter Clutch Circuit Intermittent	The following diagnosis conditions are met, and the torque converter slip speed is at or above a set value (40 rpm + Vehicle speed / 2) continuously for 30 seconds or more. • Diagnosis condition - Lock-up pressure difference: More than Max. lock-up pressure difference × 0.95	• Torque converter clutch solenoid valve • Control valve assembly • Torque converter

DTC REPRODUCTION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Drive the vehicle.
2. Maintain the following conditions for 35 seconds or more.

Selector lever : D position
Vehicle speed : 45 km/h (28 MPH) or more

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

Is "P0744" detected?

YES >> Go to [TM-236, "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006301864

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to [TM-191, "Inspection and Judgment"](#).

Is the check result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunction items.

2. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

1. Turn ignition switch OFF.
2. Disconnect the A/T unit connector.
3. Check the torque converter clutch solenoid valve. Refer to [TM-237, "Component Inspection \(Torque Converter Clutch Solenoid Valve\)"](#).

P0744 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunction items.

Component Inspection (Torque Converter Clutch Solenoid Valve)

INFOID:0000000006426156

1. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check the resistance between the A/T unit connector terminal and ground.

A/T unit connector Terminal	Ground	Condition	Resistance
18	Ground	A/T fluid temperature: 20°C (68°F)	Approx. 6.1 Ω
		A/T fluid temperature: 50°C (122°F)	Approx. 6.9 Ω
		A/T fluid temperature: 80°C (176°F)	Approx. 7.7 Ω

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the torque converter clutch solenoid valve. Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

P0863 TCM COMMUNICATION

Description

INFOID:000000006282229

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

DTC Logic

INFOID:000000006282230

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0863	TCM Communication Circuit	When detecting error during the initial diagnosis of CAN controller to TCM.	Harness or connectors (CAN communication line is open or shorted.)

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Start engine and wait for at least 10 seconds.
2. Check DTC.

Is "P0863" detected?

- YES >> Go to [TM-238, "Diagnosis Procedure"](#).
 NO >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000006282231

1. CHECK CAN COMMUNICATION CIRCUIT

 With CONSULT

1. Start the engine.
2. Check DTC.

Is "P0863" indicated?

- YES >> Replace the TCM. Refer to [TM-307, "Removal and Installation"](#).
 NO >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

P0962 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0962 PRESSURE CONTROL SOLENOID A

DTC Logic

INFOID:000000006303356

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0962	Pressure Control Solenoid "A" Control Circuit Low	The following diagnosis conditions are met, and the current monitor reading of the TCM line pressure solenoid valve is 200 mA or less continuously for 0.5 seconds or more. • Diagnosis condition - Solenoid valve output current: 750 mA or more - GND short circuit diagnosis occurs in the solenoid valve drive circuit. - TCM power supply voltage: 10 V < TCM power supply voltage < 16 V	• Harness or connector (Short circuit to ground in the line pressure solenoid valve circuit) • Line pressure solenoid valve

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever : N position
Engine speed : Idle speed

3. Check the first trip DTC.

Is "P0962" detected?

YES >> Go to [TM-239, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006303357

1. CHECK CIRCUIT BETWEEN TCM AND A/T UNIT

1. Turn ignition switch OFF.
2. Disconnect the TCM connector and A/T unit connector.
3. Check the continuity between TCM harness connector and ground.

TCM harness connector		Ground	Continuity
Connector	Terminal		
F18	37	Ground	Does not exist

Is the check result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2. CHECK LINE PRESSURE SOLENOID VALVE

P0962 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

Check the line pressure solenoid valve. Refer to [TM-240, "Component Inspection \(Line Pressure Solenoid Valve\)"](#).

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (Line Pressure Solenoid Valve)

INFOID:000000006282752

1. CHECK LINE PRESSURE SOLENOID VALVE

Check the resistance between the A/T unit connector and ground.

A/T unit connector	Ground	Condition	Resistance
Terminal			
13	Ground	A/T fluid temperature: 20°C (68°F)	Approx. 6.1 Ω
		A/T fluid temperature: 50°C (122°F)	Approx. 6.9 Ω
		A/T fluid temperature: 80°C (176°F)	Approx. 7.7 Ω

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of line pressure solenoid valve. Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

P0963 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0963 PRESSURE CONTROL SOLENOID A

DTC Logic

INFOID:000000006303354

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0963	Pressure Control Solenoid "A" Control Circuit High	The following diagnosis conditions are met, and the current monitor reading of the TCM line pressure solenoid valve is 200 mA or less continuously for 0.5 seconds or more. • Diagnosis condition - Solenoid valve output current: 750 mA or more - TCM power supply voltage: 10 V < TCM power supply voltage < 16 V	• Harness or connector (Line pressure solenoid valve circuit is open or shorted to power supply.) • Line pressure solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever : N position
Engine speed : Idle speed

3. Check the first trip DTC.

Is "P0963" detected?

YES >> Go to [TM-241, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006303355

1. CHECK CIRCUIT BETWEEN TCM AND A/T UNIT

1. Turn the ignition switch OFF.
2. Disconnect the TCM connector and A/T unit connector.
3. Check the continuity between the TCM harness connector and the A/T unit harness connector.

TCM harness connector		A/T unit harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F18	37	F24	13	Exists

Is the check result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2. CHECK LINE PRESSURE SOLENOID VALVE

Check the line pressure solenoid valve. Refer to [TM-240, "Component Inspection \(Line Pressure Solenoid Valve\)"](#).

P0963 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (Line Pressure Solenoid Valve)

INFOID:000000006426159

1. CHECK LINE PRESSURE SOLENOID VALVE

Check the resistance between the A/T unit connector and ground.

A/T unit connector Terminal	Ground	Condition	Resistance
13	Ground	A/T fluid temperature: 20°C (68°F)	Approx. 6.1 Ω
		A/T fluid temperature: 50°C (122°F)	Approx. 6.9 Ω
		A/T fluid temperature: 80°C (176°F)	Approx. 7.7 Ω

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of line pressure solenoid valve. Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

P0973 SHIFT SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0973 SHIFT SOLENOID A

DTC Logic

INFOID:000000006303825

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0973	Shift Solenoid "A" Control Circuit Low	The following diagnosis conditions are met, and the TCM select switch ON-OFF solenoid valve monitor value is ON continuously for 0.5 seconds or more. • Diagnosis condition - select switch ON-OFF solenoid valve: OFF - TCM power supply voltage: 10 V < TCM power supply voltage < 16 V	• Harness or connector (Short circuit to ground in the select switch ON-OFF solenoid valve circuit) • Select switch ON-OFF solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever : N position ⇒ R position

3. Check the first trip DTC.

Is "P0973" detected?

YES >> Go to [TM-243, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006303826

1. CHECK CIRCUIT BETWEEN TCM AND A/T UNIT

1. Turn the ignition switch OFF.
2. Disconnect the TCM connector and A/T unit connector.
3. Check the continuity between TCM harness connector and ground.

TCM harness connector		Ground	Continuity
Connector	Terminal		
F18	1	Ground	Does not exist

Is the check result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2. CHECK SELECT SWITCH ON-OFF SOLENOID VALVE

Check the select switch ON-OFF solenoid valve. Refer to [TM-244, "Component Inspection \(Select Switch ON-OFF Solenoid Valve\)"](#).

P0973 SHIFT SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (Select Switch ON-OFF Solenoid Valve)

INFOID:000000006303827

1. CHECK SELECT SWITCH ON-OFF SOLENOID VALVE

Check the resistance between the A/T unit connector and ground.

A/T unit connector Terminal	Ground	Condition	Resistance
19	Ground	A/T fluid temperature: 20°C (68°F)	Approx. 27 Ω
		A/T fluid temperature: 50°C (122°F)	Approx. 31 Ω
		A/T fluid temperature: 80°C (176°F)	Approx. 35 Ω

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of select switch ON-OFF solenoid valve. Replace the transaxle assembly.
Refer to [TM-315, "Removal and Installation"](#).

P0974 SHIFT SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P0974 SHIFT SOLENOID A

DTC Logic

INFOID:000000006303828

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0974	Shift Solenoid "A" Control Circuit High	The following diagnosis conditions are met, and the TCM select switch ON-OFF solenoid valve monitor value is OFF continuously for 0.5 seconds or more. • Diagnosis condition - Select switch ON-OFF solenoid valve: ON - TCM power supply voltage: 10 V < TCM power supply voltage < 16 V	• Harness or connector (Select switch ON-OFF solenoid valve circuit is open or shorted to power supply) • Select switch ON-OFF solenoid valve

DTC REPRODUCTION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever : N position ⇒ R position

3. Check the first trip DTC.

Is "P0974" detected?

YES >> Go to [TM-245, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006303829

1. CHECK CIRCUIT BETWEEN TCM AND A/T UNIT

1. Turn ignition switch OFF.
2. Disconnect the TCM connector and A/T unit connector.
3. Check the continuity between the TCM harness connector and the A/T unit harness connector.

TCM harness connector		A/T unit harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F18	1	F24	19	Exists

Is the check result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2. CHECK SELECT SWITCH ON-OFF SOLENOID VALVE

Check the select switch ON-OFF solenoid valve. Refer to [TM-246, "Component Inspection \(Select Switch ON-OFF Solenoid Valve\)"](#).

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

P0974 SHIFT SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

NO >> Repair or replace the malfunctioning parts.

Component Inspection (Select Switch ON-OFF Solenoid Valve)

INFOID:000000006426160

1. CHECK SELECT SWITCH ON-OFF SOLENOID VALVE

Check the resistance between the A/T unit connector and ground.

A/T unit connector Terminal	Ground	Condition	Resistance
19	Ground	A/T fluid temperature: 20°C (68°F)	Approx. 27 Ω
		A/T fluid temperature: 50°C (122°F)	Approx. 31 Ω
		A/T fluid temperature: 80°C (176°F)	Approx. 35 Ω

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of select switch ON-OFF solenoid valve. Replace the transaxle assembly.
Refer to [TM-315, "Removal and Installation"](#).

P1701 TCM

DTC Logic

INFOID:000000006282239

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P1701	Power Supply Circuit	Under the following diagnosis conditions, the battery voltage supplied to the TCM is less than 8.4V continuously for 0.2 seconds or more. • Diagnosis condition - TCM power supply voltage: More than 11 V	Harness or connector (TCM power supply circuit is open or shorted.)

DTC REPRODUCTION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine.
2. Check the first trip DTC.

Is "P1701" detected?

YES >> Go to [TM-247, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006282240

1. CHECK TCM BATTERY VOLTAGE CIRCUIT

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

TCM harness connector		IPDM E/R harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F18	47	E14	57	Exists
	48			

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> GO TO 2.

2. DETECTION OF MALFUNCTION ITEMS

10 A fuse (No.52, IPDM E/R). Refer to [PG-334, "TYPE A : Fuse, Connector and Terminal Arrangement"](#) (TYPE A)* or [PG-335, "TYPE B : Fuse, Connector and Terminal Arrangement"](#) (TYPE B)*.

*: Refer to [PG-15, "Application Notice"](#).

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

P1735 1GR INTERLOCK

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P1735 1GR INTERLOCK

DTC Logic

INFOID:000000006307637

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P1735	1GR Interlock	The following diagnosis conditions are met and the detection conditions continue for 0.5 seconds or more. • Diagnosis condition - Shifting is not in progress. - Stop lamp switch OFF • Detection conditions - Deceleration: Less than – 0.35 G - Gear ratio: 6% or more, or – 6% or less compared with normal gear ratio	• 2-4 brake solenoid valve • Control valve assembly

DTC CONFIRMATION PROCEDURE

CAUTION:

- **“[TM-248, "Diagnosis Procedure"](#)” must be performed before starting “DTC CONFIRMATION PROCEDURE”.**
- **Never perform “DTC CONFIRMATION PROCEDURE” before completing the repair, which may cause secondary malfunction.**
- **Always drive vehicle at a safe speed.**

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever	: 1 position
Stop lamp switch	: OFF
Vehicle speed	: 20 km/h (13 MPH) or more

5. Check the first trip DTC.

Is “P1735” detected?

YES >> Go to [TM-248, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006307638

1. MALFUNCTION CAUSE SIMULATION TEST

Refer to [GI-51, "Intermittent Incident"](#).

Is the check result normal?

YES >> Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).
NO >> Repair or replace the malfunctioning parts.

P1736 2GR INTERLOCK

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P1736 2GR INTERLOCK

DTC Logic

INFOID:000000006308145

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P1736	2GR Interlock	The following diagnosis conditions are met and the detection conditions continue for 0.5 seconds or more. • Diagnosis condition - Shifting is not in progress. - Stop lamp switch OFF • Detection conditions - Deceleration: Less than – 0.35 G - Gear ratio: 6% or more, or – 6% or less compared with normal gear ratio	• High clutch/low & reverse brake solenoid valve • Control valve assembly

DTC REPRODUCTION PROCEDURE

CAUTION:

- **“[TM-249, "Diagnosis Procedure"](#)” must be performed before starting “DTC CONFIRMATION PROCEDURE”.**
- **Never perform “DTC CONFIRMATION PROCEDURE” before completing the repair, which may cause secondary malfunction.**
- **Always drive vehicle at a safe speed.**

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever	: 2 position
Gear	: 2GR
Stop lamp switch	: OFF
Vehicle speed	: 20 km/h (13 MPH) or more

4. Check the first trip DTC.

Is “P1736” detected?

- YES >> Go to [TM-249, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006308146

1. MALFUNCTION CAUSE SIMULATION TEST

Refer to [GI-51, "Intermittent Incident"](#).

Is the check result normal?

- YES >> Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).
NO >> Repair or replace the malfunctioning parts.

P1737 3GR INTERLOCK

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P1737 3GR INTERLOCK

DTC Logic

INFOID:000000006308147

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC Detection Condition	Possible causes
P1737	3GR Interlock	The following diagnosis conditions are met and the detection conditions continue for 0.5 seconds or more. • Diagnosis condition - Shifting is not in progress. - Stop lamp switch OFF • Detection conditions - Deceleration: Less than – 0.35 G - Gear ratio: 6% or more, or – 6% or less compared with normal gear ratio	• 2-4 brake solenoid valve • Control valve assembly

DTC REPRODUCTION PROCEDURE

CAUTION:

- **“[TM-250, "Diagnosis Procedure"](#)” must be performed before starting “DTC CONFIRMATION PROCEDURE”.**
- **Never perform “DTC CONFIRMATION PROCEDURE” before completing the repair, which may cause secondary malfunction.**
- **Always drive vehicle at a safe speed.**

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever	: D position (O/D OFF)
Gear	: 3GR
Stop lamp switch	: OFF
Vehicle speed	: 20 km/h (13 MPH) or more

4. Check the first trip DTC.

Is “P1737” detected?

- YES >> Go to [TM-250, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006308148

1. MALFUNCTION CAUSE SIMULATION TEST

Refer to [GI-51, "Intermittent Incident"](#).

Is the check result normal?

- YES >> Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).
NO >> Repair or replace the malfunctioning parts.

P1738 4GR INTERLOCK

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P1738 4GR INTERLOCK

DTC Logic

INFOID:0000000006308149

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P1738	4GR Interlock	The following diagnosis conditions are met and the detection conditions continue for 0.5 seconds or more. • Diagnosis condition - Shifting is not in progress. - Stop lamp switch OFF • Detection conditions - Deceleration: Less than – 0.35 G - Gear ratio: 6% or more, or – 6% or less compared with normal gear ratio	• Low clutch solenoid valve • Control valve assembly

DTC REPRODUCTION PROCEDURE

CAUTION:

- **“[TM-251, "Diagnosis Procedure"](#)” must be performed before starting “DTC CONFIRMATION PROCEDURE”.**
- **Never perform “DTC CONFIRMATION PROCEDURE” before completing the repair, which may cause secondary malfunction.**
- **Always drive vehicle at a safe speed.**

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever	: D position
Gear	: 4GR
Stop lamp switch	: OFF
Vehicle speed	: 20 km/h (13 MPH) or more

4. Check the first trip DTC.

Is “P1738” detected?

- YES >> Go to [TM-251, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000006308150

1. MALFUNCTION CAUSE SIMULATION TEST

Refer to [GI-51, "Intermittent Incident"](#).

Is the check result normal?

- YES >> Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).
NO >> Repair or replace the malfunctioning parts.

P1744 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P1744 TORQUE CONVERTER

Description

INFOID:000000006308160

This DTC is detected when the torque converter clutch solenoid valve is electrically normal but the torque converter clutch does not engage. This is not due to an electrical malfunction (circuit open or shorted), but is instead due to a mechanical malfunction (sticking of the control valve, malfunction of the solenoid, etc.).

DTC Logic

INFOID:000000006308161

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P1744	Torque Converter Clutch Circuit Intermittent	The following diagnosis conditions are met, and the torque converter slip speed is above a set value (target slip speed + 200 rpm) continuously for 30 seconds or more. • Diagnosis condition - Lock-up pressure difference: More than Max. lock-up pressure difference $\times 0.95$	• Torque converter clutch solenoid valve • Control valve assembly • Torque converter

DTC REPRODUCTION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Drive the vehicle.
2. Maintain the following conditions for 40 seconds or more.

Selector lever : D position
Vehicle speed : 45 km/h (28 MPH) or more

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

Is "P1744" detected?

YES >> Go to [TM-252, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006308162

1. CHECK LINE PRESSURE

Perform line pressure test. Refer to [TM-191, "Inspection and Judgment"](#).

Is the check result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunction items.

2. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

1. Turn the ignition switch OFF.
2. Disconnect the A/T unit connector.
3. Check the torque converter clutch solenoid valve. Refer to [TM-253, "Component Inspection \(Torque Converter Clutch Solenoid Valve\)"](#).

P1744 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-53, "Circuit Inspection"](#).

NO >> Repair or replace the malfunction items.

Component Inspection (Torque Converter Clutch Solenoid Valve)

INFOID:000000006426161

1. CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check the resistance between the A/T unit connector terminal and ground.

A/T unit connector Terminal	Ground	Condition	Resistance
18	Ground	A/T fluid temperature: 20°C (68°F)	Approx. 6.1 Ω
		A/T fluid temperature: 50°C (122°F)	Approx. 6.9 Ω
		A/T fluid temperature: 80°C (176°F)	Approx. 7.7 Ω

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the torque converter clutch solenoid valve. Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

P17A0 R GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P17A0 R GR INCORRECT RATIO

Description

INFOID:000000006307991

This malfunction is detected when the A/T does not shift into reverse position as instructed by TCM. This is not only caused by electrical malfunction (circuits open or shorted) but by mechanical malfunction such as control valve sticking, improper solenoid valve operation, etc.

DTC Logic

INFOID:000000006307992

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17A0	R Gear Incorrect Ratio	Under the following diagnosis conditions, the gear ratio is 2.449 or more continuously for 2 seconds or more. • Diagnosis condition - Shifting is not in progress. - Input speed: 300 rpm or more - Output speed: 300 rpm or more - Engine speed: (Input speed – 50 rpm) or more - Selector lever: R position - Throttle position: 0.7/8.0 or more	• High clutch/low & reverse brake solenoid valve • Control valve assembly

DTC CONFIRMATION PROCEDURE

CAUTION:

- **"[TM-255, "Diagnosis Procedure"](#)" must be performed before starting "DTC CONFIRMATION PROCEDURE".**
- **Never perform "DTC CONFIRMATION PROCEDURE" before completing the repair, which may cause secondary malfunction.**
- **Always drive vehicle at a safe speed.**

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Select "R POSITION FNCTN" in "DTC & SRT confirmation" in "TRANSMISSION".
2. Drive vehicle according to the following conditions.

Selector lever : R position
Throttle position : 0.7/8 or more
Vehicle speed : 5 km/h (8 MPH) or more

3. Keep the current driving status for 2 seconds or more if CONSULT screen changes from "OUT OF CONDITION" to "TESTING".

CAUTION:

When "TESTING" is not indicated on CONSULT for a long time, check "Self Diagnostic Results" in "TRANSMISSION". When a DTC other than "P17A0" is detected, check the DTC. Refer to [TM-159, "DTC Index"](#).

With GST.

1. Start the engine.
2. Drive vehicle and maintain the following conditions for 2 seconds or more.

P17A0 R GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

Selector lever : R position
Throttle position : 0.7/8 or more
Vehicle speed : 5 km/h (8 MPH) or more

3. Check the first trip DTC.

Is "OUT_OF CONDITION", "STOP VEHICLE" or "COMPLETED RESULT NG" displayed? / Is "P17A0" detected?

YES-1 (OUT OF CONDITION.)>>Perform "step 2" again.

YES-2 (STOP VEHICLE.)>>INSPECTION END

YES-3 (COMPLETED RESULT NG)>>Go to [TM-255, "Diagnosis Procedure"](#).

YES-4 ("P17A0" is detected.)>>Go to [TM-255, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006307993

1.MALFUNCTION CAUSE SIMULATION TEST

Refer to [GI-51, "Intermittent Incident"](#).

Is the check result normal?

YES >> Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

NO >> Repair or replace the malfunctioning parts.

P17A1 1GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P17A1 1GR INCORRECT RATIO

Description

INFOID:000000006307623

This malfunction is detected when the A/T does not shift into 1GR position as instructed by TCM. This is not only caused by electrical malfunction (circuits open or shorted) but by mechanical malfunction such as control valve sticking, improper solenoid valve operation, etc.

DTC Logic

INFOID:000000006570013

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17A1	1GR Incorrect Ratio	Under the following diagnosis conditions, the gear ratio is 3.033 or more continuously for 2 seconds or more. • Diagnosis condition - Shifting is not in progress. - Input speed: 300 rpm or more - Output speed: 300 rpm or more - Engine speed: (Input speed – 50 rpm) or more– - Selector lever: D position - Gear: 1st - Throttle position: 3/8 or more	• Low clutch solenoid valve • Control valve assembly
		Under the following diagnosis conditions, the gear ratio is 3.033 or more continuously for 2 seconds or more. • Diagnosis condition - Shifting is not in progress. - Input speed: 300 rpm or more - Output speed: 300 rpm or more - Engine speed: (Input speed – 50 rpm) or more - Selector lever: 1 position - Throttle position: 0.7/8 or more	• Low clutch solenoid valve • Control valve assembly

DTC CONFIRMATION PROCEDURE

CAUTION:

- **“[TM-258. "Diagnosis Procedure"](#)” must be performed before starting “DTC CONFIRMATION PROCEDURE”.**
- **Never perform “DTC CONFIRMATION PROCEDURE” before completing the repair, which may cause secondary malfunction.**
- **Always drive vehicle at a safe speed.**

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION (PART 1)

⑧ With CONSULT

1. Select “1ST GR FNCTN P0731” in “DTC & SRT confirmation” in “TRANSMISSION”.

NOTE:

“1ST GR FNCTN P0731” can be used in this diagnosis.

2. Drive vehicle according to the following conditions.

P17A1 1GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

Selector lever	: D position
Gear	: 1GR
Accelerator pedal position	: 3/8 or more
Vehicle speed	: 5 km/h (4 MPH) or more

3. Keep the current driving status for 2 seconds or more if CONSULT screen changes from "OUT OFCONDITION" to "TESTING".

CAUTION:

When "TESTING" is not indicated on CONSULT for a long time, check "Self Diagnostic Results" in "TRANSMISSION". When a DTC other than "P17A1" is detected, check the DTC. Refer to [TM-159, "DTC Index"](#).

 With GST.

1. Drive vehicle and maintain the following conditions for 2 seconds or more.

Selector lever	: D position
Gear	: 1GR
Accelerator pedal position	: 3/8 or more
Vehicle speed	: 5 km/h (4 MPH) or more

2. Check the first trip DTC.

Is "OUT OF CONDITION", "STOP VEHICLE", or "COMPLETED RESULT NG" displayed? / Is "P17A1" detected?

YES-1 (OUT OF CONDITION.)>>Perform "step 2" again.

YES-2 (STOP VEHICLE.)>>GO TO 3.

YES-3 (COMPLETED RESULT NG)>>Go to [TM-258, "Diagnosis Procedure"](#).

YES-4 ("P17A1" is detected.)>>Go to [TM-258, "Diagnosis Procedure"](#).

NO >> GO TO 3.

3.CHECK DTC DETECTION (PART 2)

 With CONSULT

1. Select "1ST GR FNCTN P0731" in "DTC & SRT confirmation" in "TRANSMISSION".

NOTE:

"1ST GR FNCTN P0731" can be used in this diagnosis.

2. Drive vehicle according to the following conditions.

Selector lever	: 1 position
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 5 km/h (4 MPH) or more

3. Keep the current driving status for 2 seconds or more if CONSULT screen changes from "OUT OFCONDITION" to "TESTING".

CAUTION:

When "TESTING" is not indicated on CONSULT for a long time, check "Self Diagnostic Results" in "TRANSMISSION". When a DTC other than "P17A1" is detected, check the DTC. Refer to [TM-159, "DTC Index"](#).

 With GST.

1. Drive vehicle and maintain the following conditions for 2 seconds or more.

Selector lever	: 1 position
Throttle position	: 0.7/8 or more
Vehicle speed	: 5 km/h (4 MPH) or more

2. Check the first trip DTC.

Is "OUT OF CONDITION", "STOP VEHICLE", or "COMPLETED RESULT NG" displayed? / Is "P17A1" detected?

YES-1 (OUT OF CONDITION.)>>Perform step 3 again.

YES-2 (STOP VEHICLE.)>>GO TO 4.

YES-3 (COMPLETED RESULT NG)>>Go to [TM-258, "Diagnosis Procedure"](#).

YES-4 ("P17A1" is detected.)>>Go to [TM-258, "Diagnosis Procedure"](#).

P17A1 1GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

NO >> GO TO 4.

4.CHECK SYMPTOM

1. Stop the vehicle.
2. Drive vehicle in "D" position allowing it to shift from 1GR to 4GR and check shift timing and shift shock.

>> INSPECTION END

Diagnosis Procedure

INFOID:000000006307625

1.MALFUNCTION CAUSE SIMULATION TEST

Refer to [GI-51. "Intermittent Incident"](#).

Is the check result normal?

- YES >> Replace the transaxle assembly. Refer to [TM-315. "Removal and Installation"](#).
NO >> Repair or replace the malfunctioning parts.

P17A2 2GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P17A2 2GR INCORRECT RATIO

Description

INFOID:000000006307626

This malfunction is detected when the A/T does not shift into 2GR position as instructed by TCM. This is not only caused by electrical malfunction (circuits open or shorted) but by mechanical malfunction such as control valve sticking, improper solenoid valve operation, etc.

DTC Logic

INFOID:000000006570014

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17A2	2GR Incorrect Ratio	Under the following diagnosis conditions, the gear ratio is 3.033 or more continuously for 2 seconds or more. • Diagnosis condition - Shifting is not in progress. - Input speed: 300 rpm or more - Output speed: 300 rpm or more - Engine speed: (Input speed – 50 rpm) or more - Selector lever: 2 position - Gear: 2GR - Throttle position: 0.7/8.0 or more	• Low clutch solenoid valve • Control valve assembly

DTC CONFIRMATION PROCEDURE

CAUTION:

- **“[TM-260, "Diagnosis Procedure"](#)” must be performed before starting “DTC CONFIRMATION PROCEDURE”.**
- **Never perform “DTC CONFIRMATION PROCEDURE” before completing the repair, which may cause secondary malfunction.**
- **Always drive vehicle at a safe speed.**

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Select “2ND GR FNCTN P0732” in “DTC & SRT confirmation” in “TRANSMISSION”.

NOTE:

“2ND GR FNCTN P0731” can be used in this diagnosis.

2. Drive vehicle according to the following conditions.

Selector lever	: 2 position
Gear	: 2GR
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 5 km/h (4 MPH) or more

3. Keep the current driving status for 2 seconds or more if CONSULT screen changes from “OUT OF CONDITION” to “TESTING”.

CAUTION:

When “TESTING” is not indicated on CONSULT for a long time, check “Self Diagnostic Results” in “TRANSMISSION”. When a DTC other than “P17A2” is detected, check the DTC. Refer to [TM-159, "DTC Index"](#).

P17A2 2GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]



With GST.

1. Drive vehicle and maintain the following conditions for 2 seconds or more.

Selector lever	: 2 position
Gear	: 2GR
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 5 km/h (4 MPH) or more

2. Check the first trip DTC.

Is "OUT OF CONDITION", "STOP VEHICLE", or "COMPLETED RESULT NG" displayed? / Is "P17A2" detected?

YES-1 (OUT OF CONDITION.)>>Perform "step 2" again.

YES-2 (STOP VEHICLE.)>>GO TO 3.

YES-3 (COMPLETED RESULT NG)>>Go to [TM-260, "Diagnosis Procedure"](#).

YES-4 ("P17A2" is detected.)>>Go to [TM-260, "Diagnosis Procedure"](#).

NO >> GO TO 3.

3.CHECK SYMPTOM

1. Stop the vehicle.
2. Drive vehicle in "D" position allowing it to shift from 1GR to 4GR and check shift timing and shift shock.

>> INSPECTION END

Diagnosis Procedure

INFOID:000000006307628

1.MALFUNCTION CAUSE SIMULATION TEST

Refer to [GI-51, "Intermittent Incident"](#).

Is the check result normal?

YES >> Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

NO >> Repair or replace the malfunctioning parts.

P17A3 3GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P17A3 3GR INCORRECT RATIO

Description

INFOID:000000006307629

This malfunction is detected when the A/T does not shift into 3GR position as instructed by TCM. This is not only caused by electrical malfunction (circuits open or shorted) but by mechanical malfunction such as control valve sticking, improper solenoid valve operation, etc.

DTC Logic

INFOID:000000006570015

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17A3	Gear 3 Incorrect Ratio	Under the following diagnosis conditions, the gear ratio is 3.033 or more continuously for 2 seconds or more. • Diagnosis condition - Shifting is not in progress. - Input speed: 300 rpm or more - Output speed: 300 rpm or more - Engine speed: (Input speed – 50 rpm) or more - Selector lever: D position - Gear: 3GR - Throttle position: 0.7/8.0 or more	• Low clutch solenoid valve • Control valve assembly

DTC CONFIRMATION PROCEDURE

CAUTION:

- **“[TM-262, "Diagnosis Procedure"](#)” must be performed before starting “DTC CONFIRMATION PROCEDURE”.**
- **Never perform “DTC CONFIRMATION PROCEDURE” before completing the repair, which may cause secondary malfunction.**
- **Always drive vehicle at a safe speed.**

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Select “3RD GR FNCTN P0733” in “DTC & SRT confirmation” in “TRANSMISSION”.

NOTE:

“3RD GR FNCTN P0731” can be used in this diagnosis.

2. Drive vehicle according to the following conditions.

Selector lever	: D position (O/D OFF)
Gear	: 3GR
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 20 km/h (13 MPH) or more

3. Keep the current driving status for 2 seconds or more if CONSULT screen changes from “OUT OF CONDITION” to “TESTING”.

CAUTION:

When “TESTING” is not indicated on CONSULT for a long time, check “Self Diagnostic Results” in “TRANSMISSION”. When a DTC other than “P17A3” is detected, check the DTC. Refer to [TM-159, "DTC Index"](#).

P17A3 3GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]



With GST.

1. Drive vehicle and maintain the following conditions for 2 seconds or more.

Selector lever	: D position (O/D OFF)
Gear	: 3GR
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 20 km/h (13 MPH) or more

2. Check the first trip DTC.

Is "OUT OF CONDITION", "STOP VEHICLE", or "COMPLETED RESULT NG" displayed? / Is "P17A3" detected?

YES-1 (OUT OF CONDITION.)>>Perform "step 2" again.

YES-2 (STOP VEHICLE.)>>GO TO 3.

YES-3 (COMPLETED RESULT NG)>>Go to [TM-262, "Diagnosis Procedure"](#).

YES-4 ("P17A3" is detected.)>>Go to [TM-262, "Diagnosis Procedure"](#).

NO >> GO TO 3.

3.CHECK SYMPTOM

1. Stop the vehicle.
2. Drive vehicle in "D" position allowing it to shift from 1GR to 4GR and check shift timing and shift shock.

>> INSPECTION END

Diagnosis Procedure

INFOID:000000006307631

1.MALFUNCTION CAUSE SIMULATION TEST

Refer to [GI-51, "Intermittent Incident"](#).

Is the check result normal?

YES >> Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

NO >> Repair or replace the malfunctioning parts.

P17A4 4GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P17A4 4GR INCORRECT RATIO

Description

INFOID:000000006307634

This malfunction is detected when the A/T does not shift into 4GR position as instructed by TCM. This is not only caused by electrical malfunction (circuits open or shorted) but by mechanical malfunction such as control valve sticking, improper solenoid valve operation, etc.

DTC Logic

INFOID:000000006570016

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17A4	Gear 4 Incorrect Ratio	Under the following diagnosis conditions, the gear ratio is 1.060 or more continuously for 2 seconds or more. • Diagnosis condition - Shifting is not in progress. - Input speed: 300 rpm or more - Output speed: 300 rpm or more - Engine speed: (Input speed – 50 rpm) or more - Selector lever: D position - Gear: 4GR - Throttle position: 0.7/8.0 or more	• High clutch/low & reverse brake solenoid valve • 2-4 brake solenoid valve • Control valve assembly

DTC CONFIRMATION PROCEDURE

CAUTION:

- **"[TM-264, "Diagnosis Procedure"](#)" must be performed before starting "DTC CONFIRMATION PROCEDURE".**
- **Never perform "DTC CONFIRMATION PROCEDURE" before completing the repair, which may cause secondary malfunction.**
- **Always drive vehicle at a safe speed.**

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Select "4TH GR FNCTN P0734" in "DTC & SRT confirmation" in "TRANSMISSION".

NOTE:

"4TH GR FNCTN P0731" can be used in this diagnosis.

2. Drive vehicle according to the following conditions.

Selector lever	: D position
Gear	: 4GR
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 20 km/h (13MPH) or more

3. Keep the current driving status for 2 seconds or more if CONSULT screen changes from "OUT OF CONDITION" to "TESTING".

CAUTION:

When "TESTING" is not indicated on CONSULT for a long time, check "Self Diagnostic Results" in "TRANSMISSION". When a DTC other than "P17A4" is detected, check the DTC. Refer to [TM-159, "DTC Index"](#).

P17A4 4GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]



With GST.

1. Drive vehicle and maintain the following conditions for 2 seconds or more.

Selector lever	: D position
Gear	: 4GR
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 20 km/h (13MPH) or more

2. Check the first trip DTC.

Is "OUT OF CONDITION", "STOP VEHICLE" or "COMPLETED RESULT NG" displayed? / Is "P17A4" detected?

YES-1 (OUT OF CONDITION.)>>Perform "step 2" again.

YES-2 (STOP VEHICLE.)>>GO TO 3.

YES-3 (COMPLETED RESULT NG)>>Go to [TM-264, "Diagnosis Procedure"](#).

YES-4 ("P17A4" is detected.)>>Go to [TM-264, "Diagnosis Procedure"](#).

NO >> GO TO 3.

3.CHECK SYMPTOM

1. Stop the vehicle.
2. Drive vehicle in "D" position allowing it to shift from 1GR to 4GR and check shift timing and shift shock.

>> INSPECTION END

Diagnosis Procedure

INFOID:000000006307636

1.MALFUNCTION CAUSE SIMULATION TEST

Refer to [GI-51, "Intermittent Incident"](#).

Is the check result normal?

YES >> Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

NO >> Repair or replace the malfunctioning parts.

P17AA LOW CLUTCH SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P17AA LOW CLUTCH SOLENOID

DTC Logic

INFOID:000000006307677

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17AA	Low Clutch Solenoid Circuit	The following diagnosis conditions are met, and the TCM low clutch solenoid valve current monitor reading is 200 mA or less continuously for 0.5 seconds or more. • Diagnosis condition - Solenoid valve output current: 750 mA or more - GND short circuit diagnosis occurs in the solenoid valve drive circuit. - TCM power supply voltage: 10 V < TCM power supply voltage < 16 V	• Harness or connector (Short circuit to ground in the low clutch solenoid valve circuit) • Low clutch solenoid valve

DTC REPRODUCTION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever : D position
Gear : 1GR, 2GR, 3GR
Vehicle speed : 5 km/h (4 MPH) or more

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

Is "P17AA" detected?

YES >> Go to [TM-273, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006307678

1. CHECK CIRCUIT BETWEEN TCM AND A/T UNIT

1. Turn the ignition switch OFF.
2. Disconnect the TCM connector and A/T unit connector.
3. Check the continuity between TCM harness connector and ground.

TCM harness connector		Ground	Continuity
Connector	Terminal		
F18	30	Ground	Does not exist

Is the check result normal?

YES >> GO TO 2.

P17AA LOW CLUTCH SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

NO >> Repair or replace the malfunctioning parts.

2.CHECK LOW CLUTCH SOLENOID VALVE

Check the low clutch solenoid valve. Refer to [TM-266, "Component Inspection \(Low Clutch Solenoid Valve\)"](#).

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (Low Clutch Solenoid Valve)

INFOID:0000000006307679

1.CHECK LOW CLUTCH SOLENOID VALVE

Check the resistance between the A/T unit connector and ground.

A/T unit connector Terminal	Ground	Condition	Resistance
6	Ground	A/T fluid temperature: 20°C (68°F)	Approx. 6.2 Ω
		A/T fluid temperature: 50°C (122°F)	Approx. 7.0 Ω
		A/T fluid temperature: 80°C (176°F)	Approx. 7.8 Ω

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the low clutch solenoid valve. Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

P17AB LOW CLUTCH SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P17AB LOW CLUTCH SOLENOID

DTC Logic

INFOID:000000006307688

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17AB	Low Clutch Solenoid Circuit	The following diagnosis conditions are met, and the TCM low clutch solenoid valve current monitor reading is 200 mA or less continuously for 0.5 seconds or more. • Diagnosis condition - Solenoid valve output current: 750 mA or more - TCM power supply voltage: 10 V < TCM power supply voltage < 16 V	• Harness or connector (Low clutch solenoid valve circuit is open or shorted to power supply.) • Low clutch solenoid valve

DTC REPRODUCTION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever : D position
Gear : 1GR, 2GR, 3GR
Vehicle speed : 5 km/h (4 MPH) or more

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

Is "P17AB" detected?

YES >> Go to [TM-275, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006307689

1. CHECK CIRCUIT BETWEEN TCM AND A/T UNIT

1. Turn ignition switch OFF.
2. Disconnect the TCM connector and A/T unit connector.
3. Check the continuity between the TCM harness connector and the A/T unit harness connector.

TCM harness connector		A/T unit harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F18	30	F24	6	Exists

Is the check result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

P17AB LOW CLUTCH SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

2.CHECK LOW CLUTCH SOLENOID VALVE

Check the low clutch solenoid valve. Refer to [TM-268, "Component Inspection \(Low Clutch Solenoid Valve\)"](#).

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (Low Clutch Solenoid Valve)

INFOID:000000006426162

1.CHECK LOW CLUTCH SOLENOID VALVE

Check the resistance between the A/T unit connector and ground.

A/T unit connector Terminal	Ground	Condition	Resistance
6	Ground	A/T fluid temperature: 20°C (68°F)	Approx. 6.2 Ω
		A/T fluid temperature: 50°C (122°F)	Approx. 7.0 Ω
		A/T fluid temperature: 80°C (176°F)	Approx. 7.8 Ω

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the low clutch solenoid valve. Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

P17AD 2-4 BRAKE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P17AD 2-4 BRAKE SOLENOID

DTC Logic

INFOID:000000006307680

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17AD	2-4 Brake Solenoid Circuit	The following diagnosis conditions are met, and the current monitor reading of the TCM 2-4 brake solenoid valve is 200 mA or less continuously for 0.5 seconds or more. • Diagnosis condition - Solenoid valve output current: 750 mA or more - GND short circuit diagnosis occurs in the solenoid valve drive circuit. - TCM power supply voltage: 10 V < TCM power supply voltage < 16 V	• Harness or connector (Short circuit to ground in the 2-4 brake solenoid valve circuit) • 2-4 brake solenoid valve

DTC REPRODUCTION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever : 2 position
Gear : 2GR
Vehicle speed : 20 km/h (13 MPH) or more

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

Is "P17AD" detected?

YES >> Go to [TM-269, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006307681

1. CHECK CIRCUIT BETWEEN TCM AND A/T UNIT

1. Turn ignition switch OFF.
2. Disconnect the TCM connector and A/T unit connector.
3. Check the continuity between TCM harness connector and ground.

TCM harness connector		Ground	Continuity
Connector	Terminal		
F18	39	Ground	Does not exist

Is the check result normal?

YES >> GO TO 2.

P17AD 2-4 BRAKE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

NO >> Repair or replace the malfunctioning parts.

2.CHECK 2-4 BRAKE SOLENOID VALVE

Check the 2-4 brake solenoid valve. Refer to [TM-270, "Component Inspection \(2-4 Brake Solenoid Valve\)"](#).

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (2-4 Brake Solenoid Valve)

INFOID:000000006307682

1.CHECK 2-4 BRAKE SOLENOID VALVE

Check the resistance between the A/T unit connector and ground.

A/T unit connector Terminal	Ground	Condition	Resistance
12	Ground	A/T fluid temperature: 20°C (68°F)	Approx. 6.2 Ω
		A/T fluid temperature: 50°C (122°F)	Approx. 7.0 Ω
		A/T fluid temperature: 80°C (176°F)	Approx. 7.8 Ω

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the 2-4 brake solenoid valve. Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

P17AE 2-4 BRAKE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P17AE 2-4 BRAKE SOLENOID

DTC Logic

INFOID:000000006307691

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17AE	2-4 Brake Solenoid Circuit	The following diagnosis conditions are met, and the TCM 2-4 brake solenoid valve current monitor reading is 200 mA or less continuously for 0.5 seconds or more. • Diagnosis condition - Solenoid valve output current: 750 mA or more - TCM power supply voltage: 10 V < TCM power supply voltage < 16 V	• Harness or connector (2-4 brake solenoid valve circuit is open or shorted to power source.) • 2-4 brake solenoid valve

DTC REPRODUCTION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever	: 2 position
Gear	: 2GR
Vehicle speed	: 20 km/h (13 MPH) or more

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

Is "P17AE" detected?

YES >> Go to [TM-275, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006307692

1. CHECK CIRCUIT BETWEEN TCM AND A/T UNIT

1. Turn the ignition switch OFF.
2. Disconnect the TCM connector and A/T unit connector.
3. Check the continuity between the TCM harness connector and the A/T unit harness connector.

TCM harness connector		A/T unit harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F18	39	F24	12	Exists

Is the check result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

P17AE 2-4 BRAKE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

2.CHECK 2-4 BRAKE SOLENOID VALVE

Check the 2-4 brake solenoid valve. Refer to [TM-272, "Component Inspection \(2-4 Brake Solenoid Valve\)"](#).

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (2-4 Brake Solenoid Valve)

INFOID:000000006426163

1.CHECK 2-4 BRAKE SOLENOID VALVE

Check the resistance between the A/T unit connector and ground.

A/T unit connector Terminal	Ground	Condition	Resistance
12	Ground	A/T fluid temperature: 20°C (68°F)	Approx. 6.2 Ω
		A/T fluid temperature: 50°C (122°F)	Approx. 7.0 Ω
		A/T fluid temperature: 80°C (176°F)	Approx. 7.8 Ω

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the 2-4 brake solenoid valve. Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

P17B0 HIGH CLUTCH/LOW & REVERSE BRAKE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P17B0 HIGH CLUTCH/LOW & REVERSE BRAKE SOLENOID

DTC Logic

INFOID:000000006307683

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17B0	High Clutch/Low & Reverse Brake Solenoid Circuit	The following diagnosis conditions are met, and the current monitor reading of the TCM high clutch/low & reverse brake solenoid valve is 200 mA or less continuously for 0.5 seconds or more. • Diagnosis condition - Solenoid valve output current: 750 mA or more - GND short circuit diagnosis occurs in the solenoid valve drive circuit. - TCM power supply voltage: 10 V < TCM power supply voltage < 16 V	• Harness or connector (Short circuit to ground in the high clutch/low & reverse brake solenoid valve circuit) • High clutch/low & reverse brake solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever : D position
Gear : 3GR, 4GR
Vehicle speed : 45 km/h (28 MPH) or more

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

Is "P17B0" detected?

YES >> Go to [TM-273, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006307684

1. CHECK CIRCUIT BETWEEN TCM AND A/T UNIT

1. Turn ignition switch OFF.
2. Disconnect the TCM connector and A/T unit connector.
3. Check the continuity between TCM harness connector and ground.

TCM harness connector		Ground	Continuity
Connector	Terminal		
F18	40	Ground	Does not exist

Is the check result normal?

P17B0 HIGH CLUTCH/LOW & REVERSE BRAKE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

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

2.CHECK HIGH CLUTCH/LOW & REVERSE BRAKE SOLENOID VALVE

Check the high clutch/low & reverse brake solenoid valve. Refer to [TM-274, "Component Inspection \(High Clutch Solenoid Valve\)"](#).

Is the check result normal?

- YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

Component Inspection (High Clutch Solenoid Valve)

INFOID:000000006307685

1.CHECK HIGH CLUTCH/LOW & REVERSE BRAKE SOLENOID VALVE

Check the resistance between the A/T unit connector and ground.

A/T unit connector	Ground	Condition	Resistance
Terminal			
7	Ground	A/T fluid temperature: 20°C (68°F)	Approx. 6.2 Ω
		A/T fluid temperature: 50°C (122°F)	Approx. 7.0 Ω
		A/T fluid temperature: 80°C (176°F)	Approx. 7.8 Ω

Is the check result normal?

- YES >> INSPECTION END
NO >> There is a malfunction of the high clutch/low & reverse brake solenoid valve. Replace the transaxle assembly. Refer to [TM-315, "Removal and Installation"](#).

P17B1 HIGH CLUTCH/LOW & REVERSE BRAKE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

P17B1 HIGH CLUTCH/LOW & REVERSE BRAKE SOLENOID

DTC Logic

INFOID:000000006307694

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17B1	High clutch/Low & Reverse Brake Solenoid Circuit High	The following diagnosis conditions are met, and the current monitor reading of the TCM line pressure solenoid valve is 200 mA or less continuously for 0.5 seconds or more. • Diagnosis condition - Solenoid valve output current: 750 mA or more - TCM power supply voltage: 10 V < TCM power supply voltage < 16 V	• Harness or connector (High clutch/low & reverse brake solenoid valve circuit is open or shorted to power supply.) • High clutch/low & reverse brake solenoid valve

DTC REPRODUCTION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever	: D position
Gear	: 3GR, 4GR
Vehicle speed	: 45 km/h (28 MPH) or more

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

Is "P17B1" detected?

YES >> Go to [TM-275, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006307695

1. CHECK CIRCUIT BETWEEN TCM AND A/T UNIT

1. Turn ignition switch OFF.
2. Disconnect the TCM connector and A/T unit connector.
3. Check the continuity between the TCM harness connector and the A/T unit harness connector.

TCM harness connector		A/T unit harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F18	40	F24	7	Exists

Is the check result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

P17B1 HIGH CLUTCH/LOW & REVERSE BRAKE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

2.CHECK HIGH CLUTCH/LOW & REVERSE BRAKE SOLENOID VALVE

Check the high clutch/low & reverse brake solenoid valve. Refer to [TM-276. "Component Inspection \(High Clutch Solenoid Valve\)"](#).

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51. "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (High Clutch Solenoid Valve)

INFOID:000000006426164

1.CHECK HIGH CLUTCH/LOW & REVERSE BRAKE SOLENOID VALVE

Check the resistance between the A/T unit connector and ground.

A/T unit connector Terminal	Ground	Condition	Resistance
7	Ground	A/T fluid temperature: 20°C (68°F)	Approx. 6.2 Ω
		A/T fluid temperature: 50°C (122°F)	Approx. 7.0 Ω
		A/T fluid temperature: 80°C (176°F)	Approx. 7.8 Ω

Is the check result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the high clutch/low & reverse brake solenoid valve. Replace the transaxle assembly. Refer to [TM-315. "Removal and Installation"](#).

MAIN POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

MAIN POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:000000006280652

1.CHECK TCM POWER CIRCUIT 1

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

TCM harness connector		Ground	Voltage
Connector	Terminal		
F18	45	Ground	10 – 16

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 4.

2.CHECK TCM POWER CIRCUIT 2

Check the voltage between the TCM harness connector terminals and ground.

TCM harness connector		Ground	Condition	Voltage
Connector	Terminal			
F18	47	Ground	Ignition switch ON	10 – 16
			Ignition switch OFF	Approx. 0 V
	48		Ignition switch ON	10 – 16
			Ignition switch OFF	Approx. 0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 5.

3.CHECK TCM GROUND CIRCUIT

Check the continuity between TCM harness connector terminals and ground.

TCM harness connector		Ground	Continuity
Connector	Terminal		
F18	41	Ground	Existed
	42		

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

4.DETECT MALFUNCTION ITEMS (PART 1)

Check the following items:

- Open or short circuit of the harness between battery and TCM connectors terminal 45. Refer to [PG-16, "TYPE A : Wiring Diagram - BATTERY POWER SUPPLY -"](#) (TYPE A)*, [PG-86, "TYPE B : Wiring Diagram - BATTERY POWER SUPPLY -"](#) (TYPE B)* or [PG-246, "TYPE D : Wiring Diagram - BATTERY POWER SUPPLY -"](#) (TYPE D)*.

*: Refer to [PG-15, "Application Notice"](#).

- 10A fuse (No.33, fuse and fusible link block). Refer to [PG-324, "TYPE A : Fuse and Fusible Link Arrangement"](#) (TYPE A)*, [PG-325, "TYPE B : Fuse and Fusible Link Arrangement"](#) (TYPE B)* or [PG-330, "TYPE D : Fuse and Fusible Link Arrangement"](#) (TYPE D)*.

*: Refer to [PG-323, "Application Notice"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

MAIN POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

5. DETECT MALFUNCTION ITEMS (PART 2)

Check the following items:

- Open or short circuit of the harness between IPDM E/R harness connector terminal 57 and TCM connector terminals 47, 48.
- Harness open circuit or short circuit between the ignition switch and IPDM E/R. Refer to [PG-54, "TYPE A : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE A)*, [PG-130, "TYPE B : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE B)* or [PG-261, "TYPE D : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE D)*.
*: Refer to [PG-15, "Application Notice"](#).
- 10A fuse [No.52, IPDM E/R]. Refer to [PG-334, "TYPE A : Fuse, Connector and Terminal Arrangement"](#) (TYPE A)*, [PG-335, "TYPE B : Fuse, Connector and Terminal Arrangement"](#) (TYPE B)* or [PG-337, "TYPE D : Fuse, Connector and Terminal Arrangement"](#) (TYPE D)*.
*: Refer to [PG-333, "Application Notice"](#).
- IPDM E/R

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

OVERDRIVE CONTROL SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

OVERDRIVE CONTROL SWITCH

Component Function Check

INFOID:000000006596479

1.CHECK O/D INDICATOR LAMP FUNCTION

Check O/D OFF indicator lamp turns ON for approx. 2 seconds when ignition switch turns ON.

Is the inspection results normal?

YES >> GO TO 2.

NO >> Go to [TM-282, "Diagnosis Procedure"](#).

2.CHECK O/D SWITCH FUNCTION

1. Shift the selector lever to "D" position.
2. Check that O/D OFF indicator lamp turns ON/OFF when sport mode switch is operated.

Is the inspection results normal?

YES >> INSPECTION END

NO >> Go to [TM-279, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000006596480

1.CHECK OVERDRIVE CONTROL SWITCH CIRCUIT

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

Without Intelligent Key system

A/T shift selector harness connector			Voltage
Connector	Terminal		
M57	1	2	Approx. 5 V

With Intelligent Key system

A/T shift selector harness connector			Voltage
Connector	Terminal		
M58	1	2	Approx. 5 V

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 4.

2.CHECK OVERDRIVE CONTROL SWITCH

Check overdrive control switch. Refer to [TM-280, "Component Inspection \(Overdrive Control Switch\)"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CHECK A/T SHIFT SELECTOR HARNESS

Check A/T shift selector harness. Refer to [TM-281, "Component Inspection \(A/T Shift Selector Harness\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

4.CHECK GROUND CIRCUIT

Check the continuity between A/T shift selector harness connector terminal and ground.

OVERDRIVE CONTROL SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

Without Intelligent Key system

A/T shift selector harness connector		Ground	Continuity
Connector	Terminal		
M57	2	Ground	Existed

With Intelligent Key system

A/T shift selector harness connector		Ground	Continuity
Connector	Terminal		
M58	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.CHECK CIRCUIT BETWEEN COMBINATION METER AND A/T SHIFT SELECTOR (PART 1)

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

Without Intelligent Key system

Combination meter harness connector		A/T shift selector harness connector		Continuity
Connector	Terminal	Connector	Terminal	
M34	28	M57	1	Existed

With Intelligent Key system

Combination meter harness connector		A/T shift selector harness connector		Continuity
Connector	Terminal	Connector	Terminal	
M34	28	M58	1	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace the malfunctioning parts.

6.CHECK CIRCUIT BETWEEN COMBINATION METER AND A/T SHIFT SELECTOR (PART 2)

Check the continuity between combination meter harness connector terminal and ground.

Combination meter harness connector		Ground	Continuity
Connector	Terminal		
M34	28	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace the malfunctioning parts.

7.CHECK COMBINATION METER INPUT SIGNAL

1. Connect all of the disconnected connectors.
2. Turn ignition switch ON.
3. Select "Data Monitor" in "METER/M&A".
4. Select "O/D OFF SW".
5. Check that "O/D OFF SW" turns ON/OFF when overdrive control switch is operated. Refer to [MWI-55. "Reference Value"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51. "Intermittent Incident"](#).

NO >> Replace combination meter. Refer to [MWI-155. "Removal and Installation"](#).

Component Inspection (Overdrive Control Switch)

INFOID:000000006596481

1.CHECK OVERDRIVE CONTROL SWITCH

OVERDRIVE CONTROL SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

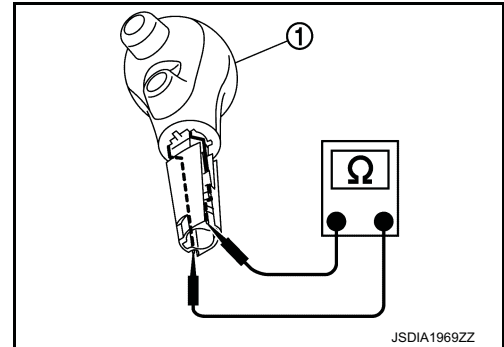
Check the continuity between wires of selector lever knob (1)

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the selector lever knob. Refer to [TM-297](#).
"Removal and Installation".



INFOID:000000006596482

Component Inspection (A/T Shift Selector Harness)

1.CHECK A/T SHIFT SELECTOR HARNESS

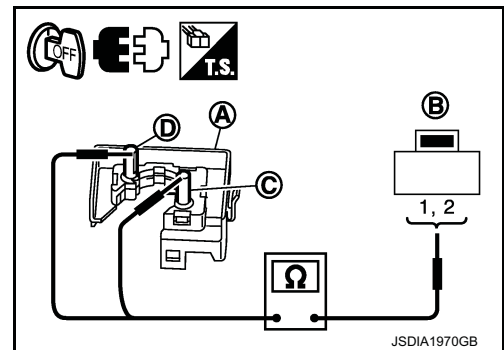
Check the continuity between harness plate (A) and A/T shift selector harness connector (B).

Harness plate	A/T shift selector harness connector	Continuity
	Terminal	
C	1	Existed
D	2	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace A/T shift selector harness. Refer to [TM-297](#).
"Removal and Installation".



OD OFF INDICATOR LAMP

Component Function Check

INFOID:000000006596483

1.CHECK O/D OFF INDICATOR LAMP FUNCTION

Check O/D OFF indicator lamp turns ON for approx. 2 seconds when ignition switch turns ON.

Is the inspection results normal?

YES >> INSPECTION END

NO >> Go to [TM-282, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000006596484

1.CHECK DTC (TCM)

 With CONSULT

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

Is any DTC detected?

YES >> Check DTC detected item. Refer to [TM-159, "DTC Index"](#).

NO >> GO TO 2.

2.CHECK DTC (COMBINATION METER)

 With CONSULT

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

Is any DTC detected?

YES >> Check DTC detected item. Refer to [MWI-77, "DTC Index"](#).

NO >> GO TO 3.

3.CHECK COMBINATION METER INPUT SIGNAL

 With CONSULT

1. Shift the selector lever to "D" position.
2. Select "Data Monitor" in "METER/M&A".
3. Select "O/D OFF IND".
4. Check that "O/D OFF IND" turns ON/OFF when overdrive control switch is operated. Refer to [MWI-55, "Reference Value"](#).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-155, "Removal and Installation"](#).

NO >> GO TO 4.

4.CHECK TCM INPUT/OUTPUT SIGNAL

 With CONSULT

1. Select "Data Monitor" in "TRANSMISSION".
2. Select "OD CONT SW".
3. Check that "OD CONT SW" turns ON/OFF when overdrive control switch is operated. Refer to [TM-149, "Reference Value"](#).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-155, "Removal and Installation"](#).

NO >> Check overdrive control switch. Refer to [TM-279, "Diagnosis Procedure"](#).

SHIFT POSITION INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

SHIFT POSITION INDICATOR CIRCUIT

Component Parts Function Inspection

INFOID:0000000006596485

1.CHECK SHIFT POSITION INDICATOR

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

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Go to [TM-283, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000006596486

1.CHECK TCM INPUT/OUTPUT SIGNAL

Ⓔ With CONSULT

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

Is the check result normal?

- YES >> INSPECTION END
NO-1 ("RANGE" is changed but is not displayed on the shift position indicator.)>>Check "Self Diagnostic Result" in "TRANSMISSION".
NO-2 ("RANGE" and shift position indicator are different.)>>Check "Self Diagnostic Result" in "TRANSMISSION".
NO-3 (Specific "RANGE" is not displayed on the shift position indicator.)>>Check "Self Diagnostic Result" in "METER/M&A".

SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

SHIFT LOCK SYSTEM

Component Function Check

INFOID:000000006596487

1.CHECK SHIFT LOCK OPERATION (PART 1)

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

Can the selector lever be shifted to any other position?

- YES >> Go to [TM-284, "Diagnosis Procedure"](#).
NO >> GO TO 2.

2.CHECK SHIFT LOCK OPERATION (PART 2)

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

Can the selector lever be shifted to any other position?

- YES >> INSPECTION END
NO >> Go to [TM-284, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000006596488

1.CHECK POWER SOURCE (PART 1)

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

Stop lamp switch harness connector		Ground	Voltage
Connector	Terminal		
E115	3	Ground	10 – 16 V

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 9.

2.CHECK STOP LAMP SWITCH (PART 1)

Check stop lamp switch. Refer to [TM-287, "Component Inspection \(Stop Lamp Switch\)"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 10.

3.CHECK CIRCUIT BETWEEN STOP LAMP SWITCH AND A/T SHIFT SELECTOR (PART 1)

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

Without Intelligent Key system

Stop lamp switch harness connector		A/T shift selector harness connector		Continuity
Connector	Terminal	Connector	Terminal	
E115	4	M57	5	Existed

With Intelligent Key system

Stop lamp switch harness connector		A/T shift selector harness connector		Continuity
Connector	Terminal	Connector	Terminal	
E115	4	M58	5	Existed

Is the inspection result normal?

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

SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

4.CHECK CIRCUIT BETWEEN STOP LAMP SWITCH AND A/T SHIFT SELECTOR (PART 1)

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

Stop lamp switch harness connector		Ground	Continuity
Connector	Terminal		
E115	4	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.CHCK GROUND CIRCUIT

Check the continuity between the A/T shift selector harness connector terminal and ground.

Without Intelligent Key system

A/T shift selector harness connector		Ground	Continuity
Connector	Terminal		
M57	4	Ground	Existed

With Intelligent Key system

A/T shift selector harness connector		Ground	Continuity
Connector	Terminal		
M58	4	Ground	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace the malfunctioning parts.

6.CHECK PART POSITION SWITCH

1. Disconnect park switch connector.

2. Check park position switch. Refer to [TM-286, "Component Inspection \(Park Position Switch\)"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace the malfunctioning parts.

7.CHECK SHIFT LOCK SOLENOID

1. Disconnect shift lock solenoid connector.

2. Check shift lock solenoid. Refer to [TM-286, "Component Inspection \(Shift Lock Solenoid\)"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace the malfunctioning parts.

8.CHECK A/T SHIFT SELECTOR HARNESS

Check A/T shift selector harness. Refer to [TM-286, "Component Inspection \(A/T Shift Selector Harness\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

9.DETECT MALFUNCTIONING ITEM

Check the following items:

- Open or short circuit of the harness between ignition switch and stop lamp switch connector. Refer to [PG-54, "TYPE A : Wiring Diagram - IGNITION POWER SUPPLY -" \(TYPE A\)*](#) or [PG-130, "TYPE B : Wiring Diagram - IGNITION POWER SUPPLY -" \(TYPE B\)*](#).

*: Refer to [PG-15, "Application Notice"](#).

- Ignition switch

- 10A fuse [No.3, fuse block (J/B)]. Refer to [PG-316, "TYPE A : Fuse, Connector and Terminal Arrangement" \(TYPE A\)*](#) or [PG-318, "TYPE B : Fuse, Connector and Terminal Arrangement" \(TYPE B\)*](#).

*: Refer to [PG-15, "Application Notice"](#).s

SHIFT LOCK SYSTEM

[4AT: RE4F03C]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

10. CHECK INSTALLATION POSITION OF STOP LAMP SWITCH

Adjust stop lamp switch position. Refer to [BR-11, "Inspection and Adjustment"](#) (TYPE 1)*, [BR-55, "Inspection and Adjustment"](#) (TYPE 2)*, [BR-102, "Inspection and Adjustment"](#) (TYPE 3)*, [BR-160, "Inspection and Adjustment"](#) (TYPE 4)*.

*: Refer to [BR-6, "Information"](#).

>> GO TO 11.

11. CHECK STOP LAMP SWITCH (PART 2)

Check stop lamp switch. Refer to [TM-287, "Component Inspection \(Stop Lamp Switch\)"](#).

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Repair or replace the malfunctioning parts.

Component Inspection (Shift Lock Solenoid)

INFOID:000000006596489

1. CHECK SHIFT LOCK SOLENOID

Apply voltage to terminals of shift lock solenoid connector and check that shift lock solenoid is activated.

CAUTION:

- Connect the fuse between the terminals when applying the voltage.
- Never cause shorting between terminals.

Shift lock solenoid connector		Condition	Status
Terminal			
+ (fuse)	–		
1	2	Apply battery voltage between terminals 1 and 2.	Shift lock solenoid operates

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace the shift lock unit. Refer to [TM-298, "Disassembly and Assembly"](#).

Component Inspection (Park Position Switch)

INFOID:000000006596490

1. CHECK PARK POSITION SWITCH

Check the continuity between park switch connector terminals.

CAUTION:

- Connect the fuse between the terminals when applying the voltage.
- Never cause shorting between terminals.

Park position switch connector		Condition	Continuity
Terminal			
1	2	Shift the selector lever to “P” position.	Existed
		Other than above	Not existed

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace the park position switch. Refer to [TM-298, "Disassembly and Assembly"](#).

Component Inspection (A/T Shift Selector Harness)

INFOID:000000006596491

1. CHECK A/T SHIFT SELECTOR HARNESS (PART 1)

SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

Check the continuity between the A/T shift selector harness connector terminal and the shift lock solenoid harness connector terminal.

Without Intelligent Key system

A/T shift selector harness connector		Shift lock solenoid harness connector		Continuity
Connector	Terminal	Connector	Terminal	
M322	5	M326	1	Existed

With Intelligent Key system

A/T shift selector harness connector		Shift lock solenoid harness connector		Continuity
Connector	Terminal	Connector	Terminal	
M323	5	M326	1	Existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the A/T shift selector harness. Refer to [TM-297. "Removal and Installation"](#).

2.CHECK A/T SHIFT SELECTOR HARNESS (PART 2)

Check the continuity between the shift lock solenoid harness connector terminal and the park switch harness connector terminal.

Shift lock solenoid harness connector		Park switch harness connector		Continuity
Connector	Terminal	Connector	Terminal	
M326	2	M325	1	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace the A/T shift selector harness. Refer to [TM-298. "Disassembly and Assembly"](#).

3.CHECK A/T SHIFT SELECTOR HARNESS (PART 3)

Check the continuity between the park position switch harness connector terminal and the A/T shift selector harness connector terminal.

Without Intelligent Key system

Park position switch harness connector		A/T shift selector harness connector		Continuity
Connector	Terminal	Connector	Terminal	
M326	2	M322	6	Existed

With Intelligent Key system

Park position switch harness connector		A/T shift selector harness connector		Continuity
Connector	Terminal	Connector	Terminal	
M326	2	M323	6	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the A/T shift selector harness. Refer to [TM-298. "Disassembly and Assembly"](#).

4.CHECK A/T SHIFT SELECTOR HARNESS (PART 4)

Check harness cladding A/T shift selector harness for damage.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the A/T shift selector harness. Refer to [TM-298. "Disassembly and Assembly"](#).

Component Inspection (Stop Lamp Switch)

INFOID:0000000006596492

1.CHECK STOP LAMP SWITCH

Check the continuity between the stop lamp switch connector terminals.

SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[4AT: RE4F03C]

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace stop lamp switch. Refer to [BR-21, "Exploded View" \(TYPE 1\)*](#), [BR-65, "Exploded View" \(TYPE 2\)*](#), [BR-112, "Exploded View" \(TYPE 3\)*](#), [BR-170, "Exploded View" \(TYPE 4\)*](#). *: Refer to [BR-6, "Information"](#).

SYMPTOM DIAGNOSIS

SYSTEM SYMPTOM

Symptom Table

INFOID:0000000006280664

The diagnosis item numbers show the sequence for inspection. Inspect in order from item 1.

CAUTION:

If any malfunction occurs in the RE4F03C transmission, replace the transaxle assembly.

A

B

C

TM

E

F

G

H

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L

M

N

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P

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[4AT: RE4F03C]

Symptom				Vehicle condition check																							
				Hard		Soft																					
				A/T	Input signal							Output signal															
												Output						Monitor				Output signal					
				A/T fluid level and condition	Fluid leakage	Accelerator pedal position sensor	Engine speed signal	Output speed sensor	Input speed sensor	A/T fluid temperature sensor	Stop lamp switch	Primary pressure solenoid valve	Torque converter solenoid valve	Low clutch solenoid valve	High clutch/low & reverse brake solenoid valve	2-4 brake solenoid valve	Select switch ON-OFF solenoid valve	Torque converter solenoid valve	Low clutch solenoid valve	High clutch/low & reverse brake solenoid valve	2-4 brake solenoid valve	Select switch ON-OFF solenoid valve	ECM signal receive malfunction	CAN communication			
TM-188	TM-296	EC3-53Z (HR12DE TYPE 2) , EC4-6Z (HR15DE)							TM-159																		
Poor performance	Driving performance	Shift point is high in “D” position.				2		1		3													4	4			
		Shift point is low in “D” position.				2		1														3	3				
		Large shock	When shifting gears	→ “D” position			5	5	5	3	4				1			2		1			2	6	6		
				→ “R” position			5	5	5	3	4					1		2			1		2	6	6		
				1GR ⇒ 2GR			2	5	2	3	4						1					1		6	6		
				2GR ⇒ 3GR			2	5	2	3	4					1	1	1			1	1	1	6	6		
				3GR ⇒ 4GR			2	5	2	3	4				1		1			1		1		6	6		
				4GR ⇒ 3GR			2	5	2	3	4				1		1			1		1		6	6		
				3GR ⇒ 2GR			2	5	2	3	4					1	1	1			1	1	1	6	6		
				2GR ⇒ 1GR			2	5	2	3	4						1					1		6	6		
				Downshift when accelerator pedal is depressed			2	5	2	3	4					1	1	1	1		1	1	1	1	6	6	
				Upshift when accelerator pedal is released			2	5	2	3	4					1	1	1	1		1	1	1	1	6	6	
		Lock-up			3	2	3	2	4	5		1						1					6	6			
		Judder		Lock-up			3	2		2	4			1					1					6	6		

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[4AT: RE4F03C]

Symptom			Vehicle condition check																				
			Hard	Soft																			
			A/T	Input signal							Output signal												
											Output					Monitor					Output signal		
			A/T fluid level and condition	Fluid leakage	Accelerator pedal position sensor	Engine speed signal	Output speed sensor	Input speed sensor	A/T fluid temperature sensor	Stop lamp switch	Primary pressure solenoid valve	Torque converter solenoid valve	Low clutch solenoid valve	High clutch/low & reverse brake solenoid valve	2-4 brake solenoid valve	Select switch ON-OFF solenoid valve	Torque converter solenoid valve	Low clutch solenoid valve	High clutch/low & reverse brake solenoid valve	2-4 brake solenoid valve	Select switch ON-OFF solenoid valve	ECM signal receive malfunction	CAN communication
TM-188	TM-296	EC3-53Z (HR12DE TYPE 2) , EC4-6Z (HR15DE)		TM-159																			
Poor performance	Strange noise	In "R" position				1	2				3	3	3	3	3								
		In "N" position				1	2				3	3	3	3	3								
		In "D" position				1	2				3	3	3	3	3								
	Noise	Engine at idle				1	2				3	3	3	3	3								
		In "D", "R" positions				1	2				3	3	3	3	3								
	Fluid leakage				1																		

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SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[4AT: RE4F03C]

Symptom					Vehicle condition check																
					Hard		Soft														
					A/T		Input signal							Output signal							
														Output/monitor							Output signal
					A/T fluid level and condition	Line pressure	Accelerator pedal position sensor	Engine speed signal	Output speed sensor	Input speed sensor	A/T fluid temperature sensor	Stop lamp switch	Primary pressure solenoid valve	Torque converter solenoid valve	Low clutch solenoid valve	High clutch/low & reverse brake solenoid valve	2-4 brake solenoid valve	Select switch ON-OFF solenoid valve	ECM signal receive malfunction	CAN communication	
					TM-188	TM-191	EC3-537 (HR12DE TYPE 2) EC4-67 (HR15DE)		TM-159												
Function trouble	Gear does not change	"D" position	Locks in 1GR																		
			Locks in 2GR															1	1	1	
			Locks in 3GR				1		1	1	1				1	1	1				
			Locks in 4GR																		
			1GR → 2GR						2								1				
			2GR → 3GR													1	1	1			
			3GR → 4GR												1		1				
			4GR → 3GR						2						1		1				
			3GR → 2GR													1	1	1			
			2GR → 1GR														1				
			Does not lock-up				4	3	4	3	5	2		1					6	6	
	Poor shifting	Slip	When shifting gears	1GR ⇔ 2GR		2		4	4	4	5		1				1		3	3	
				2GR ⇔ 3GR		2		4	4	4	5		1			1	1		3	3	
				3GR ⇔ 4GR		2		4	4	4	5		1		1		1		3	3	

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[4AT: RE4F03C]

Symptom				Vehicle condition check																			
				Hard				Soft															
				A/T		Vehi- cle	Input signal								Output signal								
															Output/monitor						Output signal		
				A/T fluid level and condition		Control linkage	Output speed sensor	Accelerator pedal position sensor	Engine speed signal	Input speed sensor	A/T fluid temperature sensor	Battery voltage	Transmission range switch	Stop lamp switch	Primary pressure solenoid valve	Torque converter solenoid valve	Low clutch solenoid valve	High clutch/low & reverse brake solenoid valve	2-4 brake solenoid valve	Select switch ON-OFF solenoid valve	Starter relay	ECM signal receive malfunction	CAN communication
				Line pressure																			
TM-188		TM-191	TM-193	TM-159																			

Func- tion trou- ble	Poor pow- er trans- mis- sion	Slip	With selector lever in “D” position, accelera- tion is extremely poor.		2	6	4		4	4	5				1		1			1		3	3
			With selector lever in “R” position, accelera- tion is extremely poor.		2	6	4		4	4	5			1					1		3	3	
			While starting off by ac- celerating in 1GR, en- gine races.		2		4		4	4	5			1		1			1		3	3	
			While accelerating in 2GR, engine races.		2		4		4	4	5			1		1		1			3	3	
			While accelerating in 3GR, engine races.		2		4		4	4	5			1		1					3	3	
			While accelerating in 4GR, engine races.		2		4		4	4	5			1			1	1			3	3	
			Lock-up		2		4		4	4	5			1	1						3	3	
			No creep at all.		2									1	1	1	1	1	1				
			Extremely large creep.						1														

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SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[4AT: RE4F03C]

Symptom			Vehicle condition check																												
			Hard				Soft																								
			A/T		Vehi- cle	Input signal								Output signal																	
														Output/monitor								Output signal									
			A/T fluid level and condition	Line pressure	Control linkage	Output speed sensor	Accelerator pedal position sensor	Engine speed signal	Input speed sensor	A/T fluid temperature sensor	Battery voltage	Transmission range switch	Stop lamp switch	Primary pressure solenoid valve	Torque converter solenoid valve	Low clutch solenoid valve	High clutch/low & reverse brake solenoid valve	2-4 brake solenoid valve	Select switch ON-OFF solenoid valve	Starter relay	ECM signal receive malfunction	CAN communication									
TM-188	TM-191	TM-193	TM-159																												
Function trouble	Power transmission cannot be performed	Vehicle cannot run in all position.	3	4							2		1		1	1	1	1													
		Driving is not possible in “D” position.	3	4							2		1		1	1	1	1													
		Driving is not possible in “R” position.	3	4							2		1						1												
		Engine does not start in “N” or “P” position.		2						1	3																4		5		
		Engine starts in position other than “N” or “P”.		1							2																3		4		
		Engine stall			3	4	4			5		2		1	1	1	1	1													
		Engine stalls when selector lever shifted “N” → “D” or “R”.			3	4	4							1					1												

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[4AT: RE4F03C]

Symptom			Vehicle condition check						
			Hard		Soft				
			A/T	Vehicle	Input signal	Output signal			
						Output/monitor			
			A/T fluid level and condition	Control linkage	Transmission range switch	Low clutch solenoid valve	High clutch/low & reverse brake solenoid valve	2-4 brake solenoid valve	Select switch ON-OFF solenoid valve
			TM-188	TM-193	TM-159				
Function trouble	Poor operation	Vehicle does not enter parking condition.		1	2				
		Parking condition is not cancelled.		1	2				
		Vehicle runs with A/T in "N" position.		1	2	3	3	3	3
		Vehicle moves forward with the "R" position.		1	2	3	3	3	3
		Vehicle runs with A/T in "P" position.		1	2	3	3	3	3
		Vehicle moves backward with the "D" position.		1	2		3		3

PERIODIC MAINTENANCE

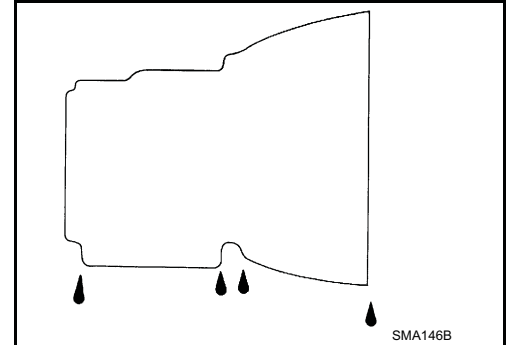
A/T FLUID

Inspection

INFOID:000000006291340

FLUID LEAKAGE

- Check transaxle surrounding area (oil seal and plug etc.)for fluid leakage.
- If anything is found, repair or replace damaged parts and adjust A/T fluid level. Refer to [TM-188. "Adjustment"](#).

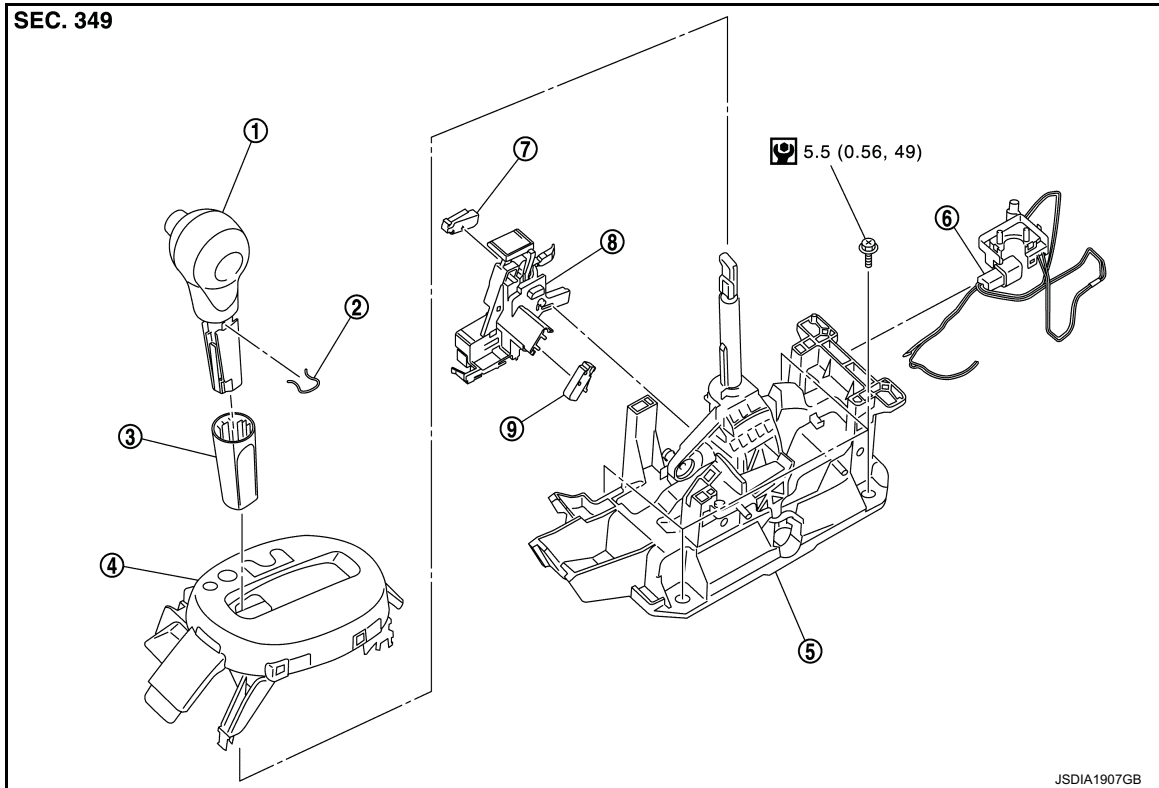


REMOVAL AND INSTALLATION

A/T SHIFT SELECTOR

Exploded View

INFOID:000000006280665



1. Selector lever knob	2. Lock pin	3. Knob cover
4. Position indication panel	5. A/T shift selector assembly	6. A/T shift selector harness assembly
7. Detent switch*	8. Shift lock unit	9. Park position switch



: N·m (kg-m, in-lb)

*: Push engine starter

Removal and Installation

INFOID:000000006280666

REMOVAL

1. Disconnect battery cable from negative terminal.
2. Shift the selector lever in the "N" position.
3. Remove the center console. Refer to [IP-24, "Removal and Installation"](#).
4. Disconnect the A/T shift selector connector.
5. Shift the selector lever to the "P" position.
6. Remove the key interlock cable from the A/T shift selector assembly. Refer to [TM-305, "Removal and Installation"](#).
7. Remove the control cable from the A/T shift selector assembly. Refer to [TM-301, "Removal and Installation"](#).
8. Remove the A/T shift selector assembly.

INSTALLATION

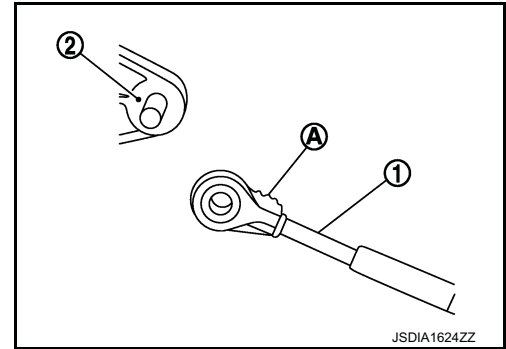
Note the following, and install in the reverse order of removal.

A/T SHIFT SELECTOR

< REMOVAL AND INSTALLATION >

[4AT: RE4F03C]

- When connecting the control cable (1) to the A/T shift selector assembly (2), face the grooved surface of the rib (A) up and insert the control cable until it stops.

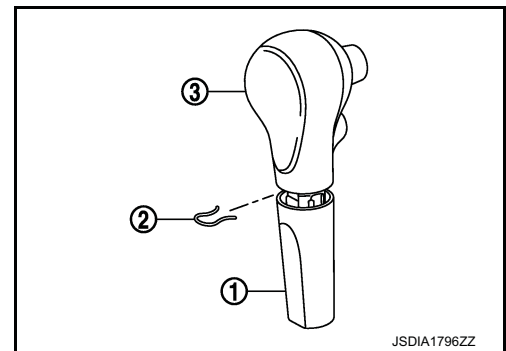


Disassembly and Assembly

INFOID:000000006280667

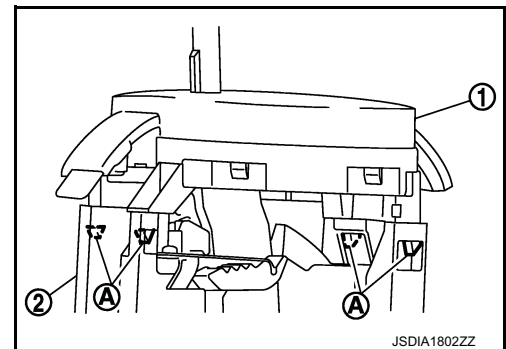
DISASSEMBLY

- Slide the selector lever knob cover (1) down.
CAUTION:
Never damage the knob cover.
- Pull out the lock pin (2).
- Pull the selector lever knob (3) and knob cover upwards to remove them.
- Remove the position lamp.



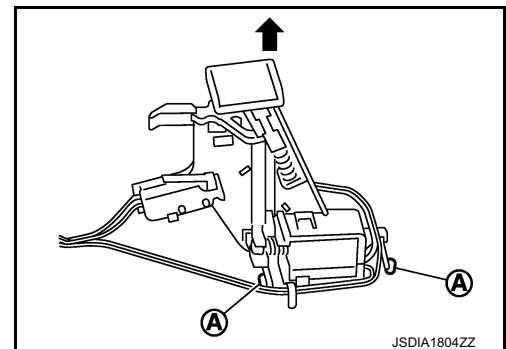
- Disengage the hooks (A) (4 locations), and lift up the position indication panel (1) to separate it from the A/T shift selector assembly (2).

CAUTION:
Never damage the A/T shift selector assembly.



- Lift up the shift lock unit pawl (A), and pull the unit out in the direction indicated by the arrow (↖) in the figure to separate it from the A/T shift selector assembly.
- Disconnect the park position switch connector, detent switch connector, and shift lock solenoid connector from the shift lock unit.

NOTE:
Remove the shift lock solenoid before disconnecting the shift lock solenoid connector.

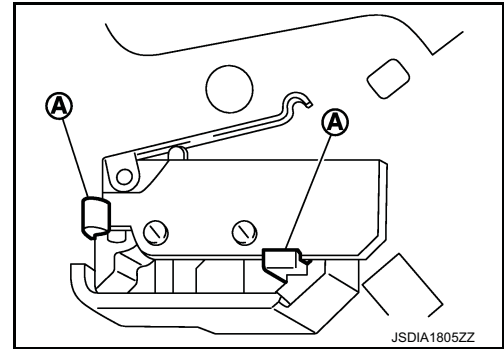


A/T SHIFT SELECTOR

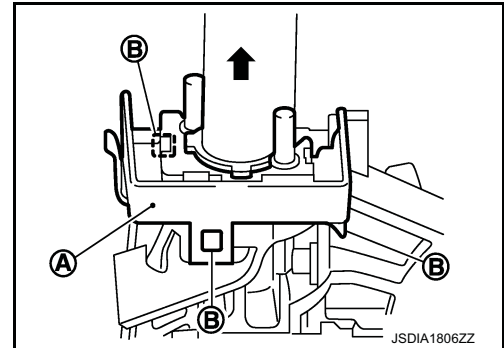
< REMOVAL AND INSTALLATION >

[4AT: RE4F03C]

8. Lift up the park position switch and detent switch pawls (A) and pull forward to remove.
9. Remove the key interlock rod.



10. Free any harnesses that are fastened to the A/T shift selector.
11. Lift up the sports mode switch connector (A) pawls (B), and pull in the direction indicated by the arrow (←) in the figure to remove.

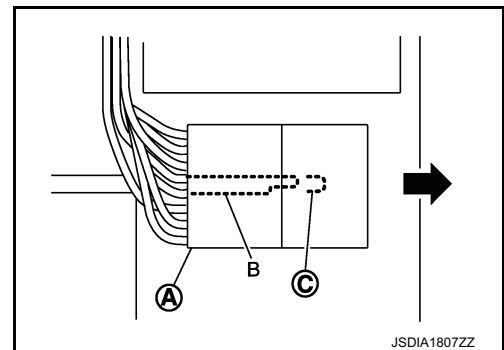


12. Use a terminal tool or similar instrument (B) and press the pawl (C) on the rear side of the A/T shift selector harness connector (A). Then pull it in the direction of the arrow (←) in the figure to remove.

CAUTION:

Never damage the A/T shift selector assembly.

13. Disconnect the A/T shift selector harness from the A/T shift selector.



ASSEMBLY

Note the following, and assemble in the reverse order of disassembly.

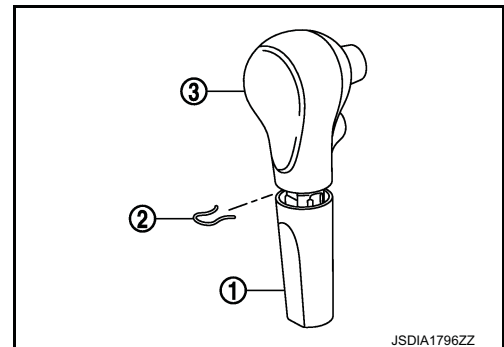
- Follow the procedure below and place the selector knob onto the A/T shift selector.

1. Install the lock pin (2) onto the selector lever knob (3).
2. Install the knob cover (1) onto the selector lever knob.
3. Press the selector lever knob onto the selector lever until it clicks.

CAUTION:

- **When pressing the selector lever knob onto the selector lever, never press the selector lever knob button.**
- **Never strike the selector lever knob to press it into place.**

4. After installing selector lever knob, pull the knob to check that it does not become disconnected.

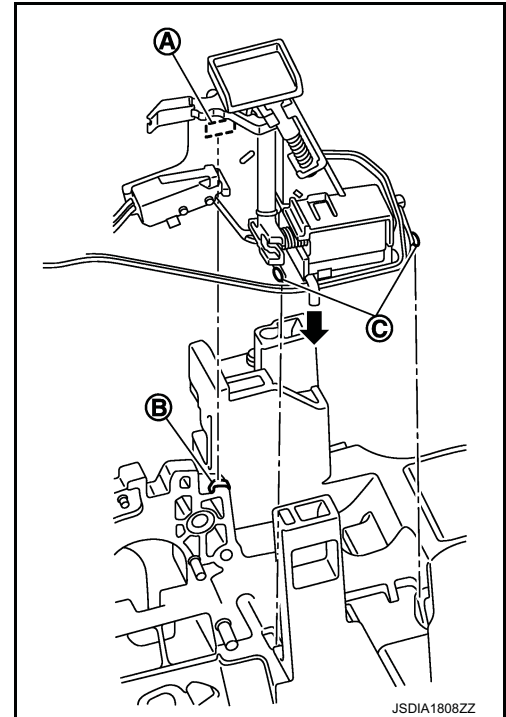


A/T SHIFT SELECTOR

< REMOVAL AND INSTALLATION >

[4AT: RE4F03C]

- Follow the procedure below and press the shift lock unit onto the A/T shift selector.
1. Connect the connectors.
 2. Align the indented part (A) of the shift lock unit with the projecting part (B) of the A/T shift selector.
 3. Insert the shift lock unit until the pawls (C) make a click sound.



Inspection

INFOID:000000006280668

INSPECTION AFTER INSTALLATION

Check the A/T position. If a malfunction is found, adjust the A/T position. Refer to [TM-193, "Inspection and Adjustment"](#).

CONTROL CABLE

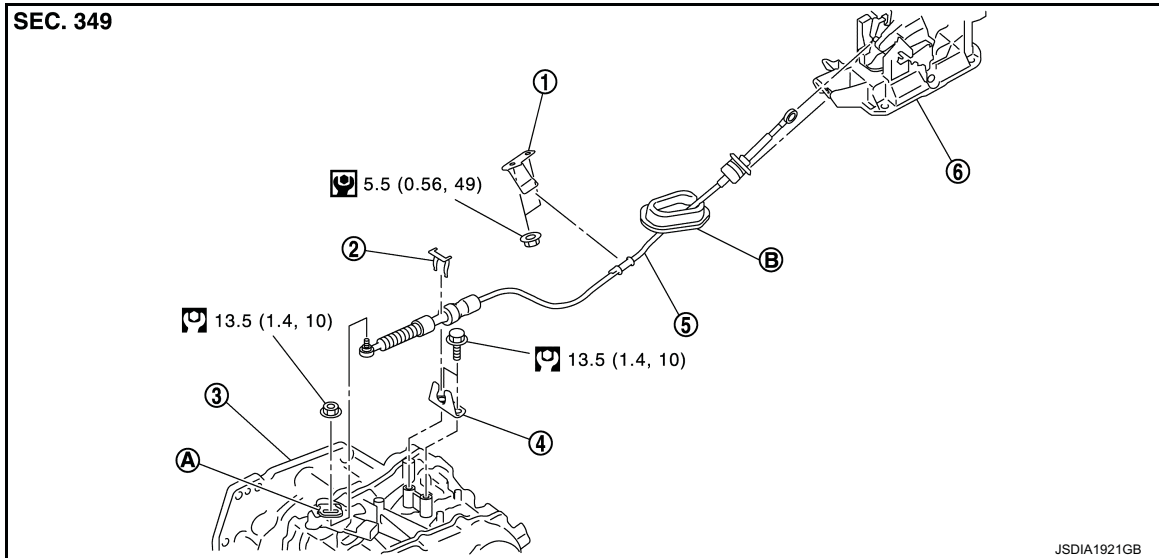
< REMOVAL AND INSTALLATION >

[4AT: RE4F03C]

CONTROL CABLE

Exploded View

INFOID:000000006280669



1. Bracket B	2. Lock plate	3. Transaxle assembly
4. Bracket A	5. Control cable	6. A/T shift selector assembly
A: Manual lever	B: Grommet	

: N·m (kg-m, ft-lb)

: N·m (kg-m, in-lb)

Removal and Installation

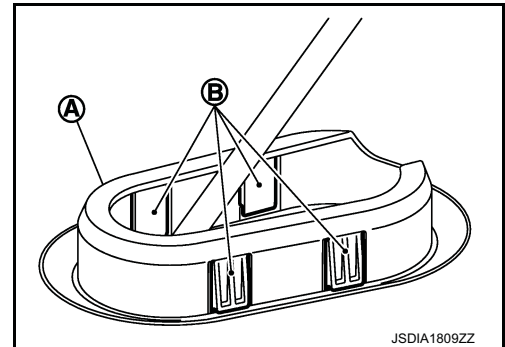
INFOID:000000006280670

INSTALLATION

CAUTION:

Always apply the parking brake before performing removal and installation.

1. Remove the air cleaner case (HR12DE only). Refer to [EM-33, "TYPE 1 : Removal and Installation"](#) (Type 1), and [EM-34, "TYPE 2 : Removal and Installation"](#) (Type 2).
2. Remove the control cable from the A/T shift selector assembly.
3. Disengage the pawls (B) of the grommet (A), and pull downwards to remove.
4. Remove the control cable installation nut from the manual lever.

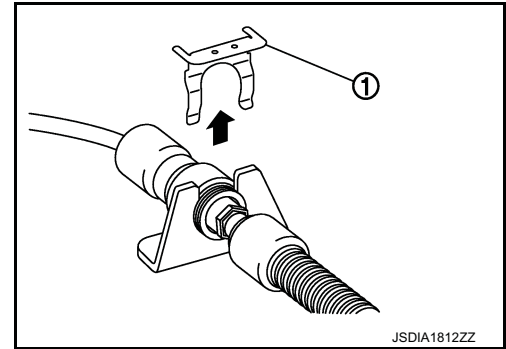


CONTROL CABLE

< REMOVAL AND INSTALLATION >

[4AT: RE4F03C]

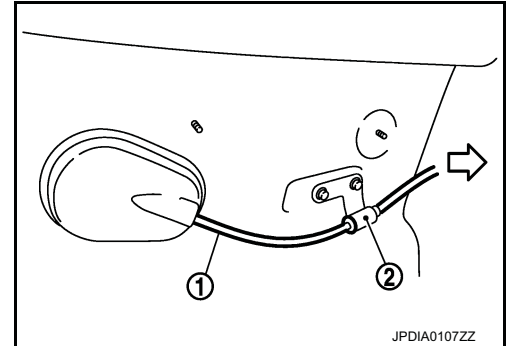
5. Remove the lock plate (1).



6. Lift up the heat plate.

7. Remove the control cable (1) from the bracket (2).

⇐ :Vehicle front



8. Remove the control cable from the vehicle.

9. Remove bracket.

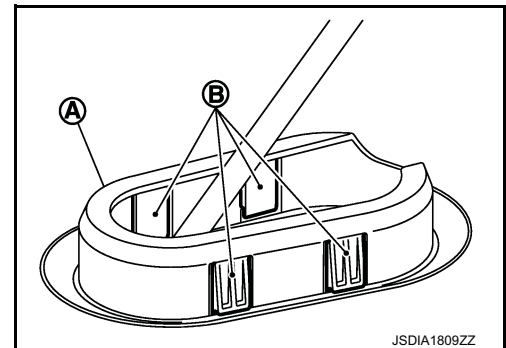
INSTALLATION

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

- From below the vehicle, press the grommet (A) into place until the pawls (B) make a click sound.

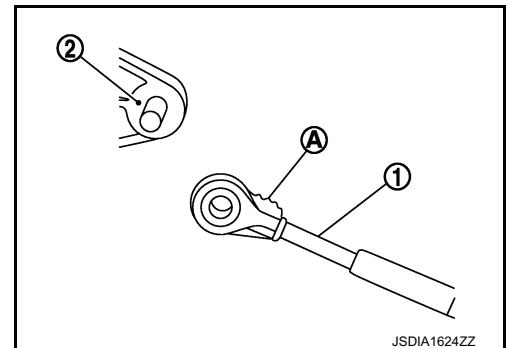
CAUTION:

- Place the grommet on the floor, then fasten it in place from below the vehicle.
- Check that pulling down on the grommet does not disconnect it.



- Pay attention to the following when connecting the control cable to the A/T shift selector.

1. When connecting the control cable (1) to the A/T shift selector assembly (2), face the grooved surface of the rib (A) up and insert the control cable until it stops.



CONTROL CABLE

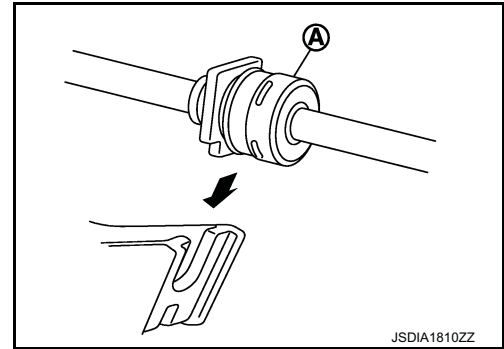
< REMOVAL AND INSTALLATION >

[4AT: RE4F03C]

2. Install the socket (A) onto the A/T shift selector.

CAUTION:

- Place the socket onto the A/T shift lever, then fasten it in place from above.
- Check that pulling on the socket does not disconnect it.



Inspection

INFOID:000000006280671

INSPECTION AFTER INSTALLATION

Check the A/T position. If a malfunction is found, adjust the A/T position. Refer to [TM-193. "Inspection and Adjustment"](#).

KEY INTERLOCK CABLE

< REMOVAL AND INSTALLATION >

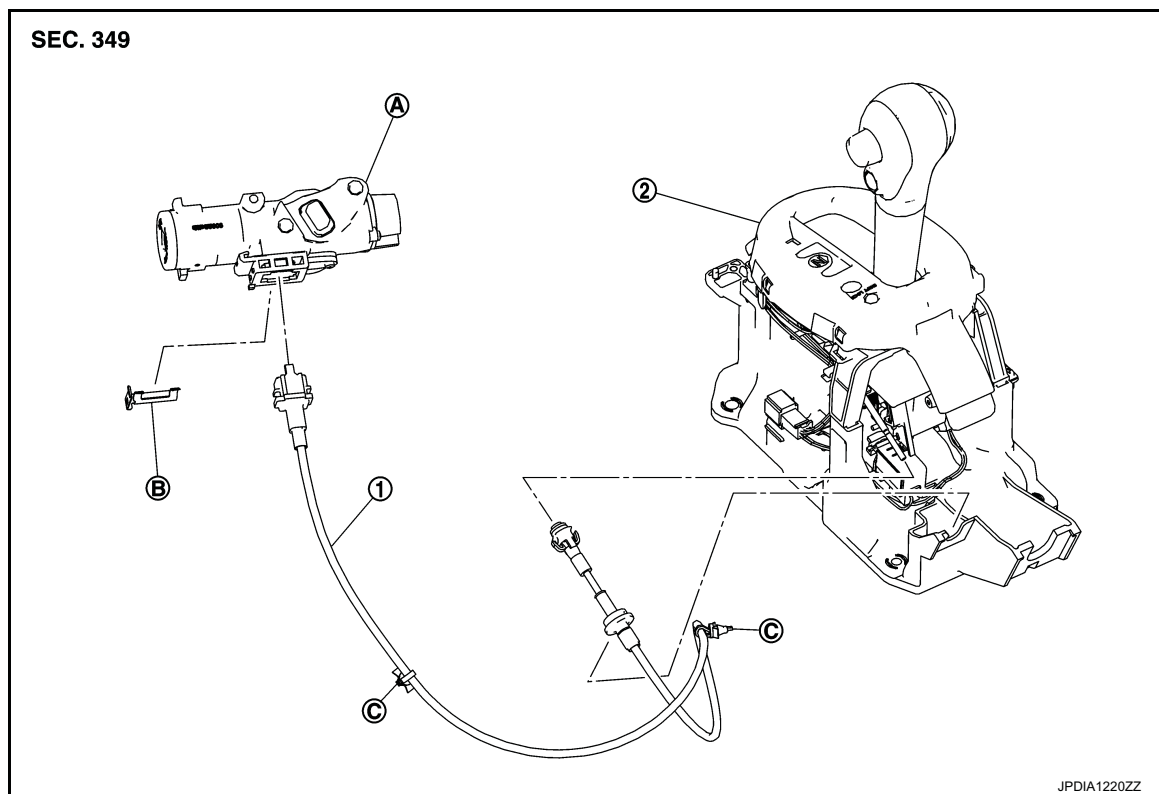
[4AT: RE4F03C]

KEY INTERLOCK CABLE

Exploded View

INFOID:000000006280672

RHD models



1. Key interlock cable

2. A/T shift selector assembly

A: Key cylinder

B: Clip

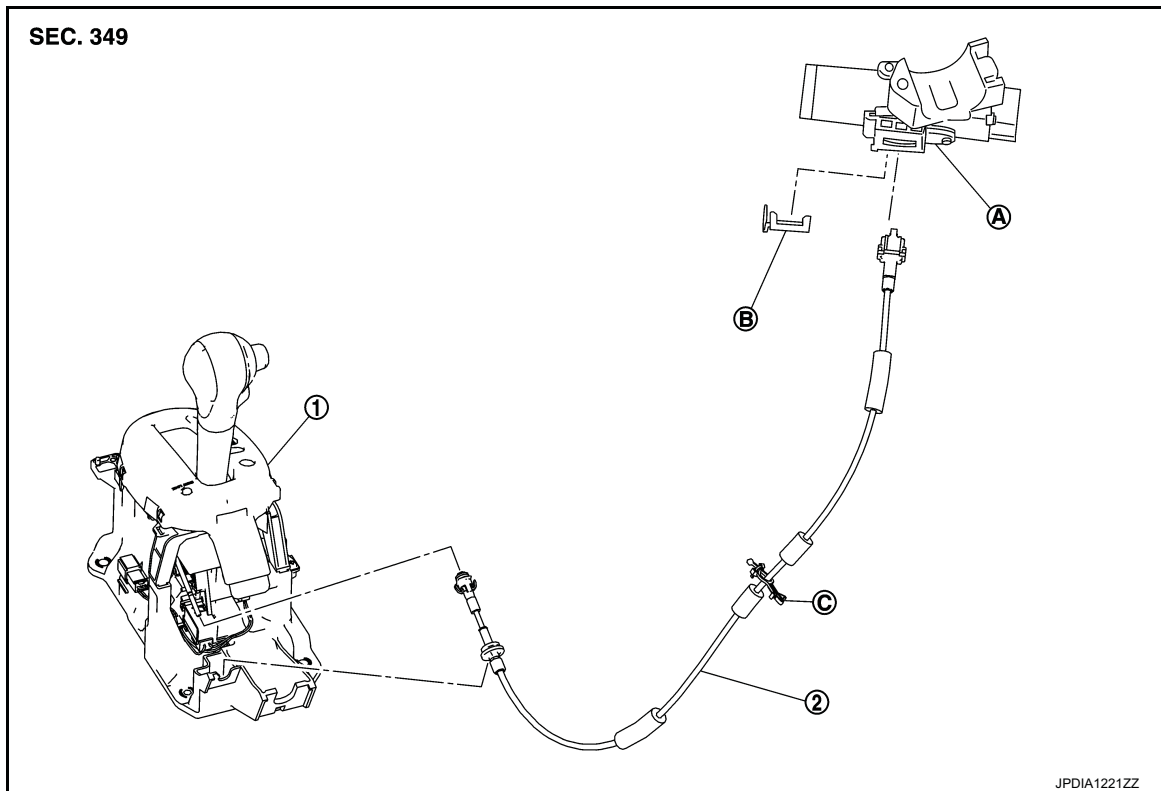
C: Clip

KEY INTERLOCK CABLE

< REMOVAL AND INSTALLATION >

[4AT: RE4F03C]

LHD models



1. A/T shift selector assembly

2. Key interlock cable

A: Key cylinder

B: Clip

C: Clip

Removal and Installation

INFOID:000000006280673

REMOVAL

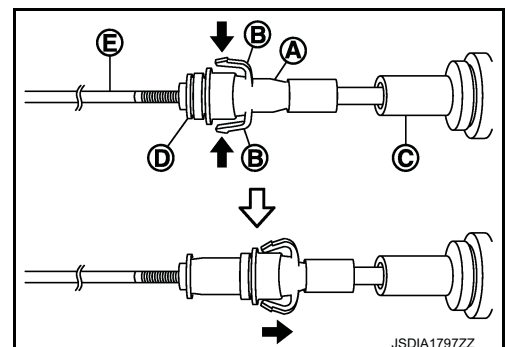
CAUTION:

Always apply the parking brake before performing removal and installation.

1. Shift the selector lever to the "P" position.
2. Remove the selector lever knob. Refer to [TM-298, "Disassembly and Assembly"](#).
3. Remove the center console. Refer to [IP-24, "Removal and Installation"](#).
4. Press the pawls (B) of the key interlock cable slider (A) while sliding it in the direction of the casing cap (C), and separate the adjusting holder (D) and slider.

E : Key interlock rod

5. Remove the key interlock cable from the A/T shift selector.
6. Remove the steering column lower cover and driver instrument lower panel. Refer to [IP-15, "Removal and Installation"](#).



KEY INTERLOCK CABLE

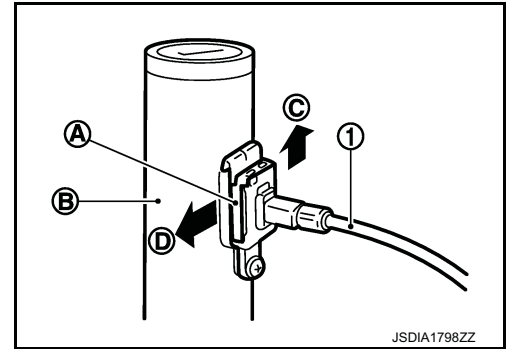
< REMOVAL AND INSTALLATION >

[4AT: RE4F03C]

7. Lift clip (A) in the direction of the arrow (←C) and remove in the direction of the arrow (←D).

1 : Key interlock cable
B : Key cylinder

8. Remove the key interlock cable from the key cylinder.
9. Disengage the clip and remove the key interlock cable from the vehicle.



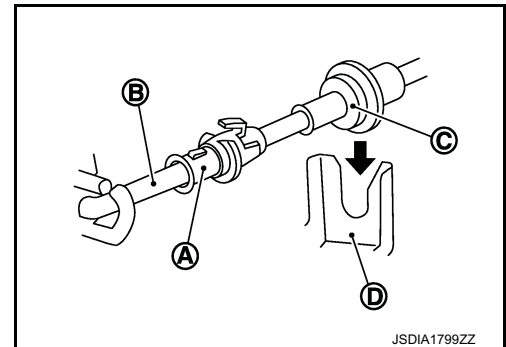
INSTALLATION

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

- Install the adjusting holder (A) onto the key interlock rod (B), then install the casing cap (C) onto the A/T shift selector cable bracket (D).

CAUTION:

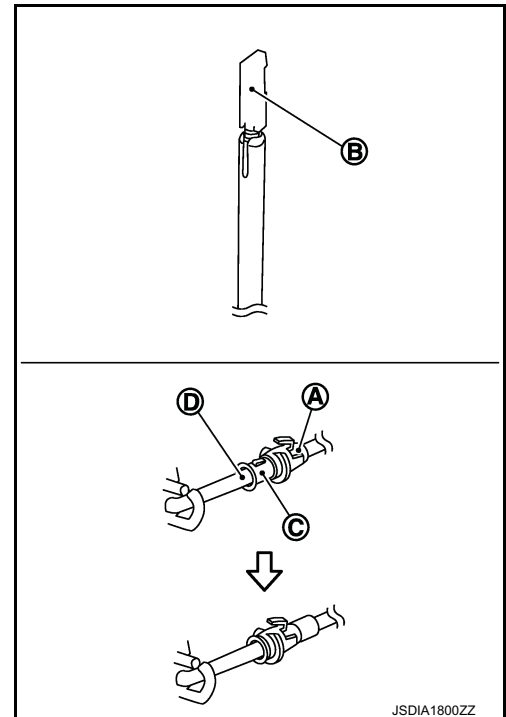
- When installing the key interlock cable, never bend or twist the cable forcefully.
- After connecting the key interlock cable to the A/T shift selector cable bracket, be sure to check that the casing cap is completely fastened to the cable bracket. If the casing cap is easily displaced, replace the key interlock cable.



- While pressing the detent rod (B) down, slide the key interlock cable slider (A) toward the key interlock rod (D) side, and install the adjusting holder (C) and key interlock rod.

CAUTION:

- Never squeeze the pawls on the key interlock cable slider when holding the slider.
- Never apply force in a perpendicular direction to the key interlock rod when sliding the slider.



Inspection

INFOID:000000006280674

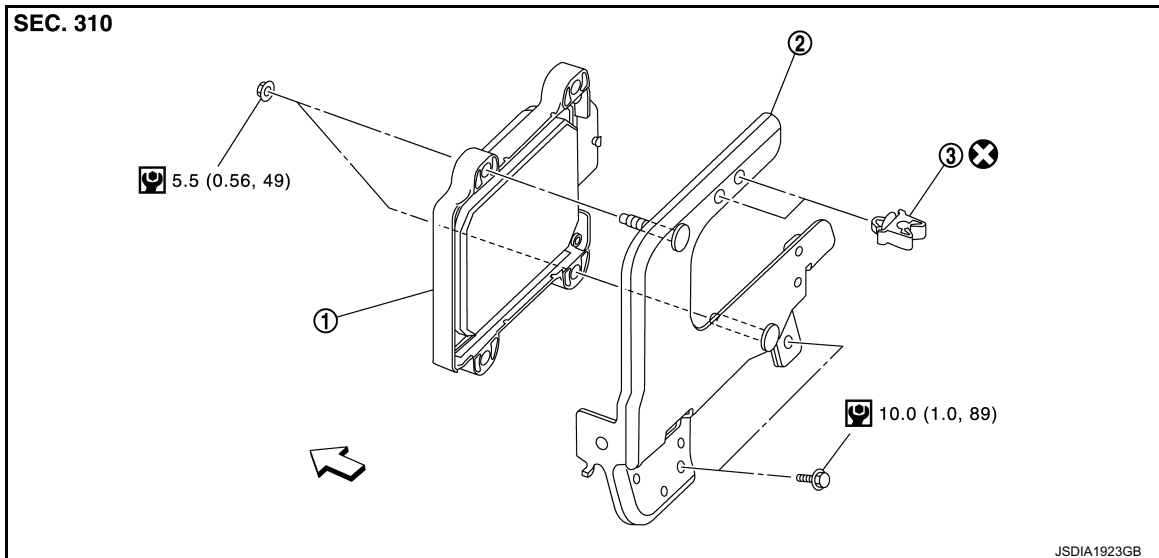
INSPECTION AFTER INSTALLATION

- Check the A/T position. If a malfunction is found, adjust the A/T position. Refer to [TM-193, "Inspection and Adjustment"](#).
- The key can be removed only when the selector lever is in the "P" position.
- It must not be possible to turn the ignition switch to LOCK when the selector lever is not in the "P" position.

TCM

Exploded View

INFOID:000000006292181



1. TCM

2. Bracket

3. Clips

: Vehicle front

: Always replace after every disassembly.

: N·m (kg-m, in-lb)

Removal and Installation

INFOID:000000006292182

NOTE:

When replacing the TCM and transaxle assembly as a set, replace the transaxle assembly first and then replace the TCM. Refer to [TM-184, "Description"](#).

REMOVAL

1. Remove the battery. Refer to [PG-529, "FOR MAINTENANCE REQUIRED BATTERY MODELS : Removal and Installation"](#).
2. Disconnect the TCM connector.
3. Remove the TCM and bracket as a set.
4. Remove the TCM from the bracket.

INSTALLATION

Installation is the reverse order of removal.

Adjustment

INFOID:000000006292183

ADJUSTMENT AFTER INSTALLATION

Perform "ADDITIONAL SERVICE WHEN REPLACING TCM". Refer to [TM-184, "Description"](#).

OIL PAN

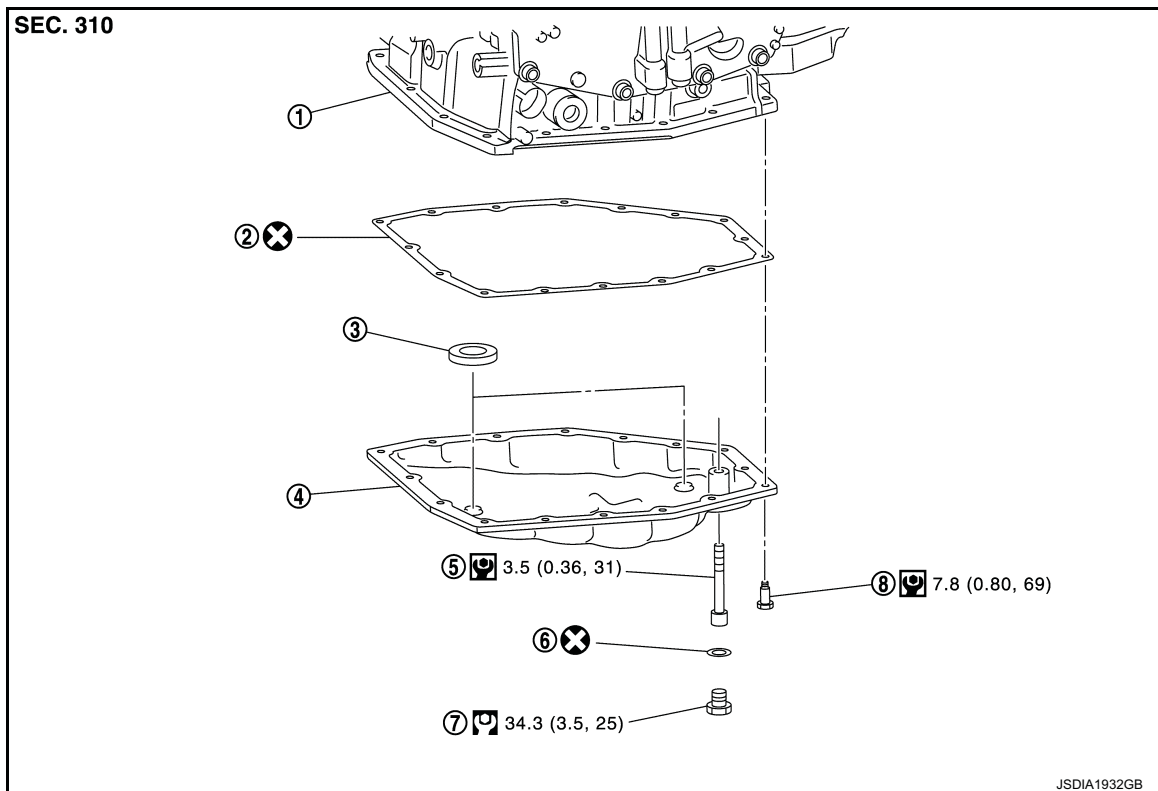
< REMOVAL AND INSTALLATION >

[4AT: RE4F03C]

OIL PAN

Exploded View

INFOID:000000006280682



1. Transaxle assembly

2. Oil pan gasket

3. Magnet

4. Oil pan

5. Overflow tube

6. Drain plug gasket

7. Drain plug

8. Oil pan fitting bolt

✕ : Always replace after every disassembly.

⊙ : N·m (kg-m, ft-lb)

⊙ : N·m (kg-m, in-lb)

Removal and Installation

INFOID:000000006280683

REMOVAL

1. Remove the drain plug and overflow tube, and then drain the ATF.

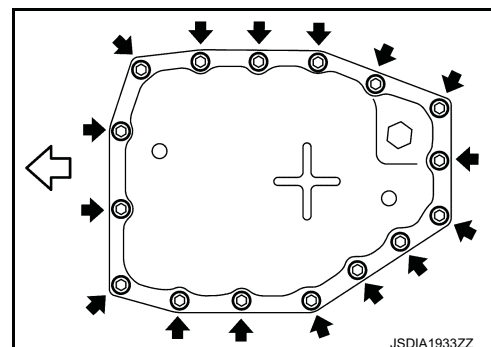
CAUTION:

Use caution when looking into the drain hole as there is the risk of fluid entering the eye.

2. Remove the drain plug gasket from the drain plug.
3. Remove the oil pan mounting bolts (←), and then remove the oil pan and oil pan gasket.

← : Vehicle front

4. Remove the magnets from the oil pan.



OIL PAN

< REMOVAL AND INSTALLATION >

[4AT: RE4F03C]

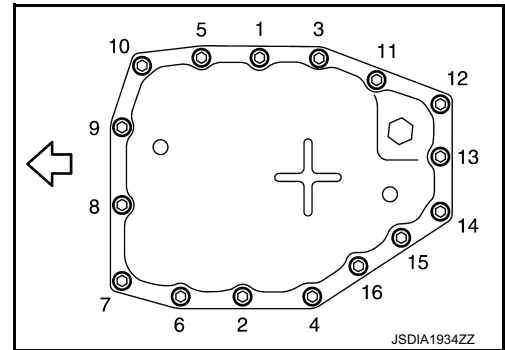
INSTALLATION

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

CAUTION:

- Never reuse oil pan gasket and drain plug gasket.
- Completely remove any moisture, oil, old gasket, or other substances from the oil pan gasket mounting surface.
- When installing the overflow tube, be sure to tighten to the specified torque. If it is not tightened to the specified torque, the tube may be damaged.
- When the oil pan is installed, tighten bolts in the order shown in the figure after temporarily tightening the oil pan mounting bolt.

← :Vehicle front



Inspection and Adjustment

INFOID:000000006280684

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 A/T fluid leakage. Refer to [TM-296, "Inspection"](#).

ADJUSTMENT AFTER INSTALLATION

Check the A/T fluid level. Refer to [TM-188, "Adjustment"](#).

OUTPUT SPEED SENSOR

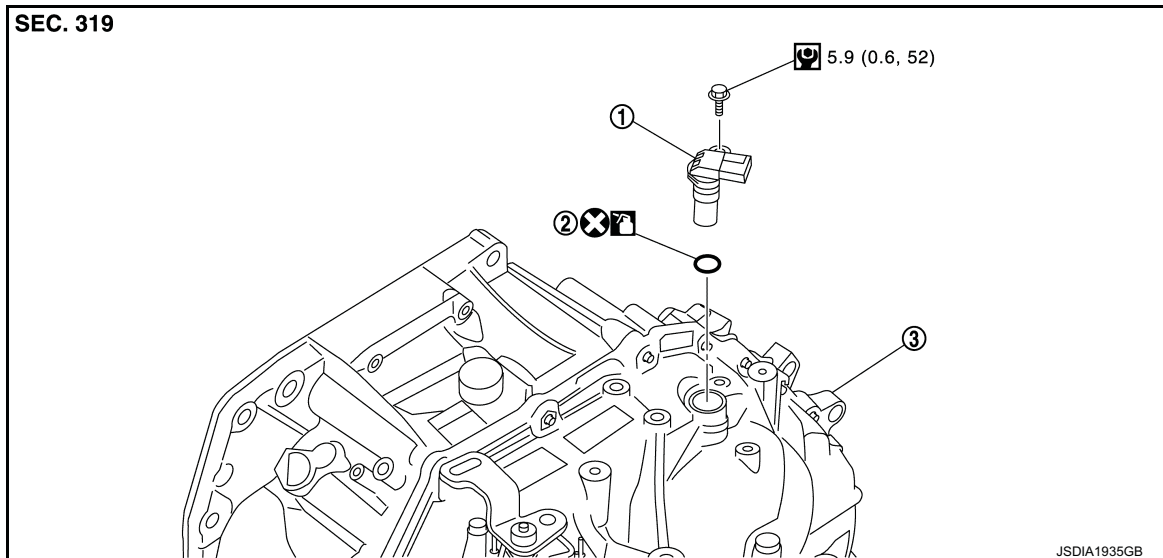
< REMOVAL AND INSTALLATION >

[4AT: RE4F03C]

OUTPUT SPEED SENSOR

Exploded View

INFOID:000000006280691



1. Output speed sensor

2. O-ring

3. Transaxle assembly

↔ : Vehicle front

⊗ : Always replace after every disassembly.

Ⓐ : N·m (kg-m, in-lb)

Ⓐ : Genuine NISSAN Matic S ATF

Removal and Installation

INFOID:000000006280692

REMOVAL

1. Remove the battery. Refer to [PG-529, "FOR MAINTENANCE REQUIRED BATTERY MODELS : Removal and Installation"](#).
2. Disconnect the output speed sensor connector.
3. Remove the output speed sensor.
4. Remove the O-ring from the output speed sensor.

INSTALLATION

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

CAUTION:

- **Never reuse O-ring.**
- **Apply Genuine NISSAN Matic S ATF to the O-ring.**

Inspection and Adjustment

INFOID:000000006280693

INSPECTION AFTER INSTALLATION

Check for A/T fluid leakage. Refer to [TM-296, "Inspection"](#).

ADJUSTMENT AFTER INSTALLATION

Check the A/T fluid level. Refer to [TM-188, "Adjustment"](#).

DIFFERENTIAL SIDE OIL SEAL

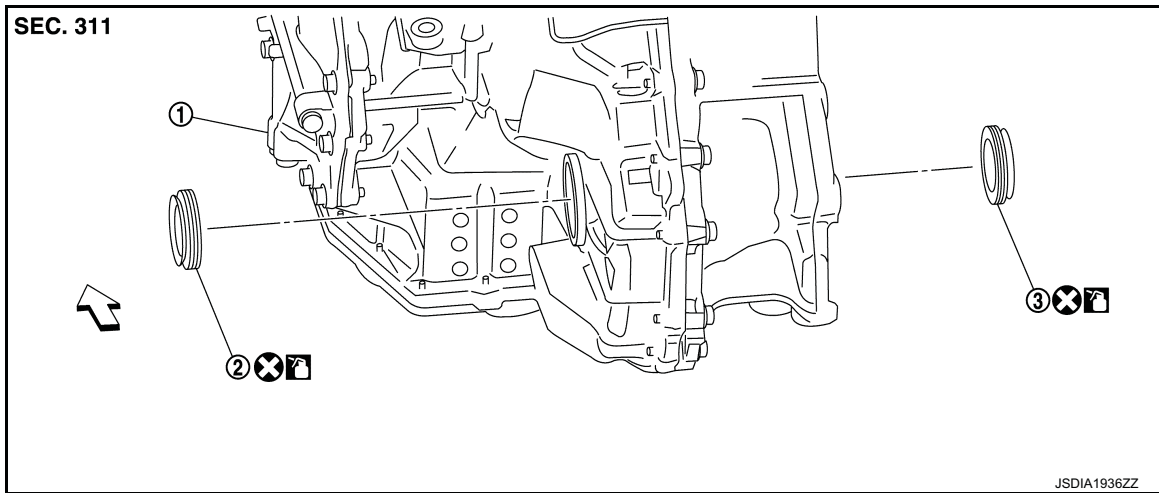
< REMOVAL AND INSTALLATION >

[4AT: RE4F03C]

DIFFERENTIAL SIDE OIL SEAL

Exploded View

INFOID:000000006280694



1. Transaxle assembly 2. Differential side oil seal (left side) 3. Differential side oil seal (right side)

↔ : Vehicle front

⊗ : Always replace after every disassembly.

🔧 : Genuine NISSAN Matic S ATF

Removal and Installation

INFOID:000000006280695

REMOVAL

NOTE:

Oil may leak from the opening. Use a cap, plug, or other means to prevent leakage.

1. Remove the left and right front drive shafts. Refer to [FAX-25. "Removal and Installation" \(TYPE 1\)*](#), [FAX-59. "EXCEPT FOR K9K : Removal and Installation" \(TYPE 2\)*](#), [FAX-102. "Removal and Installation" \(TYPE 3\)*](#).

*: Refer to [FAX-4. "Information"](#).

2. Use oil seal remover or a similar means and remove the differential side oil seal.

CAUTION:

When removing the differential side oil seal, be careful not to scratch the oil seal mounting surfaces of the transaxle case and converter housing.

INSTALLATION

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

CAUTION:

- Never reuse differential side oil seal.
- Apply Genuine NISSAN Matic S ATF to the differential side oil seal lip and around the oil seal.
- When inserting the drive shaft, be sure to use a protector (SST: KV38107900). Refer to [FAX-25. "Removal and Installation" \(TYPE 1\)*](#), [FAX-59. "EXCEPT FOR K9K : Removal and Installation" \(TYPE 2\)*](#), [FAX-102. "Removal and Installation" \(TYPE 3\)*](#).

*: Refer to [FAX-4. "Information"](#).

DIFFERENTIAL SIDE OIL SEAL

< REMOVAL AND INSTALLATION >

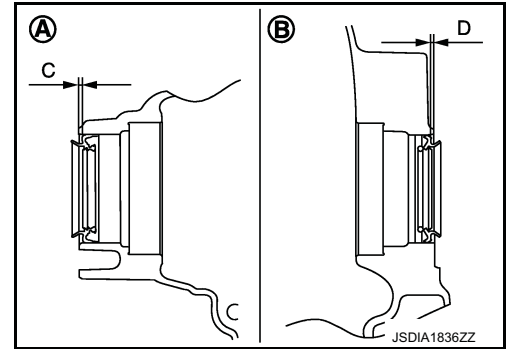
[4AT: RE4F03C]

Use a drift (commercial service tool) and drive the differential side oil seal in until the amount of oil seal projection from the case edge matches dimensions (C) and (D).

CAUTION:

Be careful not to scratch the lip of the differential side oil seal when press-fitting it.

- A : Differential side oil seal (left side)
B : Differential side oil seal (right side)



Dimension “C” : Height difference from case end surface is within 1.8 ± 0.5 mm (0.071 ± 0.020 in).

Dimension “D” : Height difference from case end surface is within 1.8 ± 0.5 mm (0.071 ± 0.020 in).

NOTE:

The reference is the pull-in direction of the differential side oil seal.

Drift to be used:

Location	Commercial Service Tools
Transaxle case side	Commercial service tool with outer dia. 56 mm (2.20 in) and inner dia. 50 mm (1.97 in)
Converter housing side	

Inspection and Adjustment

INFOID:000000006280696

INSPECTION AFTER INSTALLATION

Check for A/T fluid leakage. Refer to [TM-296, "Inspection"](#).

ADJUSTMENT AFTER INSTALLATION

Check the A/T fluid level. Refer to [TM-188, "Adjustment"](#).

FLUID COOLER TUBE

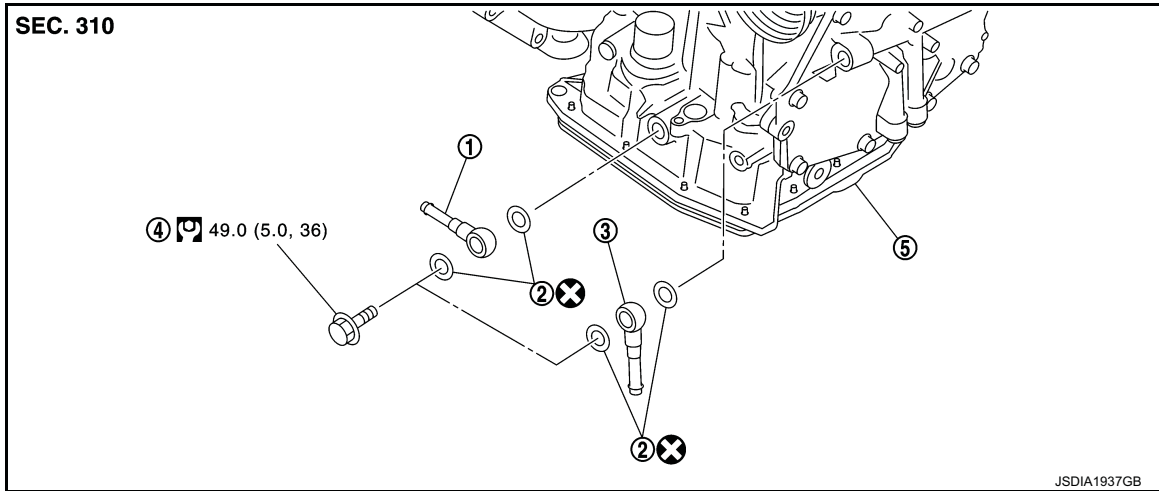
< REMOVAL AND INSTALLATION >

[4AT: RE4F03C]

FLUID COOLER TUBE

Exploded View

INFOID:000000006294602



1. Fluid cooler tube A

2. Copper washer

3. Fluid cooler tube B

4. Bolt

5. Transaxle assembly

: N·m (kg-m, in-lb)

Removal and Installation

INFOID:000000006294603

REMOVAL

WARNING:

Never open the radiator cap or drain plug when the engine is hot. There is a danger that hot liquid may spray out, causing serious injury.

CAUTION:

Perform these steps after the coolant temperature has cooled sufficiently.

NOTE:

Lift up the vehicle and perform the work from below the unit.

1. Remove fluid cooler hose and fluid cooler tube A.
2. Disconnect the washer from fluid cooler tube A.
3. Remove fluid cooler hose and fluid cooler tube B.
4. Disconnect the washer from fluid cooler tube B.

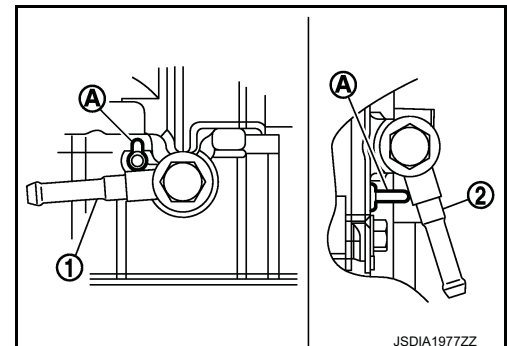
INSTALLATION

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

CAUTION:

The washer is not reusable.

When installing the fluid cooler tube A (1) and B (2) onto the transaxle assembly, install it so that it is in contact with the transaxle case rib (A).



Inspection and Adjustment

INFOID:000000006596477

INSPECTION AFTER INSTALLATION

Check for A/T fluid leakage. Refer to [TM-296, "Inspection"](#).

ADJUSTMENT AFTER INSTALLATION

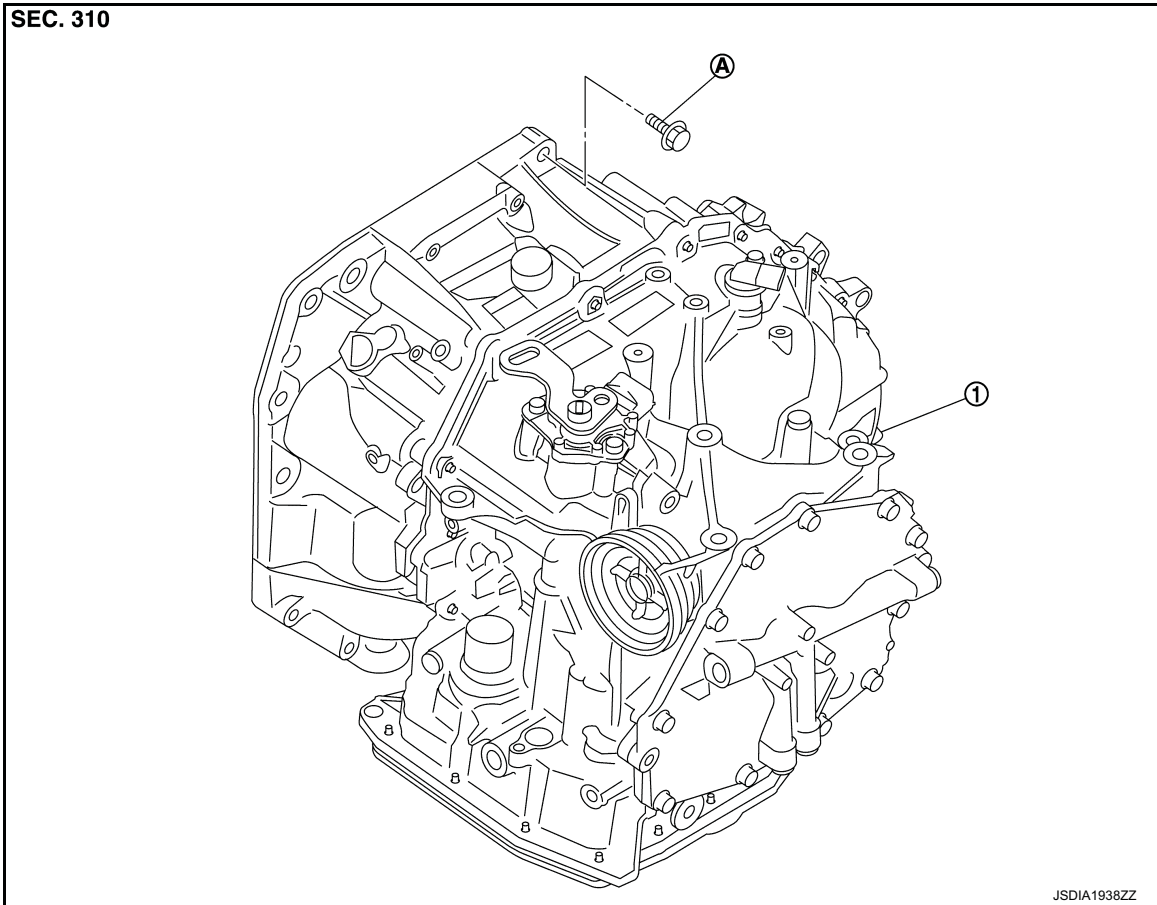
Check the A/T fluid level. Refer to [TM-188, "Adjustment"](#).

UNIT REMOVAL AND INSTALLATION

TRANSMISSION ASSEMBLY

Exploded View

INFOID:000000006290103



1. Transaxle assembly

A. : Tightening must be done following the installation procedure. Refer to [TM-315, "Removal and Installation"](#).

Removal and Installation

INFOID:000000006290104

REMOVAL

WARNING:

Never open the radiator cap or drain plug when the engine is hot. Hot liquid may spray out, causing serious injury.

CAUTION:

Perform these steps after the coolant temperature has cooled sufficiently.

NOTE:

- When replacing the TCM and transaxle assembly as a set, replace the transaxle assembly first and then replace the TCM. Refer to [TM-185, "Description"](#).
 - Cap or plug openings to prevent fluid from spilling.
1. Remove the battery. Refer to [PG-529, "FOR MAINTENANCE REQUIRED BATTERY MODELS : Exploded View"](#).
 2. Remove the TCM. Refer to [TM-307, "Removal and Installation"](#).
 3. Remove the battery plate.
 4. Remove the air duct and air cleaner case. Refer to [EM-33, "TYPE 1 : Removal and Installation"](#) (HR12DE Type 1), [EM-34, "TYPE 2 : Removal and Installation"](#) (HR12DE Type2), [EM-337, "Removal and Installation"](#) (HR15DE).

TRANSMISSION ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[4AT: RE4F03C]

5. Disconnect the connectors and harnesses.
 - For the A/T unit connector, refer to [TM-108, "EXCEPT FOR EUROPE : Removal and Installation Procedure for A/T Assembly Connector"](#).
 - Transmission range switch connector
 - Input speed sensor connector
 - Output speed sensor connector
 - Crankshaft position sensor (POS) connector
 - Ground
6. Remove the control cable from the transaxle assembly. Refer to [TM-301, "Removal and Installation"](#).
7. Disconnect the fluid cooler hose from the fluid cooler tube. Refer to [TM-313, "Removal and Installation"](#).
NOTE:
Cap or plug openings to prevent fluid from spilling.
8. Remove the front drive shafts. Refer to [FAX-25, "Removal and Installation"](#) (TYPE 1)*, [FAX-59, "EXCEPT FOR K9K : Removal and Installation"](#) (TYPE 2)*, [FAX-102, "Removal and Installation"](#) (TYPE 3)*.
*: Refer to [FAX-4, "Information"](#).
9. Remove the heat insulator. Refer to [EM-42, "Exploded View"](#) (HR12DE), [EM-343, "Exploded View"](#) (HR15DE).
10. Remove crankshaft position sensor (POS) from converter housing. Refer to [EM-132, "Exploded View"](#) (HR12DE), [EM-407, "Exploded View"](#) (HR15DE).
CAUTION:
 - **Never subject it to impact by dropping or hitting it.**
 - **Never disassemble.**
 - **Never allow metal filings, etc. to get on the sensor's front edge magnetic area.**
 - **Never place in an area affected by magnetism.**
11. Remove starter motor. Refer to [STR-64, "HR12DE : Removal and Installation"](#) (HR12DE), [STR-70, "HR15DE : Removal and Installation"](#) (HR15DE).
12. Remove Intake manifold (Only HR15DE). Refer to [EM-340, "Removal and Installation"](#).
13. Remove the front fender protectors. Refer to [EXT-21, "FENDER PROTECTOR : Removal and Installation"](#).
14. Rotate the crankshaft and remove the nuts that secure the drive plate to the torque converter from the starter motor mount.
CAUTION:
Rotate crankshaft clockwise (as viewed from the front of the engine).
15. Remove the rear torque rod. Refer to [EM-116, "Removal and Installation"](#) (HR12DE), [EM-392, "Removal and Installation"](#) (HR15DE).
16. Set a transmission jack under the transaxle assembly.
CAUTION:
Be careful not to contact the drain plug when setting the transmission jack.
17. Set a transmission jack under the engine assembly.
CAUTION:
Be careful not to contact the drain plug when setting the transmission jack.
18. Remove the left engine mount insulator. Refer to [EM-116, "Removal and Installation"](#) (HR12DE), [EM-392, "Removal and Installation"](#) (HR15DE).
19. Remove the left engine mount bracket (transaxle side). Refer to [EM-116, "Removal and Installation"](#) (HR12DE), [EM-392, "Removal and Installation"](#) (HR15DE).
20. Remove the bolts that fasten the transaxle assembly and engine assembly.
21. Remove the transaxle assembly from the vehicle.
CAUTION:
Never drop the torque converter.

INSTALLATION

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

CAUTION:

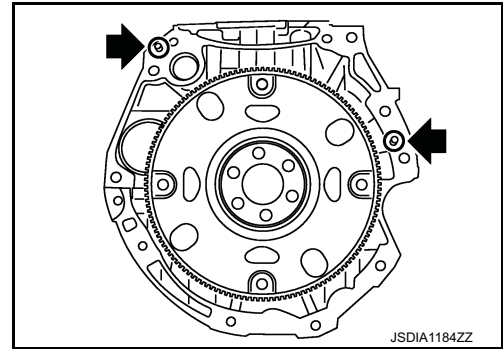
- **Never reuse O-ring.**
- **Apply ATF to the O-ring.**

TRANSMISSION ASSEMBLY

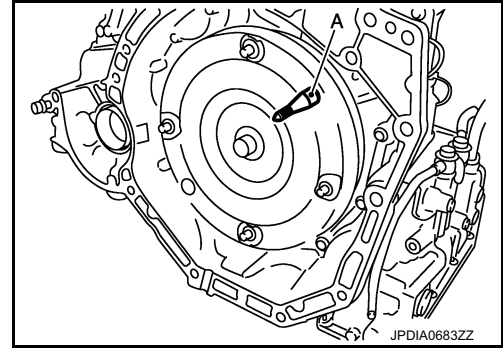
< UNIT REMOVAL AND INSTALLATION >

[4AT: RE4F03C]

- When installing the transaxle assembly onto the engine assembly, check the engagement of the dowel pin (↔).



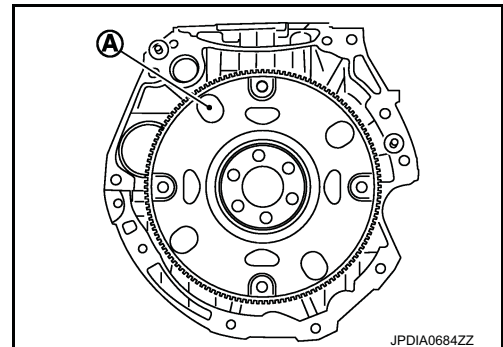
- When using drive plate location guide, install drive plate location guide (Commercial service tools: 31197EU50A) (A) to drive plate location guide mounting part of torque converter.



- Rotate the crankshaft so that the drive plate location guide insert hole (A) of the drive plate is aligned with the drive plate location guide that is installed on the torque converter.

CAUTION:

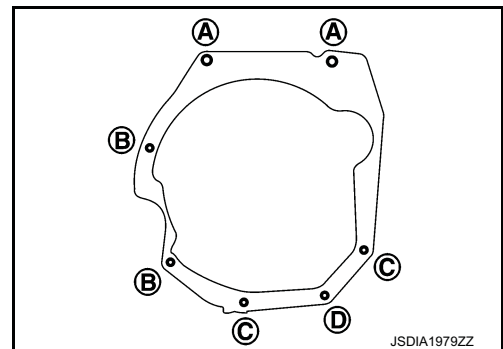
- Rotate the crankshaft clockwise (as viewed from the front of the engine).
- Be careful that torque converter stud bolt is aligned to drive plate hole position. Otherwise stud bolt contacts drive plate.
- Temporally tighten drive plate and torque converter connecting nuts and tighten to the specified torque.



Tightening torque : 51.5 N·m (5.3 kg-m, 38 ft-lb)

CAUTION:

- Rotate crankshaft clockwise (as viewed from the front of the engine).
- Check the tightening torque for the crankshaft pulley mounting bolts after the bolts fastening the drive plate and torque converter have been tightened and the crankshaft pulley mounting bolts have been secured. Refer to [EM-65. "Removal and Installation"](#) (HR12DE), [EM-357. "Removal and Installation"](#) (HR15DE).
- Install the transaxle assembly and engine assembly mounting bolts according to the following standards. (HR12DE)



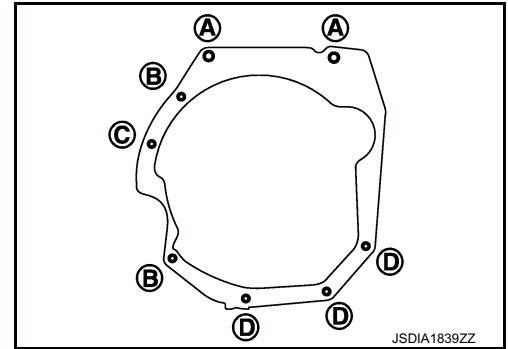
TRANSMISSION ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[4AT: RE4F03C]

Bolt No.	A	B	C	D
Direction of insertion	Transaxle assembly → Engine assembly	Engine assembly → Transaxle assembly		
Number of bolts	2	2	2	1
Bolt length mm (in)	40 (1.57)	44 (1.73)	49 (1.93)	69 (2.72)
Tightening torque N·m (kg-m, ft-lb)	48 (4.9, 35)			

- Install the transaxle assembly and engine assembly mounting bolts according to the following standards. (HR15DE)



Bolt No.	A	B	C	D
Direction of insertion	Transaxle assembly → Engine assembly	Engine assembly → Transaxle assembly		
Number of bolts	2	2	1	3
Bolt length mm (in)	40 (1.57)	44 (1.73)	69 (2.72)	49 (1.93)
Tightening torque N·m (kg-m, ft-lb)	48 (4.9, 35)			

Inspection and Adjustment

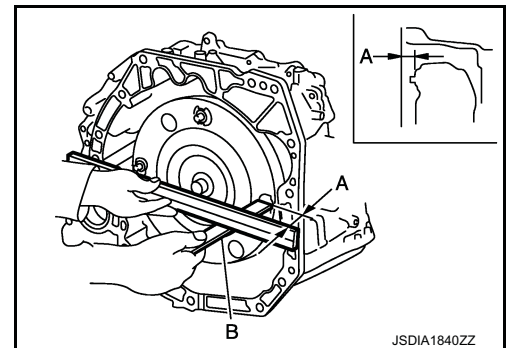
INFOID:000000006290105

INSPECTION BEFORE INSTALLATION

Check the distance "A" between the converter housing and torque converter.

- B : Scale
C : Straightedge

Dimension "A" : [TM-320, "Torque Converter"](#)



INSPECTION AFTER INSTALLATION

Check the following items:

- A/T fluid leakage, refer to [TM-296, "Inspection"](#).
- For the A/T positions, refer to [TM-193, "Inspection and Adjustment"](#)
- Start the engine and check for coolant leakage from the parts which are removed and reinstalled.

ADJUSTMENT AFTER INSTALLATION

- Check the A/T fluid level. Refer to [TM-188, "Adjustment"](#).
- Perform "TRANSAXLE ASSEMBLY REPLACEMENT". Refer to [TM-185, "Description"](#).

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[4AT: RE4F03C]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specification

INFOID:000000006280703

Engine		HR12DE	HR15DE
Transmission model code number		3MX0A, 3MX0C	3MX0B, 3MX0D
Stall torque ratio		1.82 : 1	1.91 : 1
Transmission gear ratio	1st	2.861	
	2nd	1.562	
	3rd	1.000	
	4th	0.697	
	Reverse	2.310	
Recommended fluid		Genuine NISSAN Matic S ATF*1	
Fluid capacity		5.4 liter (4-3/4 Imp qt)*2	

CAUTION:

- Use only Genuine NISSAN Matic S ATF. Never mix with other ATF.
- Using ATF other than Genuine NISSAN Matic S ATF will cause deterioration driveability and A/T durability, and may damage the A/T, which is not covered by the warranty.

*1: Refer to [MA-29. "Fluids and Lubricants"](#).

*2: The fluid capacity is the reference value.

Vehicle Speed at Which Gear Shifting Occurs

INFOID:000000006280704

HR12DE

Unit: km/h (MPH)

Gear position	Throttle position	
	Full throttle	Half throttle
D1 → D2	39 – 45 (24 – 29)	27 – 33 (17 – 21)
D2 → D3	84 – 90 (52 – 56)	54 – 60 (34 – 37)
D3 → D4	137 – 143 (85 – 89)	110 – 116 (68 – 72)
D4 → D3	133 – 139 (83 – 86)	67 – 73 (42 – 45)
D3 → D2	77 – 83 (48 – 52)	33 – 39 (21 – 24)
D2 → D1	34 – 40 (21 – 25)	6 – 12 (4 – 7)

- At half throttle, the accelerator opening is 4/8 of the full opening.

HR15DE

Unit: km/h (MPH)

Gear position	Throttle position	
	Full throttle	Half throttle
D1 → D2	41 – 47 (25 – 29)	17 – 23 (11 – 14)
D2 → D3	89 – 95 (55 – 59)	43 – 49 (26 – 30)
D3 → D4	147 – 153 (91 – 95)	115 – 121 (71 – 75)
D4 → D3	143 – 149 (89 – 93)	60 – 65 (37 – 40)
D3 → D2	83 – 89 (52 – 55)	37 – 43 (23 – 27)
D2 → D1	36 – 42 (22 – 26)	6 – 12 (4 – 7)

- At half throttle, the accelerator opening is 4/8 of the full opening.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[4AT: RE4F03C]

Vehicle Speed at Which Lock-up Occurs/Releases

INFOID:0000000006280705

HR12DE

Throttle position	Gear position	Vehicle speed km/h (MPH)	
		Lock-up ON	Lock-up OFF
Closed throttle	3GR	54 – 60 (34 – 37)	32 – 35 (51 – 57)
	4GR	52 – 58 (32 – 36)	49 – 55 (30 – 34)
Half throttle	3GR	87 – 93 (54 – 58)	84 – 90 (52 – 56)
	4GR	123 – 126 (75 – 78)	99 – 105 (62 – 65)

- At closed throttle, the accelerator opening is less than 1/8 condition. (Closed throttle position signal OFF)
- At half throttle, the accelerator opening is 4/8 of the full opening.

HR15DE

Throttle position	Gear position	Vehicle speed km/h (MPH)	
		Lock-up ON	Lock-up OFF
Closed throttle	3GR	31 – 37 (19 – 23)	28 – 34 (17 – 21)
	4GR	49 – 55 (30 – 34)	45 – 51 (28 – 32)
Half throttle	3GR	87 – 93 (54 – 58)	83 – 90 (52 – 56)
	4GR	115 – 121 (71 – 75)	91 – 97 (57 – 60)

- At closed throttle, the accelerator opening is less than 1/8 condition. (Closed throttle position signal OFF)
- At half throttle, the accelerator opening is 4/8 of the full opening.

Stall Speed

INFOID:0000000006280706

HR12DE

Stall speed	2,200 – 2,630 rpm

HR15DE

Stall speed	2,310 – 2,760 rpm

Line Pressure

INFOID:0000000006456816

Unit: kPa (bar, kg/cm², psi)

Select position	Engine speed	Line pressure
“R” position	Idle speed	570 (0.57, 5.81, 82.7)
	Stall speed	2,140 (2.14, 21.83, 310.3)
“D” position	Idle speed	410 (4.10, 4.18, 59.5)
	Stall speed	1,400 (1.40, 14.28, 203.0)

Torque Converter

INFOID:0000000006280707

Dimension between end of converter housing and torque converter	16.2 mm (0.638 in)

HOW TO USE THIS MANUAL

APPLICATION NOTICE

Information

INFOID:0000000006576198

- In this manual, “Idling Stop System” is referred to as “Stop/Start System”.
- Both “VDC” and “ESP” are used in this manual. These indicate the same system.

A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

PRECAUTION

PRECAUTIONS FOR EUROPE

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

INFOID:000000007562527

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. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

The vehicle may be equipped with a passenger air bag deactivation switch. Because no rear seat exists where a rear-facing child restraint can be placed, the switch is designed to turn off the passenger air bag so that a rear-facing child restraint can be used in the front passenger seat. The switch is located in the center of the instrument panel, near the ashtray. When the switch is turned to the ON position, the passenger air bag is enabled and could inflate for certain types of collision. When the switch is turned to the OFF position, the passenger air bag is disabled and will not inflate. A passenger air bag OFF indicator on the instrument panel lights up when the passenger air bag is switched OFF. The driver air bag always remains enabled and is not affected by the passenger air bag deactivation switch.

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the "SRS AIR BAG".
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.
- The vehicle may be equipped with a passenger air bag deactivation switch which can be operated by the customer. When the passenger air bag is switched OFF, the passenger air bag is disabled and will not inflate. When the passenger air bag is switched ON, the passenger air bag is enabled and could inflate for certain types of collision. After SRS maintenance or repair, make sure the passenger air bag deactivation switch is in the same position (ON or OFF) as when the vehicle arrived for service.

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

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, 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.

FOR EUROPE : Precautions Necessary for Steering Wheel Rotation After Battery Disconnection

INFOID:000000007562530

CAUTION:

Comply with the following cautions to prevent any error and malfunction.

- Before removing and installing any control units, first turn the 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.

PRECAUTIONS

< PRECAUTION >

[CVT: RE0F11A]

- **Always use CONSULT 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.**

For vehicle with 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 operation procedure below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.

NOTE:

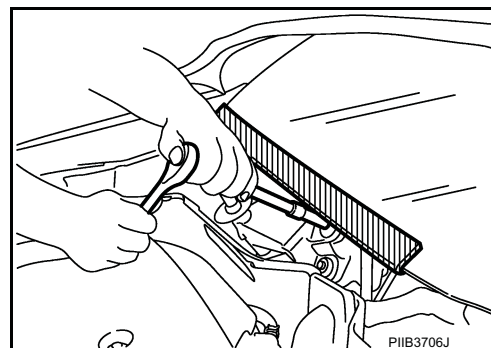
Supply power using jumper cables if battery is discharged.

2. Turn the 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 ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the ignition switch is turned to LOCK position.)
6. Perform self-diagnosis check of all control units using CONSULT.

FOR EUROPE : Precaution for Procedure without Cowl Top Cover

INFOID:000000007562533

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



FOR EUROPE : Precaution for TCM and Transaxle Assembly Replacement

INFOID:0000000006890207

CAUTION:

- To replace TCM, refer to [TM-435, "Description"](#).
- To replace transaxle assembly, refer to [TM-437, "Description"](#).

FOR EUROPE : Precaution for G Sensor Removal/Installation or Replacement

INFOID:0000000006890208

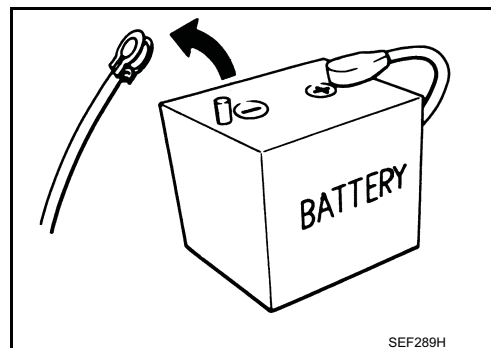
CAUTION:

To remove/install or replace G sensor, refer to [TM-440, "Description"](#).

FOR EUROPE : General Precautions

INFOID:0000000006890209

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

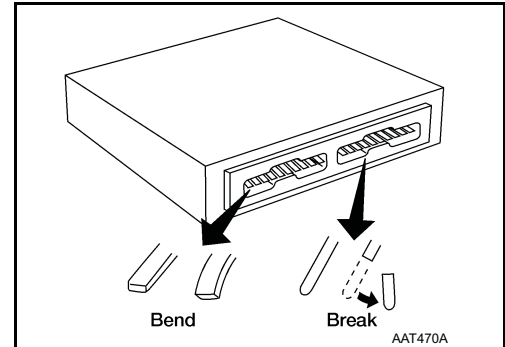


PRECAUTIONS

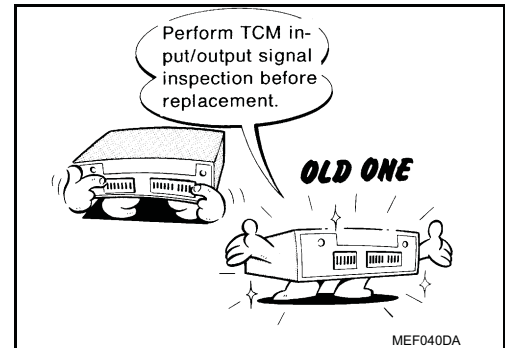
< PRECAUTION >

[CVT: RE0F11A]

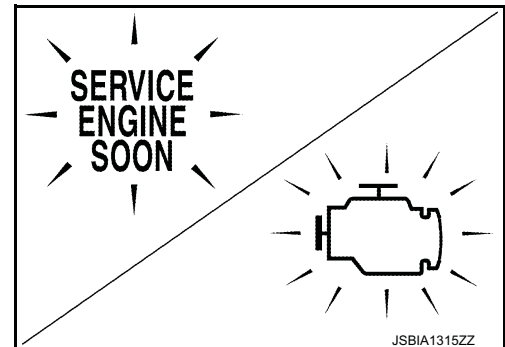
- When connecting or disconnecting pin connectors into or from TCM, do not damage pin terminals (bend or break). Check that there are not any bends or breaks on TCM pin terminal, when connecting pin connectors.



- Perform TCM input/output signal inspection and check whether TCM functions normally or not before replacing TCM. Refer to [TM-377, "Reference Value"](#).



- Perform "DTC (Diagnostic Trouble Code) CONFIRMATION PROCEDURE". If the repair is completed DTC should not be displayed in the "DTC CONFIRMATION PROCEDURE".



- Always use the specified brand of CVT fluid. Refer to [MA-29, "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.

FOR EUROPE : On Board Diagnosis (OBD) System of CVT and Engine

INFOID:0000000006890210

The ECM has an on board diagnostic system. It will light up the malfunction indicator lamp (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 EGR 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.

PRECAUTIONS

< PRECAUTION >

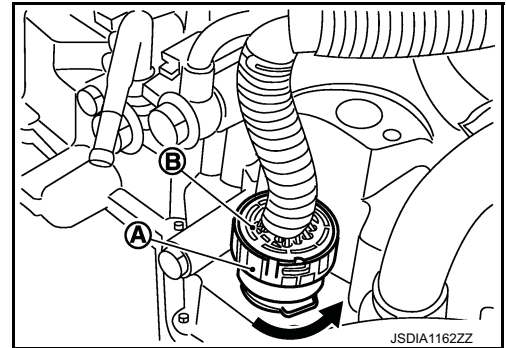
[CVT: RE0F11A]

FOR EUROPE : Removal and Installation Procedure for CVT Unit Connector

INFOID:000000006890211

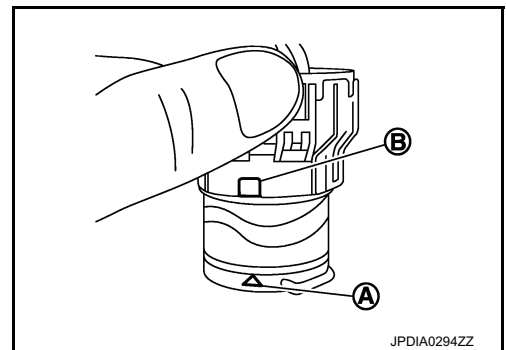
REMOVAL

- Rotate bayonet ring (A) counterclockwise. Pull out CVT unit harness connector (B) upward and remove it.

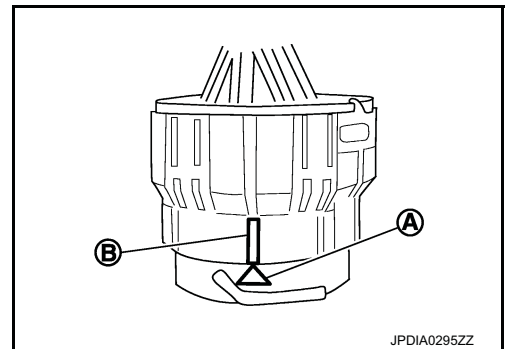


INSTALLATION

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.

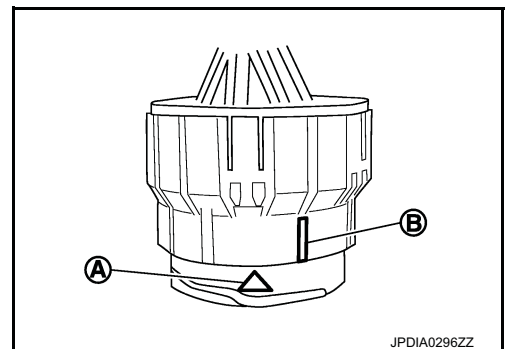


3. Rotate bayonet ring clockwise until marking (A) on CVT unit harness connector terminal body is aligned with the slit (B) on bayonet ring as shown in the figure (correctly fitting condition).



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.



EXCEPT FOR EUROPE

EXCEPT FOR EUROPE : Precaution for Supplemental Restraint System (SRS) "AIR

BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000007562528

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. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

Always observe the following items for preventing accidental activation.

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

EXCEPT FOR EUROPE : Precautions Necessary for Steering Wheel Rotation After Battery Disconnection

INFOID:000000007562531

CAUTION:

Comply with the following cautions to prevent any error and malfunction.

- Before removing and installing any control units, first turn the 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 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.

For vehicle with 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 operation 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 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 ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the ignition switch is turned to LOCK position.)
6. Perform self-diagnosis check of all control units using CONSULT.

PRECAUTIONS

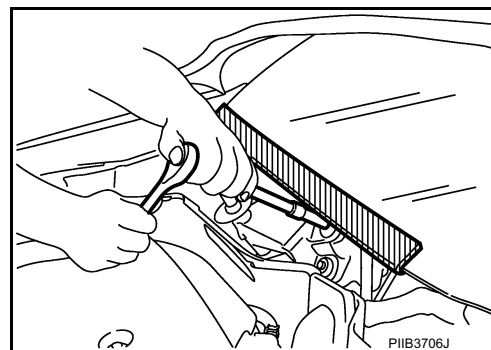
< PRECAUTION >

[CVT: RE0F11A]

EXCEPT FOR EUROPE : Precaution for Procedure without Cowl Top Cover

INFOID:000000007562535

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



EXCEPT FOR EUROPE : Precaution for TCM and Transaxle Assembly Replacement

INFOID:000000006589046

CAUTION:

- To replace TCM, refer to [TM-435, "Description"](#).
- To replace transaxle assembly, refer to [TM-437, "Description"](#).

EXCEPT FOR EUROPE : Precaution for G Sensor Removal/Installation or Replacement

INFOID:000000006589049

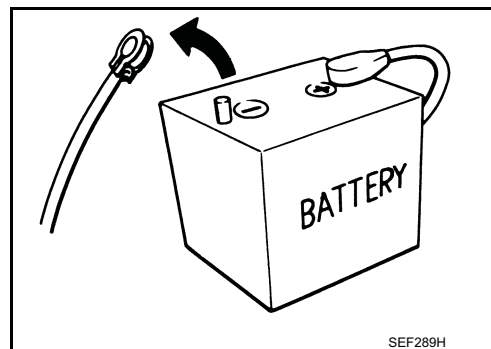
CAUTION:

To remove/install or replace G sensor, refer to [TM-440, "Description"](#).

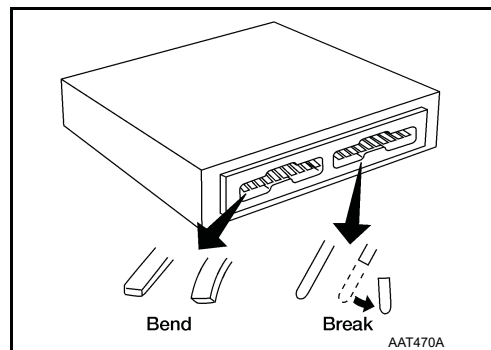
EXCEPT FOR EUROPE : General Precautions

INFOID:000000006589044

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



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

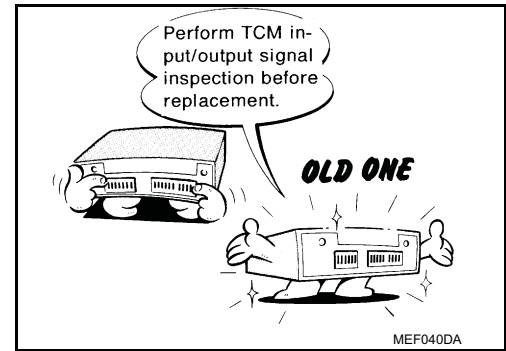


PRECAUTIONS

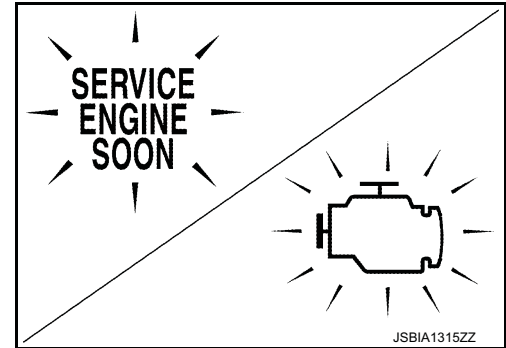
< PRECAUTION >

[CVT: RE0F11A]

- Perform TCM input/output signal inspection and check whether TCM functions normally or not before replacing TCM. Refer to [TM-377, "Reference Value"](#).



- Perform "DTC (Diagnostic Trouble Code) CONFIRMATION PROCEDURE".
If the repair is completed DTC should not be displayed in the "DTC CONFIRMATION PROCEDURE".



- Always use the specified brand of CVT fluid. Refer to [MA-29, "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.

EXCEPT FOR EUROPE : On Board Diagnosis (OBD) System of CVT and Engine

INFOID:000000006589045

The ECM has an on board diagnostic system. It will light up the malfunction indicator lamp (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 EGR 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.

EXCEPT FOR EUROPE : Removal and Installation Procedure for CVT Unit Connector

INFOID:000000006589677

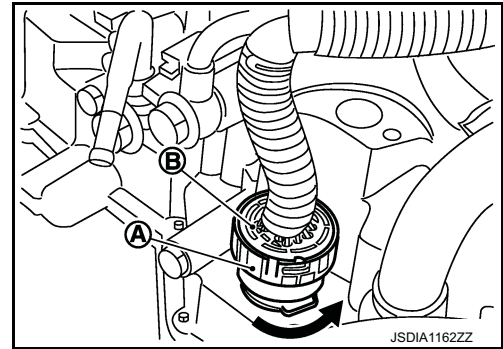
REMOVAL

PRECAUTIONS

< PRECAUTION >

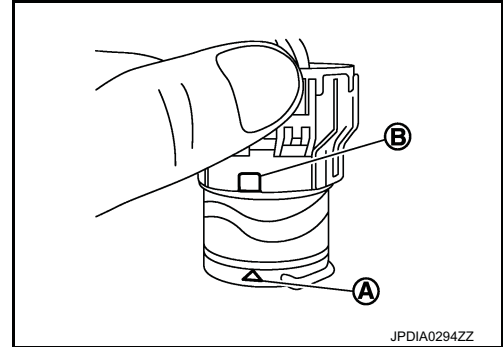
[CVT: RE0F11A]

- Rotate bayonet ring (A) counterclockwise. Pull out CVT unit harness connector (B) upward and remove it.

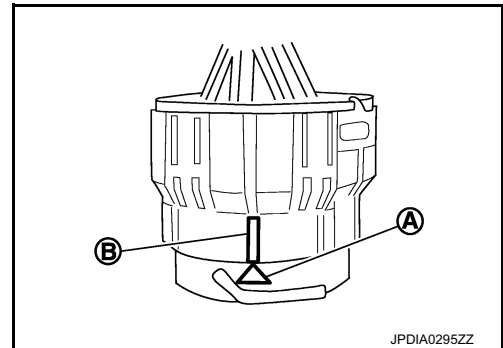


INSTALLATION

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.

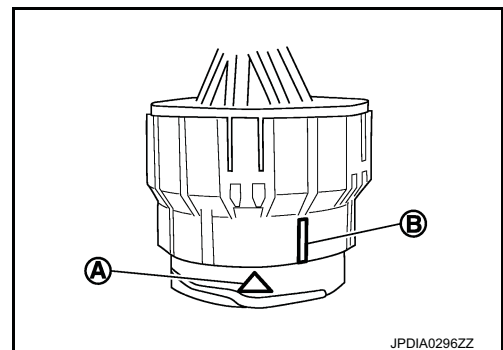


3. Rotate bayonet ring clockwise until marking (A) on CVT unit harness connector terminal body is aligned with the slit (B) on bayonet ring as shown in the figure (correctly fitting condition).



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.



PREPARATION

< PREPARATION >

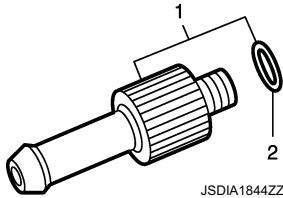
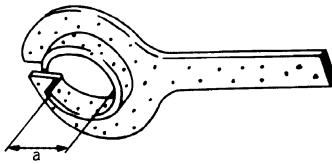
[CVT: RE0F11A]

PREPARATION

PREPARATION

Special Service Tools

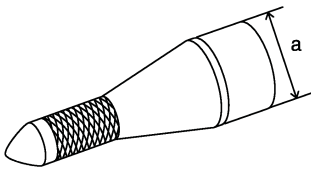
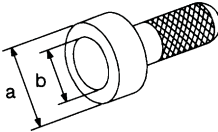
INFOID:000000006352780

Tool number Tool name	Description
1. KV311039S0 Charging pipe set 2. KV31103920* O-ring	CVT fluid changing and adjustment
 JSDIA1844ZZ	
KV38107900 Protector a: ϕ 32 mm	Installing drive shaft
 PDIA1183J	

*: The O-ring as an unit part is set as a SST.

Commercial Service Tools

INFOID:000000006352781

Tool number Tool name	Description
31197EU50A Drive plate location guide a: ϕ 25 mm	Installing transaxle assembly
 JPDIA0676ZZ	
Drift a: ϕ 56 mm b: ϕ 50 mm	Installing differential side oil seal
 NT115	

SYSTEM DESCRIPTION

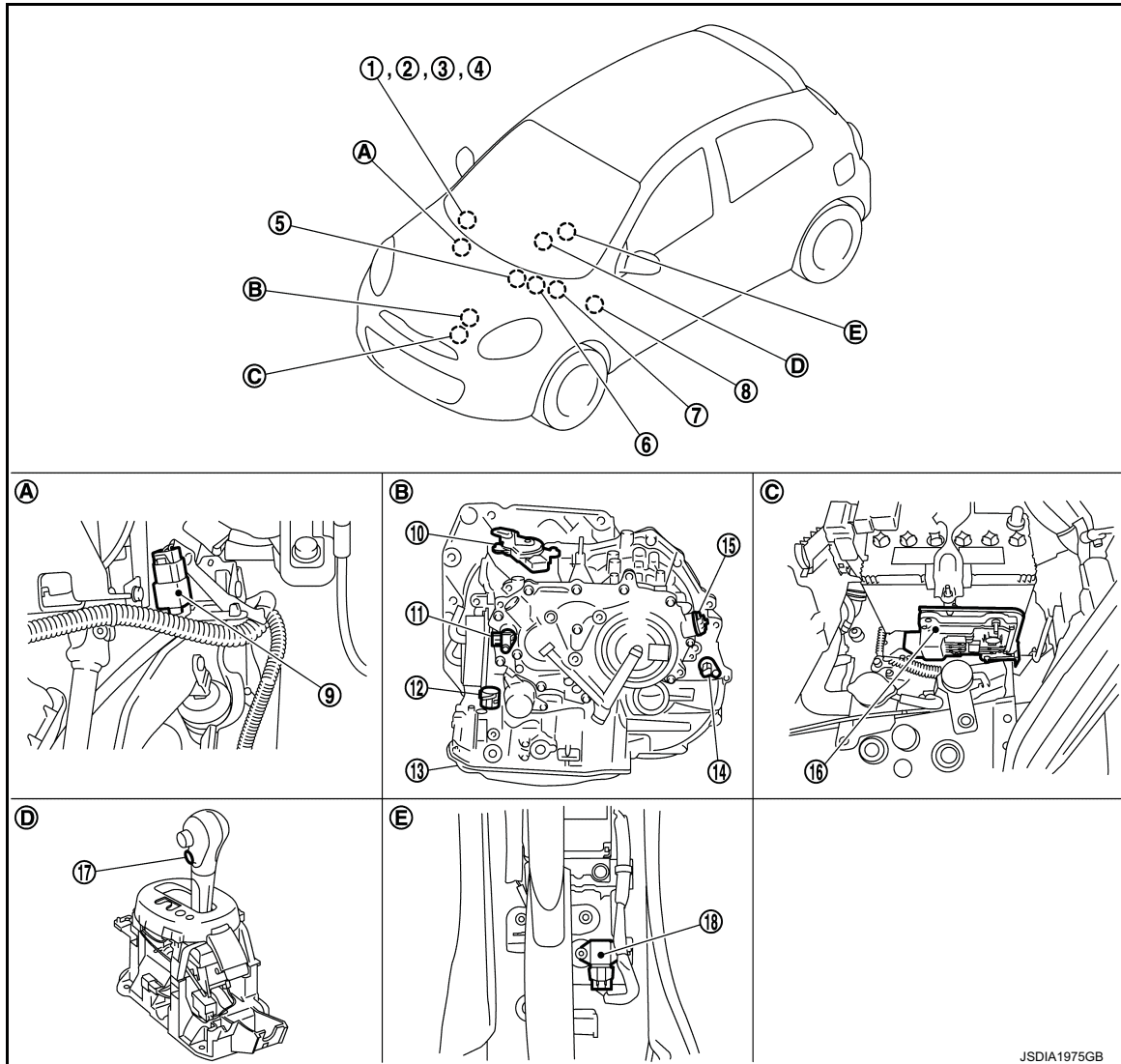
COMPONENT PARTS

CVT CONTROL SYSTEM

CVT CONTROL SYSTEM : Component Parts Location

INFOID:000000006353277

Without Stop/start System



1. Combination meter	2. SPORT indicator lamp (On the combination meter)	3. Shift position indicator (On the combination meter)
4. Malfunction indicator (MI) (On the combination meter)	5. ABS actuator and electric unit (control unit) Refer to BRC-26, "Component Parts Location" [Without VDC/ESP (with ABS)], BRC-129, "Component Parts Location" [(With VDC (ESP))]	6. IPDM E/R Refer to PCS-8, "Component Parts Location" (With Intelligent Key system), PCS-76, "Component Parts Location" (Without Intelligent Key system)
7. ECM Refer to EC3-28, "ENGINE CONTROL SYSTEM : Component Parts Location"	8. BCM Refer to BCS-9, "BODY CONTROL SYSTEM : Component Parts Location" (With Intelligent Key system), BCS-203, "BODY CONTROL SYSTEM : Component Parts Location" (Without Intelligent Key system)	9. Stop lamp switch
10. Transmission range switch	11. Primary speed sensor	12. CVT unit connector

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

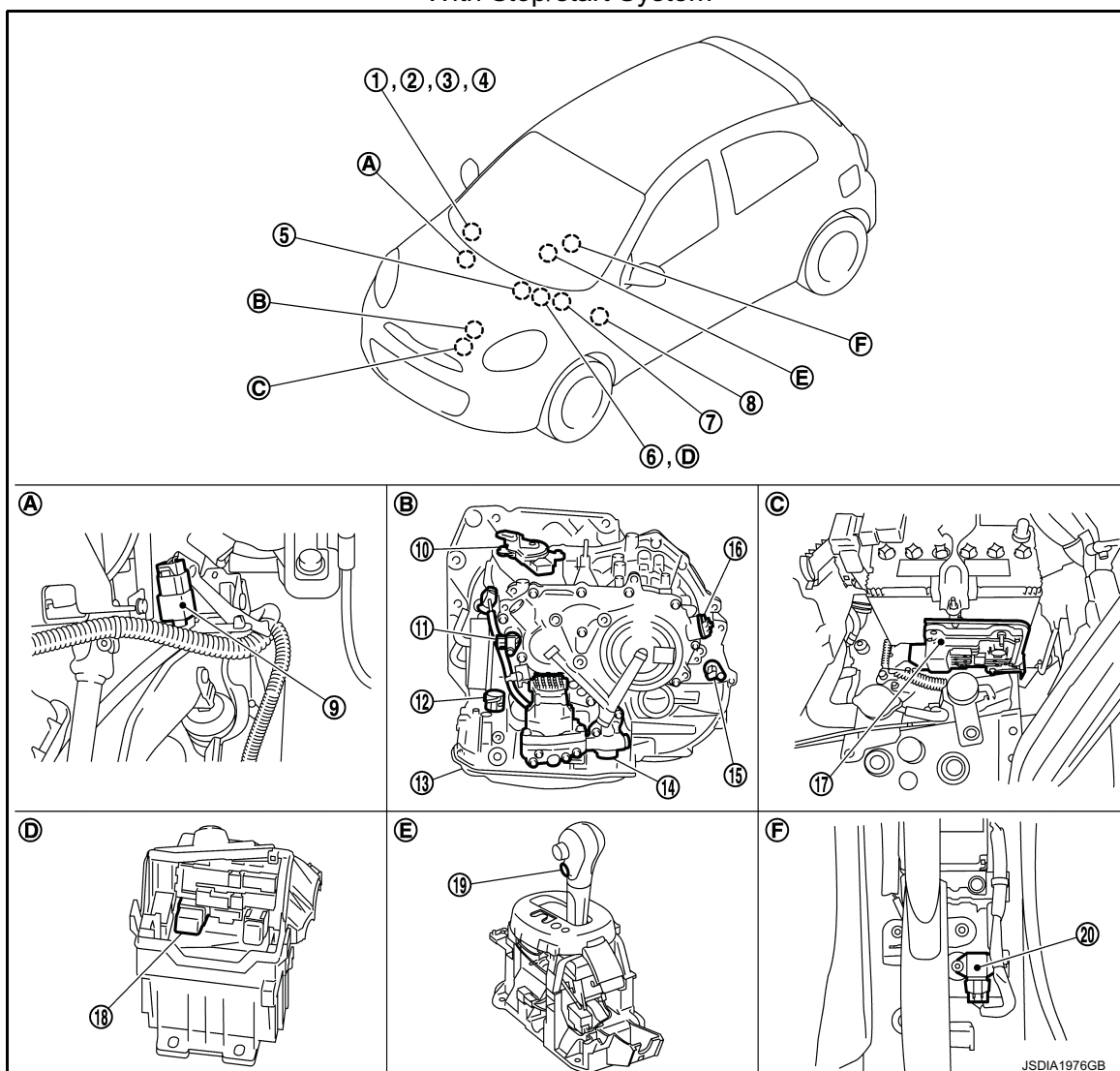
13. Control valve assembly	14. Output speed sensor	15. Secondary speed sensor
16. TCM	17. Sport mode switch	18. G sensor
A: Brake pedal, upper	B: Transaxle assembly	C: Engine room
D: CVT shift selector	E: Parking brake lever assembly, right side	

NOTE:

The following components are included in control valve assembly (13).

- CVT fluid temperature sensor
- Secondary pressure sensor
- ROM assembly
- Line pressure solenoid valve
- Low brake solenoid valve
- High clutch & reverse brake solenoid valve
- Torque converter clutch solenoid valve

With Stop/start System



COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

1. Combination meter	2. SPORT indicator lamp (On the combination meter)	3. Shift position indicator (On the combination meter)	A
4. Malfunction indicator (MI) (On the combination meter)	5. ABS actuator and electric unit (control unit) Refer to BRC-26, "Component Parts Location" [Without VDC/ESP (with ABS)], BRC-129, "Component Parts Location" [(With VDC (ESP))]	6. IPDM E/R Refer to PCS-8, "Component Parts Location" (With Intelligent Key system), PCS-76, "Component Parts Location" (Without Intelligent Key system)	B
7. ECM Refer to EC3-28, "ENGINE CONTROL SYSTEM : Component Parts Location" (HR12DE), EC3-809, "ENGINE CONTROL SYSTEM : Component Parts Location" (HR12DDR)	8. BCM Refer to BCS-9, "BODY CONTROL SYSTEM : Component Parts Location" (With Intelligent Key system), BCS-203, "BODY CONTROL SYSTEM : Component Parts Location" (Without Intelligent Key system)	9. Stop lamp switch	C
10. Transmission range switch	11. Primary speed sensor	12. CVT unit connector	TM
13. Control valve assembly	14. Electric oil pump	15. Output speed sensor	E
16. Secondary speed sensor	17. TCM	18. Electric oil pump relay	F
19. Sport mode switch	20. G sensor		
A: Brake pedal, upper	B: Transaxle assembly	C: Engine room	G
D: IPDM E/R, rear	E: CVT shift selector assembly	F: Parking brake lever assembly, right side	H

NOTE:

The following components are included in control valve assembly (13).

- CVT fluid temperature sensor
- Secondary pressure sensor
- ROM assembly
- Line pressure solenoid valve
- Low brake solenoid valve
- High clutch & reverse brake solenoid valve
- Torque converter clutch solenoid valve

CVT CONTROL SYSTEM : Component Description

INFOID:0000000006324944

Name	Function
TCM	TM-334, "CVT CONTROL SYSTEM : TCM"
Transmission range switch	TM-334, "CVT CONTROL SYSTEM : Transmission Range Switch"
Primary speed sensor	TM-334, "CVT CONTROL SYSTEM : Primary Speed Sensor"
Secondary speed sensor	TM-335, "CVT CONTROL SYSTEM : Secondary Speed Sensor"
Output speed sensor	TM-335, "CVT CONTROL SYSTEM : Output Speed Sensor"
CVT fluid temperature sensor	TM-336, "CVT CONTROL SYSTEM : CVT Fluid Temperature Sensor"
Secondary pressure sensor	TM-336, "CVT CONTROL SYSTEM : Secondary Pressure Sensor"
Primary pressure solenoid valve	TM-337, "CVT CONTROL SYSTEM : Primary Pressure Solenoid Valve"
Low brake solenoid valve	TM-337, "CVT CONTROL SYSTEM : Low Brake Solenoid Valve"
High clutch & reverse brake solenoid valve	TM-337, "CVT CONTROL SYSTEM : High Clutch & Reverse Brake Solenoid Valve"
Torque converter clutch solenoid valve	TM-337, "CVT CONTROL SYSTEM : Torque Converter Clutch Solenoid Valve"
Line pressure solenoid valve	TM-338, "CVT CONTROL SYSTEM : Line Pressure Solenoid Valve"
Accelerator pedal position sensor	EC3-36, "Accelerator Pedal Position Sensor" (HR12DE), EC3-816, "Accelerator Pedal Position Sensor" (HR12DDR)
G sensor	TM-338, "CVT CONTROL SYSTEM : G Sensor"
Sport mode switch	TM-338, "CVT CONTROL SYSTEM : Sport Mode Switch"

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

Name	Function
SPORT indicator lamp	TM-338, "CVT CONTROL SYSTEM : Sport Mode Indicator Lamp"
Shift position indicator	TM-338, "CVT CONTROL SYSTEM : Shift Position Indicator"
Malfunction indicator (MI)	TM-339, "CVT CONTROL SYSTEM : Malfunction Indicator (MI)"
Stop lamp switch	BRC-28, "Stop Lamp Switch"
Electric oil pump* ¹	TM-339, "CVT CONTROL SYSTEM : Electric Oil Pump"
Electric oil pump relay* ¹	TM-339, "CVT CONTROL SYSTEM : Electric Oil Pump Relay"
ECM	- For purposes including improving the feeling when shifting speeds and preventing drops in engine speed, control signals are exchanged between the ECM and TCM, and real-time cooperative control is performed according to the vehicle driving conditions. (Engine and CVT integrated control) - Engine and CVT integrated control signal NOTE: General term for the communication (torque-down permission, torque-down request, etc.) exchanged between the ECM and TCM. - The TCM receives the following signal via CAN communications from the ECM for judging the vehicle driving conditions. - Engine speed signal - Accelerator pedal position signal - Closed throttle position signal - TCM sends and receives the following signals with ECM through CAN communication to perform D position N idle control. - N idle instruction signal - TCM sends and receives the following signals with ECM through CAN communication to perform stop/start operation.*¹ - Stop/start readiness signal (receive) - Stop/start enable signal (send)
BCM	The TCM receives the following signal via CAN communications from the BCM for judging the vehicle driving conditions. - Stop lamp switch signal - Turn indicator signal
ABS actuator and electric unit (control unit)* ²	The TCM receives the following signal via CAN communications from the ABS actuator and electric unit (control unit) for judging the vehicle driving conditions. - Vehicle speed signal (ABS) - ABS operation signal - TCS operation signal - VDC operation signal
Combination meter	The TCM receives the following signal via CAN communications from the combination meter for judging the driving request from the driver. Sport mode switch signal
IPDM E/R	The TCM receives the following signal via CAN communications from the IPDM E/R for judging the driving request from the driver. A/C compressor feedback signal

*1: With stop/start system

*2: With VDC (ESP) or without VDC/ESP (With ABS)

CVT CONTROL SYSTEM : TCM

INFOID:000000006324945

- The vehicle driving status is judged based on the signals from the sensors, switches, and other control units, and the optimal transaxle control is performed.
- For TCM control items, refer to [TM-349, "CVT CONTROL SYSTEM : System Description"](#).

CVT CONTROL SYSTEM : Transmission Range Switch

INFOID:000000006324946

- The transmission range switch is installed to upper part of transaxle case.
- The transmission range switch detects the selector lever position.

CVT CONTROL SYSTEM : Primary Speed Sensor

INFOID:000000006324947

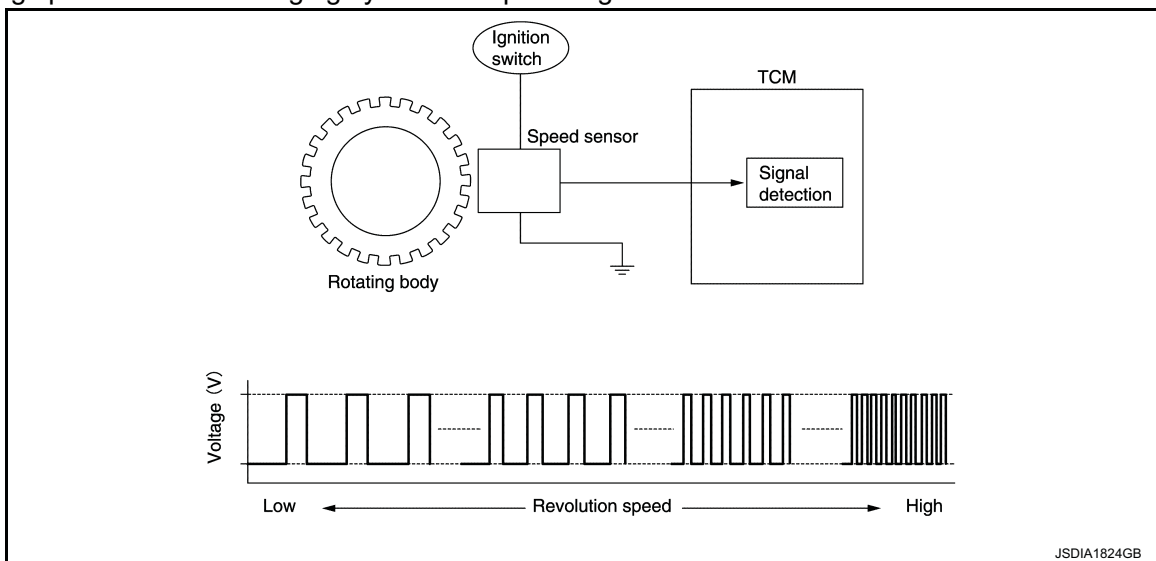
- The primary speed sensor is installed to side cover of transaxle.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

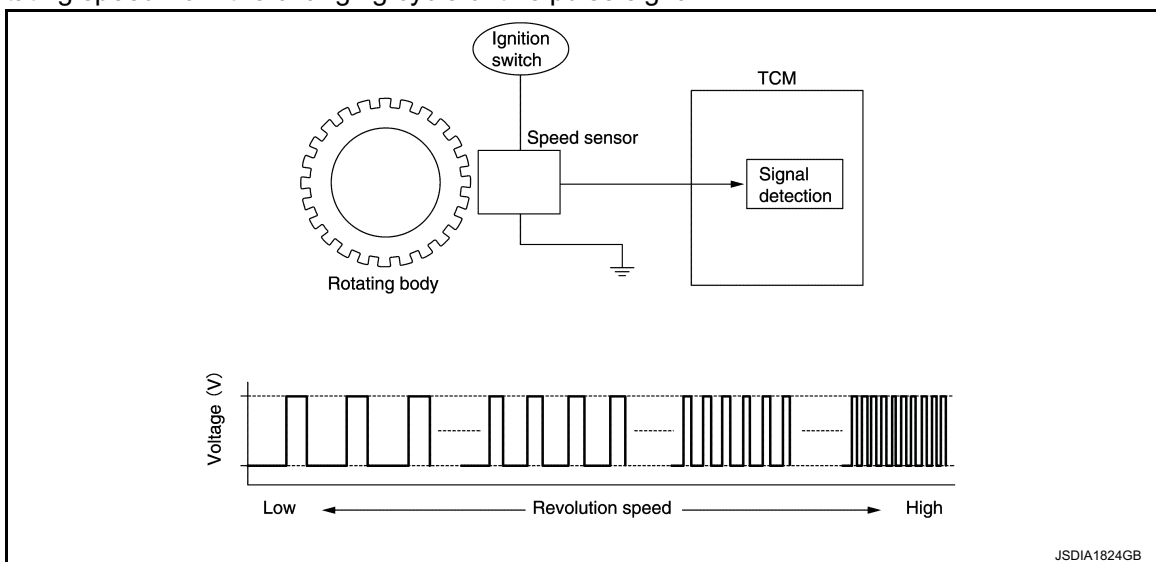
- The primary speed sensor detects primary pulley speed.
- The primary speed sensor generates the ON-OFF pulse (short waveform) in proportion to the rotating body speed which is "The higher the rotating body speed is, the faster the change cycle is". The TCM judges the rotating speed from the changing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



CVT CONTROL SYSTEM : Secondary Speed Sensor

INFOID:000000006324948

- The secondary speed sensor is installed to side cover of transaxle.
- The secondary speed sensor detects secondary pulley speed.
- The secondary speed sensor generates the ON-OFF pulse (short waveform) in proportion to the rotating body speed which is "The higher the rotating body speed is, the faster the change cycle is". The TCM judges the rotating speed from the changing cycle of this pulse signal.



CVT CONTROL SYSTEM : Output Speed Sensor

INFOID:000000006324949

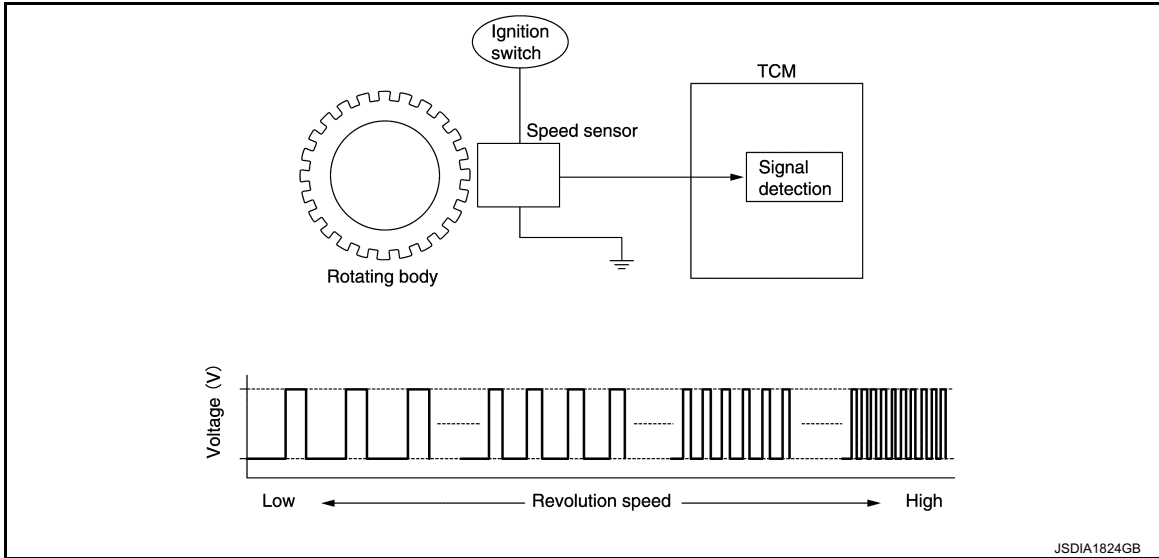
- The output speed sensor is installed to the back side of transaxle case.
- The output speed sensor detects final gear speed. TCM evaluates the vehicle speed from the final gear revolution.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

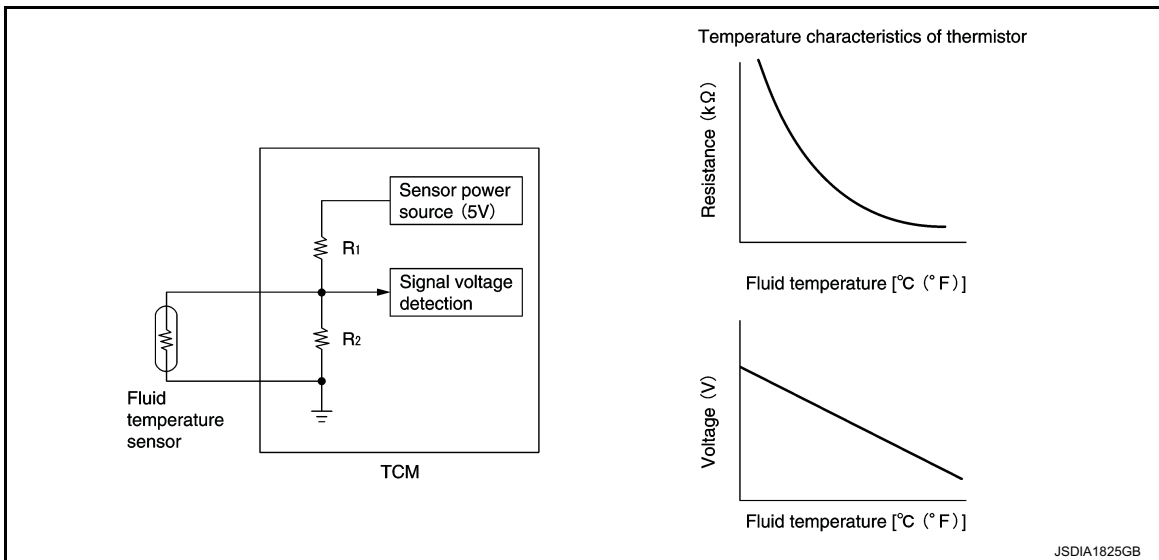
- The output speed sensor generates the ON-OFF pulse (short waveform) in proportion to the rotating body speed which is "The higher the rotating body speed is, the faster the change cycle is". The TCM judges the rotating speed from the changing cycle of this pulse signal.



CVT CONTROL SYSTEM : CVT Fluid Temperature Sensor

INFOID:000000006324950

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



CVT CONTROL SYSTEM : Secondary Pressure Sensor

INFOID:000000006324951

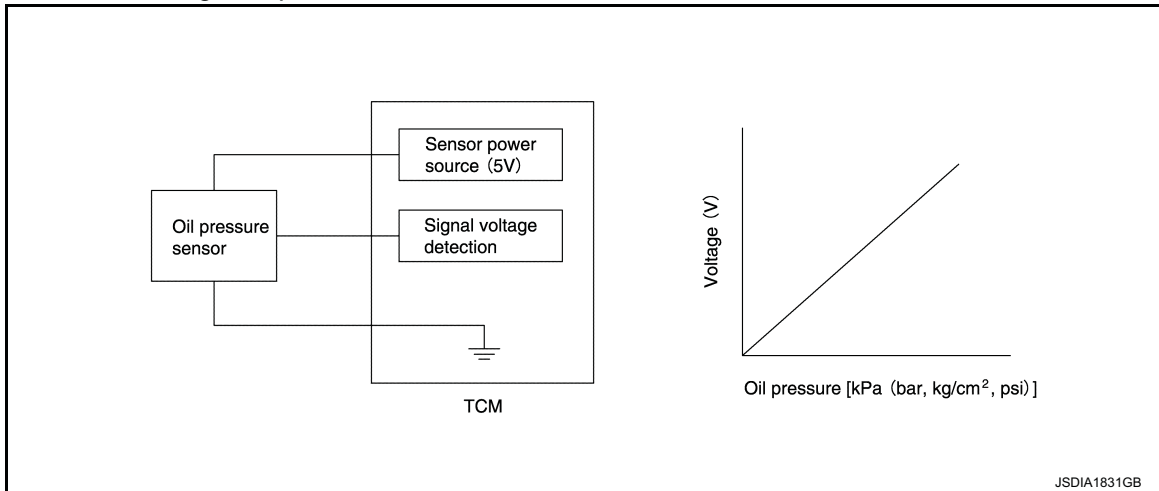
- The secondary pressure sensor is installed to control valve.
- The secondary pressure sensor detects the pressure applied to the secondary pulley.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

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



CVT CONTROL SYSTEM : Primary Pressure Solenoid Valve

INFOID:0000000006324952

- The primary pressure solenoid valve is installed to control valve.
- The primary pressure solenoid valve controls the primary pressure control valve. For information about the primary pressure control valve, refer to [TM-344, "TRANSAXLE : Component Description"](#).
- The primary pressure solenoid valve uses the linear solenoid valve [N/H (normal high) type].

NOTE:

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

CVT CONTROL SYSTEM : Low Brake Solenoid Valve

INFOID:0000000006324953

- The low brake solenoid valve is installed to control valve.
- The low brake solenoid valve adjusts the tightening pressure of the low brake.
- The low brake solenoid valve uses the linear solenoid valve [N/L (normal low) type].

NOTE:

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

CVT CONTROL SYSTEM : High Clutch & Reverse Brake Solenoid Valve

INFOID:0000000006324954

- The high clutch & reverse brake solenoid valve is installed to control valve.
- The high clutch & reverse brake solenoid valve adjusts the tightening pressure of the high clutch and reverse brake.
- The high clutch & reverse brake solenoid valve uses the linear solenoid valve [N/H (normal high) type].

NOTE:

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

CVT CONTROL SYSTEM : Torque Converter Clutch Solenoid Valve

INFOID:0000000006324955

- The torque converter clutch solenoid valve is installed to control valve.
- The torque converter clutch solenoid valve controls the torque converter clutch control valve. For information about the torque converter clutch control valve, refer to [TM-344, "TRANSAXLE : Component Description"](#).
- The torque converter clutch solenoid valve utilizes a linear solenoid valve [N/L (normal low) type].

NOTE:

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

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

CVT CONTROL SYSTEM : Line Pressure Solenoid Valve

INFOID:000000006324956

- The line pressure solenoid valve is installed to control valve.
- The line pressure solenoid valve controls the pressure regulator valve. For information about the pressure regulator valve, refer to [TM-344, "TRANSAXLE : Component Description"](#).
- The line pressure solenoid valve uses the linear solenoid valve [N/H (normal high) type].

NOTE:

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

CVT CONTROL SYSTEM : G Sensor

INFOID:000000006324958

- G sensor is installed to floor under instrument lower cover.
- G sensor detects front/rear G and inclination applied to the vehicle.
- G sensor converts front/rear G and inclination applied to the vehicle to voltage signal. TCM evaluates front/rear G and inclination angle of the vehicle from the voltage signal.

CVT CONTROL SYSTEM : Sport Mode Switch

INFOID:000000006324959

- The sport mode switch is installed to the selector lever knob.
- When the SPORT indicator lamp on the combination meter is OFF and the sport mode switch is pressed, the sport mode is active and the SPORT indicator lamp is ON.
- When the SPORT indicator lamp on the combination meter is ON and the sport mode switch is pressed, the sport mode is cancelled and the SPORT indicator lamp is OFF.

CVT CONTROL SYSTEM : Sport Mode Indicator Lamp

INFOID:000000006324960

- SPORT indicator lamp is positioned on the combination meter.
- The SPORT indicator lamp is ON when set to the sport mode.
- For checking the bulb, this lamp turns on for a certain period of time when the ignition switch turns ON, and then turns off.

Condition (status)	SPORT indicator lamp
Ignition switch OFF.	OFF
Ignition switch ON.	ON
Approx. 2 seconds after ignition switch ON	OFF
Sport mode switch is pressed (in normal operation of the system) when the selector lever is in the D position and the SPORT indicator lamp is OFF	ON
Sport mode switch is pressed when the selector lever is in the D position and the SPORT indicator lamp is on.	OFF
Selector lever is shifted to other position when the selector lever is at D position and the SPORT indicator lamp is ON.	OFF

CVT CONTROL SYSTEM : Shift Position Indicator

INFOID:000000006488181

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 PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

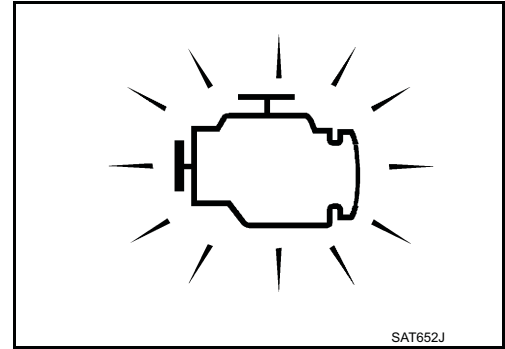
CVT CONTROL SYSTEM : Malfunction Indicator (MI)

INFOID:000000006488191

The malfunction indicator (MI) is located on the combination meter. The MI will illuminate when the ignition switch is turned ON without the engine running. This is a bulb check.

When the engine is started, the MI should turn off. If the MI remains illuminated, the on board diagnostic system has detected an engine system malfunction.

For details, refer to [EC3-78. "Diagnosis Description"](#) (HR12DE) or [EC3-887. "Diagnosis Description"](#) (HR12DDR).



CVT CONTROL SYSTEM : Electric Oil Pump

INFOID:000000006324961

- It is operated with the signal from TCM during stop/start operation. Oil pressure required for restart of the engine is obtained instead of the mechanical oil pump.
- During operation, the status signal (Duty) is sent to TCM.

Electric oil pump status signal characteristics

Status signal (Duty)	Condition
0 %	Electric oil pump power OFF
10 – 20 %	—
30 %	In normal stop
40 %	In activation
50 %	In normal operation
60 – 100 %	Possible malfunction

CVT CONTROL SYSTEM : Electric Oil Pump Relay

INFOID:000000006324962

It is ON with the signal from TCM. It is ready for operation of the electric oil pump by TCM. When the ignition switch is OFF, the electric oil pump relay is OFF too.

SHIFT LOCK SYSTEM

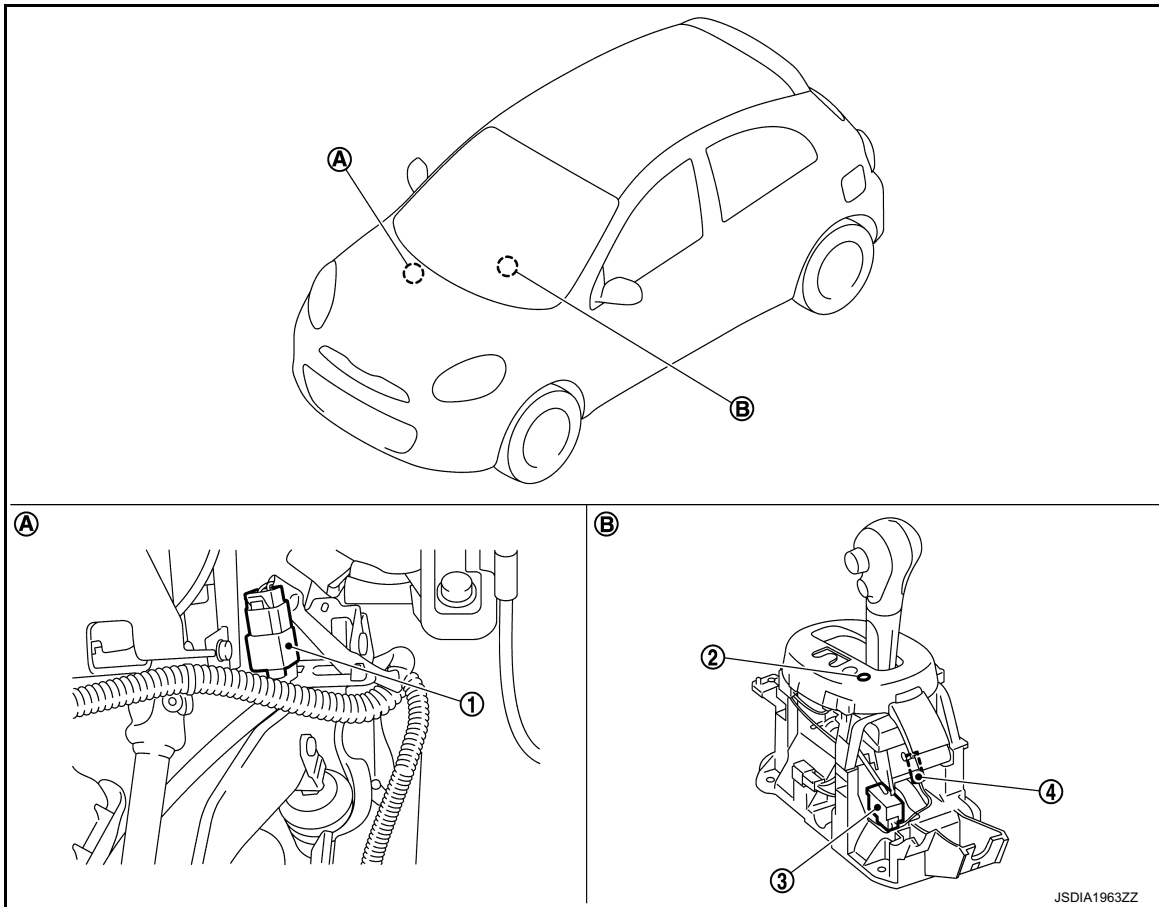
COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

SHIFT LOCK SYSTEM : Component Parts Location

INFOID:000000006356343



- 1. Stop lamp switch
- 4. Park position switch

- 2. Shift lock release button

- 3. Shift lock solenoid

A: Brake pedal, upper

B: CVT shift selector assembly

SHIFT LOCK SYSTEM : Component Description

INFOID:000000006356344

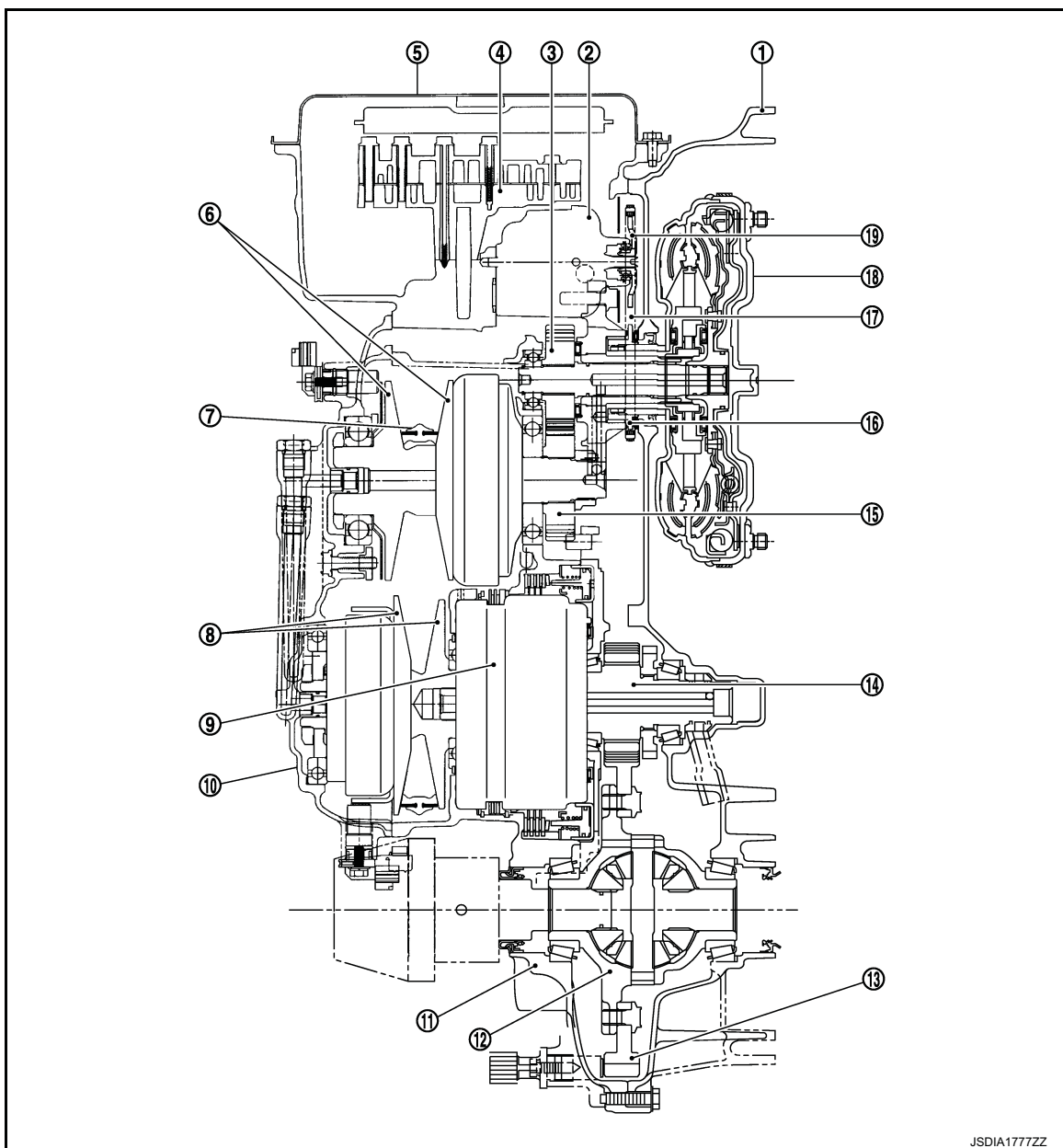
Component	Function
Shift lock solenoid	It operates according to the signal from the stop lamp switch and moves the lock lever.
Lock lever	- Rotates according to shift lock solenoid activation and releases the shift lock. - If shift lock solenoid does not activate, lock lever can be rotated when shift lock release button is pressed and shift lock is released.
Detent 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	Forcibly releases the shift lock when pressed.
Stop lamp switch	- The stop lamp switch turns ON when the brake pedal is depressed. - When the stop lamp switch turns ON, the shift lock solenoid is energized.

STRUCTURE AND OPERATION

TRANSAXLE

TRANSAXLE : Cross-Sectional View

INFOID:000000006324966



1. Converter housing	2. Oil pump	3. Counter drive gear
4. Control valve	5. Oil pan	6. Primary pulley
7. Steel belt	8. Secondary pulley	9. Planetary gear (auxiliary gearbox)
10. Side cover	11. Transaxle case	12. Differential case
13. Final gear	14. Reduction gear	15. Counter driven gear
16. Drive sprocket	17. Oil pump chain	18. Torque converter
19. Driven sprocket		

TRANSAXLE : Transaxle Mechanism

INFOID:000000006324968

BELT & PULLEY

STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

Mechanism

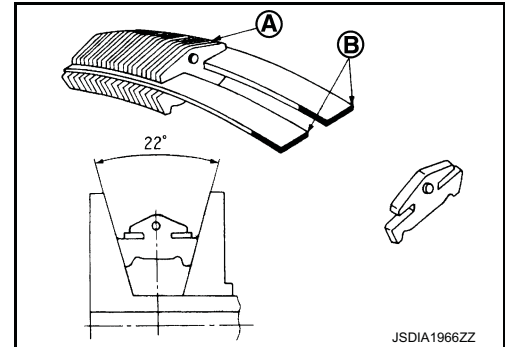
It is composed of a pair of pulleys (the groove width is changed freely in the axial direction) and the steel belt (the steel plates are placed continuously and the belt is guided with the multilayer steel rings on both sides). The groove width changes according to wrapping radius of steel belt and pulley from low status to overdrive status continuously with non-step. It is controlled with the oil pressures of primary pulley and secondary pulley.

Steel belt

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

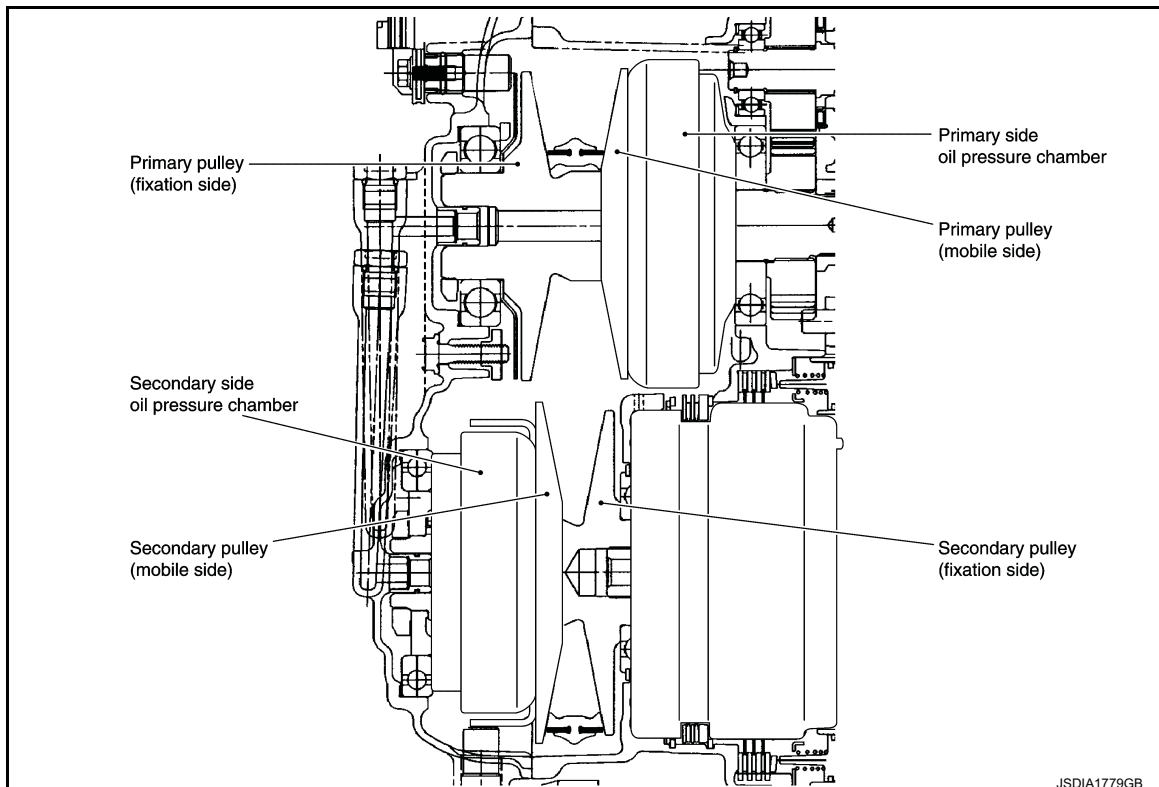
Oil pressure applies to the secondary pulley to nip the plate. ⇒ The plate is pushed and extended outward. ⇒ The steel ring shows withstands. ⇒ Pulling force is generated on the steel ring. ⇒ The plate of the primary pulley is nipped between the pulley. ⇒ Friction force is generated between the steel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

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



Pulley

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



Pulley gear shifting operation

• Pulley gear shifting operation

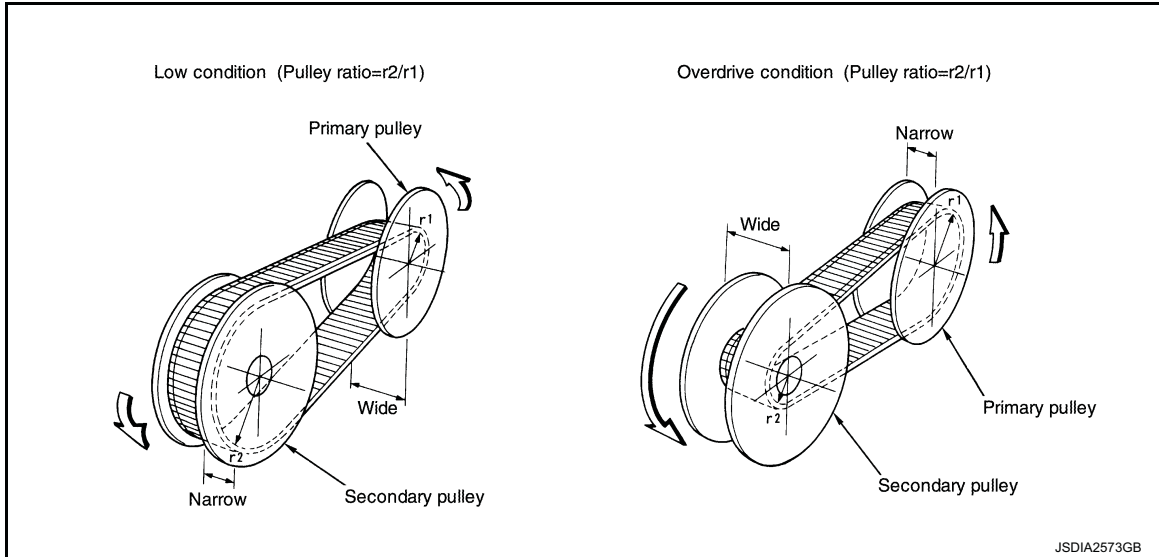
The movable sheave slides on the shaft to change the groove width of the pulley. Input signals of engine load (accelerator pedal opening), engine revolution and gear ratio (vehicle speed) change the operation pressures of the primary pulley and the secondary pulley, and controls the pulley groove width. Along with change of the pulley groove width, the belt contact radius is changed. This allows continuous and stepless

STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

gear shifting from low to overdrive. "The contact radius ratio of each pulley in contact with the belt x auxiliary gearbox gear ratio" is the gear ratio.



AUXILIARY GEARBOX MECHANISM

1st, 2nd and reverse gears are changed with the planetary gear mechanism.

TRANSAXLE : Operation Status

INFOID:000000006324967

×: Engaged or applied.

Selector lever position	Parking mechanism	Counter gear set	Low brake	High clutch	Reverse brake	Primary pulley	Secondary pulley	Steel belt	Reduction gear set
P	×	×				×	×	×	
R		×			×	×	×	×	×
N		×				×	×	×	
D		×	× (1GR)	× (2GR)		×	×	×	×
L		×	× (1GR)	× (2GR)		×	×	×	×

[CVT: RE0F11A]

INFOID:0000000006324969

Oil pump

Secondary pulley

Primary pulley

Primary pressure control valve

Pilot valve

Primary pressure solenoid valve

Manual valve

Low brake solenoid valve

Low brake

High clutch

High clutch /reverse brake switching valve

Reverse brake

High clutch & reverse brake solenoid valve

Line pressure solenoid valve

Pressure regulator valve

Torque converter clutch solenoid valve

Torque converter clutch control valve

Torque converter Lock-up ON

Torque converter Lock-up OFF

Torque converter regulator valve

-----> : Oil pressure course

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INFOID:0000000006324970

TM-344

STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

Part name	Function
Manual valve	Distributes the clutch and brake operation pressures (pilot pressure) corresponding to each shift position.
High clutch/reverse brake switching valve	Switches the circuit for the high clutch and the reverse brake.
Torque converter clutch control valve	It is operated with the torque converter clutch solenoid valve and it adjusts the tightening pressure and non-tightening pressure of the torque converter clutch piston of the torque converter.
Primary pressure control valve	It is operated with the primary pressure solenoid valve and adjusts the feed pressure to the primary pulley.
Primary pressure solenoid valve	TM-337, "CVT CONTROL SYSTEM : Primary Pressure Solenoid Valve"
Low brake solenoid valve	TM-337, "CVT CONTROL SYSTEM : Low Brake Solenoid Valve"
High clutch & reverse brake solenoid valve	TM-337, "CVT CONTROL SYSTEM : High Clutch & Reverse Brake Solenoid Valve"
Torque converter clutch solenoid valve	TM-337, "CVT CONTROL SYSTEM : Torque Converter Clutch Solenoid Valve"
Line pressure solenoid valve	TM-338, "CVT CONTROL SYSTEM : Line Pressure Solenoid Valve"

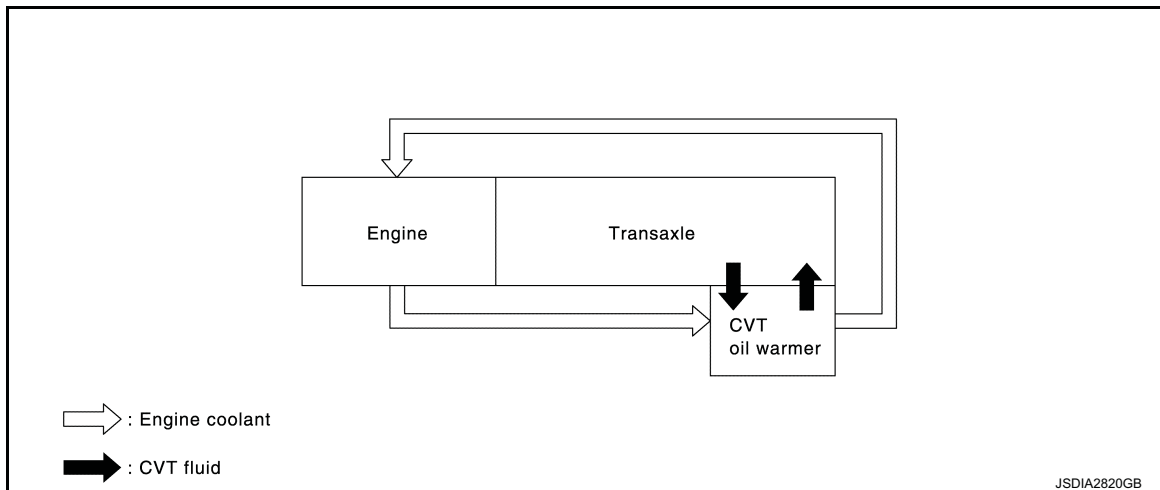
FLUID COOLER & FLUID WARMER SYSTEM

FLUID COOLER & FLUID WARMER SYSTEM : System Description

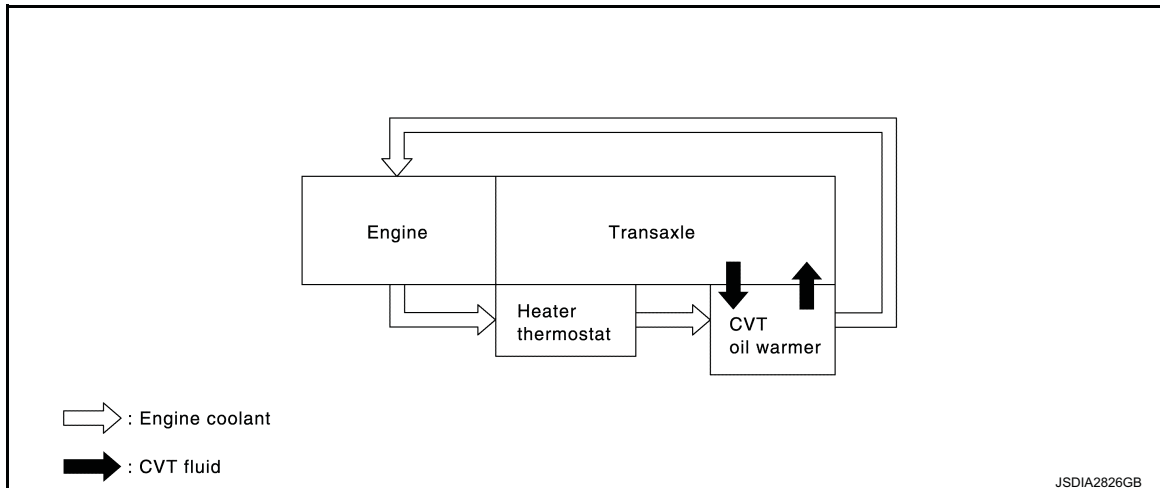
INFOID:0000000007273076

CVT FLUID COOLER SCHEMATIC

HR12DE Models



HR12DDR Models



COMPONENT DESCRIPTION

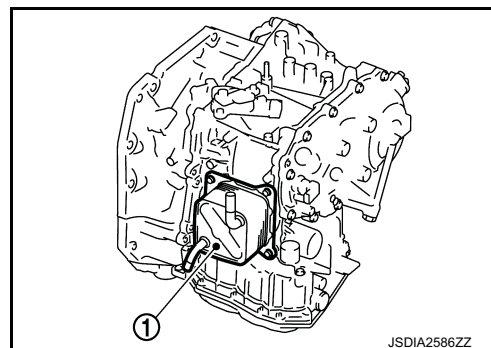
CVT Oil Warmer

STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

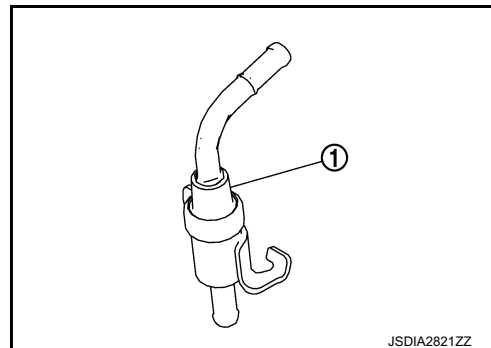
[CVT: RE0F11A]

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



Heater Thermostat (For HR12DDR)

- The heater thermostat (1) is installed on the front part of transaxle assembly.
- The heater thermostat starts opening before the completion of an engine warm-up and fully opens at the completion of the engine warm-up. This allows the transaxle to be warmed up when CVT fluid temperature is lower than coolant temperature under low temperature conditions.



SHIFT LOCK SYSTEM

SHIFT LOCK SYSTEM : System Description

INFOID:000000006324986

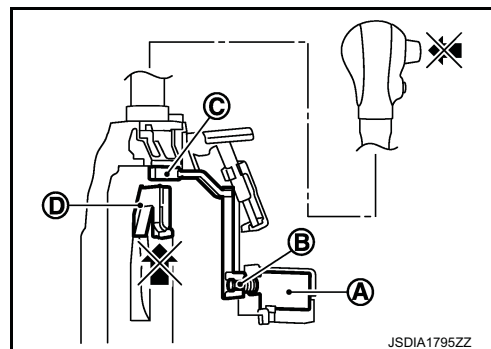
- The shift lock is the mechanism provided to prevent quick start of a vehicle by incorrect operation of a drive when the selector lever is in "P" position.
- Selector lever can be shifted from the "P" position to another position when the following conditions are satisfied.
 - Ignition switch is ON.
 - Stop lamp switch ON (brake pedal is depressed)
 - Press the selector button.

SHIFT LOCK OPERATION AT P POSITION

When brake pedal is not depressed (no selector operation allowed)

When the brake pedal is not depressed with the ignition switch ON, the shift lock solenoid (A) is OFF (not energized) and the solenoid rod (B) is extended with spring.

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 detent rod (D). The selector lever cannot be shifted from the "P" position for this reason.



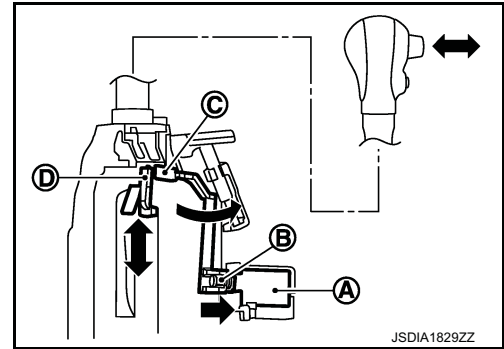
When brake pedal is depressed (selector lever operation allowed)

STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

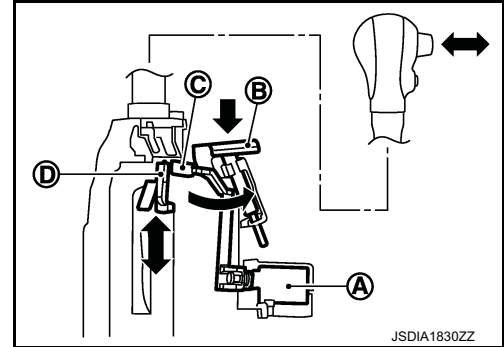
[CVT: RE0F11A]

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 with the electromagnetic force. The connecting lock lever (C) rotates when the solenoid rod is compressed. Therefore, the detent rod (D) can be moved. The selector lever can be shifted to other positions for this reason.



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. 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 (C) is forcibly rotated and the shift lock is released when the shift lock release button (B) is pressed from above. The selector operation from "P" position can be performed.



D : Detent rod

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 SYSTEM

KEY LOCK SYSTEM : System Description

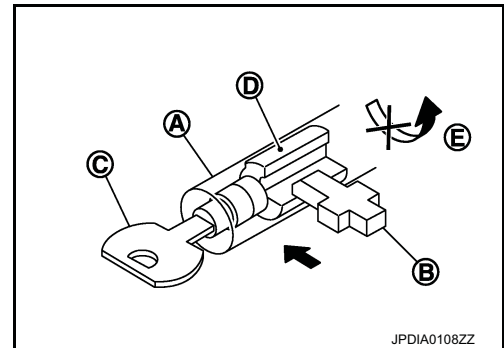
INFOID:000000006324987

KEY LOCK MECHANISM

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

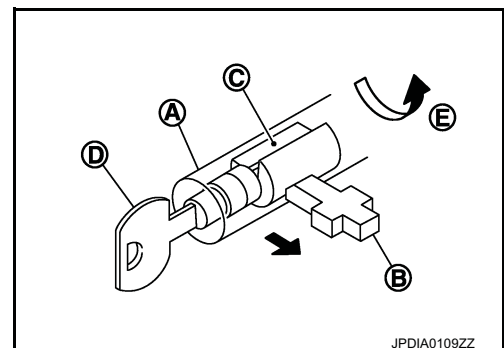
Key lock status

The slider (B) in the key cylinder (A) is moved to the left side of the figure when the selector lever is in any position 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).



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).



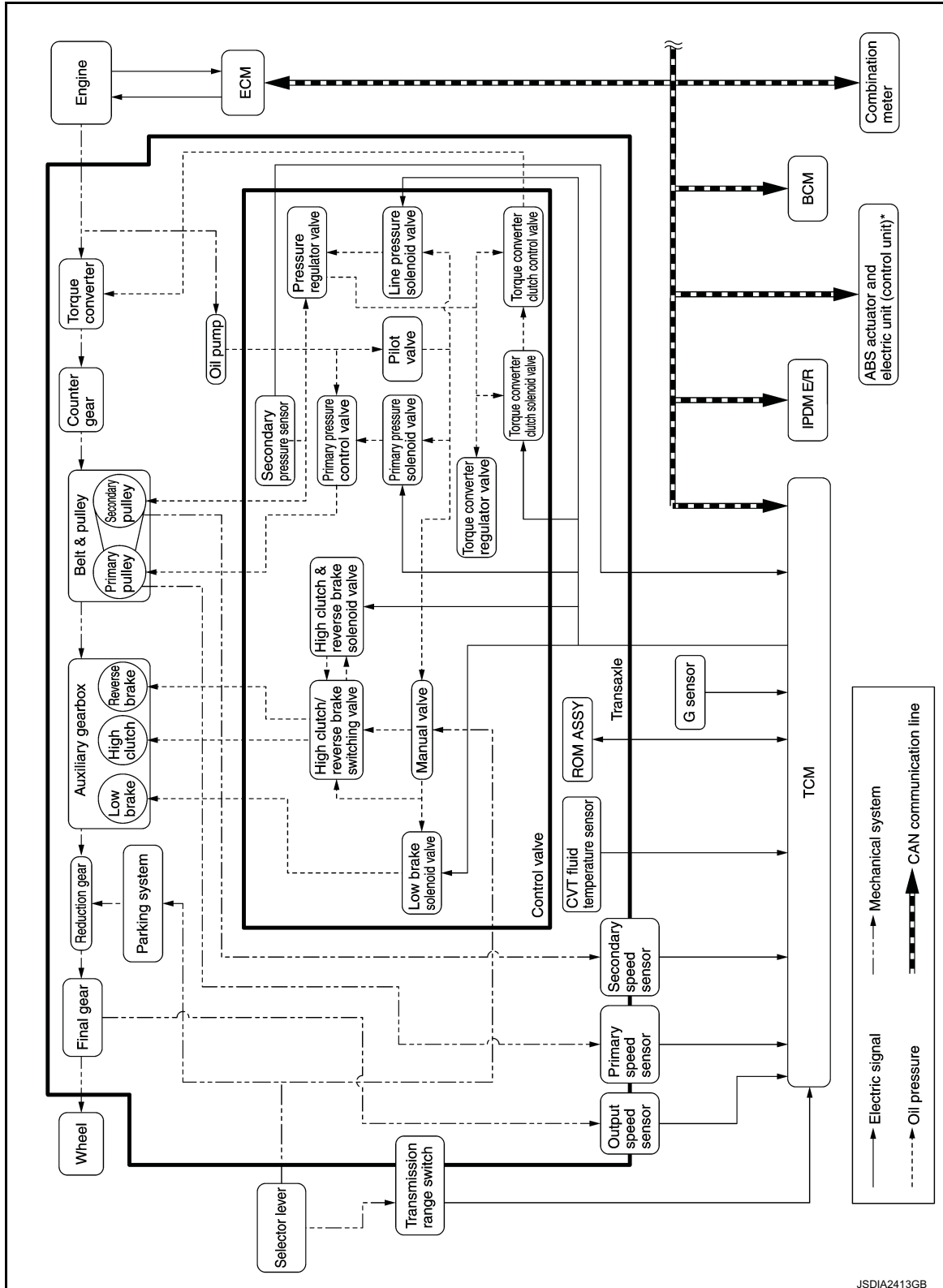
SYSTEM

CVT CONTROL SYSTEM

CVT CONTROL SYSTEM : System Diagram

INFOID:000000006324971

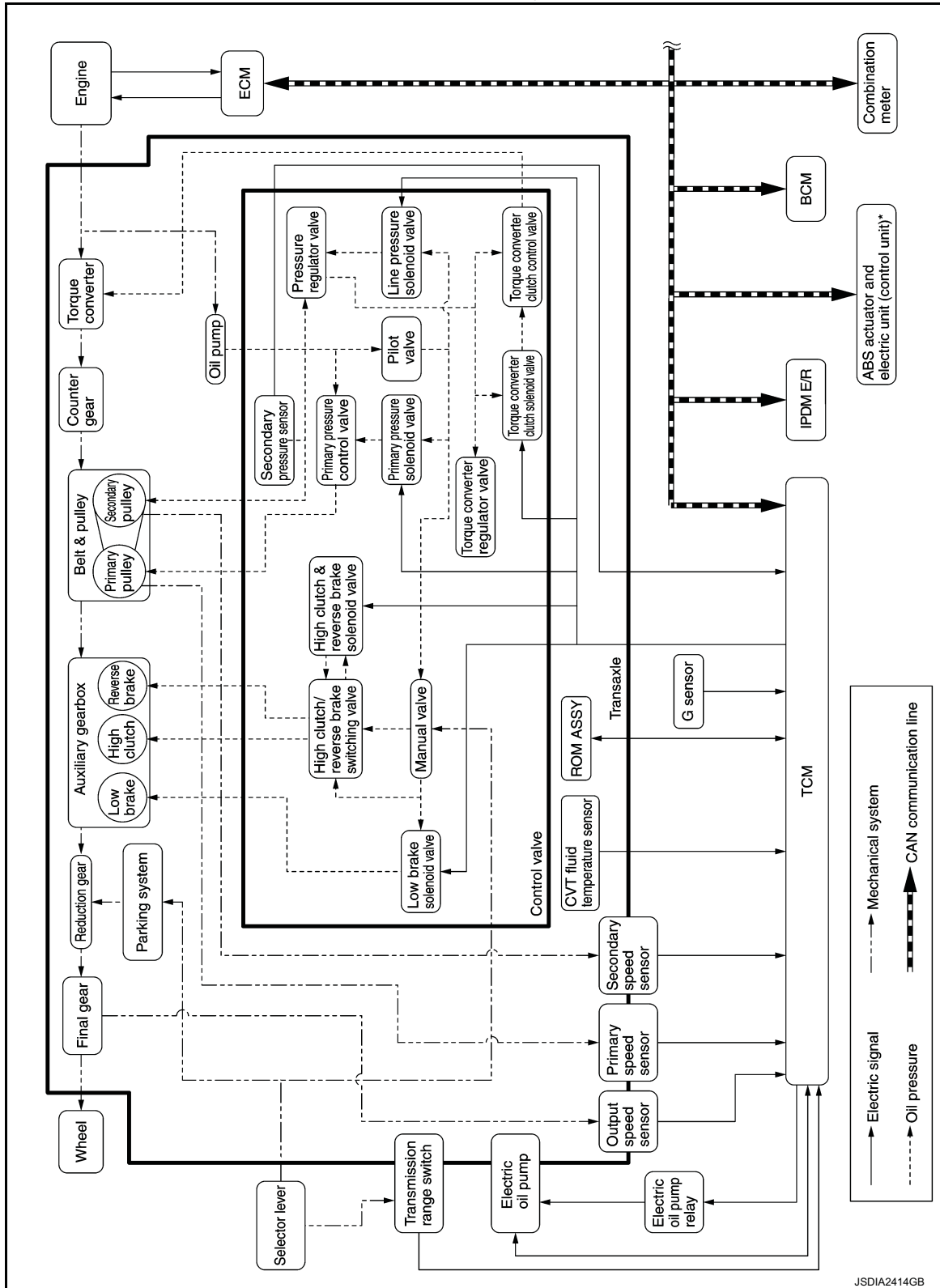
Without Stop/start System



*: With VDC (ESP) or without VDC/ESP (with ABS).

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With Stop/start System



*: With VDC (ESP) or without VDC/ESP (with ABS).

CVT CONTROL SYSTEM : System Description

INFOID:000000006324972

INPUT/OUTPUT SIGNAL TABLE

SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

Sensor (or signal)		TCM function		Actuator
- Engine and CVT integrated control signal - Engine speed signal - Accelerator pedal position signal - Closed throttle position signal - Stop lamp switch signal - Secondary pressure sensor - CVT fluid temperature sensor - Primary speed sensor - Secondary speed sensor - Output speed sensor - Transmission range switch signal - Sport mode switch signal - Vehicle speed signal (ABS)*¹ - ABS operation signal*¹ - A/C compressor feedback signal - G sensor - N idle instruction signal - Turn indicator signal - Stop/start readiness signal*²	⇒	- Line pressure control (TM-358, "LINE PRESSURE CONTROL : System Description") - Shift control (TM-359, "SHIFT CONTROL : System Description") - Select control (TM-361, "SELECT CONTROL : System Description") - Lock-up control (TM-362, "LOCK-UP CONTROL : System Description") - Idle neutral control (TM-363, "IDLE NEUTRAL CONTROL : System Description") - Stop/start system*² (TM-365, "STOP/START SYSTEM : System Description") - Fail-safe mode (TM-385, "Fail-safe") - Self-diagnosis function (TM-370, "CONSULT Function (TRANSMISSION)") - Communication function with CONSULT (TM-370, "CONSULT Function (TRANSMISSION)") - CAN communication control (TM-454, "Description")	⇒	- Line pressure solenoid valve - Primary pressure solenoid valve - Torque converter clutch solenoid valve - High clutch & reverse brake solenoid valve - Low brake solenoid valve - SPORT indicator lamp - Shift position indicator - Electric oil pump*²

*1: With VDC (ESP) or without VDC/ESP (with ABS)

*2: With stop/start system

SYSTEM DESCRIPTION

- CVT detects the vehicle driving status from switches, sensors and signals, and controls the vehicle so that the optimum shift position and shift timing may always be achieved. It also controls the vehicle to reduce shift and lockup shock, etc.
- Receives input signals from switches and sensors.
- Sends the output signal necessary for operation of solenoid valves, and evaluates the line pressure, shift timing, lockup operation, engine brake performance, etc.
- If a malfunction occurs on the electric system, activate the fail-safe mode only to drive the vehicle.

LIST OF CONTROL ITEMS AND INPUT/OUTPUT

Control Item		Shift control	Line pressure control	Select control	Lock-up control	Fail-safe function *
Input	Engine torque signal (CAN communication)	×	×	×	×	×
	Engine speed signal (CAN communication)	×	×	×	×	×
	Accelerator pedal position signal (CAN communication)	×	×	×	×	×
	Closed throttle position signal (CAN communication)	×	×		×	
	Stop lamp switch signal (CAN communication)	×	×	×	×	
	Secondary pressure sensor	×	×	×		×
	CVT fluid temperature sensor		×	×	×	×
	Primary speed sensor	×	×		×	×
	Secondary speed sensor	×	×	×	×	×
	Output speed sensor	×	×	×	×	×
	Transmission range switch	×	×	×	×	×
	Sport mode switch (CAN communication)	×				

SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

Control Item		Shift control	Line pressure control	Select control	Lock-up control	Fail-safe function *
Output	Line pressure solenoid valve	×	×	×		×
	Primary pressure solenoid valve	×	×			×
	Torque converter clutch solenoid valve				×	×
	High clutch & reverse brake solenoid valve	×		×		×
	Low brake solenoid valve	×		×		×
	Shift position indicator (CAN communication)			×		
	SPORT indicator lamp (CAN communication)	×				

∴ If these input/output signals show errors, TCM activates the fail-safe function.

CVT CONTROL SYSTEM : Fail-safe

INFOID:000000006324973

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

If the vehicle shows following behaviors including “poor acceleration”, a malfunction of the applicable system is detected by TCM and the vehicle may be in a fail-safe mode. At this time, check the DTC code and perform inspection and repair according to the malfunction diagnosis procedures.

Fail-safe function

DTC	Vehicle behavior	Conditions of vehicle
P062F	Not changed from normal driving	—
P0705	- Shift position indicator on combination meter is not displayed. - Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed. - Restart the engine during the stop/start system operation. *1 - Turn OFF the electric oil pump relay. *1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—
P0706	- Shift position indicator on combination meter is not displayed. - Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed. - Restart the engine during the stop/start system operation. *1 - Turn OFF the electric oil pump relay. *1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—

SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

DTC	Vehicle behavior	Conditions of vehicle
P0711	Acceleration is slow	Engine coolant temperature when engine starts is 10°C (50°F) or more.
	- Selector shock is large - Start is slow	Engine coolant temperature when engine starts is less than -10°C (14°F)
	- Selector shock is large - Start is slow	Engine coolant temperature when engine starts is less than -35°C (-31°F)
	- Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—
P0712	Acceleration is slow	Engine coolant temperature when engine starts is 10°C (50°F) or more.
	- Selector shock is large - Start is slow	Engine coolant temperature when engine starts is less than -10°C (14°F)
	- Selector shock is large - Start is slow	Engine coolant temperature when engine starts is less than -35°C (-31°F)
	- Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—
P0713	Acceleration is slow	Engine coolant temperature when engine starts is 10°C (50°F) or more.
	- Selector shock is large - Start is slow	Engine coolant temperature when engine starts is less than -10°C (14°F)
	- Selector shock is large - Start is slow	Engine coolant temperature when engine starts is less than -35°C (-31°F)
	- Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—
P0715	- Selector shock is large - Start is slow - Acceleration is slow - Vehicle speed is not increased - Lock-up is not performed. - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—
P0720	- Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed. - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—

SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

DTC	Vehicle behavior	Conditions of vehicle
P0740	- Lock-up is not performed. - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—
P0743	- Lock-up is not performed. - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—
P0744	- Lock-up is not performed. - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—
P0746	- Selector shock is large - Start is slow - Acceleration is slow - Vehicle speed is not increased - Lock-up is not performed. - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—
P0846	- Start is slow - Acceleration is slow - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—
P0847	- Start is slow - Acceleration is slow - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—
P0848	- Start is slow - Acceleration is slow - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—
P0863	Not changed from normal driving	—

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SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

DTC	Vehicle behavior	Conditions of vehicle
P0962	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed. • Restart the engine during the stop/start system operation.^{*1} • Turn OFF the electric oil pump relay.^{*1} • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately^{*1, *2}	—
P0963	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed. • Restart the engine during the stop/start system operation.^{*1} • Turn OFF the electric oil pump relay.^{*1} • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately^{*1, *2}	—
P1586	• Restart the engine during the stop/start system operation.^{*1} • Turn OFF the electric oil pump relay.^{*1} • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately^{*1, *2}	—
P1588	• Restart the engine during the stop/start system operation.^{*1} • Turn OFF the electric oil pump relay.^{*1} • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately^{*1, *2}	—
P1701	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed. • Restart the engine during the stop/start system operation.^{*1} • Turn OFF the electric oil pump relay.^{*1} • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately^{*1, *2}	—
P1739	• Start is slow • Restart the engine during the stop/start system operation.^{*1} • Turn OFF the electric oil pump relay.^{*1} • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately^{*1, *2}	—
P173A	• Vehicle speed is not increased • Restart the engine during the stop/start system operation.^{*1} • Turn OFF the electric oil pump relay.^{*1} • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately^{*1, *2}	—
P173B	• Start is slow • Restart the engine during the stop/start system operation.^{*1} • Turn OFF the electric oil pump relay.^{*1} • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately^{*1, *2}	—

SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

DTC	Vehicle behavior	Conditions of vehicle	
P173C	- Vehicle speed is not increased - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	A
			B
P17B4	- Start is slow - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	C
			TM
P17B5	- Start is slow - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	Wire disconnection	E
			F
	- Vehicle speed is not increased - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	Voltage shorting	G
			H
P17B7	- Start is slow - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	I
			J
P17B8	- Start is slow - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	Wire disconnection	K
			L
	- Vehicle speed is not increased - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	Voltage shorting	M
			N
P17BA	- Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed. - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	O
			P

SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

DTC	Vehicle behavior	Conditions of vehicle
P17BB	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed. • Restart the engine during the stop/start system operation.*¹ • Turn OFF the electric oil pump relay.*¹ • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *¹, *²	—
P188E	• Restart the engine during the stop/start system operation.* • Turn OFF the electric oil pump relay.* • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *	—
P188F	• Restart the engine during the stop/start system operation. • Turn OFF the electric oil pump relay. • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *	—
P1890	• Restart the engine during the stop/start system operation.*¹ • Turn OFF the electric oil pump relay.*¹ • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *¹, *²	—
P2765	• Selector shock is large • Start is slow • Acceleration is slow • Vehicle speed is not increased • Lock-up is not performed. • Restart the engine during the stop/start system operation.*¹ • Turn OFF the electric oil pump relay.*¹ • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *¹, *²	—
U0073	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed. • Restart the engine during the stop/start system operation.*¹ • Turn OFF the electric oil pump relay.*¹ • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *¹, *²	—
U0100	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed. • Restart the engine during the stop/start system operation.*¹ • Turn OFF the electric oil pump relay.*¹ • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *¹, *²	—
U0140	• Restart the engine during the stop/start system operation.*¹ • Turn OFF the electric oil pump relay.*¹ • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *¹, *²	—

SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

DTC	Vehicle behavior	Conditions of vehicle
U0141	• Not changed from normal driving	—
U0155	• Not changed from normal driving	—
U0300	• Not changed from normal driving	—
U1000	• Not changed from normal driving	—
U1114	• Not changed from normal driving	—
U1117	• Restart the engine during the stop/start system operation.*1 • Turn OFF the electric oil pump relay.*1 • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—

*1:With stop/start system

*2:TCM does not prohibit stop/start system operation and cancels it. Therefore, every time the vehicle is in stop/start system operation, TCM restarts the engine immediately.

CVT CONTROL SYSTEM : Protection Control

INFOID:000000006324974

The TCM becomes the protection control status temporarily to protect the safety when the safety of TCM and transmission is lost. It automatically returns to the normal status if the safety is secured.

The TCM has the following protection control.

CONTROL FOR WHEEL SPIN

Control	When a wheel spin is detected, the engine output and gear ratio are limited and the line pressure is increased. At the 1GR, the clutch pressure is increased.
Vehicle behavior in control	If the accelerator is kept depressing during wheel spin, the engine revolution and vehicle speed are limited to a certain degree. From the 1GR, upshift to a certain gear ratio is only allowed.
Normal return condition	Wheel spin convergence returns the control to the normal control.

CONTROL WHEN FLUID TEMPERATURE IS HIGH

Control	When the CVT fluid temperature is high, the gear shift permission maximum revolution and the maximum torque are reduced than usual to prevent increase of the oil temperature.
Vehicle behavior in control	Power performance may be lowered, compared to normal control.
Normal return condition	The control returns to the normal control when CVT fluid temperature is lowered.

TORQUE IS REDUCED WHEN DRIVING WITH THE REVERSE GEAR

Control	Engine output is controlled according to a vehicle speed while reversing the vehicle.
Vehicle behavior in control	Power performance may be lowered while reversing the vehicle.
Normal return condition	Torque returns to normal by positioning the selector lever in a range other than "R" position.

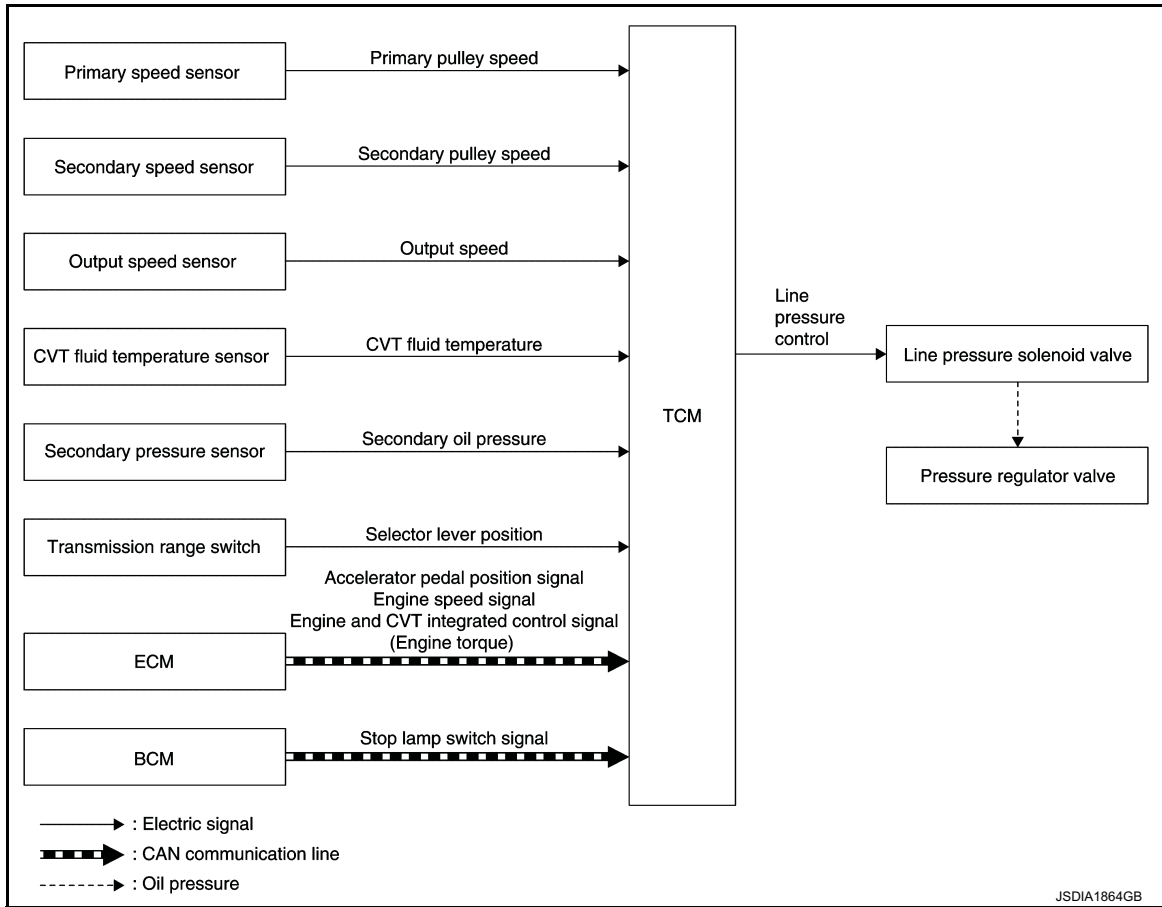
REVERSE PROHIBIT CONTROL

Control	The reverse brake is controlled to avoid becoming engaged when the selector lever is set in "R" position while driving in forward direction at more than the specified speed.
Vehicle behavior in control	If the selector lever is put at "R" position when driving with the forward gear, the gear becomes neutral, not reverse.
Normal return condition	The control returns to normal control when the vehicle is driven at low speeds. (The reverse brake becomes engaged.)

LINE PRESSURE CONTROL

LINE PRESSURE CONTROL : System Diagram

INFOID:000000006324977



LINE PRESSURE CONTROL : System Description

INFOID:000000006324978

Highly accurate line pressure control (secondary pressure control) reduces friction for improvement of fuel economy.

NORMAL OIL PRESSURE CONTROL

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

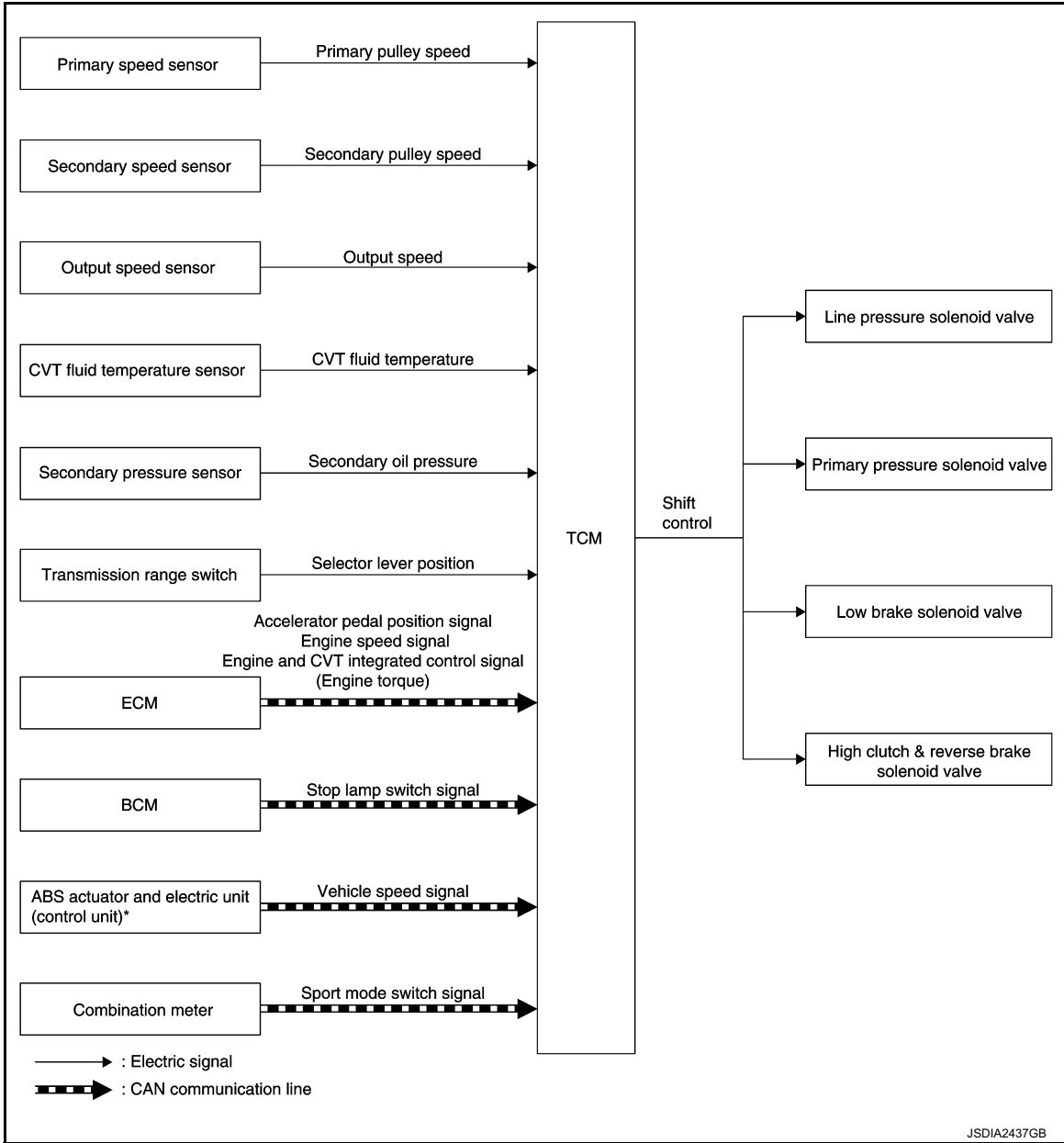
SECONDARY PRESSURE FEEDBACK CONTROL

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

SHIFT CONTROL

SHIFT CONTROL : System Diagram

INFOID:000000006324975



*: With VDC (ESP) or without VDC/ESP (with ABS).

SHIFT CONTROL : System Description

INFOID:000000006324976

To select the gear ratio that can give the driving force to meet driver's intent or vehicle situation, the vehicle driving condition such as vehicle speed or accelerator pedal position is detected and the most appropriate gear ratio is selected and the shifting method before reaching the speed is determined. The information is output to the primary pressure solenoid valve to control the line pressure input/output to the primary pulley, to determine the primary pulley (movable pulley) position and to control the gear position.

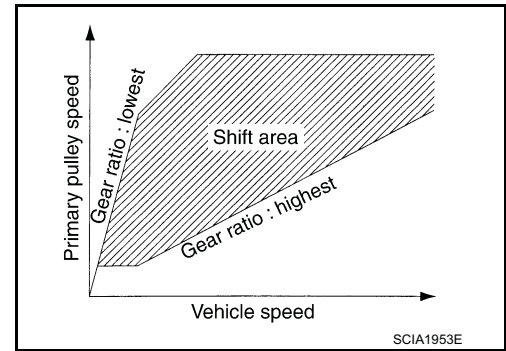
D POSITION (NORMAL)

SYSTEM

< SYSTEM DESCRIPTION >

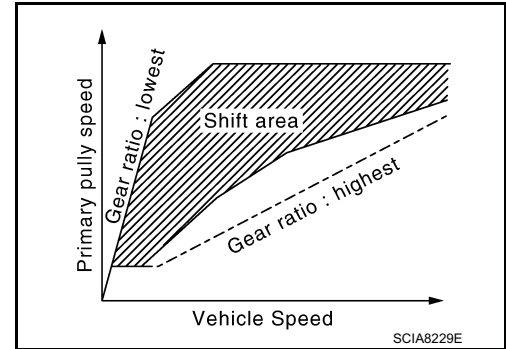
[CVT: RE0F11A]

Gear shifting is performed in all shifting ranges from the lowest to the highest gear ratio.



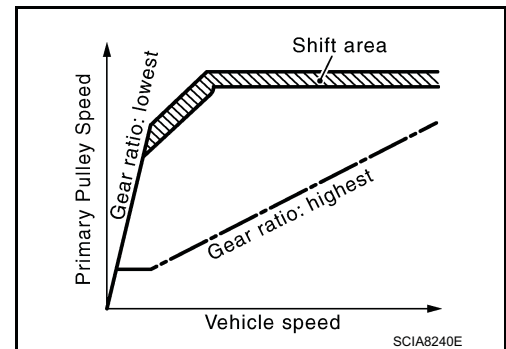
D POSITION (SPORT MODE)

The gear ratio is generally high by limiting the shifting range on the high side, and this always generates a large driving power.



L POSITION

By limiting the shifting range only to the lowest of the gear ratio, a large driving force and engine brake are obtained.

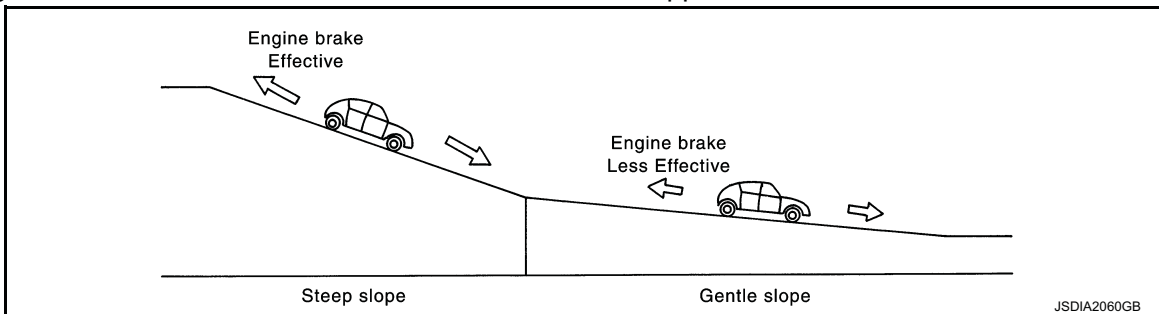


HILL CLIMBING AND DESCENDING CONTROL

If a downhill is detected with the accelerator pedal is released, the system performs downshift to increase the engine brake force so that vehicle may not be accelerated more than necessary. If a climbing hill is detected, the system improves the acceleration performance in re-acceleration by limiting the gear shift range on the high side.

NOTE:

For engine brake control on a downhill, the control can be stopped with CONSULT.



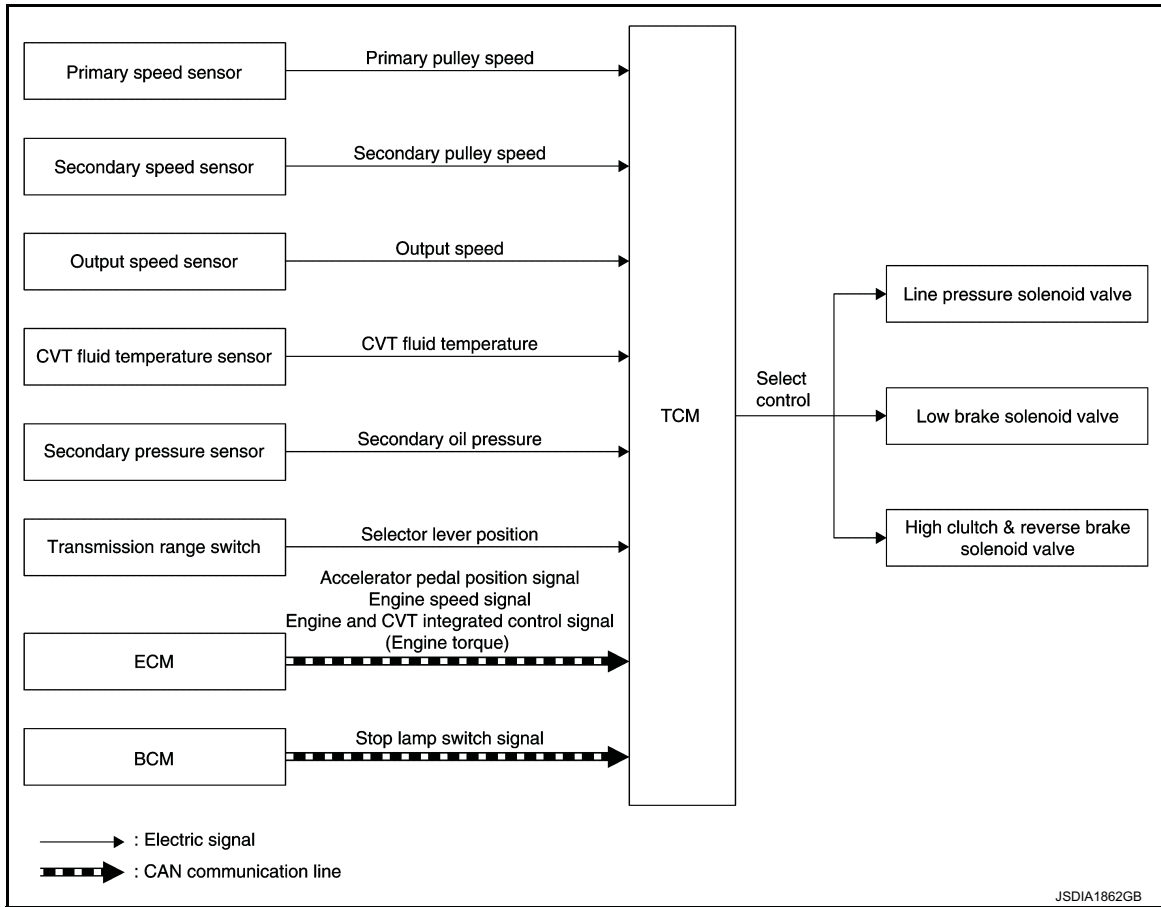
CONTROL IN ACCELERATION

From change of the vehicle speed or accelerator pedal position, the acceleration request level of the driver or driving scene is evaluated. In start or acceleration during driving, the gear shift characteristics with linearity of revolution increase and vehicle speed increase are gained to improve the acceleration feel.

SELECT CONTROL

SELECT CONTROL : System diagram

INFOID:0000000006324979



SELECT CONTROL : System Description

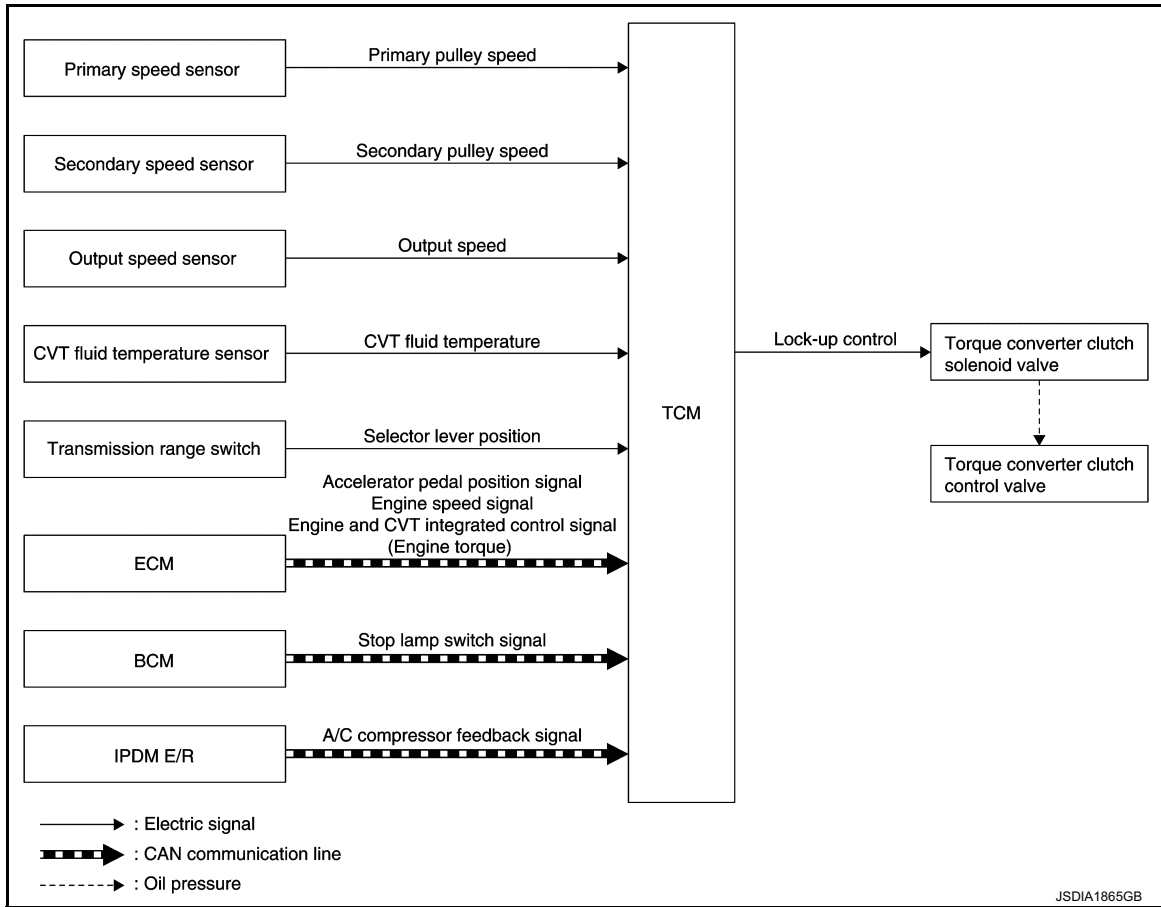
INFOID:0000000006324980

Based on accelerator pedal angle, engine speed, primary pulley speed, and the secondary pulley speed, the optimum operating pressure is set to reduce impact of a selector lever operation while shifting from "N" ("P") to "D" ("R") position.

LOCK-UP CONTROL

LOCK-UP CONTROL : System Diagram

INFOID:000000006324981



JSDIA1865GB

LOCK-UP CONTROL : System Description

INFOID:000000006324982

- Controls for improvement of the transmission efficiency by engaging the torque converter clutch in the torque converter and eliminating slip of the converter. Achieves comfortable driving with slip control of the torque converter clutch.
- The oil pressure feed circuit for the torque converter clutch piston chamber is connected to the torque converter clutch control valve. The torque converter clutch control valve is switched by the torque converter clutch solenoid valve with the signal from TCM. This controls the oil pressure circuit, which is supplied to the torque converter clutch piston chamber, to the release side or engagement side.
- If the CVT fluid temperature is low or the vehicle is in fail-safe mode due to malfunction, lock-up control is prohibited.

Lock-up engagement

- In lock-up engagement, the torque converter clutch solenoid valve makes the torque converter clutch control valve locked up to generate the lock-up apply pressure. This pushes the torque converter clutch piston for engagement.

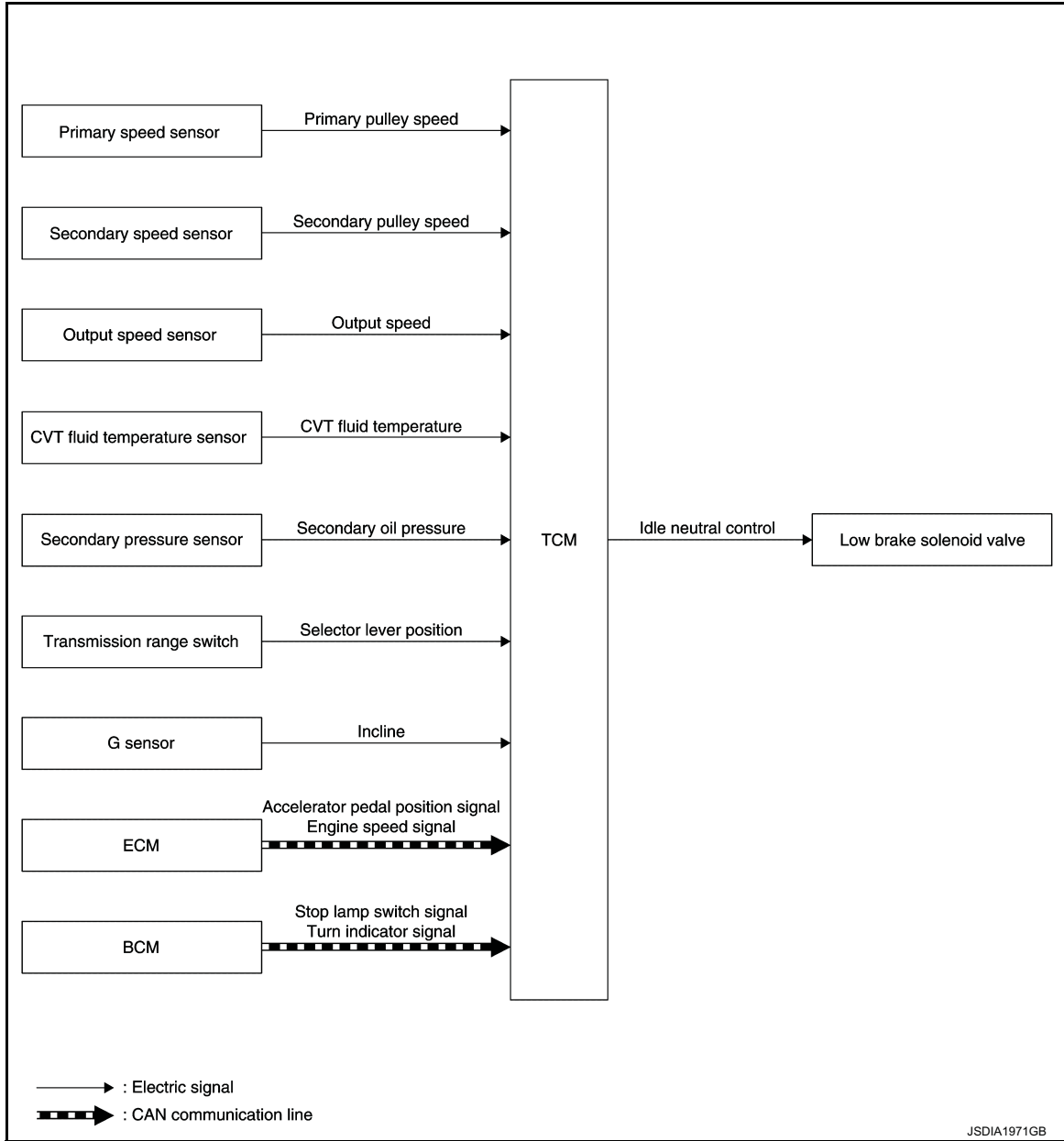
Lock-up release condition

- In lock-up release, the torque converter clutch solenoid valve makes the torque converter clutch control valve non-locked up to drain the lock-up apply pressure. This does not engage the torque converter clutch piston.

IDLE NEUTRAL CONTROL

IDLE NEUTRAL CONTROL : System Diagram

INFOID:000000006324983



JSDIA1971GB

IDLE NEUTRAL CONTROL : System Description

INFOID:000000006324984

If a driver has no intention of starting the vehicle in D position, TCM operates the low brake solenoid valve and controls the oil pressure of the low brake to be low pressure. Therefore, the low brake is in the release (slip) status and the power transmission route of transaxle is the same status as the N position. In this way, the transaxle is in idling status and load to the engine can be reduced to improve fuel economy.

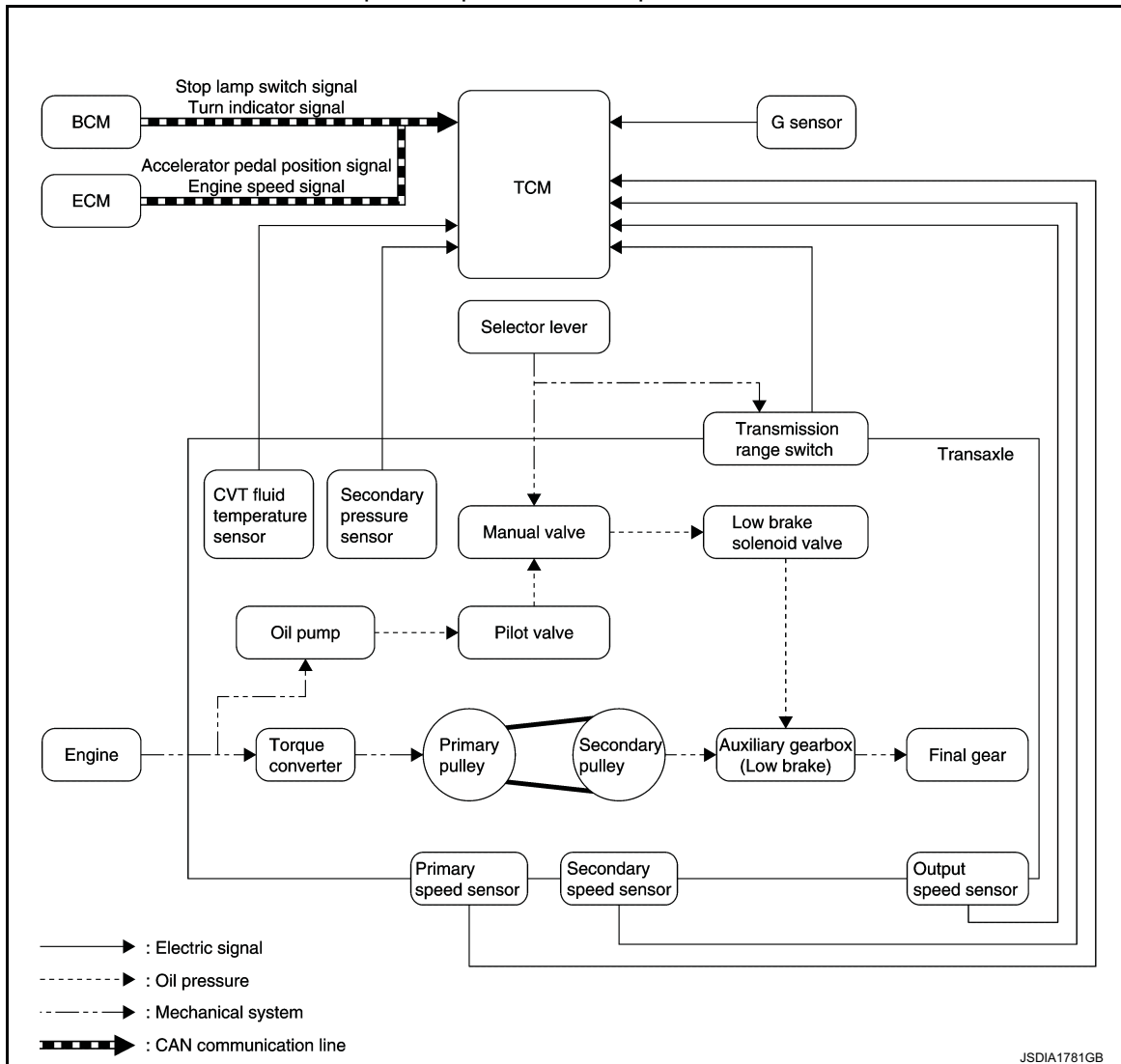
NOTE:

SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

Provides idle neutral control when stop/start operation is not performed.



IDLE NEUTRAL CONTROL START CONDITION

Idle neutral control is started when all of the following conditions are fulfilled. However, during idle neutral control, idle neutral control is stopped when any of the following conditions is not met.

Driving environment	: Flat road or road with mild gradient
Selector lever position	: "D" position
Vehicle speed	: 0 km/h (0 MPH)
Accelerator pedal position	: 0.0/8
Brake pedal	: Depressed
Engine speed	: Idle speed
Turn signal lamp/hazard signal lamp	: Not activated

NOTE:

Stops or prohibits the idle neutral control when the TCM and ECM detect that the vehicle is in one of the following conditions.

- Engine coolant temperature and CVT fluid temperature are the specified temperature or more, or the specified temperature or less.
- When a transaxle malfunction occurs.
- When the vehicle detects DTC and is in the fail-safe mode.

IDLE NEUTRAL CONTROL RESUME CONDITION

When the idle neutral control finishes, if the vehicle is driven at more than the specified speed and the idle neutral control start conditions are satisfied, the idle neutral control starts again. If the vehicle has a malfunction, the idle neutral control does not start.

STOP/START SYSTEM

STOP/START SYSTEM : System Description

INFOID:000000006324985

- Stop/start system is applied to vehicles for except for Europe (HR12DE) and Hong Kong.
- In the stop/start system, ECM performs integrated control based on the information from control units, sensors and switches. For information, refer to [EC3-68, "STOP/START SYSTEM : System Description"](#) (HR12DE) or [EC3-867, "STOP/START SYSTEM : System Description \(CVT Models\)"](#) (HR12DDR).
- stop/start system operation OK is evaluated based on signals from sensors and switches.
- When stop/start system operation OK is determined, stop/start enable OK signal is sent to ECM through CAN communication.
- stop/start readiness signal is received from ECM through CAN communication and the electric oil pump is driven based on the signal.
- The electric oil pump relay is turned ON to prepare operation of the electric oil pump.
- The electric oil pump is driven in duty control.

STOP/START OPERATION PERMISSION CONDITION EVALUATED BY TCM

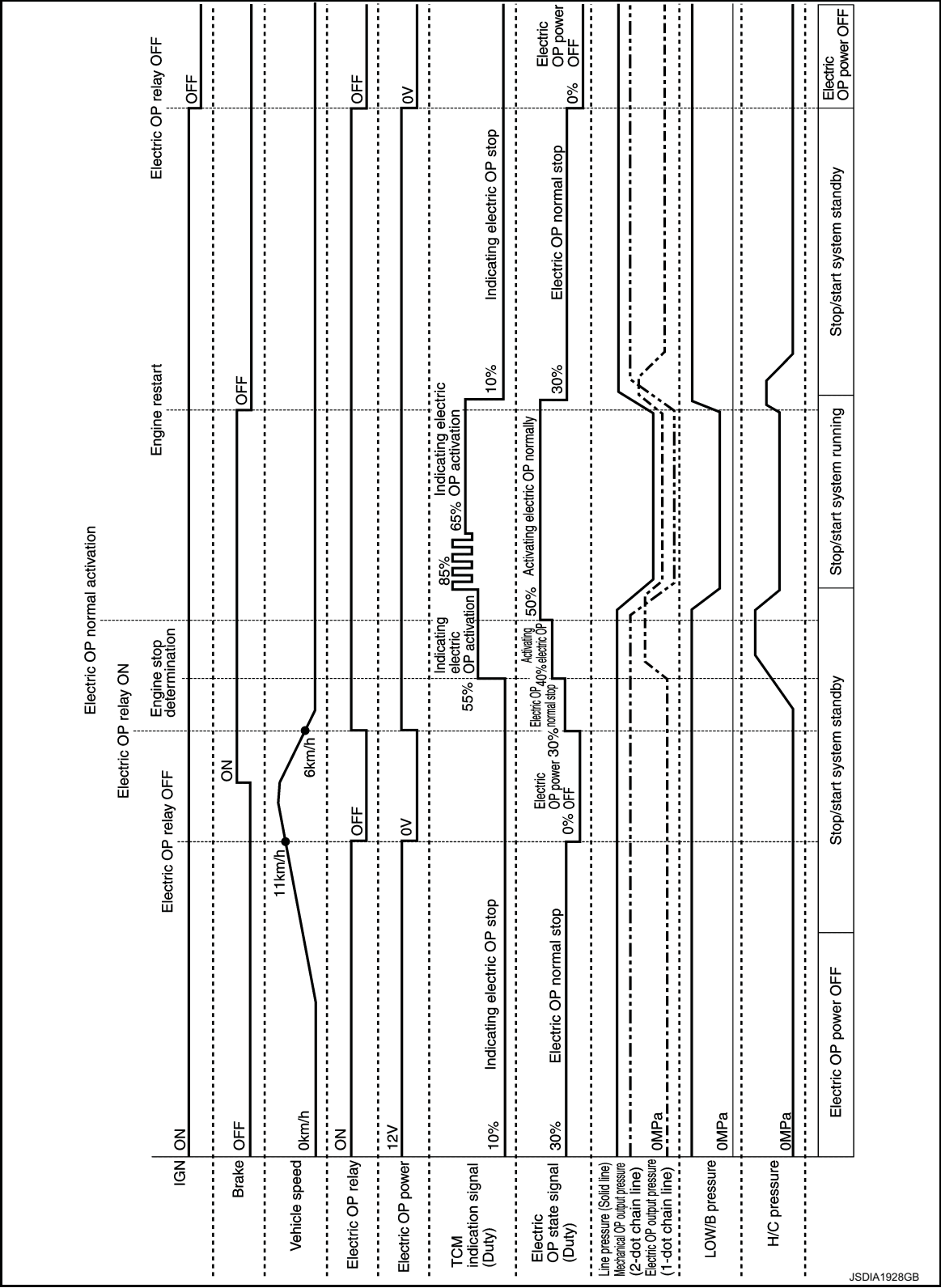
When TCM detects the vehicle status and stop/start system operation OK is determined, stop/start enable signal is sent to ECM through CAN communication.

Item	Description	Permission conditions
Transmission range switch	Selector lever position	"P", "N" or "D" position
G sensor	Gradient	• $\pm 3\%$ (For HD12DE except for Europe and Hong Kong) • $\pm 6\%$ (For HR12DDR)
CVT fluid temperature sensor	CVT fluid temperature	25 – 110°C (77 – 230°F)
Electric oil pump	Malfunction	Normal
	Interval time	5 seconds or more from cancellation of previous stop/start system operation
Secondary pressure	Control oil pressure	0.06 MPa or more

TCM INDICATION CHARACTERISTICS

TCM indication signal (Duty)	Condition
0 – 5 %	Disconnection or battery short-circuit
5 – 15 %	Indicating stop of electric oil pump
15 – 85 %	Indicating operation of electric oil pump
85 – 95 %	Indicating operation of electric oil pump (Maximum power)
95 – 100 %	Short to ground

TIME CHART



VEHICLE BUCKUP CONTROL FUNCTION (FOR HR12DDR)

- When the vehicle is started on an uphill under the stop/start system operation, this function reduces backing occurring from the change in pedal depression from brake pedal to accelerator pedal. In addition, this function reduces an impact occurring at engine restart.
- When the electric oil pump is activated under the stop/start system operation, low oil pressure is applied to the low brake solenoid and the high clutch & reverse clutch solenoid to engage the low brake and the high clutch.

ON BOARD DIAGNOSTIC (OBD) SYSTEM

Description

INFOID:0000000006324988

This is an on board diagnosis system which records diagnosis information related to the exhaust gases. It detects malfunctions related to sensors and actuators. The malfunctions are indicated by means of the malfunction indicator lamp (MIL) and are stored as DTC in the ECU memory. The diagnosis information can be checked using a diagnosis tool (GST: Generic Scan Tool).

Function of OBD

INFOID:0000000006324989

The GST is connected to the diagnosis connector on the vehicle and communicates with the on-board control units to perform diagnosis. The diagnosis connector is the same as for CONSULT. Refer to [GI-59. "CONSULT Function and System Application*1"](#).

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DIAGNOSIS SYSTEM (TCM)

DIAGNOSIS DESCRIPTION

DIAGNOSIS DESCRIPTION : 1 Trip Detection Diagnosis and 2 Trip Detection Diagnosis

INFOID:000000006551297

NOTE:

"Start the engine and turn OFF the ignition switch after warm-up." This is defined as 1 trip.

1 TRIP DETECTION DIAGNOSIS

When initial malfunction is detected, TCM memorizes DTC. In these diagnoses, some illuminate MIL and some do not. Refer to [TM-393, "DTC Index"](#).

2 TRIP DETECTION DIAGNOSIS

When initial malfunction is detected, TCM memorizes DTC of the 1st trip. MIL does not light at this stage. <1 trip>

If the same malfunction is detected again in next driving, TCM memorizes DTC. When DTC is memorized, MIL lights. <2 trip>

"Trip" of the "2 trip detection diagnosis" indicates the driving mode that executes self-diagnosis during driving.

×: Check possible —: Check not possible

Item	DTC at the 1st trip		DTC		MIL	
	Display at the 1st trip	Display at the 2nd trip	Display at the 1st trip	Display at the 2nd trip	Illumination at the 1st trip	Illumination at the 2nd trip
1 trip detection diagnosis (Refer to TM-393, "DTC Index")	—	—	×	—	×	—
2 trip detection diagnosis (Refer to TM-393, "DTC Index")	×	—	—	×	—	×

DIAGNOSIS DESCRIPTION : DTC and DTC of 1st Trip

INFOID:000000006551298

2 TRIP DETECTION DIAGNOSIS THAT ILLUMINATES MIL

- The DTC number of the 1st trip is the same as the DTC number.
- When a malfunction is detected at the 1st trip, TCM memorizes DTC of the 1st trip. MIL does not light at this stage. If the same malfunction is not detected at the 2nd trip (conforming to necessary driving conditions), DTC at the 1st trip is erased from TCM. If the same malfunction is detected at the 2nd trip, TCM memorizes DTC and MIL lights at the same time.
- The DTC of the 1st trip is specified in Service \$01 of SAE J1979/ISO 15031-5. Since detection of DTC at the 1st trip does not illuminate MIL, warning for a problem is not given to a driver.
- For procedure to delete DTC and 1st trip DTC from TCM, refer to [TM-370, "CONSULT Function \(TRANS-MISSION\)"](#).
- If DTC of the 1st trip is detected, it is necessary to check the cause according to the "Diagnosis flow". Refer to [TM-432, "Flowchart of Trouble Diagnosis"](#).

DIAGNOSIS DESCRIPTION : Malfunction Indicator Lamp (MIL)

INFOID:000000006551299

- TCM not only detects DTC, but also sends the MIL signal to ECM through CAN communication. ECM sends the MIL signal to the combination meter through CAN communication according to the signal, and illuminates MIL.
- For malfunction indicator lamp (MIL) description, refer to [EC3-36, "Malfunction Indicator \(MI\)"](#) (HR12DE) or [EC3-828, "Malfunction Indicator lamp \(MIL\)"](#) (HR12DDR).

DIAGNOSIS DESCRIPTION : Counter System

INFOID:000000006551300

RELATION BETWEEN DTC AT 1ST TRIP/DTC/MIL AND DRIVING CONDITIONS (FOR 2 TRIP DETECTION DIAGNOSIS THAT ILLUMINATES MIL)

- When initial malfunction is detected, TCM memorizes DTC of the 1st trip. MIL does not light at this stage.
- If the same malfunction is detected at the 2nd trip, TCM memorizes DTC and MIL lights at the same time.
- Then, MIL goes after driving the vehicle for 3 trips under "Driving condition B" without malfunction.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

- DTC is displayed until 40 trips of “Driving condition A” are satisfied without detecting the same malfunction. DTC is erased when 40 trips are satisfied.
- When the self-diagnosis result is acceptable at the 2nd trip (conforming to driving condition B), DTC of the 1st trip is erased.

COUNTER SYSTEM LIST

Item	Driving condition	Trip
MIL (OFF)	B	3
DTC (clear)	A	40
DTC at 1st trip (clear)	B	1

DRIVING CONDITION

Driving condition A

Driving condition A is the driving condition that provides warm-up.

In specific, count-up is performed when all of the following conditions are satisfied.

- Engine speed is 400 rpm or more.
- After start of the engine, the water temperature increased by 20 °C (36 °F) or more.
- Water temperature was 70 °C (158 °F) or more.
- The ignition switch was changed from ON to OFF.

NOTE:

- If the same malfunction is detected regardless of the driving condition, reset the A counter.
- When the above is satisfied without detecting the same malfunction, count up the A counter.
- When MIL goes off due to the malfunction and the A counter reaches 40, the DTC is erased.

Driving condition B

Driving condition B is the driving condition that performs all diagnoses once.

In specific, count-up is performed when all of the following conditions are satisfied.

- Engine speed is 400 rpm or more.
- Water temperature was 70 °C (158 °F) or more.
- In closed loop control, vehicle speed of 70 – 120 km/h (43 – 75 MPH) continued for 60 seconds or more.
- In closed loop control, vehicle speed of 30 – 60 km/h (19 – 37 MPH) continued for 10 seconds or more.
- In closed loop control, vehicle speed of 4 km/h (2 MPH) or less and idle determination ON continued for 12 seconds or more.
- After start of the engine, 22 minutes or more have passed.
- The condition that the vehicle speed is 10 km/h (6 MPH) or more continued for 10 seconds or more in total.
- The ignition switch was changed from ON to OFF.

NOTE:

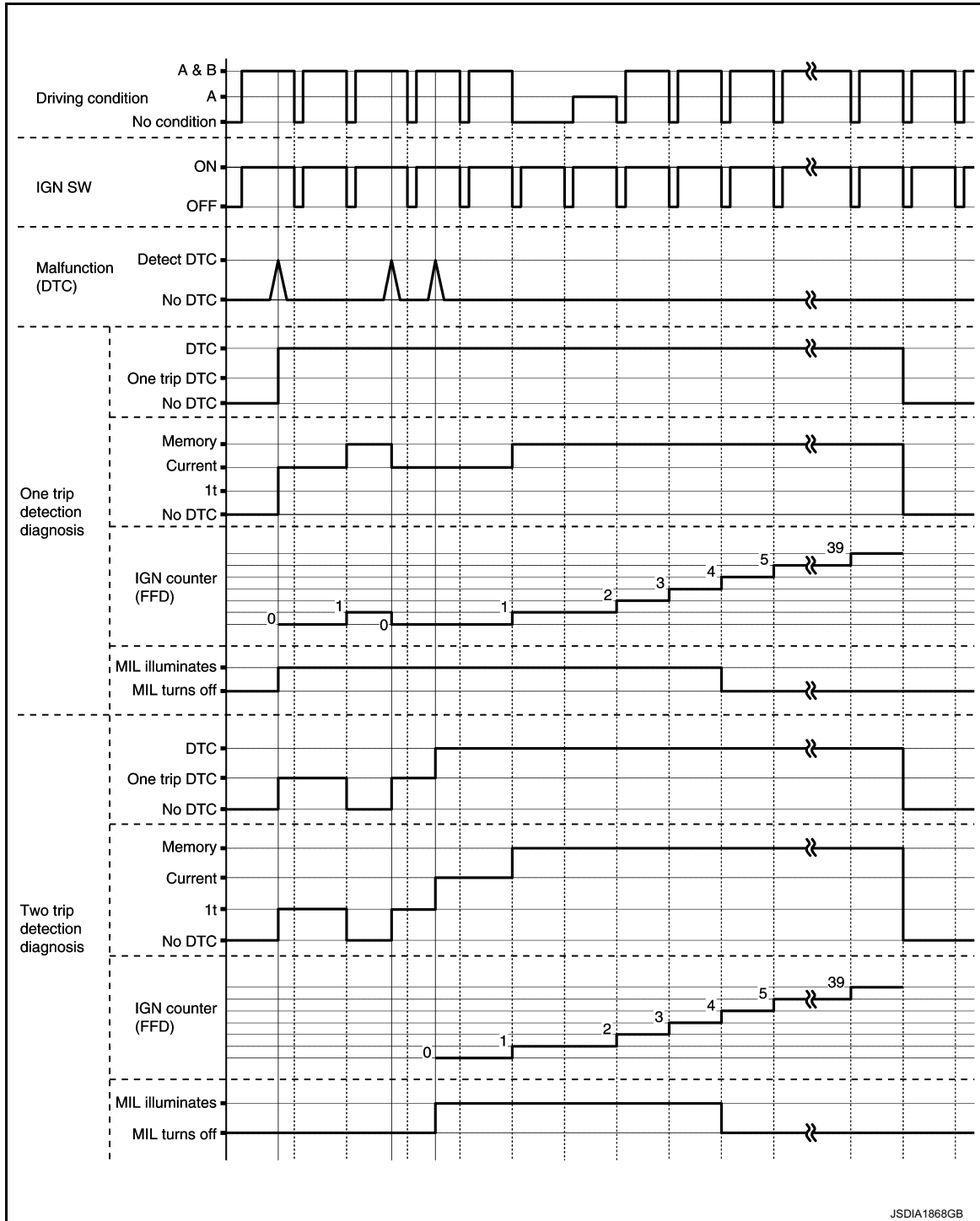
- If the same malfunction is detected regardless of the driving condition, reset the B counter.
- When the above is satisfied without detecting the same malfunction, count up the B counter.
- When the B counter reaches 3 without malfunction, MIL goes off.
- When the B counter is counted once without detecting the same malfunction after TCM memorizes DTC of the 1st trip, DTC of the 1st trip is erased.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

TIME CHART



JSDIA1868GB

CONSULT Function (TRANSMISSION)

INFOID:000000006324990

APPLICABLE ITEM

Conditions	Function
Work Support	This mode enables a technician to adjust some devices faster and more accurately.
Self Diagnostic Results	Retrieve DTC from ECU and display diagnostic items.
Data Monitor	Monitor the input/output signal of the control unit in real time.
CAN Diagnosis	This mode displays a network diagnosis result about CAN by a diagram.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

Conditions	Function
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 engines, 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.

*: "Function Test" can be selected, but do not use it.

SELF DIAGNOSTIC RESULTS

Display Item List

Refer to [TM-393, "DTC Index"](#).

DTC at 1st trip and method to read DTC

- DTC (P0705, P0711, P0720, etc.) is specified by SAE J2012/ISO 15031-6.
- DTC and DTC at 1st trip are displayed on "Self Diagnostic results" of CONSULT.
When DTC is currently detected, "CRNT" is displayed. If "PAST" is displayed, it shows a malfunction occurred in the past. The trip number of drive without malfunction of concerned DTC can be confirmed with "IGN counter" inside "FFD".
- When the DTC at the 1st trip is detected, the "timing" is displayed as "1t".

DTC deletion method

NOTE:

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

IGN counter

The ignition counter is displayed in "FFD" and the number of times of satisfied "Driving condition A" is displayed after normal recovery of DTC. Refer to [TM-368, "DIAGNOSIS DESCRIPTION : Counter System"](#).

- If malfunction (DTC) is currently detected, "0" is displayed.
- After normal recovery, every time "Driving condition A" is satisfied, the display value increases from 1 → 2 → 3...38 → 39.
- When MIL turns OFF due to the malfunction and the counter reaches 40, the DTC is erased.

NOTE:

The counter display of "40" cannot be checked.

DATA MONITOR

×: Application ▼: Optional selection

Monitored item	(Unit)	Monitor item selection		Remarks
		MAIN SIG- NALS	ECU IN- PUT SIG- NALS	
VSP SENSOR	(km/h or mph)	▼	×	Displays the vehicle speed calculated from the CVT output shaft speed.
ESTM VSP SIG	(km/h or mph)	▼	×	• Displays the vehicle speed signal (ABS) received through CAN communication. • Models with VDC (ESP) are displayed. • Models without VDC/ESP (with ABS) are displayed.
PRI SPEED SEN	(rpm)	▼	×	Displays the primary pulley speed calculated from the pulse signal of the primary speed sensor.
SEC REV SENSOR	(rpm)	▼	×	Displays the secondary pulley speed calculated from the pulse signal of the secondary speed sensor.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

Monitored item	(Unit)	Monitor item selection		Remarks
		MAIN SIG- NALS	ECU IN- PUT SIG- NALS	
VHCL/S SE (REV)	(rpm)	▼	×	Displays the CVT output shaft speed calculated from the pulse signal of the output speed sensor.
ENG SPEED SIG	(rpm)	▼	×	Displays the engine speed received through CAN communication.
LINE PRESSURE SEN	(V)	▼	×	Displays the signal voltage of the line pressure sensor.
ATF TEMP SEN	(V)	▼	×	Displays the signal voltage of the CVT fluid temperature sensor.
G SENSOR	(V)	▼	×	Displays the signal voltage of the G sensor.
VIGN SEN	(V)	▼	×	Displays the battery voltage applied to TCM.
VEHICLE SPEED	(km/h or mph)	×	▼	Displays the vehicle speed recognized by TCM.
INPUT REV	(rpm)	▼	▼	Displays the input shaft speed of CVT recognized by TCM.
PRI SPEED	(rpm)	×	▼	Displays the primary pulley speed recognized by TCM.
SEC SPEED	(rpm)	▼	▼	Displays the secondary pulley speed recognized by TCM.
OUTPUT REV	(rpm)	▼	▼	Displays the output shaft speed of CVT recognized by TCM.
ENG SPEED	(rpm)	×	▼	Displays the engine speed recognized by TCM.
SLIP REV	(rpm)	×	▼	Displays the speed difference between the input shaft speed of CVT and the engine speed.
TOTAL GEAR RATIO		×	▼	Displays the total CVT gear ratio calculated from input shaft speed/output shaft speed of CVT.
PULLEY GEAR RATIO		×	▼	Displays the pulley gear ratio calculated from primary pulley speed/secondary pulley speed.
AUX GEARBOX		▼	▼	Displays the gear position of the auxiliary gearbox recognized by TCM.
G SPEED	(G)	▼	▼	Displays the acceleration and deceleration speed of the vehicle calculated from vehicle speed change.
ACCEL POSI SEN 1	(deg)	×	×	Displays the estimated throttle position received through CAN communication.
VENG TRQ	(Nm)	×	▼	Display the engine torque recognized by TCM.
PRI TRQ	(Nm)	▼	▼	Display the input shaft torque of CVT.
TRQ RTO		▼	▼	Display the torque ratio of torque converter.
LINE PRESSURE	(MPa)	×	▼	Displays the secondary pressure (line pressure) calculated from the signal voltage of the secondary pressure sensor.
FLUID TEMP	(°C or °F)	×	▼	Displays the CVT fluid temperature calculated from the signal voltage of the CVT fluid temperature sensor.
DSR REV	(rpm)	▼	▼	Displays the target primary pulley speed calculated from processing of gear shift control.
TRGT GEAR RATIO		▼	▼	Displays the target gear ratio from the input shaft to the output shaft of CVT calculated from processing of gear shift control.
TGT PLY GR RATIO		▼	▼	Displays the target gear ratio of the pulley from processing of gear shift control.
TRGT AUX GEARBOX		▼	▼	Displays the target gear of the auxiliary gearbox calculated from processing of gear shift control.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

Monitored item	(Unit)	Monitor item selection		Remarks
		MAIN SIG- NALS	ECU IN- PUT SIG- NALS	
LU PRS	(MPa)	▼	▼	Displays the target oil pressure of the torque converter clutch solenoid valve calculated from oil pressure processing of gear shift control.
LINE PRS	(MPa)	▼	▼	Displays the target oil pressure of the line pressure solenoid valve calculated from oil pressure processing of gear shift control.
TRGT PRI PRESSURE	(MPa)	▼	▼	Displays the target oil pressure of the primary pressure solenoid valve calculated from oil pressure processing of gear shift control.
TRGT HC/RB PRESS	(MPa)	▼	▼	Displays the target oil pressure of the high clutch & reverse brake solenoid valve calculated from oil pressure processing of gear shift control.
TRGT LB PRESSURE	(MPa)	▼	▼	Displays the target oil pressure of the low brake solenoid valve calculated from oil pressure processing of gear shift control.
ISOLT1	(A)	×	▼	Displays the command current from TCM to the torque converter clutch solenoid valve.
ISOLT2	(A)	×	▼	Displays the command current from TCM to the line pressure solenoid valve.
PRI SOLENOID	(A)	×	▼	Displays the command current from TCM to the primary pressure solenoid valve.
HC/RB SOLENOID	(A)	×	▼	Displays the command current from TCM to the high clutch& reverse brake solenoid valve.
L/B SOLENOID	(A)	×	▼	Displays the command current from TCM to the low brake solenoid valve.
SOLMON1	(A)	×	×	Monitors the command current from TCM to the torque converter clutch solenoid valve and displays the monitored value.
SOLMON2	(A)	×	×	Monitors the command current from TCM to the line pressure solenoid valve and displays the monitored value.
PRI SOL MON	(A)	×	×	Monitors the command current from TCM to the primary pressure solenoid valve and displays the monitored value.
HC/RB SOL MON	(A)	×	×	Monitors the command current from TCM to the high clutch& reverse brake solenoid valve and displays the monitored value.
L/B SOL MON	(A)	×	×	Monitors the current command from TCM to the low brake solenoid valve and displays the monitored value.
D POSITION SW	(On/Off)	▼	×	Displays the operation status of the transmission range switch (D position).
N POSITION SW	(On/Off)	▼	×	Displays the operation status of the transmission range switch (N position).
R POSITION SW	(On/Off)	▼	×	Displays the operation status of the transmission range switch (R position).
P POSITION SW	(On/Off)	▼	×	Displays the operation status of the transmission range switch (P position).
BRAKESW	(On/Off)	×	×	Displays the reception status of the stop lamp switch signal received through CAN communication.
L POSITION SW	(On/Off)	▼	×	Displays the operation status of the transmission range switch (L position).

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DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

Monitored item	(Unit)	Monitor item selection		Remarks
		MAIN SIG- NALS	ECU IN- PUT SIG- NALS	
IDLE SW	(On/Off)	×	×	Displays the reception status of the closed throttle position signal received through CAN communication.
SPORT MODE SW	(On/Off)	×	×	Displays the reception status of the sport mode switch signal received through CAN communication.
STRDWSW	(On/Off)	▼	×	- Displays the operation status of the paddle shifter (down switch). - It is displayed although not equipped.
STRUPSW	(On/Off)	▼	×	- Displays the operation status of the paddle shifter (up switch). - It is displayed although not equipped.
DOWNLVR	(On/Off)	▼	×	- Displays the operation status of the selector lever (down switch). - It is displayed although not equipped.
UPLVR	(On/Off)	▼	×	- Displays the operation status of the selector lever (up switch). - It is displayed although not equipped.
NONMMODE	(On/Off)	▼	×	- Displays if the selector lever position is not at the manual shift gate. - It is displayed although not equipped.
MMODE	(On/Off)	▼	×	- Displays if the selector lever position is at the manual shift gate. - It is displayed although not equipped.
INDLRNG	(On/Off)	▼	▼	Displays the transmission status of the shift position (L position) signal transmitted through CAN communication.
INDDRNG	(On/Off)	▼	▼	Displays the transmission status of the shift position (D position) signal transmitted through CAN communication.
INGNRNG	(On/Off)	▼	▼	Displays the transmission status of the shift position (N position) signal transmitted through CAN communication.
INGRRNG	(On/Off)	▼	▼	Displays the transmission status of the shift position (R position) signal transmitted through CAN communication.
INGPRNG	(On/Off)	▼	▼	Displays the transmission status of the shift position (P position) signal transmitted through CAN communication.
CVT LAMP	(On/Off)	▼	▼	Displays the transmission status of the O/D OFF indicator signal transmitted through CAN communication.
SPORT MODE IND	(On/Off)	▼	▼	Displays the transmission status of the O/D OFF indicator signal transmitted through CAN communication.
MMODE IND	(On/Off)	▼	▼	- Displays the transmission status of the manual mode signal transmitted through CAN communication. - It is displayed although not equipped.
AIR BLDING STATE	(INCOMP/ COMP)	▼	▼	- Displays the status of "ELECTRIC O.P. AIR BLEEDING" in "Work Support". - Only models with stop/start system are displayed.
VDC ON	(On/Off)	▼	×	Displays the reception status of the VDC operation signal received through CAN communication.
TCS ON	(On/Off)	▼	×	Displays the reception status of the TCS operation signal received through CAN communication.
ABS FAIL SIGNAL	(On/Off)	▼	×	Displays the reception status of the ABS malfunction signal received through CAN communication.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

Monitored item	(Unit)	Monitor item selection		Remarks
		MAIN SIG- NALS	ECU IN- PUT SIG- NALS	
ABS ON	(On/Off)	▼	×	Displays the reception status of the ABS operation signal received through CAN communication.
4WD FAIL SIGNAL	(On/Off)	▼	×	- Displays the reception status of the 4WD malfunction signal received through CAN communication. - It is displayed although not equipped.
4WD OPERATION SIG	(On/Off)	▼	×	- Displays the reception status of the 4WD operation signal received through CAN communication. - It is displayed although not equipped.
4WD-TCS SIGNAL	(On/Off)	▼	×	- Displays the reception status of the engine torque down request signal received through CAN communication. - It is displayed although not equipped.
RANGE		×	▼	Displays the gear position recognized by TCM.
M GEAR POS		×	▼	Display the target gear of manual mode
G SEN SLOPE	(%)	▼	▼	Displays the gradient angle calculated from the G sensor signal voltage.
ENGBRKLVL	(On/Off)	▼	▼	Displays the setting of "ENGINE BRAKE ADJ" in "Work Support".
PVIGN VOLT	(V)	▼	×	Displays the backup voltage of TCM.
TRGT AUX GR RATIO		▼	▼	Displays the target gear ratio of the auxiliary gearbox calculated from processing of gear shift control.
ELECTRIC OP DUTY	(%)	▼	▼	- Displays the command signal value (duty) of the electric oil pump transmitted from TCM. - Only models with stop/start system are displayed.
E-OP DUTY MON	(%)	▼	▼	- Monitors the status signal value (duty) transmitted from the electric oil pump and displays the monitored value. - Only models with stop/start system are displayed.
ELECTRIC OP RELAY	(On/Off)	▼	▼	- Displays the command status from TCM to the electric oil pump relay. - Only models with stop/start system are displayed.
E-OP RELAY MON	(On/Off)	▼	▼	- Monitors the command status from TCM to the oil pump relay and displays the monitored value. - Only models with stop/start system are displayed.
G SEN CALIBRATION	(YET/DONE)	▼	▼	Displays the status of "G SENSOR CALIBRATION" in "Work support".
N IDLE STATUS	(On/Off)	▼	▼	Displays idle neutral status.

WORK SUPPORT

Item name	Description
ENGINE BRAKE ADJ.	Although there is no malfunction on the transaxle and the CVT system, if a customer make a complaint like "I do not feel comfortable with automatic operation of the engine brake on downhill", the engine brake may be cancelled with "engine brake adjustment".
CONFORM CVTF DETERIORTN	Check the degradation level of the CVT fluid under severe conditions.
G SENSOR CALIBRATION	Compensate the G sensor.
ERASE CALIBRATION DATA	Erase the calibration data memorized by TCM.
ERASE LEARNING VALUE	Erase the learning value memorized by TCM.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F11A]

Item name	Description
ERASE MEMORY DATA	Perform “erasing of the calibration data” and “erasing of the learned value” at the same time.
CLUTCH POINT LEARNING *1	Allow learning of the clutch engagement point of the auxiliary gearbox for TCM.
ELECTRIC O.P. AIR BLEEDING*2	Bleed air from the electric oil pump.

*1: “Clutch point learning” may be displayed, but do not use it.

*2: Only models with stop/start system are displayed.

Engine brake adjustment

ENGINE BRAKE LEVEL

ON : Turn ON the engine brake control.

OFF : Turn OFF the engine brake control.

Check the degradation level of the CVT fluid.

CVTF degradation level data

210,000 or more : Replacement of the CVT fluid is required.

210,000 or less : Replacement of the CVT fluid is not required.

SPECIAL FUNCTION

Item name	Description
CALIB DATA	The calibration data status of TCM can be checked.

ECU DIAGNOSIS INFORMATION

TCM

Reference Value

INFOID:000000006324991

CONSULT DATA MONITOR STANDARD VALUE

- In CONSULT, electric shift timing or lock-up timing, i.e. operation timing of each solenoid valve, is displayed. Therefore, if there is an obvious difference between the shift timing estimated from a shift shock (or engine speed variations) and that shown on the CONSULT, the mechanism parts (including the hydraulic circuit) excluding the solenoids and sensors may be malfunctioning. In this case, check the mechanical parts following the appropriate diagnosis procedure.
- Shift point (gear position) displayed on CONSULT slightly differs from shift pattern described in Service Manual. This is due to the following reasons.
 - Actual shift pattern may vary slightly within specified tolerances.
 - While shift pattern described in Service Manual indicates start of each shift, CONSULT shows gear position at end of shift.
 - The solenoid display (ON/OFF) on CONSULT is changed at the start of gear shifting. In contrast, the gear position display is changed at the time when gear shifting calculated in the control unit is completed.

Monitor item	Condition	Value/Status
VSP SENSOR	While driving	Almost same as the speedometer display.
ESTM VSP SIG*1	While driving	Almost same as the speedometer display.
PRI SPEED SEN	In driving (lock-up ON)	A value obtained from dividing engine speed by counter gear ratio
SEC REV SENSOR	Auxiliary gearbox: 1GR	Approximately twice the "VHCL/S SE (REV)"
	Auxiliary gearbox: 2GR	Almost same as the "VHCL/S SE (REV)"
VHCL/S SE (REV)	Auxiliary gearbox: 1GR	Approximately half of the "SEC REV SENSOR"
	Auxiliary gearbox: 2GR	Almost same as the "SEC REV SENSOR"
ENG SPEED SIG	Engine running	Almost same reading as tachometer
LINE PRESSURE SEN	• Selector lever: "N" position • At idle	Approx. 0.88 – 0.92 V
ATF TEMP SEN	CVT fluid: Approx. 20°C (68°F)	Approx. 2.01 – 2.05 V
	CVT fluid: Approx. 50°C (122°F)	Approx. 1.45 – 1.50 V
	CVT fluid: Approx. 80°C (176°F)	Approx. 0.90 – 0.94 V
G SENSOR	Vehicle is level	Approx. 2.5 V
VIGN SEN	Ignition switch: ON	10 – 16 V
VEHICLE SPEED	While driving	Almost same as the speedometer display.
INPUT REV	In driving (lock-up ON)	Almost same as the engine speed.
PRI SPEED	In driving (lock-up ON)	A value obtained from dividing engine speed by counter gear ratio
SEC SPEED	Auxiliary gearbox: 1GR	Approximately twice the "OUTPUT REV"
	Auxiliary gearbox: 2GR	Almost same as "OUTPUT REV"
OUTPUT REV	Auxiliary gearbox: 1GR	Approximately half of "SEC SPEED"
	Auxiliary gearbox: 2GR	Almost same as "SEC SPEED"
ENG SPEED	Engine running	Almost same reading as tachometer
SLIP REV	While driving	Engine speed – Input speed
TOTAL GEAR RATIO	Auxiliary gearbox: 1GR	Counter gear ratio × Pulley ratio Auxiliary gearbox gear ratio
	Auxiliary gearbox: 2GR	Counter gear ratio × Pulley ratio

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F11A]

Monitor item	Condition	Value/Status
PULLEY GEAR RATIO	In driving (forward)	Approx. 2.20 – 0.55
	In driving (reverse)	Approx. 2.20
AUX GEARBOX	Vehicle started with selector lever in “L” position	1st
	Release the accelerator pedal after the following conditions are satisfied • Selector lever: “D” position • Accelerator pedal position: 1/8 or less • Vehicle speed: 50 km/h (31 MPH) or more	2nd
	In gear shifting of auxiliary gearbox	1st ↔ 2nd
G SPEED	Vehicle stopped	0.00 G
	During acceleration	The value changes to the positive side along with acceleration.
	During deceleration	The value changes to the positive side along with deceleration.
ACCEL POSI SEN 1	Accelerator pedal released	0.00 deg
	Accelerator pedal fully depressed	80.00 deg
VENG TRQ	While driving	The value changes along with acceleration/ deceleration.
PRI TRQ	While driving	The value changes along with acceleration/ deceleration.
TRQ RTO	While driving	The value changes along with acceleration/ deceleration.
LINE PRESSURE	Selector lever: “P” position	Approx. 0.575 MPa
FLUID TEMP	Ignition switch ON.	Displays the CVT fluid temperature.
DSR REV	While driving	It varies along with the driving condition.
TRGT GEAR RATIO	While driving	It varies along with the driving condition.
TGT PLY GR RATIO	In driving (forward)	Approx. 2.20 – 0.55
	In driving (reverse)	Approx. 2.20
TRGT AUX GEARBOX	Vehicle started with selector lever in “L” position	1st
	Release the accelerator pedal after the following conditions are satisfied • Selector lever: “D” position • Accelerator pedal position: 1/8 or less • Vehicle speed: 50 km/h (31 MPH) or more	2nd
	In gear shifting of auxiliary gearbox	Display gear position after gear shifting
LU PRS	• Engine started • Vehicle is stopped.	Approx. –0.500 MPa
	• Selector lever: “D” position • Accelerator pedal position: 1/8 or less • Vehicle speed: 20 km/h (12 MPH) or more	Approx. 0.450 MPa
LINE PRS	• After engine warm up • Selector lever: “N” position • At idle	Approx. 0.500 MPa
	• After engine warming up • Selector lever: “N” position • Depress the accelerator pedal fully	Approx. 4.400 – 4.900 MPa
TRGT PRI PRESSURE	• Selector lever: “L” position • Vehicle speed: 20 km/h (12 MPH)	Approx. 0.325 MPa

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F11A]

Monitor item	Condition	Value/Status
TRGT HC/RB PRESS	- Selector lever: "L" position - Vehicle speed: 20 km/h (12 MPH)	Approx. 0.000 MPa
	Release the accelerator pedal after the following conditions are satisfied - Selector lever: "D" position - Accelerator pedal position: 1/8 or less - Vehicle speed: 50 km/h (31 MPH) or more	Approx. 0.400 MPa
TRGT LB PRESSURE	- Selector lever: "L" position - Vehicle speed: 20 km/h (12 MPH)	Approx. 0.325 MPa
	Release the accelerator pedal after the following conditions are satisfied - Selector lever: "D" position - Accelerator pedal position: 1/8 or less - Vehicle speed: 50 km/h (31 MPH) or more	Approx. 0.000 MPa
ISOLT1	- Engine started - Vehicle is stopped.	Approx. 0.000 A
	- Selector lever: "D" position - Accelerator pedal position: 1/8 or less - Vehicle speed: 20 km/h (12 MPH) or more	Approx. 0.500 A
ISOLT2	- After engine warm up - Selector lever: "N" position - At idle	Approx. 0.800 – 0.900 A
	- After engine warming up - Selector lever: "N" position - Depress the accelerator pedal fully	Approx. 0.400 – 0.450 A
PRI SOLENOID	- Selector lever: "L" position - Vehicle speed: 20 km/h (12 MPH)	Approx. 0.850 – 0.900 A
HC/RB SOLENOID	- Selector lever: "L" position - Vehicle speed: 20 km/h (12 MPH)	Approx. 1,000 A
	Release the accelerator pedal after the following conditions are satisfied - Selector lever: "D" position - Accelerator pedal position: 1/8 or less - Vehicle speed: 50 km/h (31 MPH) or more	Approx. 0.800 – 0.850 A
L/B SOLENOID	- Selector lever: "L" position - Vehicle speed: 20 km/h (12 MPH)	Approx. 0.200 – 0.250 A
	Release the accelerator pedal after the following conditions are satisfied - Selector lever: "D" position - Accelerator pedal position: 1/8 or less - Vehicle speed: 50 km/h (31 MPH) or more	Approx. 0.000 A
SOLMON1	- Engine started - Vehicle is stopped.	Approx. 0.000 A
	- Selector lever: "D" position - Accelerator pedal position: 1/8 or less - Vehicle speed: 20 km/h (12 MPH) or more	Approx. 0.500 A
SOLMON2	- After engine warm up - Selector lever: "N" position - At idle	Approx. 0.800 – 0.900 A
	- After engine warming up - Selector lever: "N" position - Depress the accelerator pedal fully	Approx. 0.400 – 0.450 A
PRI SOL MON	- Selector lever: "L" position - Vehicle speed: 20 km/h (12 MPH)	Approx. 0.850 – 0.900 A

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F11A]

Monitor item	Condition	Value/Status
HC/RB SOL MON	- Selector lever: "L" position - Vehicle speed: 20 km/h (12 MPH)	Approx. 1,000 A
	Release the accelerator pedal after the following conditions are satisfied - Selector lever: "D" position - Accelerator pedal position: 1/8 or less - Vehicle speed: 50 km/h (31 MPH) or more	Approx. 0.800 – 0.850 A
L/B SOL MON	- Selector lever: "L" position - Vehicle speed: 20 km/h (12 MPH)	Approx. 0.200 – 0.250 A
	Release the accelerator pedal after the following conditions are satisfied - Selector lever: "D" position - Accelerator pedal position: 1/8 or less - Vehicle speed: 50 km/h (31 MPH) or more	Approx. 0.000 A
D POSITION SW	Selector lever: "D" position	On
	Other than the above	Off
N POSITION SW	Selector lever: "N" position	On
	Other than the above	Off
R POSITION SW	Selector lever: "R" position	On
	Other than the above	Off
P POSITION SW	Selector lever: "P" position	On
	Other than the above	Off
BRAKESW	Brake pedal is depressed	On
	Brake pedal is released	Off
L POSITION SW	Selector lever: "L" position	On
	Other than the above	Off
IDLE SW	Accelerator pedal is fully depressed	On
	Accelerator pedal is released	Off
SPORT MODE SW	Press the sport mode switch.	On
	Release the sport mode switch.	Off
STRDWNSW	Always	Off
STRUPSW	Always	Off
DOWNLVR	Always	Off
UPLVR	Always	Off
NONMMODE	Always	Off
MMODE	Always	Off
INDLRNG	Selector lever: "L" position	On
	Other than the above	Off
INDDRNG	Selector lever: "D" position	On
	Other than the above	Off
INDNRNG	Selector lever: "N" position	On
	Other than the above	Off
INDRRNG	Selector lever: "R" position	On
	Other than the above	Off
INDPRNG	Selector lever: "P" position	On
	Other than the above	Off
CVT LAMP	In sport mode	On
	Other than the above	Off

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F11A]

Monitor item	Condition	Value/Status	
SPORT MODE IND	In sport mode	On	A
	Other than the above	Off	
MMODE IND	Always	Off	B
AIR BLDING STATE*2	When air bleeding of the electric oil pump is completed	COMP	
	When air bleeding of the electric oil pump is not completed	INCOMP	C
VDC ON	VDC is activated	On	
	Other than the above	Off	TM
TCS ON	TCS is activated	On	
	Other than the above	Off	
ABS FAIL SIGNAL	When ABS malfunction signal is received	On	E
	Other than the above	Off	
ABS ON	ABS is activated	On	F
	Other than the above	Off	
4WD FAIL SIGNAL	Always	Off	
4WD OPERATION SIG	Always	Off	G
4WD-TCS SIGNAL	Always	Off	
RANGE	Selector lever: "P" and "N" positions	N/P	H
	Selector lever: "R" position	R	
	Selector lever: "D" position (SPORT indicator OFF)	D	I
	Selector lever: "D" position (SPORT indicator ON)	S	
	Selector lever: "L" position	L	J
M GEAR POS	Always	1	
G SEN SLOPE	Flat road	0%	K
	Uphill gradient	The value changes to the positive side along with uphill gradient. (Maximum 40.45%)	
	Downhill gradient	The value changes to the negative side along with downhill gradient. (Minimum – 40.45%)	L
ENGBRKLVL	When the engine brake level of "ENGINE BRAKE ADJ". in "Work Support" is ON	On	M
	When the engine brake level of "ENGINE BRAKE ADJ". in "Work Support" is OFF	Off	N
PVIGN VOLT	Ignition switch: ON	10 – 16 V	
TRGT AUX GR RATIO	Vehicle started with selector lever in "L" position	1.80	O
	Release the accelerator pedal after the following conditions are satisfied		
	• Selector lever: "D" position • Accelerator pedal position: 1/8 or less • Vehicle speed: 50 km/h (31 MPH) or more	1.00	P
ELECTRIC OP DUTY*2	Ignition switch: ON	5 – 15%	
	During the stop/start system operation	60 – 70%	

TCM

< ECU DIAGNOSIS INFORMATION >

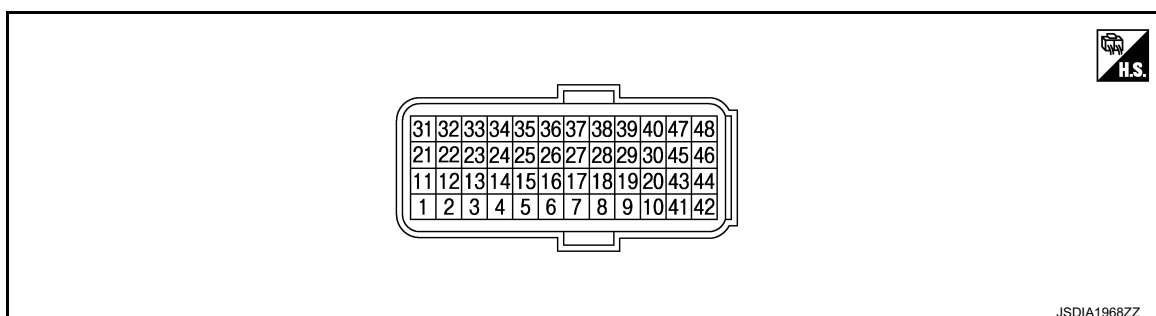
[CVT: RE0F11A]

Monitor item	Condition	Value/Status
E-OP DUTY MON*2	Ignition switch: ON	0%
	• Selector lever: "D" position • Vehicle speed: 5 km/h (3 MPH)	25 – 35%
	During the stop/start system operation	45 – 55%
ELECTRIC OP RELAY*2	• Selector lever: "D" position • Vehicle speed: 5 km/h (3 MPH)	On
	Ignition switch: OFF → ON	Off
E-OP RELAY MON*2	• Selector lever: "D" position • Vehicle speed: 5 km/h (3 MPH)	On
	Ignition switch: OFF → ON	Off
G SEN CALIBRATION	When G sensor calibration is completed	DONE
	When G sensor calibration is not completed	YET
N IDLE STATUS	When idle neutral control is operated	On
	When idle neutral control is not operated	Off

*1: Models with VDC (ESP) are displayed. Or models without VDC/ESP (with ABS) are displayed.

*2: Only vehicles with stop/start system are displayed.

TERMINAL LAYOUT



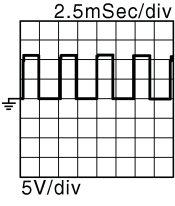
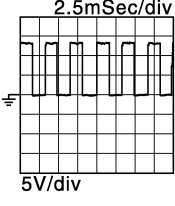
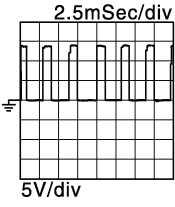
INPUT/OUTPUT SIGNAL STANDARD

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	—	Signal	Input/ Output		
1*1 (SB)	Ground	Electric oil pump re- lay	Input	Ignition switch: OFF	10 – 16 V
				In driving at 5 km/h (3 MPH) in "D" po- sition	0 V
2 (R/B)	Ground	L range switch	Input	Selector lever: "L" position	10 – 16 V
				Other than the above	0 V
4 (W/B)	Ground	D range switch	Input	Selector lever: "D" position	10 – 16 V
				Other than the above	0 V
5 (L/B)	Ground	N range switch	Input	Ignition switch ON Selector lever: "N" position	10 – 16 V
				Other than the above	0 V
6 (O)	Ground	R range switch	Input	Selector lever: "R" position	10 – 16 V
				Other than the above	0 V
7 (Y)	Ground	P range switch	Input	Selector lever: "P" position	10 – 16 V
				Other than the above	0 V
11 (LG)	Ground	Sensor ground	Input	Always	0 V

TCM

< ECU DIAGNOSIS INFORMATION >

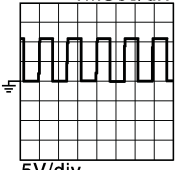
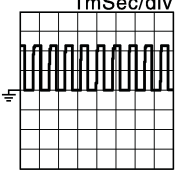
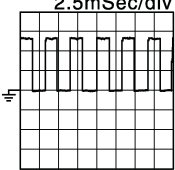
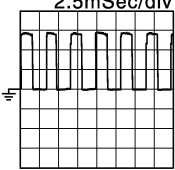
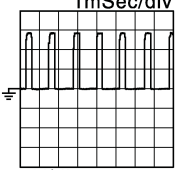
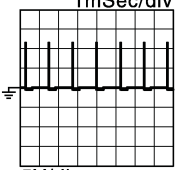
[CVT: RE0F11A]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	—	Signal	Input/ Output			
12 (G/W)	Ground	CVT fluid temperature sensor	Output	Ignition switch ON	CVT fluid: Approx. 20°C	2.01 – 2.05 V
					CVT fluid: Approx. 50°C	1.45 – 1.50 V
					CVT fluid: Approx. 80°C	0.90 – 0.94 V
14 (G/R)	Ground	G sensor	Input	Ignition switch ON	When the vehicle stops on a flat road	2.5 V
15*2 (V)	—	—	—	—		—
16 (L/R)	Ground	Secondary pressure sensor	Input	- Selector lever: "N" position - At idle		0.88 – 0.92 V
21 (R/W)	—	ROM ASSY (CHIP SELECT)	—	—		—
22 (V)	—	ROM ASSY (DATA I/O)	—	—		—
23 (P)	—	CAN-L	Input/ Output	—		—
24 (BR)	Ground	Output speed sensor	Input	- Selector lever: "L" position - Vehicle speed: 20 km/h (12 MPH)		200 Hz  5V/div JSDIA1904GB
25*1 (BR)	Ground	Electric oil pump status signal	Output	During the stop/start system operation		100 Hz
				Ignition switch: OFF → ON		0 Hz
26 (O)	Ground	Sensor power supply	Output	Ignition switch: ON		5.0 V
				Ignition switch: OFF		0 V
30 (BR/B)	Ground	Line pressure solenoid valve	Output	- After engine warming up - Selector lever: "N" position - At idle		2.5mSec/div  5V/div JSDIA1897GB
				- After engine warming up - Selector lever: "N" position - Depress the accelerator pedal fully		2.5mSec/div  5V/div JSDIA1898GB
31 (L/W)	—	ROM ASSY (CLOCK)	—	—		—
32*1 (G)	Ground	Electric oil pump command signal	Input	During the stop/start system operation		100 Hz
				Ignition switch: OFF → ON		0 Hz
33 (L)	—	CAN-H	Input/ Output	—		—

TCM

< ECU DIAGNOSIS INFORMATION >

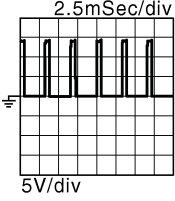
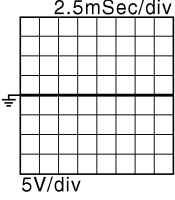
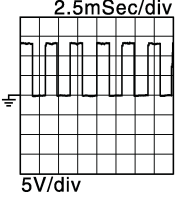
[CVT: RE0F11A]

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	—	Signal	Input/ Output		
34 (W)	Ground	Secondary speed sensor	Input	- Selector lever: "L" position - Vehicle speed: 20 km/h (12 MPH)	700 Hz 1mSec/div  5V/div JSDIA1905GB
35 (LG/R)	Ground	Primary speed sensor	Input	- Selector lever: "L" position - Vehicle speed: 20 km/h (12 MPH)	1,100 Hz 1mSec/div  5V/div JSDIA1906GB
37 (BR/W)	Ground	High clutch & reverse brake solenoid valve	Output	In driving at "L" position	2.5mSec/div  5V/div JSDIA1897GB
				Release the accelerator pedal after the following conditions are satisfied - Selector lever: "D" position - Accelerator pedal position: 1/8 or less - Vehicle speed: 50 km/h (31 MPH) or more	2.5mSec/div  5V/div JSDIA1899GB
38 (G)	Ground	Torque converter clutch solenoid valve	Output	- Selector lever: "D" position - Accelerator pedal position: 1/8 or less - Vehicle speed: 20 km/h (12 MPH) or more	1mSec/div  5V/div JSDIA1900GB
				- Engine started - Vehicle is stopped	1mSec/div  5V/div JSDIA1901GB

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F11A]

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	—	Signal	Input/ Output		
39 (G/B)	Ground	Low brake solenoid valve	Output	- Selector lever: "L" position - Vehicle speed: 20 km/h (12 MPH)	
				Release the accelerator pedal after the following conditions are satisfied - Selector lever: "D" position - Accelerator pedal position: 1/8 or less - Vehicle speed: 50 km/h (31 MPH) or more	
40 (Y/B)	Ground	Primary pressure solenoid valve	Output	- Selector lever: "L" position - Vehicle speed: 20 km/h (12 MPH)	
41 (B)	Ground	Ground	Output	Always	0 V
42 (B)	Ground	Ground	Output	Always	0 V
45 (LG)	Ground	Power (backup)	Input	Always	10 – 16 V
46 (LG)	Ground	Power (backup)	Input	Always	10 – 16 V
47 (R)	Ground	Power supply	Input	Ignition switch: ON	10 – 16 V
				Ignition switch: OFF	0 V
48 (R)	Ground	Power supply	Input	Ignition switch: ON	10 – 16 V
				Ignition switch: OFF	0 V

*1: With stop/start system

*2: This harness is not used.

Fail-safe

INFOID:000000006502995

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

If the vehicle shows following behaviors including "poor acceleration", a malfunction of the applicable system is detected by TCM and the vehicle may be in a fail-safe mode. At this time, check the DTC code and perform inspection and repair according to the malfunction diagnosis procedures.

Fail-safe function

DTC	Vehicle behavior	Conditions of vehicle
P062F	Not changed from normal driving	—
P0705	- Shift position indicator on combination meter is not displayed. - Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed. - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—
P0706	- Shift position indicator on combination meter is not displayed. - Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed. - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—
P0711	Acceleration is slow	Engine coolant temperature when engine starts is 10°C (50°F) or more.
	- Selector shock is large - Start is slow	Engine coolant temperature when engine starts is less than -10°C (14°F)
	- Selector shock is large - Start is slow	Engine coolant temperature when engine starts is less than -35°C (-31°F)
	- Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—
P0712	Acceleration is slow	Engine coolant temperature when engine starts is 10°C (50°F) or more.
	- Selector shock is large - Start is slow	Engine coolant temperature when engine starts is less than -10°C (14°F)
	- Selector shock is large - Start is slow	Engine coolant temperature when engine starts is less than -35°C (-31°F)
	- Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—

DTC	Vehicle behavior	Conditions of vehicle	
P0713	Acceleration is slow	Engine coolant temperature when engine starts is 10°C (50°F) or more.	A
	- Selector shock is large - Start is slow	Engine coolant temperature when engine starts is less than -10°C (14°F)	B
	- Selector shock is large - Start is slow	Engine coolant temperature when engine starts is less than -35°C (-31°F)	C
	- Restart the engine during the stop/start system operation. *1 - Turn OFF the electric oil pump relay. *1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	TM
P0715	- Selector shock is large - Start is slow - Acceleration is slow - Vehicle speed is not increased - Lock-up is not performed. - Restart the engine during the stop/start system operation. *1 - Turn OFF the electric oil pump relay. *1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	E
			F
			G
P0720	- Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed. - Restart the engine during the stop/start system operation. *1 - Turn OFF the electric oil pump relay. *1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	H
			I
			J
P0740	- Lock-up is not performed. - Restart the engine during the stop/start system operation. *1 - Turn OFF the electric oil pump relay. *1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	K
			L
P0743	- Lock-up is not performed. - Restart the engine during the stop/start system operation. *1 - Turn OFF the electric oil pump relay. *1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	M
			N
			O
			P
P0744	- Lock-up is not performed. - Restart the engine during the stop/start system operation. *1 - Turn OFF the electric oil pump relay. *1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	

DTC	Vehicle behavior	Conditions of vehicle
P0746	• Selector shock is large • Start is slow • Acceleration is slow • Vehicle speed is not increased • Lock-up is not performed. • Restart the engine during the stop/start system operation.^{*1} • Turn OFF the electric oil pump relay.^{*1} • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately ^{*1, *2}	—
P0846	• Start is slow • Acceleration is slow • Restart the engine during the stop/start system operation.^{*1} • Turn OFF the electric oil pump relay.^{*1} • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately ^{*1, *2}	—
P0847	• Start is slow • Acceleration is slow • Restart the engine during the stop/start system operation.^{*1} • Turn OFF the electric oil pump relay.^{*1} • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately ^{*1, *2}	—
P0848	• Start is slow • Acceleration is slow • Restart the engine during the stop/start system operation.^{*1} • Turn OFF the electric oil pump relay.^{*1} • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately ^{*1, *2}	—
P0863	• Not changed from normal driving	—
P0962	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed. • Restart the engine during the stop/start system operation.^{*1} • Turn OFF the electric oil pump relay.^{*1} • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately ^{*1, *2}	—
P0963	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed. • Restart the engine during the stop/start system operation.^{*1} • Turn OFF the electric oil pump relay.^{*1} • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately ^{*1, *2}	—
P1586	• Restart the engine during the stop/start system operation.^{*1} • Turn OFF the electric oil pump relay.^{*1} • When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately ^{*1, *2}	—

DTC	Vehicle behavior	Conditions of vehicle	
P1588	- Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	A
			B
P1701	- Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed. - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	C
			TM
P1739	- Start is slow - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	E
			F
P173A	- Vehicle speed is not increased - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	G
			H
P173B	- Start is slow - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	I
			J
P173C	- Vehicle speed is not increased - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	K
			L
P17B4	- Start is slow - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	M
			N
P17B5	- Start is slow - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	Wire disconnection	O
		Voltage shorting	P

DTC	Vehicle behavior	Conditions of vehicle
P17B7	- Start is slow - Restart the engine during the stop/start system operation.*¹ - Turn OFF the electric oil pump relay.*¹ - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *¹, *²	—
P17B8	- Start is slow - Restart the engine during the stop/start system operation.*¹ - Turn OFF the electric oil pump relay.*¹ - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *¹, *²	Wire disconnection
	- Vehicle speed is not increased - Restart the engine during the stop/start system operation.*¹ - Turn OFF the electric oil pump relay.*¹ - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *¹, *²	Voltage shorting
P17BA	- Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed. - Restart the engine during the stop/start system operation.*¹ - Turn OFF the electric oil pump relay.*¹ - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *¹, *²	—
P17BB	- Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed. - Restart the engine during the stop/start system operation.*¹ - Turn OFF the electric oil pump relay.*¹ - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *¹, *²	—
P188E	- Restart the engine during the stop/start system operation.* - Turn OFF the electric oil pump relay.* - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *	—
P188F	- Restart the engine during the stop/start system operation. - Turn OFF the electric oil pump relay. - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *	—
P1890	- Restart the engine during the stop/start system operation.*¹ - Turn OFF the electric oil pump relay.*¹ - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *¹, *²	—

DTC	Vehicle behavior	Conditions of vehicle	
P2765	- Selector shock is large - Start is slow - Acceleration is slow - Vehicle speed is not increased - Lock-up is not performed. - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	A
			B
			C
			TM
U0073	- Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed. - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	E
			F
U0100	- Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed. - Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	G
			H
			I
U0140	- Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	J
U0141	• Not changed from normal driving	—	K
U0155	• Not changed from normal driving	—	
U0300	• Not changed from normal driving	—	L
U1000	• Not changed from normal driving	—	
U1114	• Not changed from normal driving	—	
U1117	- Restart the engine during the stop/start system operation.*1 - Turn OFF the electric oil pump relay.*1 - When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately *1, *2	—	M
			N

*1:With stop/start system

*2:TCM does not prohibit stop/start system operation and cancels it. Therefore, every time the vehicle is in stop/start system operation, TCM restarts the engine immediately.

Protection Control

INFOID:000000006502996

The TCM becomes the protection control status temporarily to protect the safety when the safety of TCM and transmission is lost. It automatically returns to the normal status if the safety is secured.

The TCM has the following protection control.

CONTROL FOR WHEEL SPIN

Control	When a wheel spin is detected, the engine output and gear ratio are limited and the line pressure is increased. At the 1GR, the clutch pressure is increased.
Vehicle behavior in control	If the accelerator is kept depressing during wheel spin, the engine revolution and vehicle speed are limited to a certain degree. From the 1GR, upshift to a certain gear ratio is only allowed.
Normal return condition	Wheel spin convergence returns the control to the normal control.

CONTROL WHEN FLUID TEMPERATURE IS HIGH

Control	When the CVT fluid temperature is high, the gear shift permission maximum revolution and the maximum torque are reduced than usual to prevent increase of the oil temperature.
Vehicle behavior in control	Power performance may be lowered, compared to normal control.
Normal return condition	The control returns to the normal control when CVT fluid temperature is lowered.

TORQUE IS REDUCED WHEN DRIVING WITH THE REVERSE GEAR

Control	Engine output is controlled according to a vehicle speed while reversing the vehicle.
Vehicle behavior in control	Power performance may be lowered while reversing the vehicle.
Normal return condition	Torque returns to normal by positioning the selector lever in a range other than "R" position.

REVERSE PROHIBIT CONTROL

Control	The reverse brake is controlled to avoid becoming engaged when the selector lever is set in "R" position while driving in forward direction at more than the specified speed.
Vehicle behavior in control	If the selector lever is put at "R" position when driving with the forward gear, the gear becomes neutral, not reverse.
Normal return condition	The control returns to normal control when the vehicle is driven at low speeds. (The reverse brake becomes engaged.)

DTC Inspection Priority Chart

INFOID:000000006324994

If multiple malfunction codes are detected at the same time, check each code according to the DTC check priority list below.

Priority	DTC (Diagnostic Trouble Code)	Reference
1	P0863 CONTROL UNIT (CAN)	TM-494
	U0073 COMM BUS A OFF	TM-448
	U0100 LOST COMM (ECM A)	TM-449
	U0140 LOST COMM (BCM)	TM-450
	U0141 LOST COMM (BCM A)	TM-451
	U0155 LOST COMM (IPC)	TM-452
	U0300 CAN COMM DATA	TM-453
	U1000 CAN COMM CIRC	TM-454
	U1117 LOST COMM (ABS)	TM-455

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F11A]

Priority	DTC (Diagnostic Trouble Code)	Reference
2	P0740 TORQUE CONVERTER	TM-480
	P0743 TORQUE CONVERTER	TM-482
	P0962 PC SOLENOID A	TM-495
	P0963 PC SOLENOID A	TM-497
	P17B4 LOW BRAKE SOLENOID	TM-514
	P17B5 LOW BRAKE SOLENOID	TM-516
	P17B7 HIGH CLUTCH SOLENOID	TM-518
	P17B8 HIGH CLUTCH SOLENOID	TM-520
	P17BA PRIMARY PRESSURE SOL	TM-522
	P17BB PRIMARY PRESSURE SOL	TM-524
3	P1701 TCM	TM-504
4	P062F EEPROM	TM-456
	P0705 T/M RANGE SENSOR A	TM-457
	P0706 T/M RANGE SENSOR A	TM-463
	P0711 FLUID TEMP SENSOR A	TM-467
	P0712 FLUID TEMP SENSOR A	TM-469
	P0713 FLUID TEMP SENSOR A	TM-471
	P0715 INPUT SPEED SENSOR A	TM-473
	P0847 FLUID PRESS SEN/SW B	TM-490
	P0848 FLUID PRESS SEN/SW B	TM-492
	P1586 G SENSOR	TM-499
	P1588 G SENSOR	TM-502
	P188E ELECTRIC OIL PUMP	TM-526
	P1890 E-OIL PUMP RELAY	TM-532
	P2765 OUTPUT SPEED SENSOR	TM-535
5	P0720 OUTPUT SPEED SENSOR	TM-476
6	P0746 PC SOLENOID A	TM-486
	P1739 1GR INCORRECT	TM-506
	P173A 2GR INCORRECT	TM-508
	P173B 1GR INCORRECT	TM-510
	P173C 2GR INCORRECT	TM-512
	P188F ELECTRIC OIL PUMP	TM-530
7	P0744 TORQUE CONVERTER	TM-484
	P0846 FLUID PRESS SEN/SW B	TM-488

DTC Index

INFOID:0000000006324995

NOTE:

- If multiple malfunction codes are detected at the same time, check each code according to the “DTC check priority list”. [TM-392, "DTC Inspection Priority Chart"](#).
- The ignition counter is displayed in “FFD”. Refer to [TM-370, "CONSULT Function \(TRANSMISSION\)"](#).

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F11A]

DTC*1, *2		Items (CONSULT screen terms)	Trip	MIL	Stop/start indicator lamp*3	Reference
GST	CONSULT (TRANSMIS- SION)					
P062F	P062F	EEPROM	1	ON	—	TM-456
P0705	P0705	T/M RANGE SENSOR A	2	ON	Blinking	TM-457
P0706	P0706	T/M RANGE SENSOR A	2	ON	Blinking	TM-463
P0711	P0711	FLUID TEMP SENSOR A	2	ON	Blinking	TM-467
P0712	P0712	FLUID TEMP SENSOR A	2	ON	Blinking	TM-469
P0713	P0713	FLUID TEMP SENSOR A	2	ON	Blinking	TM-471
P0715	P0715	INPUT SPEED SENSOR A	2	ON	Blinking	TM-473
P0720	P0720	OUTPUT SPEED SENSOR	2	ON	Blinking	TM-476
P0740	P0740	TORQUE CONVERTER	2	ON	Blinking	TM-480
P0743	P0743	TORQUE CONVERTER	2	ON	Blinking	TM-482
P0744	P0744	TORQUE CONVERTER	2	ON	Blinking	TM-484
P0746	P0746	PC SOLENOID A	2	ON	Blinking	TM-486
P0846	P0846	FLUID PRESS SEN/SW B	2	ON	Blinking	TM-488
P0847	P0847	FLUID PRESS SEN/SW B	2	ON	Blinking	TM-490
P0848	P0848	FLUID PRESS SEN/SW B	2	ON	Blinking	TM-492
—	P0863	CONTROL UNIT (CAN)	1	—	—	TM-494
P0962	P0962	PC SOLENOID A	2	ON	Blinking	TM-495
P0963	P0963	PC SOLENOID A	2	ON	Blinking	TM-497
—	P1586	G SENSOR	1	—	Blinking	TM-499
—	P1588	G SENSOR	1	—	Blinking	TM-502
P1701	P1701	TCM	1	ON	Blinking	TM-504
P1739	P1739	1GR INCORRECT	2	ON	Blinking	TM-506
P173A	P173A	2GR INCORRECT	2	ON	Blinking	TM-508
P173B	P173B	1GR INCORRECT	2	ON	Blinking	TM-510
P173C	P173C	2GR INCORRECT	2	ON	Blinking	TM-512
P17B4	P17B4	LOW BRAKE SOLENOID	2	ON	Blinking	TM-514
P17B5	P17B5	LOW BRAKE SOLENOID	2	ON	Blinking	TM-516
P17B7	P17B7	HIGH CLUTCH SOLENOID	2	ON	Blinking	TM-518
P17B8	P17B8	HIGH CLUTCH SOLENOID	2	ON	Blinking	TM-520
P17BA	P17BA	PRIMARY PRESSURE SOL	2	ON	Blinking	TM-522
P17BB	P17BB	PRIMARY PRESSURE SOL	2	ON	Blinking	TM-524
—	P188E	ELECTRIC OIL PUMP	1	—	Blinking	TM-526
—	P188F	ELECTRIC OIL PUMP	1	—	Blinking	TM-530
—	P1890	E-OIL PUMP RELAY	1	—	Blinking	TM-532
P2765	P2765	OUTPUT SPEED SENSOR	2	ON	Blinking	TM-535
—	U0073	COMM BUS A OFF	1	—	Blinking	TM-448
U0100	U0100	LOST COMM (ECM A)	2	ON	Blinking	TM-449
—	U0140	LOST COMM (BCM)	1	—	Blinking	TM-450
—	U0141	LOST COMM (BCM A)	1	—	—	TM-451
—	U0155	LOST COMM (IPC)	1	—	—	TM-452
—	U0300	CAN COMM DATA	1	—	—	TM-453

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F11A]

DTC*1, *2		Items (CONSULT screen terms)	Trip	MIL	Stop/start indicator lamp*3	Reference
GST	CONSULT (TRANSMIS- SION)					
—	U1000	CAN COMM CIRC	1	—	—	TM-454
—	U1117	LOST COMM (ABS)	1	—	Blinking	TM-455

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

*2: The DTC number of the 1st trip is the same as the DTC number.

*3: With stop/start system

A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

WIRING DIAGRAM

CVT CONTROL SYSTEM

Application Notice

INFOID:000000006882050

Wiring diagram type	Destination
TYPE A	• Models for Thailand • Models for general area from Thailand plant* • Models for China • Models for India (HR12DE engine models): Vehicle production: From May 2010 to April 2011
TYPE B	• Models for Australia • Models for New Zealand • Models for Hong Kong • Models for India (K9K engine models): Vehicle production: From October 2010 to April 2011 • Models for Europe (Without stop/start system): Vehicle production: From July 2010 to June 2011 • Models for general area from India plant*
TYPE C	• Models for Europe (With stop/start system): Vehicle production: From April 2011 to June 2011 • Models for South Africa
TYPE D	• Models for India: Vehicle production: From May 2011 • Models for Lebanon and Jordan • Models for Europe: Vehicle production: From July 2011

*: Refer to [GI-26, "Information About Identification or Model Code"](#) to identify a production plant.

TYPE A

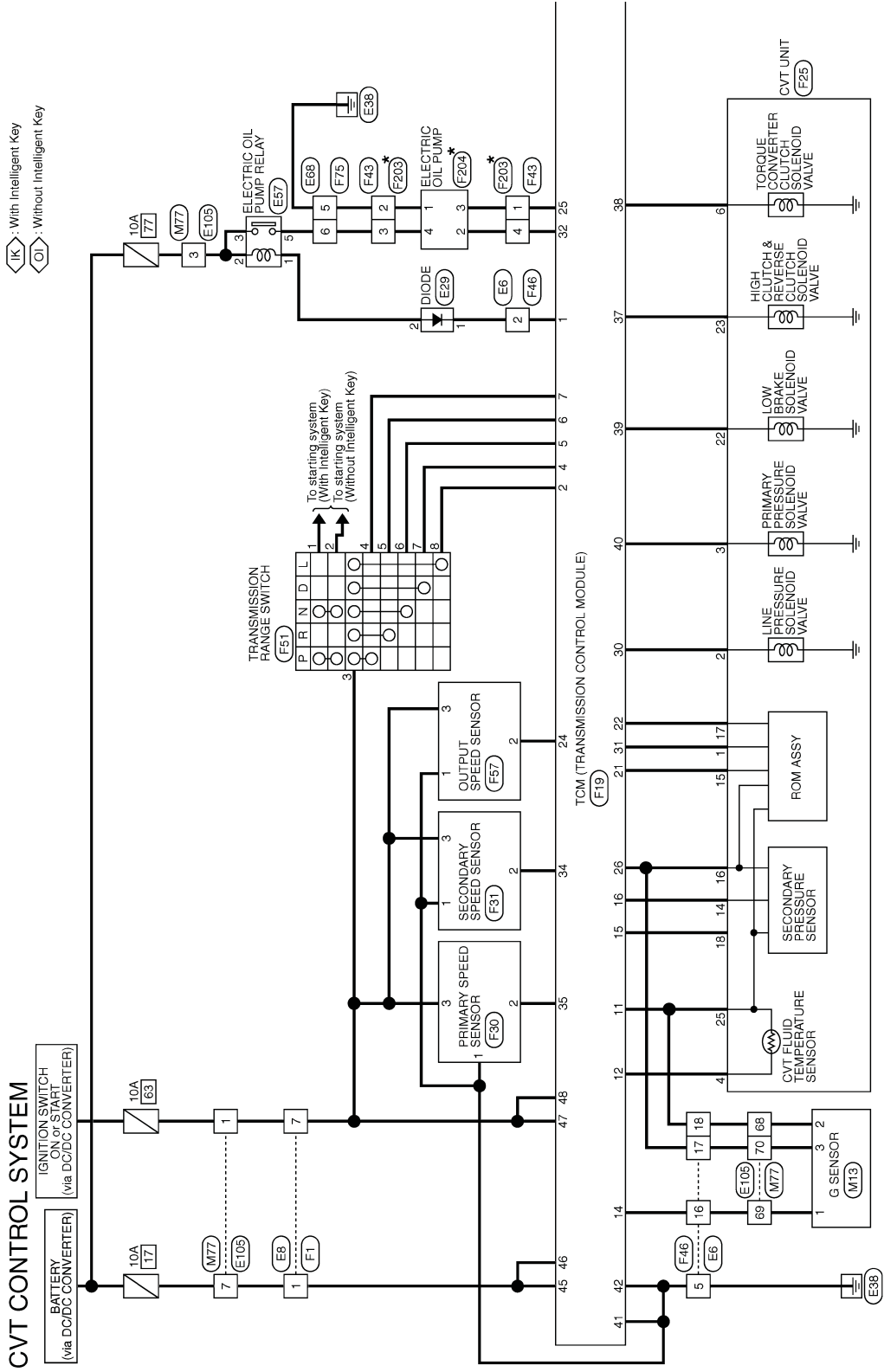
CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

TYPE A : Wiring diagram

INFOID:000000006324996



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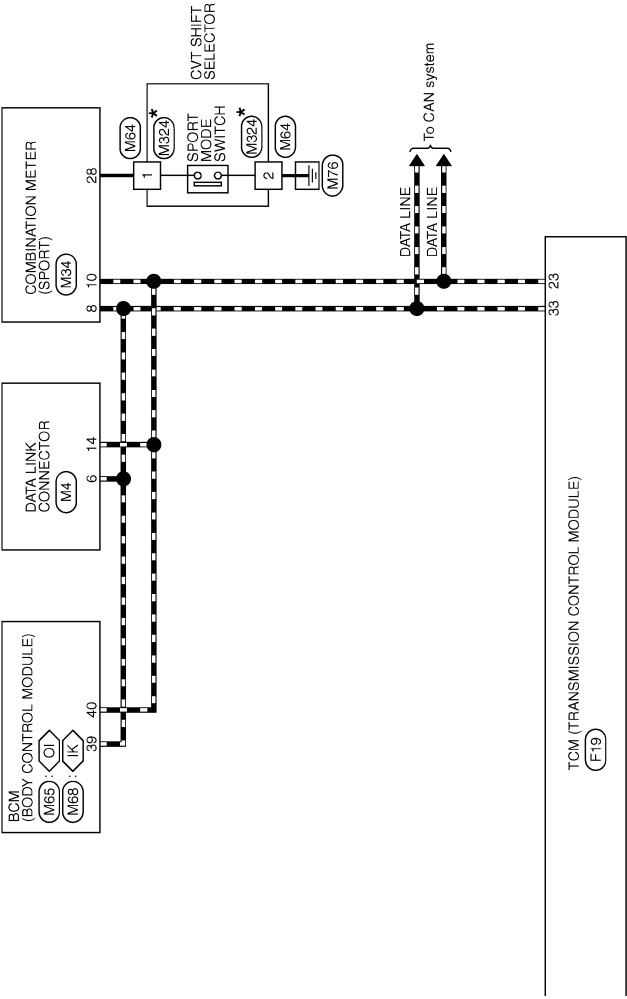
*: This connector is not shown in "Harness Layout".

A
B
C
TM
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CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]



JCDWA0816GB

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

A
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TM
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G
H
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M
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O
P

CVT CONTROL SYSTEM

Connector No.	E6
Connector Name	WIRE TO WIRE
Connector Type	TH24MW-NH



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	SB	- [With CVT]
2	SB	- [With M/T]
3	Y	-
5	B	-
6	P	-
7	L	-
10	R	-
11	L	-
12	BR	-
13	B	-
14	BR	-
15	V	-
16	Y	-
17	G	-
18	R	-
19	V	-
20	BG	-
21	W	-
22	LG	- [For China or with D-Jetronic engine and A/C]
22	BR	- [For Thailand with M/T]
23	GR	- [For China or with D-Jetronic engine and A/C]
23	SB	- [For Thailand with M/T]
24	B	-

Connector No.	E6
Connector Name	WIRE TO WIRE
Connector Type	NS12MGY-CS



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	G	-
3	V	-
4	G	-
5	BG	- [For China]
5	L	- [Except for China]
6	GR	-
7	R	-
8	B	-
9	BR	- [For China]
9	P	- [For India]
9	G	- [Except for India and China]
10	SB	-
11	L	-
12	V	-



1	2	3
4	5	6

2	Y	-
3	W	-
3	Y	-
5	R	-

Connector No.	E68
Connector Name	WIRE TO WIRE
Connector Type	M06MW-LC

Terminal No.	Color of Wire	Signal Name [Specification]
1	GR	-
2	L	-
4	W	- [With M/T without Intelligent Key]
4	R	- [Except for M/T without Intelligent Key]
5	B	-
6	R	-



1	2

Connector No.	E29
Connector Name	DIODE
Connector Type	24335 C3900

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

Connector No.	E57
Connector Name	ELECTRIC OIL PUMP RELAY
Connector Type	MS02FL-M2-LC



3	5
2	1

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

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CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

CVT CONTROL SYSTEM

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-GS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
1	R	-
2	R	-
3	W	-
4	BR	- [For China]
4	P	- [For India]
4	G	- [Except for India and China]
5	R	-
6	LG	-
7	P	-
8	L	-
9	O	- [For India]
9	BG	- [Except for India]
10	Y	-
18	SB	-
28	BR	-
35	SB	-
36	LG	-
42	BG	-
43	P	-
51	V	-
52	P	-
53	GR	-
54	SB	-
55	LG	-
56	R	- [For China]
56	L	- [Except for China]
58	R	-
59	P	-
60	G	-
61	O	- [For India]
61	BG	- [Except for India]
62	G	-
63	R	-
64	W	-
65	L	-
66	Y	-
68	R	-
69	Y	-

Connector No.	F1
Connector Name	WIRE TO WIRE
Connector Type	NS1FEV-GS



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	LG	-
2	G	-
3	BR	-
4	G/W	-
5	R/W	-
6	R	-
7	R	-
8	B	-
9	BR	-
10	O	-
11	L/W	-
12	V	- [For China]
12	W	- [Except for China]

Connector No.	F19
Connector Name	TGM (TRANSMISSION CONTROL MODULE)
Connector Type	RH40FB-R28-L-LH



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	SB	EOP OUT
2	R/B	L RANGE SW
4	W/B	D RANGE SW
5	L/B	N RANGE SW
6	O	R RANGE SW
7	Y	P RANGE SW
11	LG	SENSOR GND
12	G/W	CVT FLUID TEMP SENSOR
14	G/R	G SENSOR

15	V	-
16	L/R	SECONDARY PRESSURE SENSOR
21	R/W	ROM ASSY (SEL 1)
22	V	ROM ASSY (SEL 3)
23	P	CAN-L
24	BR	OUTPUT SPEED SENSOR
25	BR	PWM TX
26	O	SENSOR SPLY (5V)
30	BR/B	LINE PRESSURE SOL
31	L/W	ROM ASSY (SEL 2)
32	G	PWM RX
33	L	CAN-H
34	W	SECONDARY SPEED SENSOR
35	LG/R	PRIMARY SPEED SENSOR
37	BR/W	HIGH CLUTCH & REVERSE BRAKE SOL
38	G	TORQUE CONVERTER CLUTCH SOL
39	G/B	LOW BRAKE SOL
40	Y/B	PRIMARY PRESSURE SOL
41	B	GND
42	B	GND
45	LG	BATT
46	LG	BATT
47	R	VGN
48	R	VGN

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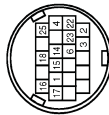
CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

CVT CONTROL SYSTEM

Connector No.	F25
Connector Name	CVT UNIT
Connector Type	RK22FGY



Terminal No.	Color of Wire	Signal Name [Specification]
1	L/W	-
2	BR/B	-
3	V/B	-
4	G/W	-
5	G	-
14	L/R	-
15	R/W	-
16	O	-
17	V	-
18	V	-
22	G/B	-
23	BR/W	-
25	LG	-

Connector No.	F30
Connector Name	PRIMARY SPEED SENSOR
Connector Type	RK03FB



Terminal No.	Color of Wire	Signal Name [Specification]
1	B	-
2	LG/R	-
3	R	-

Connector No.	F31
Connector Name	SECONDARY SPEED SENSOR
Connector Type	RK03FB



Terminal No.	Color of Wire	Signal Name [Specification]
1	B	-
2	W	-
3	R	-

Connector No.	F43
Connector Name	WIRE TO WIRE
Connector Type	HSQMMV-2V-DGY



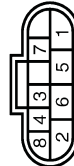
Terminal No.	Color of Wire	Signal Name [Specification]
1	B	-
2	G	-
3	BR	-
4	R	-

Connector No.	F46
Connector Name	WIRE TO WIRE
Connector Type	TH24FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	SB	- [With CVT]
2	SB	- [With M/T]
3	Y	-
5	B	-
6	P	-
7	L	-
10	R/W	-
11	L/R	-
12	BR/W	-
13	B	-
14	BR	-
15	BR	-
16	G/R	-
17	O	-
18	LG	-
19	L/W	-
20	P	-
21	W	-
22	R/B	- [For China or with D-Jetronic engine and A/C]
23	GR	- [For Thailand with M/T]
24	SB	- [For China or with D-Jetronic engine and A/C]
25	SB	- [For Thailand with M/T]

Connector No.	F51
Connector Name	TRANSMISSION RANGE SWITCH
Connector Type	YDX06FB-HS4



Terminal No.	Color of Wire	Signal Name [Specification]
1	R	-
2	BR	-
3	R	-
4	Y	-
5	O	-
6	L/B	-
7	W/B	-
8	R/B	-

Connector No.	F57
Connector Name	OUTPUT SPEED SENSOR
Connector Type	RK03FB



Terminal No.	Color of Wire	Signal Name [Specification]
1	B	VSP SENSOR GND
2	BR	VSP SENS
3	R	VSP POWER

Connector No.	F75
Connector Name	WIRE TO WIRE
Connector Type	M06FW-LG



Terminal No.	Color of Wire	Signal Name [Specification]
1	GR	-
2	G	-
4	W	- [With M/T without Intelligent Key]
4	R	- [Except for M/T without Intelligent Key]
5	B	-
6	R	-

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CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

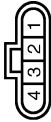
CVT CONTROL SYSTEM

Connector No.	F203
Connector Name	WIRE TO WIRE
Connector Type	HS04FW-2V-DGY



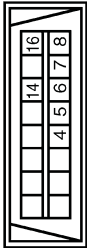
Terminal No.	Color of Wire	Signal Name [Specification]
1	-	-
2	-	-
3	-	-
4	-	-

Connector No.	F204
Connector Name	ELECTRIC OIL PUMP
Connector Type	728S-744S



Terminal No.	Color of Wire	Signal Name [Specification]
1	-	-
2	-	-
3	-	-
4	-	-

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



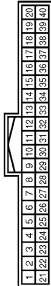
Terminal No.	Color of Wire	Signal Name [Specification]
4	B/W	-
5	B/W	-
6	L	-
7	GR	-
8	O	- [For India]
8	BG	- [Except for India]
14	P	-
16	LG	-

Connector No.	M13
Connector Name	G SENSOR
Connector Type	HS03FB-2V



Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	OUTPUT
2	R	GND
3	W	POWER SUPPLY

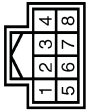
Connector No.	M34
Connector Name	COMBINATION METER
Connector Type	TH40FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	R	BATTERY POWER SUPPLY
3	GR	IGNITION SIGNAL
4	W	FUEL LEVEL SENSOR SIGNAL
6	L	VEHICLE SPEED SENSOR SIGNAL
8	P	CAN-H
10	P	CAN-L
12	L	A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL

14	BR	ENGINE COOLANT TEMPERATURE SIGNAL [For India]
14	G	ENGINE COOLANT TEMPERATURE SIGNAL [Except for India]
15	GR	-
21	B	GROUND
22	B	GROUND
23	B/W	GROUND
24	Y	AMBIENT SENSOR GROUND
25	B	VEHICLE SPEED SENSOR GROUND
26	GR	FUEL LEVEL SENSOR GROUND
27	R	AMBIENT SENSOR SIGNAL
28	P	OVERDRIVE CONTROL SPORT MODE SWITCH SIGNAL
29	W	METER SATELLITE SW A
30	SB	METER SATELLITE SW B [For China]
30	BG	METER SATELLITE SW B [Except for China]
31	G	SECURITY SIGNAL
32	V	AIR BAG SIGNAL
34	BG	SEAT BELT BUCKLE SWITCH SIGNAL (DRIVER SIDE)
35	Y	ALTERNATOR SIGNAL
36	LG	BRAKE FLUID LEVEL SWITCH SIGNAL
37	SB	PARKING BRAKE SWITCH SIGNAL

Connector No.	M64
Connector Name	CVT SHIFT SELECTOR
Connector Type	TH40FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	B/W	-
3	SB	-
4	B	-
5	LG	-
6	B	-
7	P	-
8	R	-

Connector No.	M65
Connector Name	ECM (BODY CONTROL MODULE)
Connector Type	TH40FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
2	BR	COMBI SW INPUT 5
3	Y	COMBI SW INPUT 4
4	L	COMBI SW INPUT 3
5	G	COMBI SW INPUT 2
6	R	COMBI SW INPUT 1
7	Y	DR DOOR LINK SENS
8	GR	KEY CYLINDER LOCK SW
9	W	STOP LAMP SW
10	G	REAR WINDOW DEF SW
11	L	IGN SW ACC
12	BR	PASSENGER DOOR SW [For China]
12	P	PASSENGER DOOR SW [Except for China]
13	LG	REAR RH DOOR SW
18	V	RECEIVER GND
19	LG	KYLS ENT RECEIV PWR SPLY
20	G	KYLS ENT RECEIV COMM
21	P	NATS ANT AMP
23	G	SECURITY IND LAMP
25	LG	NATS ANT AMP
27	W	A/C SW
28	SB	BLOWER FAN SW
28	BG	HAZARD SW [For China]
29	SB	HAZARD SW [Except for China]
31	W	KEY CYLINDER UNLOCK SW
32	P	COMBI SW OUTPUT 5
33	V	COMBI SW OUTPUT 4
34	W	COMBI SW OUTPUT 3
35	GR	COMBI SW OUTPUT 2
38	LG	COMBI SW OUTPUT 1
37	Y	KEY SW
39	O	IGN SW ON [For India]
38	BG	IGN SW ON [Except for India]
39	L	CAN-H
40	P	CAN-L

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

TYPE B

CVT CONTROL SYSTEM

Connector No.	M68
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	GR	REAR WINDOW DEF RELAY CONT
2	BR	COMBI SW INPUT 5
3	Y	COMBI SW INPUT 4
4	L	COMBI SW INPUT 3
5	G	COMBI SW INPUT 2
6	R	COMBI SW INPUT 1
9	W	STOP LAMP SW 1
11	L	ACC F/B
12	BR	PASSENGER DOOR SW [For China]
13	LG	REAR RH DOOR SW [Except for China]
15	G	REAR WINDOW DEF SW
18	V	RECEIVER GND
19	LG	KYLS ENT RECEIV PWR SPLY
20	G	KYLS ENT RECEIV COMM
21	P	NATS ANT AMP
22	W	KYLS ENT RECEIV RSSI
23	G	SECURITY IND LAMP
25	LG	NATS ANT AMP
27	W	A/G SW
28	SB	BLOWER FAN SW
29	BG	HAZARD SW [For China]
29	SB	HAZARD SW [Except for China]
31	Y	DR DOOR UNLK SENS
32	P	COMBI SW OUTPUT 5
33	V	COMBI SW OUTPUT 4
34	W	COMBI SW OUTPUT 3
35	GR	COMBI SW OUTPUT 2
36	LG	COMBI SW OUTPUT 1
37	R	SHIFT P
38	O	IGN F/B [For India]
38	BG	IGN F/B [Except for India]
39	L	CAN-H
40	P	CAN-L

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH60MW-CS (6-TM4)



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	R	-
2	R	-
3	W	-
4	BR	-
5	R	-
6	LG	-
7	GR	-
8	O	- [For India]
8	BG	- [Except for India]
9	R	-
10	G	-
18	SB	- [With Intelligent Key]
18	P	- [Without Intelligent Key]
28	BR	-
35	R	-
36	Y	-
42	GR	-
43	LG	-
51	BR	-
52	P	-
53	GR	-
54	L	-
55	V	-
56	BR	- [For China]
56	L	- [Except for China]
58	BR	-
59	LG	-
60	R	- [For China]
60	LG	- [Except for China]
61	BG	- [For China]
61	Y	- [Except for China]
62	SB	-
63	R	-
64	V	-
65	R	-
66	G	-
68	R	-
69	Y	-

7	LG	-
8	R	-

70	W	-
71	R	-
72	P	- [With auto A/G]
72	Y	- [With manual A/G]
75	L	-
76	B	-
80	L	-
81	P	-
82	GR	-
83	LG	-
84	Y	-
85	BR	- [For China]
85	W	- [For India]
85	Y	- [Except for India and China]
88	R	-
88	L	-
89	P	-
90	SHIELD	-
91	P	-
92	BG	- [For China]
92	L	- [Except for China]
93	L	- [With Intelligent Key]
93	Y	- [Without Intelligent Key]
94	L	-
95	G	-
96	W	-
97	SB	-
98	R	-
99	P	-
100	R	-

Connector No.	M324
Connector Name	CVT SHIFT SELECTOR
Connector Type	TH60MP-NH



4	3	2	1
8	7	6	5

Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	-
2	Y	-
3	G	-
4	G	-
5	W	-
6	L	-

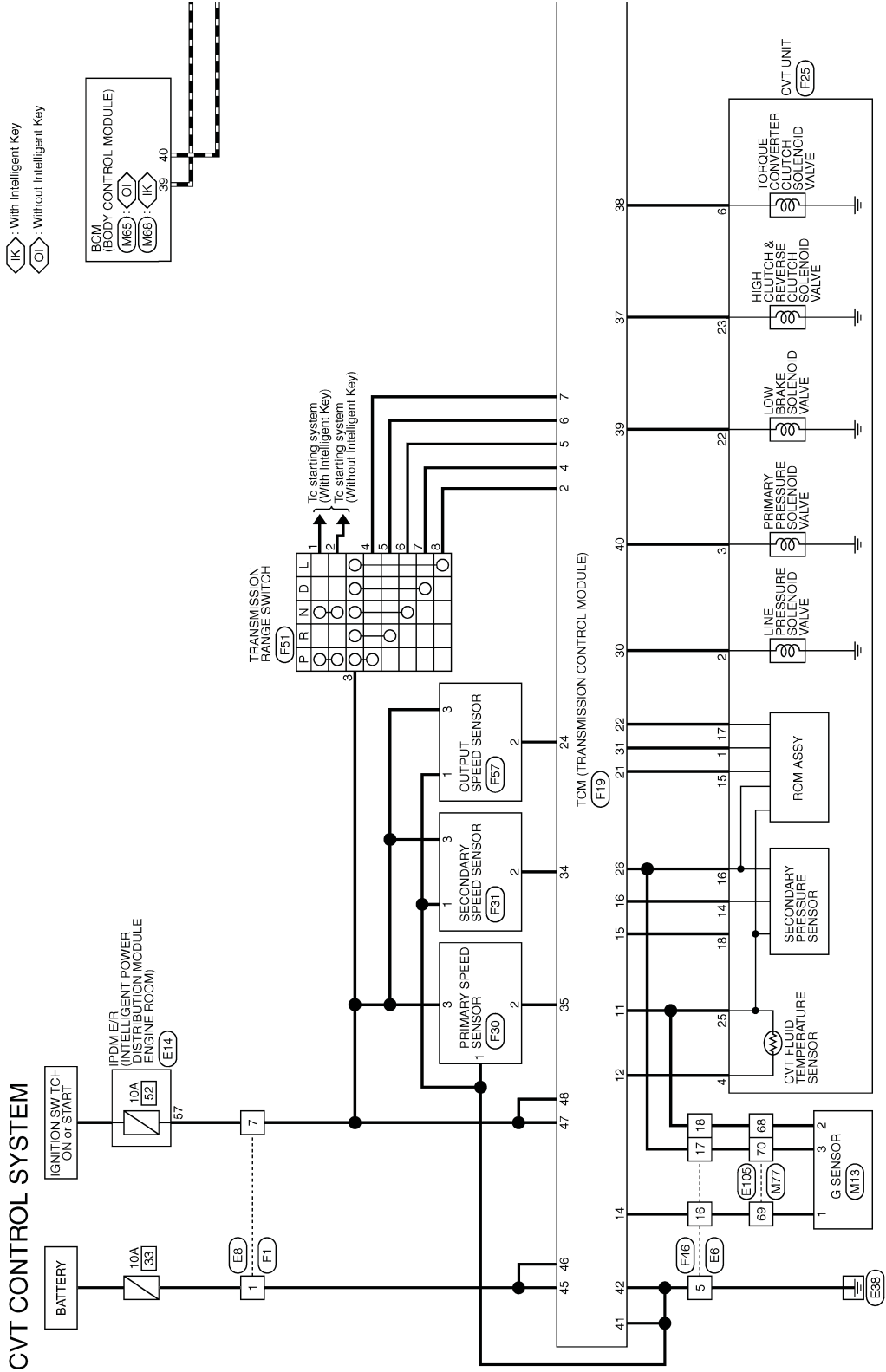
CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

TYPE B : Wiring Diagram

INFOID:000000006842573



★ : This connector is not shown in "Harness Layout".

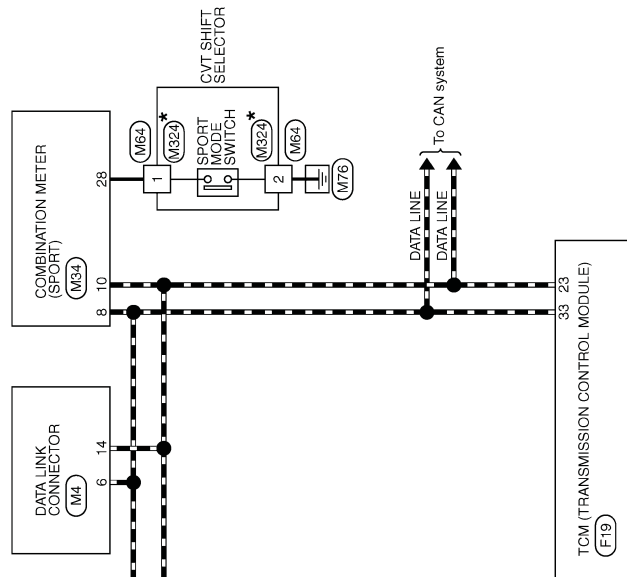
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CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]



JCDWA0822GB

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

CVT CONTROL SYSTEM

Connector No.	E6
Connector Name	WIRE TO WIRE
Connector Type	TH24MW-NH



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	L	-
5	B	-
6	P	-
7	L	-
10	R	-
11	L	-
12	BR	-
13	B	-
15	V	-
16	Y	-
17	G	- [With gasoline engine]
17	B	- [With diesel engine]
18	R	- [With gasoline engine]
18	V	- [With diesel engine]
19	V	-
21	W	-
22	LG	-
23	GR	-

Connector No.	E8
Connector Name	WIRE TO WIRE
Connector Type	NS12MGY-CS



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

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

5	L	-
6	GR	-
7	R	-
8	B	-
9	G	- [For Australia, New Zealand and Hong Kong]
9	P	- [Except for Australia, New Zealand and Hong Kong]
10	SB	-
11	B	-
12	V	-

Connector No.	E14
Connector Name	SPM E R INTELLIGENT POWER DISTRIBUTION MODULE (ENGINE ROOM)
Connector Type	NS12FER-CS



57	56	55	54	53
64	63	62	61	60
59	58	57	56	55

Terminal No.	Color of Wire	Signal Name [Specification]
53	LG	-
54	GR	-
55	B	-
56	BR	-
57	R	- [With gasoline engine]
57	O	- [With diesel engine]
58	P	-
58	BR	-
59	R	-
59	W	-
60	W	-
61	G	-
63	Y	-
64	V	-

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH30FW-CS16-TM4



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

Terminal No.	Color of Wire	Signal Name [Specification]
4	G	- [For Australia, New Zealand and Hong Kong]
6	P	- [Except for Australia, New Zealand and Hong Kong]
6	LG	-
8	L	-
9	BG	- [For Australia, New Zealand and Hong Kong]
9	O	- [Except for Australia, New Zealand and Hong Kong]
10	Y	-
31	SHIELD	-
32	L	-
38	W	-
39	O	-
40	G	-
41	W	-
42	R	-
45	Y	-
46	B	-
51	V	-
52	P	-
53	GR	-
54	SB	-
55	LG	-
56	L	-
58	R	-
59	P	-
60	G	-
61	BG	- [For Australia, New Zealand and Hong Kong]
61	O	- [Except for Australia, New Zealand and Hong Kong]
62	G	-
63	R	-
64	W	-
65	L	-
66	Y	-
68	R	-
69	Y	-
70	G	-
71	SB	-
72	LG	-
73	R	-

JCDWA0826GB

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

CVT CONTROL SYSTEM

Connector No.	F1
Connector Name	WIRE TO WIRE
Connector Type	HS12FGY-CS



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	LG	-
2	G	-
3	BR	-
4	G/W	-
5	R/W	-
6	R	-
7	R	-
8	B	-
9	BR	-
10	O	-
11	B	-
12	W	- [With gasoline engine]
12	V	- [With diesel engine]

Connector No.	F19
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	RH40FB-RZ8-L-LH



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

Terminal No.	Color of Wire	Signal Name [Specification]
2	R/B	L RANGE SW
4	W/B	D RANGE SW
5	L/B	N RANGE SW
6	O	R RANGE SW
7	Y	P RANGE SW
11	LG	SENSOR GND
12	G/W	CVT FLUID TEMP SENSOR
14	G/R	G SENSOR
15	V	-

16	L/R	SECONDARY PRESSURE SENSOR
21	R/W	ROM ASSY (SEL 1)
22	V	ROM ASSY (SEL 2)
23	P	CAN-L
24	BR	OUTPUT SPEED SENSOR
26	O	SENSOR SPLY (3V)
30	BR/B	LINE PRESSURE SOL
31	L/W	ROM ASSY (SEL 2)
33	L	CAN-H
34	W	SECONDARY SPEED SENSOR
35	LG/R	PRIMARY SPEED SENSOR
37	BR/W	HIGH CLUTCH & REVERSE BRAKE SOL
38	G	TORQUE CONVERTER CLUTCH SOL
39	G/B	LOW BRAKE SOL
40	Y/B	PRIMARY PRESSURE SOL
41	B	GND
42	B	GND
45	LG	BATT
46	LG	BATT
47	R	VIGN
48	R	VIGN

Connector No.	F25
Connector Name	CVT UNIT
Connector Type	RK2ZFGY



17	18	19	20
11	12	13	14
5	6	7	8
3	2	1	

Terminal No.	Color of Wire	Signal Name [Specification]
1	L/W	-
2	BR/B	-
3	Y/B	-
4	G/W	-
6	G	-
14	L/R	-
15	R/W	-
16	O	-
17	V	-
18	V	-
22	G/B	-
23	BR/W	-
25	LG	-

Connector No.	F30
Connector Name	PRIMARY SPEED SENSOR
Connector Type	RK03FB



3	2	1

Terminal No.	Color of Wire	Signal Name [Specification]
1	B	-
2	LG/R	-
3	R	-

Connector No.	F31
Connector Name	SECONDARY SPEED SENSOR
Connector Type	RK03FB



3	2	1

Terminal No.	Color of Wire	Signal Name [Specification]
1	B	-
2	W	-
3	R	-

Connector No.	F46
Connector Name	WIRE TO WIRE
Connector Type	TH24FW-NH



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

Terminal No.	Color of Wire	Signal Name [Specification]

1	L	-
5	B	-
8	P	-
7	L	-
10	R/W	-
11	L/R	-
12	BR/W	-
13	B	-
15	BR	-
16	G/R	-
17	O	- [With gasoline engine]
17	B	- [With diesel engine]
18	LG	-
18	V	- [With diesel engine]
19	L/W	-
21	W	-
22	R/B	-
23	GR	-

Connector No.	F51
Connector Name	TRANSMISSION RANGE SWITCH
Connector Type	YD006FB-HS4



8	4	3	7
2	6	5	1

Terminal No.	Color of Wire	Signal Name [Specification]
1	R	-
2	BR	-
3	R	-
4	Y	-
5	O	-
6	L/B	-
7	W/B	-
8	R/B	-

JCDWA0823GB

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

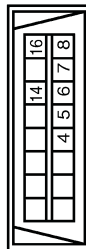
CVT CONTROL SYSTEM

Connector No.	F17
Connector Name	OUTPUT SPEED SENSOR
Connector Type	RK03FB



Terminal No.	Color of Wire	Signal Name [Specification]
1	B	VSP SENSOR GND
2	BR	VSP SENS
3	R	VSP POWER

Connector No.	M4
Connector Name	DATA LINK CONNECTOR
Connector Type	BD16FW



Terminal No.	Color of Wire	Signal Name [Specification]
4	B/W	-
5	B/W	-
6	L	-
7	GR	-
8	BG	- [For Australia, New Zealand and Hong Kong]
8	O	- [Except for Australia, New Zealand and Hong Kong]
14	P	-
16	LG	-

Connector No.	M13
Connector Name	G SENSOR
Connector Type	HS03FB-2V



Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	OUTPUT
2	R	GND
3	W	POWER SUPPLY

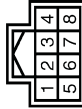
Connector No.	M34
Connector Name	COMBINATION METER
Connector Type	TH40FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	R	BATTERY POWER SUPPLY
2	LG	STOP LAMP SWITCH SIGNAL
3	GR	IGNITION SIGNAL
4	W	FUEL LEVEL SENSOR SIGNAL
6	L	VEHICLE SPEED SENSOR SIGNAL
8	L	CAN-H
10	P	CAN-L
12	L	A/C AUTO AMP CONNECTION RECOGNITION SIGNAL
13	LG	PASSENGER AIR BAG OFF INDICATOR SIGNAL
14	G	EXHAUST COOLANT TEMPERATURE SIGNAL [For Australia, New Zealand and Hong Kong]
14	BR	EXHAUST COOLANT TEMPERATURE SIGNAL [Except for Australia, New Zealand and Hong Kong]
15	GR	-
16	L/B	VEHICLE SPEED SIGNAL (2-PULSE)
17	SB	VEHICLE SPEED SIGNAL (8-PULSE) [With 4-speakers]
17	P	VEHICLE SPEED SIGNAL (8-PULSE) [With 6-speakers]
18	G	AUDIO EFFECT SIGNAL
19	BR	STEP LAMP CONTROL SIGNAL
20	SB	CONSOLE LAMP CONTROL SIGNAL
21	B	GROUND

22	B	GROUND
23	B/W	GROUND
24	Y	AMBIENT SENSOR GROUND
25	B	VEHICLE SPEED SENSOR GROUND
26	GR	FUEL LEVEL SENSOR GROUND
27	R	AMBIENT SENSOR SIGNAL
28	P	OVERDRIVE CONTROL / SPORT MODE SWITCH SIGNAL
29	W	ENTER SWITCH SIGNAL
30	BG	SELECT SWITCH SIGNAL [For Australia, New Zealand and Hong Kong]
30	O	SELECT SWITCH SIGNAL [Except for Australia, New Zealand and Hong Kong]
31	G	SECURITY SIGNAL
32	V	AIR BAG SIGNAL
34	BG	SHIFTER LOCK SWITCH SIGNAL [For Australia, New Zealand and Hong Kong]
34	V	SHIFTER LOCK SWITCH SIGNAL [Except for Australia, New Zealand and Hong Kong]
35	V	ALTERNATOR SIGNAL
36	LG	BRAKE FLUID LEVEL SWITCH SIGNAL
37	SB	PARKING BRAKE SWITCH SIGNAL
38	L	STEERING ANGLE SENSOR SIGNAL 1
39	P	STEERING ANGLE SENSOR SIGNAL 2
40	V	STEERING ANGLE SENSOR SIGNAL 3

Connector No.	M64
Connector Name	CVT SHIFT SELECTOR
Connector Type	TH06FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	B/W	-
3	SB	-
4	B	-
5	LG	-
6	B	-
7	P	-
8	R	-

Connector No.	M65
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
2	BR	COMBI SW INPUT 5
3	Y	COMBI SW INPUT 4
4	L	COMBI SW INPUT 3
5	G	COMBI SW INPUT 2
6	R	COMBI SW INPUT 1
7	Y	DR DOOR UNLK SENS
8	W	STOP LAMP SW
10	G	REAR WINDOW DEF SW
11	L	IGN SW ACC
12	P	PASSENGER DOOR SW
13	LG	REAR RH DOOR SW
14	BG	OPTICAL SENS [With OPT SENS]
14	O	L&R SENS SERIAL LINK [With L&R SENS]
16	L	DOOR LK STAT IND OUTPUT
17	SB	SENS PWR SPLY
18	V	RECEIV/SENS GND
19	LG	KYLS ENT RECEIV PWR SPLY
20	G	KYLS ENT RECEIV COMM
21	P	NATS ANT AMP
23	G	SECURITY IND LAMP CONT
24	SB	DONGLE/AUDIO LINK
25	LG	NATS ANT AMP
27	W	A/C SW
28	SB	BLOWER FAN SW
29	SB	HAZARD SW
32	P	COMBI SW OUTPUT 5
33	V	COMBI SW OUTPUT 4
34	W	COMBI SW OUTPUT 3
35	GR	COMBI SW OUTPUT 2
36	LG	COMBI SW OUTPUT 1
37	Y	KEY SW
38	BG	IGN SW ON [For AUS and NZL]
38	O	IGN SW ON [Except for AUS and NZL]
39	L	CAN-H
40	P	CAN-L

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CVT CONTROL SYSTEM

Connector No.	M68
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	GR	REAR WINDOW DEF RELAY CONT
2	BR	COMBI SW INPUT 5
3	Y	COMBI SW INPUT 4
4	L	COMBI SW INPUT 3
5	G	COMBI SW INPUT 2
6	R	COMBI SW INPUT 1
7	W	STOP LAMP SW 1
8	W	ACC F/B
9	L	PASSENGER DOOR SW
10	P	REAR RH DOOR SW
11	LG	OPTICAL SENS [For AUS, NZL and HKG]
12	LG	L&R SENS SERIAL LINK [Exc. for AUS, NZL and HKG]
13	BG	REAR WINDOW DEF SW
14	O	DIMMER
15	G	SENS PWR SPLY
16	W	RECEIV/SENS GND
17	SB	KYLS ENT RECEIV PWR SPLY
18	V	NATS ANT AMP
19	LG	KYLS ENT RECEIV COMM
20	G	KYLS ENT RECEIV RSSI
21	P	SECURITY IND LAMP CONT
22	W	DONGLE LINK
23	G	NATS ANT AMP
24	SB	A/C SW
25	LG	BLOWER FAN SW
26	W	HAZARD SW
27	SB	DR DOOR UNLK SENS
28	SB	COMBI SW OUTPUT 5
29	SB	COMBI SW OUTPUT 4
30	P	COMBI SW OUTPUT 3
31	Y	COMBI SW OUTPUT 2
32	V	COMBI SW OUTPUT 1
33	W	CLUTCH PDL POS SW [With M/T without ASCD]
34	GR	DETENT SW [Without M/T]
35	LG	IGN F/B [For AUS, NZL and HKG]
36	R	IGN F/B [Except for AUS, NZL and HKG]
37	R	CAN-H
38	EG	CAN-L
39	O	
40	P	

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH60MW-CS16-TM4



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

Terminal No.	Color of Wire	Signal Name [Specification]
4	BR	
6	LG	
8	BG	- [For Australia, New Zealand and Hong Kong]
9	O	- [Except for Australia, New Zealand and Hong Kong]
10	R	
11	G	
12	SHIELD	
13	L	
14	BR	
15	L	
16	G	
17	W	
18	R	
19	Y	
20	B	
21	P	
22	GR	
23	L	
24	V	
25	L	
26	BR	
27	LG	
28	R	
29	Y	
30	SB	
31	R	
32	V	
33	R	
34	G	
35	W	
36	G	
37	R	
38	W	
39	P	
40	GR	

75	L	-
76	B	-
80	L	-
81	P	-
82	GR	-
83	LG	-
84	Y	-
85	W	-
86	R	-
88	L	-
89	P	-
90	SHIELD	-
91	P	-
92	L	-
94	L	-
95	G	-
96	W	-
97	SB	-
98	R	-
99	P	-
100	R	-

Connector No.	M324
Connector Name	CVT SHIFT SELECTOR
Connector Type	TH08MW-NH



4	3	2	1
8	7	6	5

Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	-
2	Y	-
3	G	-
4	G	-
5	W	-
6	L	-
7	LG	-
8	R	-

TYPE C

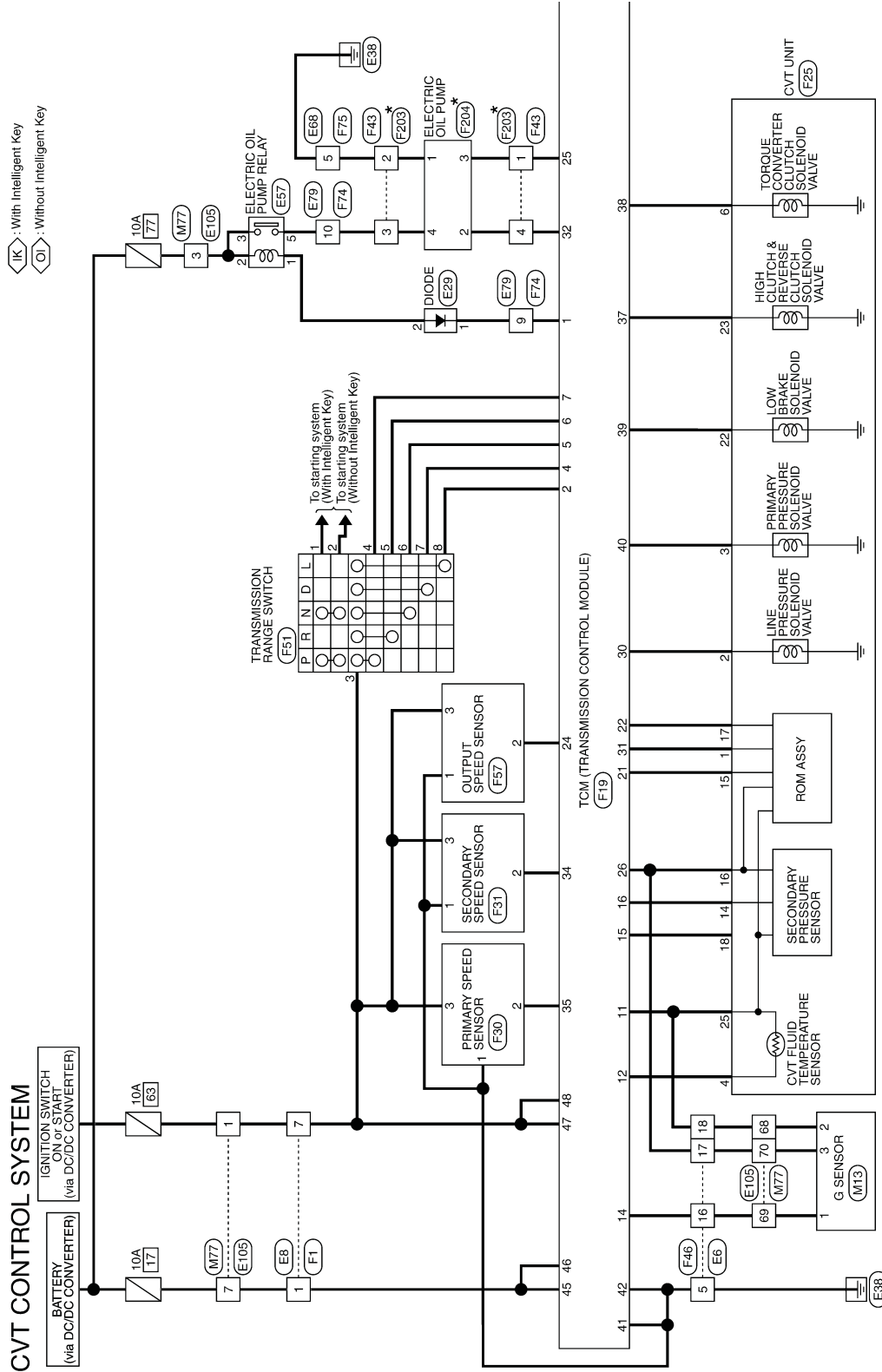
CVT CONTROL SYSTEM

[CVT: RE0F11A]

< WIRING DIAGRAM >

TYPE C : Wiring Diagram

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★ : This connector is not shown in "Harness Layout".

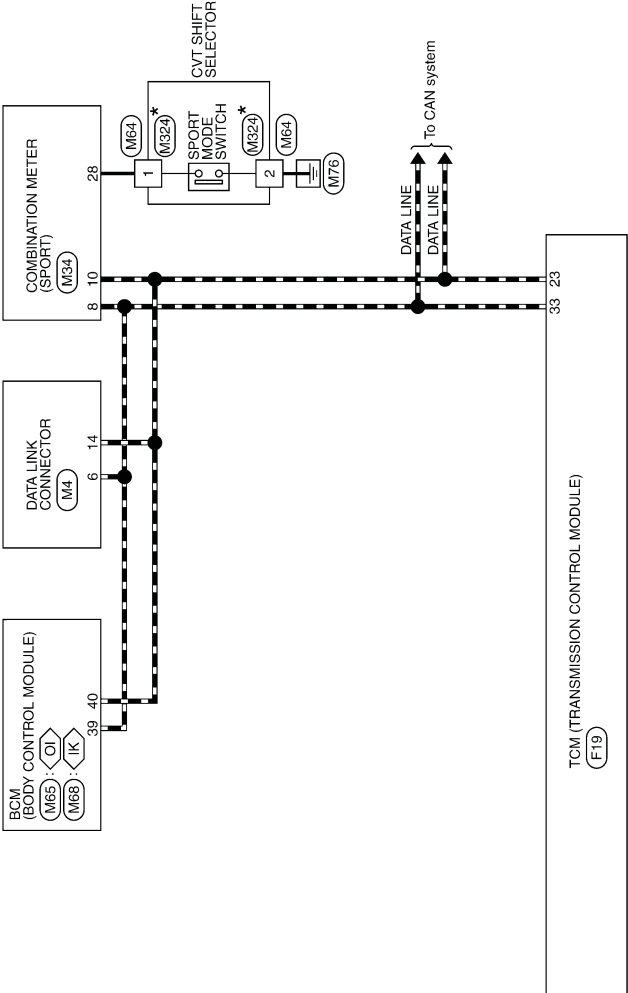
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JCDWM1313GB

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]



JCDWM1314GB

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

CVT CONTROL SYSTEM

Connector No.	E6
Connector Name	WIRE TO WIRE
Connector Type	TH24MW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	SB	-
2	SB	-
3	BR	-
4	L	-
5	B	-
6	P	-
7	L	-
10	R	-
11	L	-
12	G	- [For Europe]
13	BR	- [Except for Europe]
14	BR	-
15	V	-
16	Y	-
17	B	- [With diesel engine]
18	V	- [With gasoline engine]
19	R	- [With gasoline engine]
20	P	-
21	W	-
22	LG	-
23	GR	-
24	BR	-

Connector No.	E8
Connector Name	WIRE TO WIRE
Connector Type	NS12MGY-CS



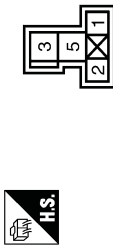
Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	G	-
3	V	-
4	G	-
5	L	-
6	GR	-
7	R	-
8	B	-
9	P	-
10	SB	-
11	B	- [With diesel engine]
12	V	- [With gasoline engine]

Connector No.	E29
Connector Name	DIODE
Connector Type	24335 C3900



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

Connector No.	E57
Connector Name	ELECTRIC OIL PUMP RELAY
Connector Type	MS02EL-M2-LC



Terminal No.	Color of Wire	Signal Name [Specification]
1	G	-
2	Y	-
3	W	-
4	Y	-
5	R	-

Connector No.	E68
Connector Name	WIRE TO WIRE
Connector Type	MODMW-LC



Terminal No.	Color of Wire	Signal Name [Specification]
1	G	-
2	L	-
3	L	-
4	W	- [For South Africa with gasoline engine]
5	R	- [Except for South Africa with gasoline engine]
6	LG	-

Connector No.	E79
Connector Name	WIRE TO WIRE
Connector Type	NS16MW-CS



Terminal No.	Color of Wire	Signal Name [Specification]
1	L	-
3	SB	-
5	Y	-
6	BR	-
7	SB	-
8	B	-
9	SB	-
10	R	-
11	LG	-
13	R	-
15	P	-
16	B	-

JCDWM1315GB

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

CVT CONTROL SYSTEM

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH80PW-CS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
1	R	-
2	R	-
3	W	-
4	P	-
5	R	-
6	LG	-
7	P	-
8	L	-
9	O	-
10	Y	-
16	L	-
17	W	-
18	SB	-
26	LG	-
27	BR	-
28	BR	-
30	G	-
31	SHIELD	-
32	L	-
38	W	-
39	O	-
40	G	-
41	W	-
42	R	-
45	Y	-
46	B	-
51	V	- [With CVT]
51	BR	- [With M/T]
52	P	-
53	GR	-
54	SB	-
55	LG	-
56	L	-
58	R	-
59	P	-
60	G	-
61	O	-
62	G	-

63	R	-
64	W	-
66	Y	-
68	R	-
69	Y	-
70	G	-
71	SB	-
72	LG	-
73	R	-
80	L	-
81	P	-
82	GR	-
83	LG	-
84	V	-
85	Y	-
86	W	-
88	L	-
89	P	-
90	SHIELD	-
91	Y	-
92	Y	-
93	Y	-
94	V	-
95	W	-
96	R	- [With diesel engine]
96	W	- [With gasoline engine]
97	SB	-
98	SB	-
99	P	-
100	GR	-

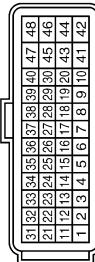
Connector No.	F1
Connector Name	WIRE TO WIRE
Connector Type	NS1FY-C5



Terminal No.	Color of Wire	Signal Name [Specification]
1	LG	-
2	G/W	- [For Europe]
3	G	- [Except for Europe]
4	G/W	-
5	Y	- [For Europe]

5	R/W	- [Except for Europe]
6	R	-
7	R	-
8	B	-
9	BR	-
10	O	-
11	B	- [With diesel engine]
11	P	- [With gasoline engine]
12	V	- [With diesel engine]
12	W	- [With gasoline engine]

Connector No.	F19
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	RH40FB-F28-L-LH



Terminal No.	Color of Wire	Signal Name [Specification]
1	SB	EOP RELAY
2	R/B	L RANGE SW
4	W/B	D RANGE SW
5	L/B	N RANGE SW
6	O	R RANGE SW
7	Y	P RANGE SW
11	LG	SENSOR GND
12	G/W	CVT FLUID TEMP SENSOR
14	G/R	G SENSOR
15	V	-
16	L/R	SECONDARY PRESSURE SENSOR
21	R/W	ROW ASSY (SEL 1)
22	V	ROW ASSY (SEL 3)
23	P	CAN-L
24	BR	OUTPUT SPEED SENSOR
25	BR	EOP CONTROL
26	O	SENSOR SPLY (5V)
30	BR/B	LINE PRESSURE SOL
31	L/W	ROM ASSY (SEL 2)
32	G	EOP STATE
33	L	CAN-H
34	W	SECONDARY SPEED SENSOR
35	LG/R	PRIMARY SPEED SENSOR
37	BR/W	HIGH CLUTCH & REVERSE BRAKE SOL
38	G	TORQUE CONVERTER CLUTCH SOL
39	G/B	LOW BRAKE SOL

40	Y/B	PRIMARY PRESSURE SOL
41	B	GND
42	B	GND
45	LG	BATT
46	LG	BATT
47	R	VIGN
48	R	VIGN

Connector No.	F25
Connector Name	CVT UNIT
Connector Type	RK22FGY



Terminal No.	Color of Wire	Signal Name [Specification]
1	L/W	-
2	BR/B	-
3	Y/B	-
4	G/W	-
6	G	-
14	L/R	-
15	R/W	-
16	O	-
17	V	-
18	V	-
22	G/B	-
23	BR/W	-
25	LG	-

JCDWM1316GB

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

CVT CONTROL SYSTEM

Connector No.	F30
Connector Name	PRIMARY SPEED SENSOR
Connector Type	RK03FB



Terminal No.	Color of Wire	Signal Name [Specification]
1	B	-
2	LG/R	-
3	R	-

Connector No.	F31
Connector Name	SECONDARY SPEED SENSOR
Connector Type	RK03FB



Terminal No.	Color of Wire	Signal Name [Specification]
1	B	-
2	W	-
3	R	-

Connector No.	F43
Connector Name	WIRE TO WIRE
Connector Type	HSQ4MW-2V-DGY



Terminal No.	Color of Wire	Signal Name [Specification]

1	BR	-
2	B	-
3	R	-
4	G	-

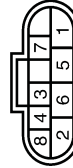
Connector No.	F46
Connector Name	WIRE TO WIRE
Connector Type	TH24FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
12	B	-
13	LG	-
14	R	-
15	G	-
16	W	-
17	BR	-
18	B	-
19	R	-
20	G	-
21	W	-
22	GR	-
23	BR	-
24	BR	-

Terminal No.	Color of Wire	Signal Name [Specification]
1	SB	-
2	SB	-
3	BR	-
4	L	-
5	B	-
6	P	-
7	L	-
10	R/W	-
11	L/R	-
12	G	-
13	LG	-
14	BR	-
15	BR	-
16	G/R	-
17	B	-
18	O	-
19	V	-
20	LG	-
21	L/W	-
22	G	-
23	W	-
24	R/B	-
25	GR	-
26	BR	-

Connector No.	F51
Connector Name	TRANSMISSION RANGE SWITCH
Connector Type	YD00FB-HS4



Terminal No.	Color of Wire	Signal Name [Specification]
1	R	-
2	BR	-
3	R	-
4	Y	-
5	O	-
6	L/B	-
7	W/B	-
8	R/B	-

Connector No.	F57
Connector Name	OUTPUT SPEED SENSOR
Connector Type	RK03FB



Terminal No.	Color of Wire	Signal Name [Specification]
1	B	VSP SENSOR GND
2	BR	VSP SENS
3	R	VSP POWER

Connector No.	F74
Connector Name	WIRE TO WIRE
Connector Type	NS16FW-CS



Terminal No.	Color of Wire	Signal Name [Specification]
1	L	-
3	L	-
5	Y	-
6	L	-
7	R	-
8	B	-
9	SB	-
10	R	-
11	Y	-
13	R	-
15	P	-
16	B	-

Terminal No.	Color of Wire	Signal Name [Specification]
1	L	-
3	L	-
5	Y	-
6	L	-
7	R	-
8	B	-
9	SB	-
10	R	-
11	Y	-
13	R	-
15	P	-
16	B	-

Connector No.	F75
Connector Name	WIRE TO WIRE
Connector Type	MD09FW-LC



Terminal No.	Color of Wire	Signal Name [Specification]
1	G	-
2	G	-
3	L/W	-
4	W	-
5	R	-
6	LG	-

Terminal No.	Color of Wire	Signal Name [Specification]
1	G	-
2	G	-
3	L/W	-
4	W	-
5	R	-
6	LG	-

JCDWM1317GB

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

CVT CONTROL SYSTEM

Connector No.	F203
Connector Name	WIRE TO WIRE
Connector Type	HS4FW-2V-DGY



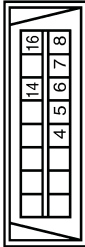
Terminal No.	Color of Wire	Signal Name [Specification]
1	-	-
2	-	-
3	-	-
4	-	-

Connector No.	F204
Connector Name	ELECTRIC OIL PUMP
Connector Type	7283-7449



Terminal No.	Color of Wire	Signal Name [Specification]
1	-	-
2	-	-
3	-	-
4	-	-

Connector No.	M4
Connector Name	DATA LINK CONNECTOR
Connector Type	BD16FW



Terminal No.	Color of Wire	Signal Name [Specification]
4	B/W	-
5	B/W	-
6	L	-
7	GR	-
8	O	-
14	P	-
16	LG	-

Connector No.	M13
Connector Name	G SENSOR
Connector Type	HS03FE-2V



Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	OUTPUT
2	R	GND
3	W	POWER SUPPLY

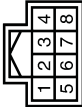
Connector No.	M34
Connector Name	COMBINATION METER
Connector Type	TH40FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	R	BATTERY POWER SUPPLY
2	LG	STOP LAMP SWITCH SIGNAL
3	GR	IGNITION SIGNAL
4	W	FUEL LEVEL SENSOR SIGNAL
7	L	STOP / START OFF SWITCH INDICATOR SIGNAL
8	V	CAN-H
10	P	CAN-L

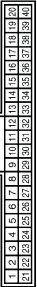
12	L	A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL
13	LG	PASSENGER AIR BAG OFF INDICATOR SIGNAL
14	G	ENGINE COOLANT TEMPERATURE SIGNAL (For Engine)
15	BR	ENGINE COOLANT TEMPERATURE SIGNAL (Engine for Engine)
17	SB	VEHICLE SPEED SIGNAL (8-PULSE) [With 4-speakers]
17	P	VEHICLE SPEED SIGNAL (8-PULSE) [With 6-speakers]
18	G	AUDIO EFFECT SIGNAL
19	BR	STEP LAMP CONTROL SIGNAL
20	SB	CONSOLE LAMP CONTROL SIGNAL
21	B	GROUND
22	B	GROUND
23	B/W	GROUND
24	Y	AMBIENT SENSOR GROUND
26	GR	FUEL LEVEL SENSOR GROUND
27	R	AMBIENT SENSOR SIGNAL
28	P	SPORT MODE SWITCH SIGNAL
29	W	ENTER SWITCH SIGNAL
30	O	SELECT SWITCH SIGNAL
31	G	SECURITY SIGNAL
32	V	AIR BAG SIGNAL
34	V	SEAT BELT BUCKLE SWITCH SIGNAL (DRIVER SIDE)
35	Y	ALTERNATOR SIGNAL
36	LG	BRAKE FLUID LEVEL SWITCH SIGNAL
37	SB	PARKING BRAKE SWITCH SIGNAL

Connector No.	M64
Connector Name	OVT SHIFT SELECTOR
Connector Type	TH08FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	B/W	-
3	SB	-
4	B	-
5	LG	-
6	B	-
7	P	-
8	R	-

Connector No.	M65
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
2	BR	COMBI SW INPUT 5
3	Y	COMBI SW INPUT 4
4	L	COMBI SW INPUT 3
5	G	COMBI SW INPUT 2
6	R	COMBI SW INPUT 1
7	Y	DR DOOR UNLK SENS
9	W	STOP LAMP SW
10	G	REAR WINDOW DEF SW
11	L	IGN SW ACC
12	P	PASSENGER DOOR SW
13	LG	REAR RH DOOR SW
14	O	L & R SENS SERIAL LINK
16	L	DOOR LK STAT IND OUTPUT
18	V	RECEIVE/SENS GND
19	LG	KYLS ENT RECEIV PWR SPLY
20	G	KYLS ENT RECEIV COMM
21	P	NATS ANT AMP
23	G	SECURITY IND LAMP CONT
24	SB	DONGLE / AUDIO LINK
25	LG	NATS ANT AMP
27	W	A/C ON
28	SB	BLOWER FAN ON
29	SB	HAZARD SW
32	P	COMBI SW OUTPUT 5
33	V	COMBI SW OUTPUT 4
34	W	COMBI SW OUTPUT 3
35	GR	COMBI SW OUTPUT 2
36	LG	COMBI SW OUTPUT 1
37	Y	KEY SW
38	O	IGN SW ON
39	L	CAN-H
40	P	CAN-L

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

CVT CONTROL SYSTEM

Connector No.	M68
Connector Name	BCM BODY CONTROL MODULE
Connector Type	TH40FB-NH



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	GR	REAR WINDOW DEF RELAY CONT
2	BR	COMBI SW INPUT 5
3	Y	COMBI SW INPUT 4
4	L	COMBI SW INPUT 3
5	G	COMBI SW INPUT 2
6	R	COMBI SW INPUT 1
7	W	STOP LAMP SW 1
12	P	PASSENGER DOOR SW
13	LG	REAR RH DOOR SW
14	O	L & R SENS SERIAL LINK
15	G	REAR WINDOW DEF SW
18	V	RECEIV/SENS GND
19	LG	KYLS ENT RECEIV PMR SP LY
20	G	KYLS ENT RECEIV COMM
21	P	NATS ANT AMP
22	W	KYLS ENT RECEIV RSSI
23	G	SECURITY IND LAMP CONT
24	SB	DONGLE LINK
25	LG	NATS ANT AMP
27	W	A/G ON
28	SB	BLOWER FAN ON
29	SB	HAZARD SW
31	V	DR DOOR UNLK SENS
32	P	COMBI SW OUTPUT 5
33	V	COMBI SW OUTPUT 4
34	W	COMBI SW OUTPUT 3
35	GR	COMBI SW OUTPUT 2
36	LG	COMBI SW OUTPUT 1
37	R	DETENT SW
38	O	IGN F/B
39	L	CAN-H
40	P	CAN-L

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS (6-TM4)



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	R	-
2	R	-
3	W	-
4	BR	-
5	R	-
6	LG	-
7	GR	-
8	O	-
9	R	-
10	G	-
16	L	-
17	W	-
18	P	-
26	R	-
27	BR	-
28	BR	-
30	Y	-
31	SHIELD	-
32	L	-
38	BR	-
39	L	-
40	G	-
41	W	-
42	R	-
43	Y	-
45	B	-
48	BR	-
51	BR	-
52	P	-
53	GR	-
54	L	-
55	V	-
56	L	-
58	BR	-
59	LG	-
60	R	-
61	Y	-
62	SB	-
63	R	-

7	LG	-
8	R	-

64	V	-
66	G	-
68	R	-
69	Y	-
70	W	-
71	R	-
72	P	-
72	Y	- [With auto A/C]
73	SB	- [With manual A/C]
80	L	-
81	P	-
82	GR	-
83	LG	-
84	Y	-
85	W	-
86	R	-
88	L	-
89	P	-
90	SHIELD	-
91	P	-
92	L	-
93	Y	-
94	L	-
95	G	-
96	R	- [With diesel engine]
96	W	- [With gasoline engine]
97	SB	-
98	R	-
99	P	-
100	R	-

Connector No.	M324
Connector Name	CVT SHIFT SELECTOR
Connector Type	TH68MW-NH



4	3	2	1
8	7	6	5

Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	-
2	Y	-
3	G	-
4	G	-
5	W	-
6	L	-

JCDWM1319GB

INFOID:000000007747610

TYPE D

TYPE D : Wiring diagram

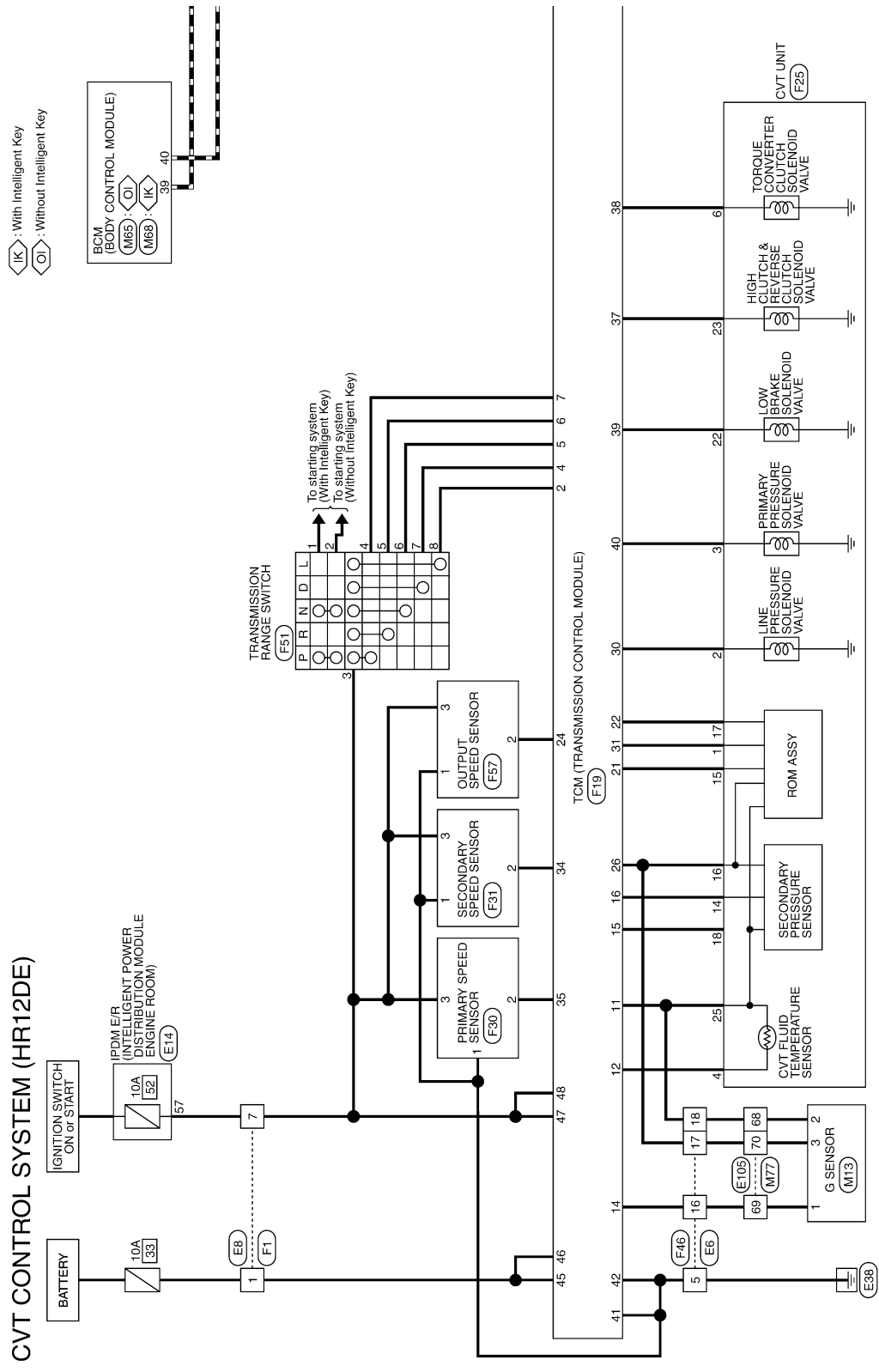
HR12DE

For connector terminal arrangements, harness layout, and alphabets in a (option abbreviation; if not described in wiring diagram), refer to [GI-12, "Connector Information"](#).

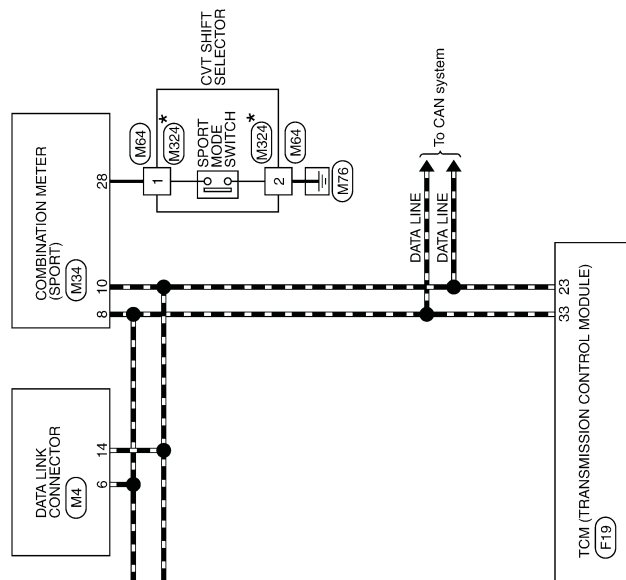
CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]



* : This connector is not shown in "Harness Layout".



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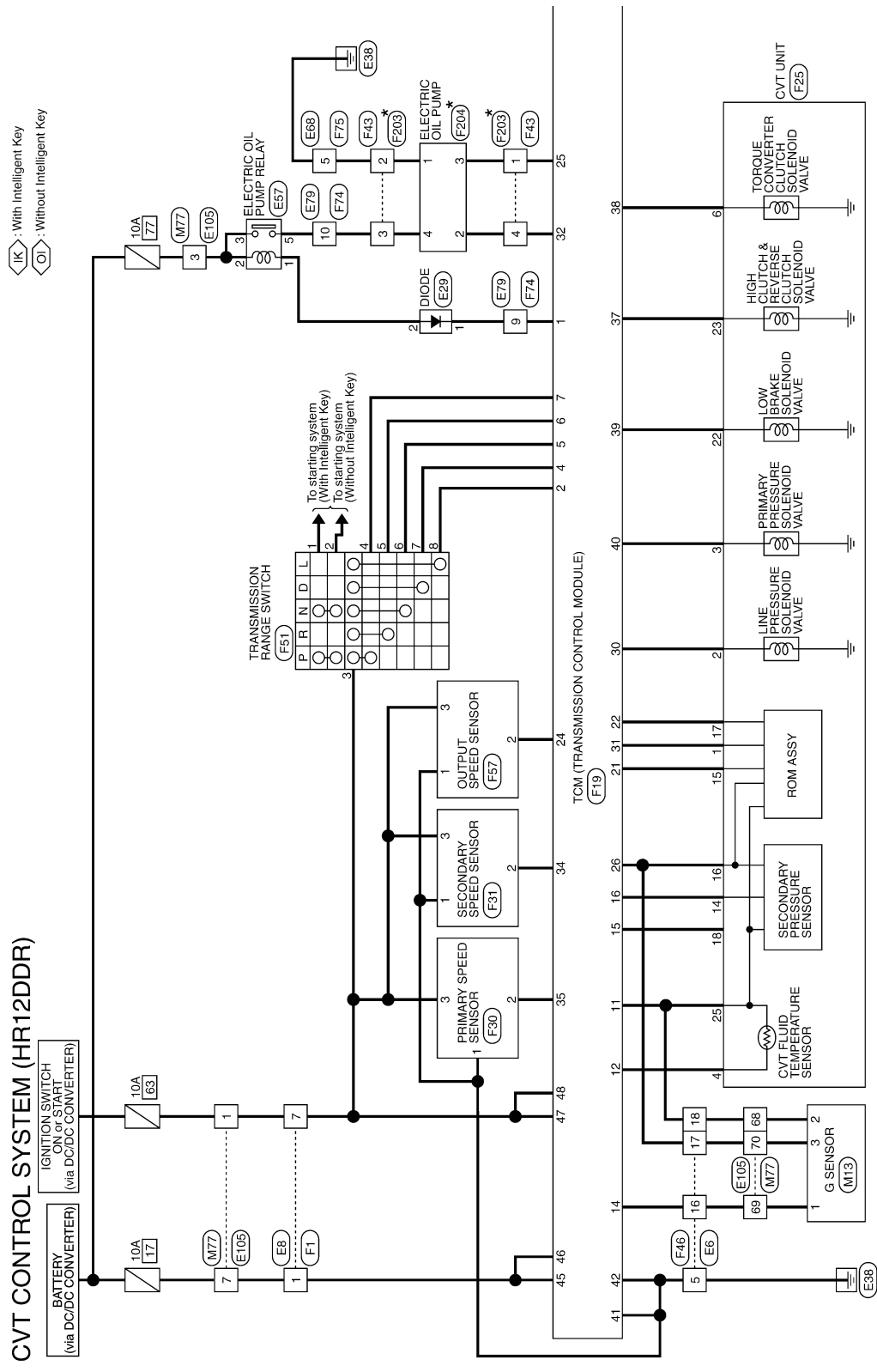
HR12DDR

For connector terminal arrangements, harness layout, and alphabets in a  (option abbreviation; if not described in wiring diagram), refer to [GI-12, "Connector Information"](#).

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

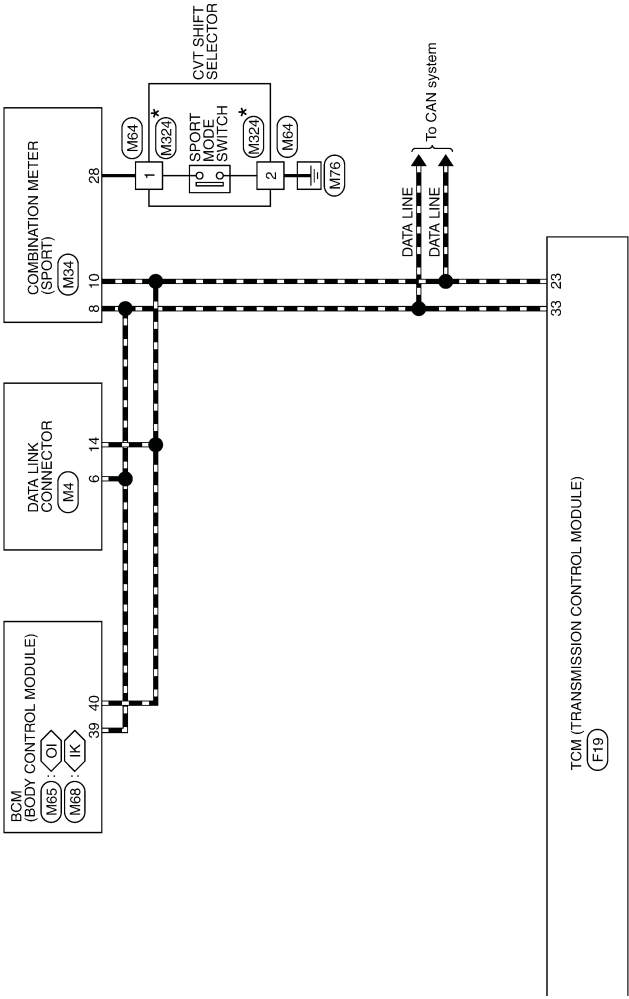
[CVT: RE0F11A]



CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]



JRDWC0128GB

CVT SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

CVT SHIFT LOCK SYSTEM

Application Notice

INFOID:000000007645390

Wiring diagram type	Destination
TYPE A	• Models for Thailand • Models for general area from Thailand plant* • Models for China • Models for India (HR12DE engine models): Vehicle production: From May 2010 to April 2011
TYPE B	• Models for Australia • Models for New Zealand • Models for Hong Kong • Models for India (K9K engine models): Vehicle production: From October 2010 to April 2011 • Models for Europe (Without stop/start system): Vehicle production: From July 2010 to June 2011 • Models for general area from India plant*
TYPE C	• Models for Europe (With stop/start system): Vehicle production: From April 2011 to June 2011 • Models for South Africa
TYPE D	• Models for India: Vehicle production: From May 2011 • Models for Lebanon and Jordan • Models for Europe: Vehicle production: From July 2011

*: Refer to [GI-26, "Information About Identification or Model Code"](#) to identify a production plant.

TYPE A

CVT SHIFT LOCK SYSTEM

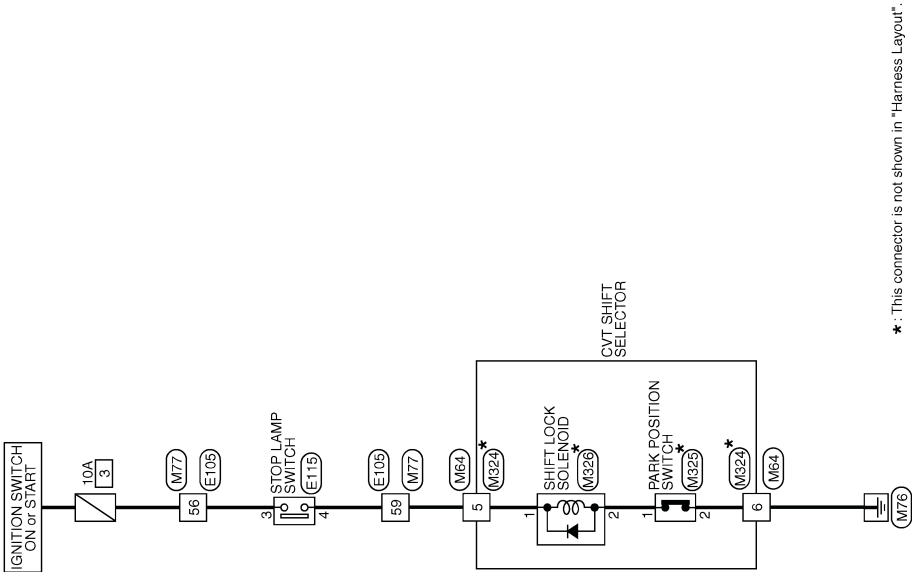
< WIRING DIAGRAM >

[CVT: RE0F11A]

TYPE A : Wiring diagram

INFOID:000000006324997

CVT SHIFT LOCK SYSTEM



2010/05/24

JCDWM1102GB

CVT SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

CVT SHIFT LOCK SYSTEM

Connector No.	E103
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

Terminal No.	Color of Wire	Signal Name [Specification]
1	R	-
2	R	-
3	W	-
4	BR	- [For China]
4	P	- [For India]
4	G	- [Except for India and China]
5	R	-
6	LG	-
7	P	-
8	L	-
9	O	- [For India]
9	BG	- [Except for India]
10	Y	-
18	SB	-
28	BR	-
35	SB	-
36	LG	-
42	BG	-
43	P	-
51	V	-
52	P	-
53	GR	-
54	SB	-
55	LG	-
56	R	- [For China]
56	L	- [Except for China]
58	R	-
59	P	-
60	G	-
61	O	- [For India]
61	BG	- [Except for India]
62	G	-
63	R	-
64	W	-
65	L	-
66	Y	-
68	R	-
69	Y	-

Connector No.	M64
Connector Name	CVT SHIFT SELECTOR
Connector Type	TH08FW-NH



1	2	3	4	5	6	7	8

Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	B/W	-
3	SB	-
4	B	-
5	LG	-
6	B	-
7	P	-
8	R	-

Connector No.	E115
Connector Name	STOP LAMP SWITCH
Connector Type	M04FW-LG



3	4	1	2

Terminal No.	Color of Wire	Signal Name [Specification]
1	SB	-
2	LG	-
3	BG	- [For China]
3	L	- [Except for China]
4	P	-

JCDWM1103GB

A
B
C
TM
E
F
G
H
I
J
K
L
M
N
O
P

CVT SHIFT LOCK SYSTEM

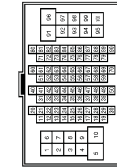
< WIRING DIAGRAM >

[CVT: RE0F11A]

TYPE B

CVT SHIFT LOCK SYSTEM

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-GS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
1	R	-
2	R	-
3	W	-
4	BR	-
5	R	-
6	LG	-
7	GR	-
8	O	- [For India]
9	BG	- [Except for India]
10	R	-
11	G	-
12	SB	- [With Intelligent Key]
13	P	- [Without Intelligent Key]
14	BR	-
15	R	-
16	Y	-
17	GR	-
18	LG	-
19	BR	-
20	P	-
21	R	-
22	W	-
23	SB	-
24	R	-
25	P	-
26	BR	-
27	L	-
28	BR	- [For China]
29	LG	- [Except for China]
30	R	-
31	BG	- [For China]
32	R	- [Except for China]
33	Y	- [For China]
34	W	- [Except for China]
35	G	-
36	SB	-
37	R	-
38	V	-
39	G	-
40	R	-
41	Y	-
42	W	-
43	G	-
44	R	-
45	W	-
46	L	-
47	Y	-

70	W	-
71	R	-
72	P	- [With auto A/C]
73	Y	- [With manual A/C]
74	L	-
75	B	-
76	L	-
77	P	-
78	GR	-
79	LG	-
80	Y	-
81	BR	- [For China]
82	W	- [Except for India and China]
83	R	-
84	L	-
85	P	-
86	SHIELD	-
87	P	-
88	BR	-
89	L	-
90	BG	- [For China]
91	L	- [Except for China]
92	G	- [With Intelligent Key]
93	SB	- [Without Intelligent Key]
94	R	-
95	P	-
96	W	-
97	SB	-
98	R	-
99	P	-
100	R	-

Connector No.	M324
Connector Name	CVT SHIFT SELECTOR
Connector Type	TH80MW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	-
2	Y	-
3	G	-
4	G	-
5	W	-
6	L	-

7	LG	-
8	R	-

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



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

Connector No.	M226
Connector Name	SHIFT LOCK SOLENOID
Connector Type	-



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

CVT SHIFT LOCK SYSTEM

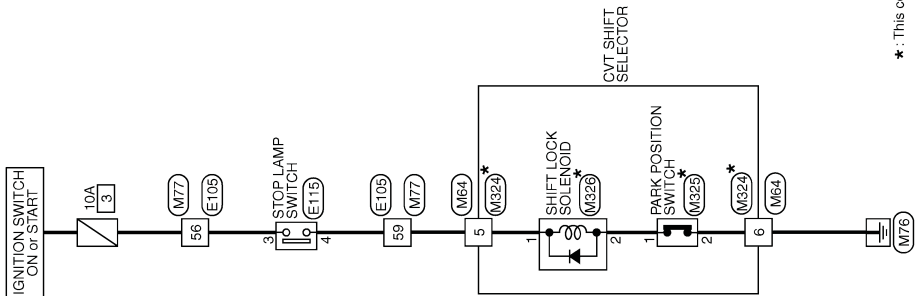
< WIRING DIAGRAM >

[CVT: RE0F11A]

TYPE B : Wiring Diagram

INFOID:000000006882052

CVT SHIFT LOCK SYSTEM



★ : This connector is not shown in "Harness Layout".

2010/05/24

JCDWM1102GB

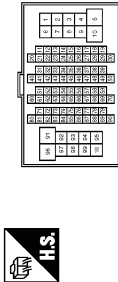
CVT SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

CVT SHIFT LOCK SYSTEM

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
4	G	- [For Australia, New Zealand and Hong Kong]
6	P	- [Except for Australia, New Zealand and Hong Kong]
8	LG	-
9	BG	- [For Australia, New Zealand and Hong Kong]
9	O	- [Except for Australia, New Zealand and Hong Kong]
10	Y	-
31	SHIELD	-
32	L	-
38	W	-
39	O	-
40	G	-
41	W	-
42	R	-
45	Y	-
46	B	-
51	V	-
52	P	-
53	GR	-
54	SB	-
55	LG	-
56	L	-
58	R	-
59	P	-
60	G	-
61	BG	- [For Australia, New Zealand and Hong Kong]
61	O	- [Except for Australia, New Zealand and Hong Kong]
62	G	-
63	R	-
64	W	-
65	L	-
66	Y	-
68	R	-
69	Y	-
70	G	-
71	SB	-
72	LG	-
73	R	-

74	BR	-
75	L	-
76	B	-
80	L	-
81	P	-
82	GR	-
83	LG	-
84	V	-
85	Y	-
86	W	-
88	L	-
89	P	-
90	SHIELD	-
91	L	-
92	Y	-
94	V	-
95	W	-
96	W	-
97	SB	-
98	SB	-
99	P	-
100	GR	-

Connector No.	E115
Connector Name	STOP LAMP SWITCH
Connector Type	MD4FW-LC



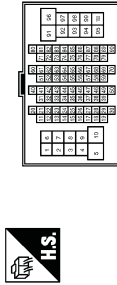
Terminal No.	Color of Wire	Signal Name [Specification]
1	SB	-
2	LG	-
3	L	-
4	P	-

Connector No.	M64
Connector Name	CVT SHIFT SELECTOR
Connector Type	TH80FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	B/W	-
3	SB	-
4	B	-
5	LG	-
6	B	-
7	P	-
8	R	-

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
4	BR	-
6	LG	-
8	BG	- [For Australia, New Zealand and Hong Kong]
8	O	- [Except for Australia, New Zealand and Hong Kong]
9	R	-
10	G	-
31	SHIELD	-
32	L	-
38	BR	-
39	L	-
40	G	-
41	W	-
42	R	-
45	Y	-

46	B	-
51	BR	-
52	P	-
53	GR	-
54	L	-
55	V	-
56	L	-
58	BR	-
59	LG	-
60	R	-
61	Y	-
62	SB	-
63	R	-
64	V	-
65	R	-
66	G	-
68	R	-
69	Y	-
70	W	-
71	R	-
72	P	-
72	Y	- [With auto A/G]
72	Y	- [With manual A/G]
73	SB	-
74	GR	-
75	L	-
76	B	-
80	L	-
81	P	-
82	GR	-
83	LG	-
84	Y	-
85	W	-
86	R	-
88	L	-
89	P	-
90	SHIELD	-
91	P	-
92	L	-
94	L	-
95	G	-
96	W	-
97	SB	-
98	R	-
99	P	-
100	R	-

JCDWM1220GB

CVT SHIFT LOCK SYSTEM

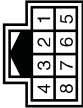
< WIRING DIAGRAM >

[CVT: RE0F11A]

TYPE C

CVT SHIFT LOCK SYSTEM

Connector No.	M324
Connector Name	CVT SHIFT SELECTOR
Connector Type	TH08MW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	-
2	Y	-
3	G	-
4	G	-
5	W	-
6	L	-
7	LG	-
8	R	-

Connector No.	M325
Connector Name	PARK POSITION SWITCH
Connector Type	-



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

Connector No.	M326
Connector Name	SHIFT LOCK SOLENOID
Connector Type	-



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

JCDWA0825GB

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CVT SHIFT LOCK SYSTEM

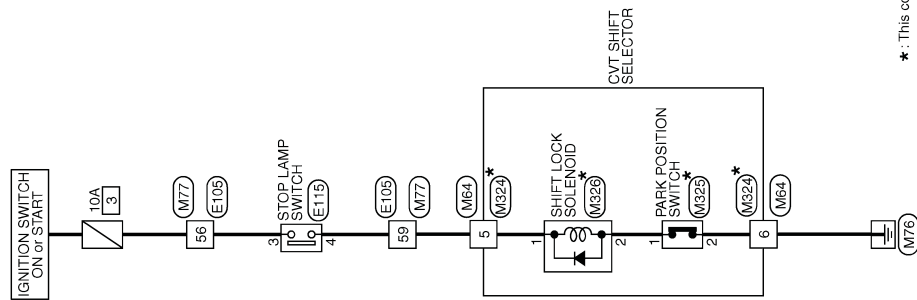
< WIRING DIAGRAM >

[CVT: RE0F11A]

TYPE C : Wiring Diagram

INFOID:000000007231051

CVT SHIFT LOCK SYSTEM



★ : This connector is not shown in "Harness Layout".

2010/05/24

JCDWM1102GB

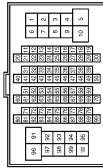
CVT SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

CVT SHIFT LOCK SYSTEM

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
1	R	-
2	R	-
3	W	-
4	P	-
5	R	-
6	LG	-
7	P	-
8	L	-
9	O	-
10	Y	-
16	L	-
17	W	-
18	SB	-
26	LG	-
27	BR	-
28	BR	-
30	G	-
31	SHIELD	-
32	L	-
38	W	-
39	O	-
40	G	-
41	W	-
42	R	-
43	Y	-
46	B	-
51	V	- [With CVT]
51	BR	- [With M/T]
52	P	-
53	GR	-
54	SB	-
55	LG	-
56	L	-
58	R	-
59	P	-
60	G	-
61	O	-
62	G	-

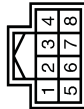
63	R	-
64	W	-
66	Y	-
68	R	-
69	Y	-
70	G	-
71	SB	-
72	LG	-
73	R	-
80	L	-
81	P	-
82	GR	-
83	LG	-
84	V	-
85	Y	-
86	W	-
88	L	-
89	P	-
90	SHIELD	-
91	L	-
92	Y	-
93	Y	-
94	V	-
95	W	-
96	R	- [With diesel engine]
96	W	- [With gasoline engine]
97	SB	-
98	SB	-
99	P	-
100	GR	-

Connector No.	E115
Connector Name	STOP LAMP SWITCH
Connector Type	MD6FW-LG



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

Connector No.	M64
Connector Name	CVT SHIFT SELECTOR
Connector Type	TH80FW-NH



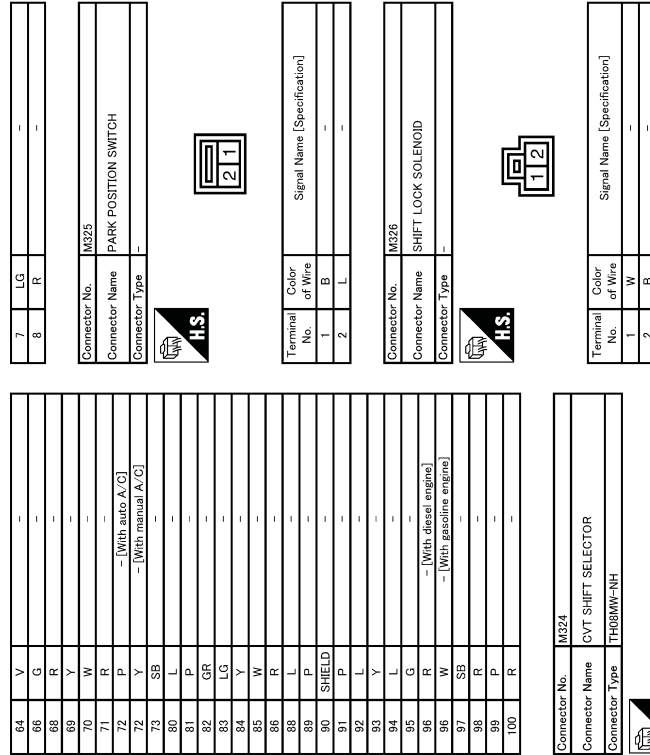
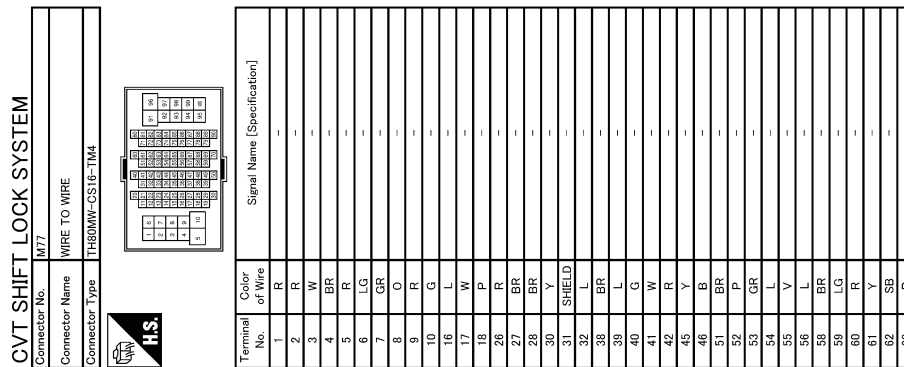
Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	B/W	-
3	SB	-
4	B	-
5	LG	-
8	B	-
7	P	-
8	R	-

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CVT SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]



TYPE D

TYPE D : Wiring diagram

For connector terminal arrangements, harness layout, and alphabets in a (option abbreviation; if not described in wiring diagram), refer to [GI-12, "Connector Information"](#).

JCDWM1321GB

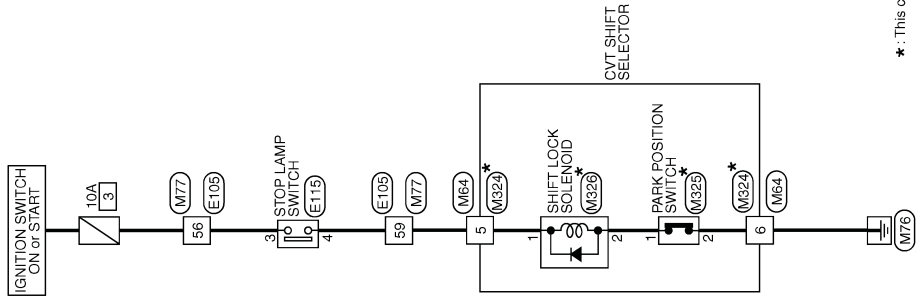
INFOID:000000007747611

CVT SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F11A]

CVT SHIFT LOCK SYSTEM



*: This connector is not shown in "Harness Layout".

2010/05/24

JCDWM1102GB

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BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Flowchart of Trouble Diagnosis

INFOID:000000006324998

NOTE:

"DTC" includes DTC at the 1st trip.

1.OBTAIN INFORMATION ABOUT SYMPTOM

Refer to [TM-433, "Question sheet"](#) and interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred) as much as possible when the customer brings in the vehicle.

>> GO TO 2.

2.CHECK DTC

1. Before checking the malfunction, check whether any DTC exists.
2. If DTC exists, perform the following operations.
 - Records the DTCs. (Print out using CONSULT and affix to the Work Order Sheet.)
 - Erase DTCs.
 - Check the relation between the cause found by DTC and the malfunction information from customer. [TM-550, "Symptom Table"](#) can be used effectively.
3. Check the relevant information including STI, etc.

Do malfunction information and DTC exist?

Malfunction information and DTC exist.>>GO TO 3.

Malfunction information exists but no DTC.>>GO TO 4.

No malfunction information, but DTC exists.>>GO TO 5.

3.REPRODUCE MALFUCTION SYSTEM

Check the malfunction described by the customer on the vehicle.

Check if the behavior is fail safe or normal operation. Refer to [TM-385, "Fail-safe"](#).

Interview sheet can be used effectively when reproduce malfunction conditions. Refer to [TM-433, "Question 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.

Check if the behavior is fail safe or normal operation. Refer to [TM-385, "Fail-safe"](#).

Interview sheet can be used effectively when reproduce malfunction conditions. [TM-433, "Question 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 [TM-392, "DTC Inspection Priority Chart"](#) when multiple DTCs are detected, and then determine the order for performing the diagnosis.

Is any DTC detected?

YES >> GO TO 7.

NO >> Follow [GI-51, "Intermittent Incident"](#) to check.

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

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[CVT: RE0F11A]

Use [TM-550, "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 is reproduced.)>>GO TO 6.

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

Question sheet

INFOID:000000006324999

DESCRIPTION

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

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

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

KEY POINTS

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

SEF907L

Worksheet Sample

Question sheet						
Customer's name	MR/MS	Registration number		Initial year registration	Year	Month day
		Vehicle type		Chassis No.		
Storage date	Year	Month day	Engine	Mileage		km
Symptom			☐ Vehicle does not start. (☐ R position ☐ D position ☐ L position ☐ M position)			
			☐ Upshifting does not occur. ☐ Downshifting does not occur.			
			☐ Lock-up malfunction			
			☐ Shift point is too high. ☐ Shift point is too low.			
			☐ Shift shock (☐ N⇒D ☐ Lock-up ☐ R, D, L and M position)			
			☐ Slip (☐ N⇒D ☐ Lock-up ☐ R, D, L and M position)			
			☐ Noise ☐ Vibration			
			When selector lever position is shifted, shift pattern does not change.			
			☐ Other ()			
First occurrence			☐ Recently (as from month of year)			
Frequency of occurrence			☐ Always ☐ Under certain conditions ☐ Sometimes (time(s)/day)			

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[CVT: RE0F11A]

Question sheet						
Customer's name	MR/MS	Registration number		Initial year registration	Year	Month day
		Vehicle type		Chassis No.		
Storage date	Year	Month day	Engine		Mileage	km
Climate conditions		Irrelevant				
Weather		☐ Clear ☐ Cloud ☐ Rain ☐ Snow ☐ Others)				
Temperature		☐ Hot ☐ Warm ☐ Cool ☐ Cold ☐ Temperature (Approx. °C)				
Relative humidity		☐ High ☐ Moderate ☐ Low				
Transaxle condition		☐ In cold-start ☐ During warm-up (approx. °C) ☐ After warm-up ☐ Engine speed: rpm				
Road conditions		☐ Urban area ☐ Suburb area ☐ Highway ☐ Mountainous road (uphill or downhill)				
Operating condition, etc.		Irrelevant ☐ When engine starts ☐ During idling ☐ During driving ☐ During acceleration ☐ At constant speed driving ☐ During deceleration ☐ During cornering (RH curve or LH curve)				
Other conditions						

ADDITIONAL SERVICE WHEN REPLACING TCM

< BASIC INSPECTION >

[CVT: RE0F11A]

ADDITIONAL SERVICE WHEN REPLACING TCM

Description

INFOID:000000006325000

Always perform the following items when the TCM is replaced.

LOADING OF CALIBRATION DATA

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

CALIBRATION OF G SENSOR

- TCM stores calibration data (inherent characteristic value) of G sensor to provide accurate control. Therefore, it is required to perform calibration of G sensor after the replacement of TCM.

BLEEDING OF ELECTRIC OIL PUMP (WITH STOP/START SYSTEM)

- If TCM is replaced, air bleeding of the electric oil pump memorized in TCM is reset. The data monitor displays "INCOMP". It is necessary to bleed air to "COMP" the value.

CAUTION:

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

If the TCM is replaced in advance, perform "ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY" after "G sensor calibration".

Procedure

INFOID:000000006325001

1.CHECK WORK CONTENTS

Replacing only the TCM>>GO TO 2.

Replacing the TCM after the transaxle assembly is replaced>>GO TO 2.

Replacing the transaxle assembly after the TCM is replaced>>GO TO 6.

2.LOAD CALIBRATION DATA

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

NOTE:

Displayed approximately 4 – 5 seconds after the selector lever is moved to the "P" position.

Does the shift position indicator display "P"?

YES >> GO TO 3.

NO >> GO TO 5.

3.PERFORM AIR BLEEDING OF ELECTRIC OIL PUMP (WITH STOP/START SYSTEM)

Refer to [TM-441, "Procedure"](#).

>> GO TO 4.

4.CALIBRATE G SENSOR

Refer to [TM-440, "Procedure"](#).

>> WORK END

5.DETECT MALFUNCTION ITEMS

Check the following items:

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

Is the inspection result normal?

YES >> GO TO 2.

ADDITIONAL SERVICE WHEN REPLACING TCM

[CVT: RE0F11A]

< BASIC INSPECTION >

NO >> Repair or replace the malfunctioning parts.

6. CALIBRATE G SENSOR

Refer to [TM-440, "Procedure"](#).

>> GO TO 7.

7. PERFORM "ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY"

Refer to [TM-437, "Procedure"](#).

>> WORK END

ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F11A]

ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

Description

INFOID:000000006325002

Perform the following work after the transaxle assembly is replaced.

ERASING AND LOADING OF CALIBRATION DATA

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

ERASING OF LEARNED VALU DATA

- TCM learns indicated pressure for appropriate control of the transaxle assembly and records the learned values. For this reason, the leaned values stored in TCM must be erased after replacing a transaxle assembly.

ERASING OF CVT FLUID DEGRADATION LEVEL DATA

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

BLEEDING OF ELECTRIC OIL PUMP (WITH STOP/STERT SYSTEM)

- The electric oil pump suctions oil from the oil pan through the sub-strainer. If air is contained in the sub-strainer, oil pressure cannot be generated and it is necessary to bleed air.

Procedure

INFOID:000000006325003

1. INITIALIZE TCM

④ With CONSULT

1. Set parking brake.
2. Turn ignition switch ON.
3. Select "Work Support" in "TRANSMISSION".
4. Select "ERASE MEMORY DATA".
5. While maintaining the conditions below, touch "Start".
 - Vehicle stop status
 - With engine stopped
 - Selector lever: "R" position
 - Accelerator pedal: Depressed

NOTE:

Select "Start" and complete within approximately 20 seconds.

Is "COMPLETED" displayed?

YES >> GO TO 2.

NO >> Turn the ignition switch OFF and wait for a minimum of 10 seconds then perform the work again.

2. CHECK AFTER TCM IS INITIALIZED

④ With CONSULT

1. Turn ignition switch OFF with the selector lever in "R" position and wait for 10 seconds or more.
2. Turn ignition switch ON with the selector lever in "R" position.

CAUTION:

Never start the engine.

3. Select "Special function" in "TRANSMISSION".
4. Select "CALIB DATA".
5. Check that indicated value of "CALIB DATA" is equal to the value shown in the following table.

Item name	Display value	Item name	Display value
UNIT CLB ID1	00	MAP NO HC/RB	00
UNIT CLB ID2	00	MAP NO L/B	00
UNIT CLB ID3	00	OFFSET2 LU	0
UNIT CLB ID4	00	OFFSET2 PL	0

ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F11A]

Item name	Display value	Item name	Display value
UNIT CLB ID5	00	OFFSET2 PRI	0
UNIT CLB ID6	00	OFFSET2 H/R	0
UNIT CLB ID7	00	OFFSET2 L/B	0
UNIT CLB ID8	00	INIT OFFSET H/R A	0
UNIT CLB ID9	00	INIT OFFSET H/R B	0
UNIT CLB ID10	00	INIT OFFSET H/R C	0
UNIT CLB ID11	00	INIT OFFSET H/R D	0
GAIN LU	256	INIT OFFSET H/R E	0
GAIN PL	256	INIT OFFSET H/R F	0
GAIN PRI	256	INIT OFFSET LB A	0
GAIN HC/RB	256	INIT OFFSET LB B	0
GAIN L/B	256	INIT OFFSET LB C	0
OFFSET LU	0	INIT OFFSET LB D	0
OFFSET PL	0	INIT OFFSET LB E	0
OFFSET PRI	0	INIT OFFSET LB F	0
OFFSET HC/RB	0	LB INITIALIZE LEARN	-1
OFFSET L/B	0	HC INITIALIZE LEARN	-1
MAP NO LU	00	LB INITIALIZE TEMP	FF
MAP NO PL	00	LB INITIALIZE TEMP	FF
MAP NO PRI	00		

Is the indicated value of "CALIB DATA" equal to the value shown in the table?

YES >> GO TO 3.

NO >> GO TO 1.

3. LOAD CALIBRATION DATA

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

NOTE:

Displayed approximately 4 – 5 seconds after the selector lever is moved to the "P" position.

Does shift position indicator display "P"?

YES >> GO TO 5.

NO >> GO TO 4.

4. DETECT MALFUNCTION ITEMS

Check the following items:

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

Is the inspection result normal?

YES >> GO TO 1.

NO >> Repair or replace the malfunctioning parts.

5. ERASE CVT FLUID DEGRADATION LEVEL DATA

 With CONSULT

- Select "WORK SUPPORT" in "TRANSMISSION".
- Select "CONFORM CVTF DETERIORATION".
- Touch "Clear".

>> GO TO 6.

6. BLEED ELECTRIC OIL PUMP (WITH STOP/START SYSTEM)

Refer to [TM-441, "Procedure"](#).

ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F11A]

>> WORK END

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CALIBRATION OF G SENSOR

Description

INFOID:000000006325004

TCM stores calibration data (inherent characteristic value) of G sensor to provide accurate control. Therefore, it is required to perform calibration of G sensor after the following work is performed.

- Removal/installation or replacement of G sensor
- Replacement of TCM

Procedure

INFOID:000000006325005

1. PREPARATION BEFORE CALIBRATION PROCEDURE

1. Park the vehicle on a level surface.
2. Adjust air pressure of all tires to the specified pressure. [WT-9, "Tire Air Pressure"](#).

>> GO TO 2.

2. CALIBRATE G SENSOR

① With CONSULT

1. Turn ignition switch ON.
CAUTION:
Never start engine.
2. Select "Work Support" in "TRANSMISSION".
3. Select "G SENSOR CALIBRATION".
4. Touch "Start".
CAUTION:
Never swing the vehicle during "G sensor calibration".

Is "COMPLETED" displayed?

- YES >> GO TO 3.
NO >> Perform steps 1 and 2 again.

3. CHECK DTC

① With CONSULT

1. Turn ignition switch OFF and wait for 10 seconds.
2. Turn ignition switch ON.
3. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "P1586" or "P1588" detected?

- YES >> Go to [TM-393, "DTC Index"](#).
NO >> Calibration end

AIR BLEEDING OF ELECTRIC OIL PUMP

Description

INFOID:000000006325006

The electric oil pump suctions oil from the oil pan through the sub-strainer. If air is contained in the sub-strainer, oil pressure cannot be generated and it is necessary to bleed air.

Procedure

INFOID:000000006325007

1. PREPARATION BEFORE WORK

1. Start the engine and warm it up.
2. After warm-up, stop the engine and wait for 60 seconds or more.

>> GO TO 2.

2. BLEED ELECTRIC OIL PUMP

 With CONSULT

1. Turn ignition switch ON.
CAUTION:
Never start the engine.
2. Shift the selector lever to the P position.
3. Select "WORK SUPPORT" in "TRANSMISSION".
4. Select "ELECTRIC O.P. AIR BLEEDING".
5. Touch "Start".

CAUTION:
Never start the engine during air bleeding.

NOTE:
It may take approximately 20 seconds until completion.

Is "COMPLETED" displayed?

YES >> GO TO 3.

NO >> Turn OFF the ignition switch and wait for 10 seconds or more. Then, start the work again.

3. CHECK THE COMPLETION OF BLEEDING ELECTRIC OIL PUMP (PART 1)

 With CONSULT

1. Start the engine.
2. Wait for 10 seconds.
3. Turn ignition switch OFF.
4. Wait for 10 seconds.
5. Turn ignition switch ON.
CAUTION:
Never start the engine.
6. Select "Data Monitor" in "TRANSMISSION".
7. Select "AIR BLDING STATE".

Is "COMP" displayed?

YES >> GO TO 4.

NO >> Turn OFF the ignition switch and wait for 10 seconds or more. Then, start the work again.

4. CHECK THE COMPLETION OF BLEEDING ELECTRIC OIL PUMP (PART 2)

1. Start the engine.
2. Activate stop/start system.

Does the stop/start system start?

YES >> WORK END

NO >> Check DTC "P188F". Refer to [TM-530, "DTC Logic"](#).

CVT FLUID

Replacement

INFOID:000000006325008

CVT fluid

: Refer to [TM-595, "General Specification"](#).

Fluid capacity

: Refer to [TM-595, "General Specification"](#).**CAUTION:**

- Use only Genuine NISSAN CVT Fluid NS-2. Using transmission fluid other than Genuine NISSAN CVT Fluid NS-2 will damage the CVT, which is not covered by the (NISSAN new vehicle limited) warranty.
- Always use shop paper. Never use shop cloth.
- Replace a drain plug gasket with new ones at the final stage of the operation when installing.
- Use caution when looking into the drain hole as there is a risk of dripping fluid entering the eye.
- After replacement, always perform CVT fluid leakage check.

1. Select "Data Monitor" in "TRANSMISSION" using CONSULT.
2. Select "FLUID TEMP" and confirm that the CVT fluid temperature is 40°C (104°F) or less.
3. Check that the selector lever is in the "P" position, then completely engage the parking brake.
4. Lift up the vehicle.
5. Remove the drain plug and overflow tube and drain the CVT fluid from the oil pan. [TM-571, "Removal and Installation"](#).
6. Install the charging pipe set (KV311039S0) (A) into the drain hole.

CAUTION:**Tighten the charging pipe by hand.**

7. Install the ATF changer hose (B) to the charging pipe.

CAUTION:**Press the ATF changer hose all the way onto the charging pipe until it stops.**

8. Fill approximately 3 liter (2-5/8 Imp qt) of the CVT fluid.
9. Remove the ATF changer hose and charging pipe, then install the drain plug.

NOTE:

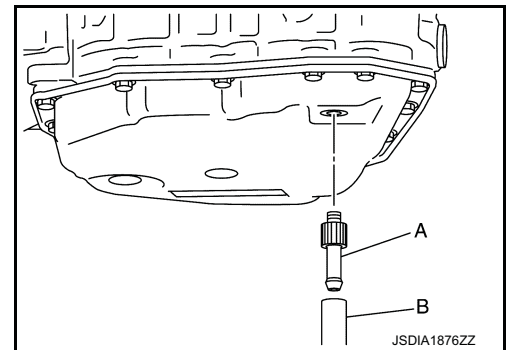
Perform this work quickly because CVT fluid leaks.

10. Lift down the vehicle.
11. Start the engine.
12. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "L", and shift it to the "P" position.

NOTE:

Hold the lever at each position for 5 seconds.

13. Check that the CONSULT "Data monitor" in "FLUID TEMP" is 35°C (95°F) to 45°C (113°F).
14. Stop the engine.
15. Lift up the vehicle.
16. Remove the drain plug, and then drain CVT fluid from oil pan.
17. Repeat steps 6 to 16 (one time).
18. Install the overflow tube. Refer to [TM-571, "Removal and Installation"](#).

CAUTION:**Be sure to tighten to the specified torque. If it is not tightened to the specified torque, the tube may be damaged.**

CVT FLUID

< BASIC INSPECTION >

[CVT: RE0F11A]

19. Install the charging pipe set (KV311039S0) (A) into the drain hole.

CAUTION:

Tighten the charging pipe by hand.

20. Install the ATF changer hose (B) to the charging pipe.

CAUTION:

Press the ATF changer hose all the way onto the charging pipe until it stops.

21. Fill approximately 3 liter (2-5/8 Imp qt) of the CVT fluid.

22. Remove the ATF changer hose and charging pipe, then install the drain plug.

NOTE:

Perform this work quickly because CVT fluid leaks.

23. Lift down the vehicle.

24. Start the engine.

25. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "L", and shift it to the "P" position.

NOTE:

Hold the lever at each position for 5 seconds.

26. Check that the CONSULT "Data monitor" in "FLUID TEMP" is 35°C (95°F) to 45°C (113°F).

27. Lift up the vehicle.

28. Remove the drain plug and confirm that the CVT fluid is drained from the overflow tube.

CAUTION:

Perform this work with the vehicle idling.

NOTE:

If the CVT fluid is not drained, refer to "Adjustment" and refill with the CVT fluid.

29. When the flow of CVT fluid slows to a drip, tighten the drain plug to the specified torque. [TM-571, "Removal and Installation"](#).

CAUTION:

Never reuse drain plug gasket.

30. Lift down the vehicle.

31. Select "Data Monitor" in "TRANSMISSION" using CONSULT.

32. Select "CONFORM CVTF DETERIORATION".

33. Select "Erase".

34. Perform air bleeding of the electric oil pump. (Vehicle with idling stop system). Refer to [TM-441, "Procedure"](#).

35. Stop the engine.

Adjustment

INFOID:000000006325009

CVT fluid

: Refer to [TM-595, "General Specification"](#).

Fluid capacity

: Refer to [TM-595, "General Specification"](#).

CAUTION:

- Use only Genuine NISSAN CVT Fluid NS-2. Using transmission fluid other than Genuine NISSAN CVT Fluid NS-2 will damage the CVT, which is not covered by the (NISSAN new vehicle limited) warranty.
- During adjustment of the CVT fluid level, check CONSULT so that the oil temperature may be maintained from 35 to 45°C (95 to 113°F).
- Use caution when looking into the drain hole as there is a risk of dripping fluid entering the eye.

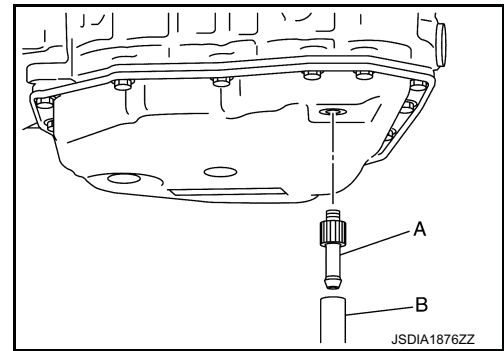
1. Check that the selector lever is in the "P" position, then completely engage the parking brake.

2. Start the engine.

3. Adjust the CVT fluid temperature to be approximately 40°C (104°F).

NOTE:

The CVT fluid is largely affected by temperature. Therefore be sure to use CONSULT and check the "FLUID TEMP" under "TRANSMISSION" in "Data Monitor" while adjusting.



A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

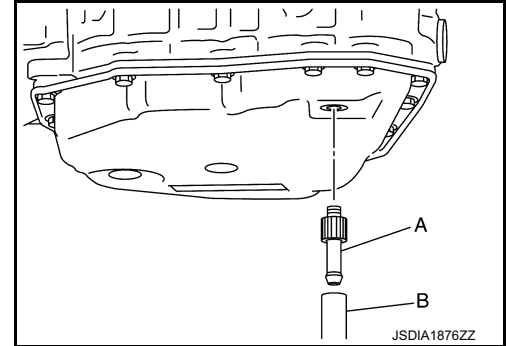
P

CVT FLUID

< BASIC INSPECTION >

[CVT: RE0F11A]

4. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "L", and shift it to the "P" position.
NOTE:
Hold the lever at each position for 5 seconds.
5. Lift up the vehicle.
6. Check that there is no CVT fluid leakage.
7. Remove the drain plug. Refer to [TM-571. "Removal and Installation"](#).
8. Install the charging pipe set (KV311039S0) (A) into the drain plug hole.
CAUTION:
Tighten the charging pipe by hand.
9. Install the ATF changer hose (B) to the charging pipe.
CAUTION:
Press the ATF changer hose all the way onto the charging pipe until it stops.
10. Fill approximately 0.5 liter (1/2 Imp qt) of the CVT fluid.
11. Remove the ATF changer hose from the charging pipe, and check that the CVT fluid drains out from the charging pipe. If it does not drain out, perform charging again.
CAUTION:
Perform this work with the vehicle idling.
12. When the flow of CVT fluid slows to a drip, remove the charging pipe from the oil pan.
13. Tighten the drain plug to the specified torque. Refer to [TM-571. "Removal and Installation"](#).
CAUTION:
Never reuse drain plug gasket.
14. Lift down the vehicle.
15. Stop the engine.



STALL TEST

< BASIC INSPECTION >

[CVT: RE0F11A]

STALL TEST

Work Procedure

INFOID:000000006325010

INSPECTION

1. Check the engine oil level. Replenish if necessary.
2. Check for leak of the CVT fluid. Refer to [TM-556, "Inspection"](#).
3. Drive for about 10 minutes to warm up the vehicle so that the CVT fluid temperature is 50 to 80°C (122 to 176°F).
4. Be sure to apply the parking brake and block the tires.
5. Start the engine, depress the brake pedal and put the selector lever to the D position.
6. While depressing the brake pedal, depress the accelerator pedal gradually.
7. Read the stall speed quickly. Then, release your foot from the accelerator pedal quickly.

CAUTION:

Do not depress the accelerator pedal for 5 seconds or more during the test.

Stall speed : Refer to [TM-596, "Stall Speed"](#).

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

NARROWING-DOWN MALFUNCTIONING PARTS

	Selector lever position		Possible cause
	D	R	
Stall speed	H	O	• Low brake
	O	H	• Reverse brake
	L	L	• Engine • Torque converter one way clutch
	H	H	• Line pressure is low. • Primary pulley • Secondary pulley • Steel belt

O: Within the stall speed standard value

H: Stall speed is higher than the standard value.

L: Stall speed is lower than the standard value.

LINE PRESSURE TEST

Work Procedure

INFOID:000000006521202

INSPECTION

1. Check the engine oil level. Replenish if necessary. [LU-6, "Inspection"](#).
2. Check for leak of the CVT fluid. Refer to [TM-556, "Inspection"](#).
3. Drive for about 10 minutes to warm up the vehicle so that the CVT fluid temperature is 50 to 80°C (122 to 176°F).
4. Be sure to apply the parking brake and block the tires.
5. Start the engine.
6. Select "Data Monitor" in "TRANSMISSION".
7. Select "LINE PRESSURE".
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 : [TM-597, "Line Pressure"](#)

NARROWING-DOWN MALFUNCTIONING PARTS

Judgment		Possible cause
Idle speed	Low for all positions ("P", "R", "N", "D", "L")	Possible causes include malfunctions in the pressure supply system and low oil pump output. For example • Oil pump wear • Damage of chain and sprocket • Pressure regulator valve or plug sticking or spring fatigue • Oil strainer ⇒ oil pump ⇒ pressure regulator valve passage oil leak • Engine idle speed too low
	Only low for a specific position	Possible causes include an oil pressure leak in a passage or device related to the position after the pressure is distributed by the manual valve.
	High	Possible causes include a sensor malfunction or malfunction in the line pressure adjustment function. For example • 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.	Possible causes include a sensor malfunction or malfunction in the pressure adjustment function. For example • TCM malfunction • Line pressure solenoid malfunction (shorting, sticking in ON state) • Pressure regulator valve or plug sticking
	The pressure rises, but does not enter the standard position.	Possible causes include malfunctions in the pressure supply system and malfunction in the pressure adjustment function. For example • Oil pump wear • Line pressure solenoid malfunction (sticking, filter clog) • Pressure regulator valve or plug sticking
	Only low for a specific position	Possible causes include an oil pressure leak in a passage or device related to the position after the pressure is distributed by the manual valve.

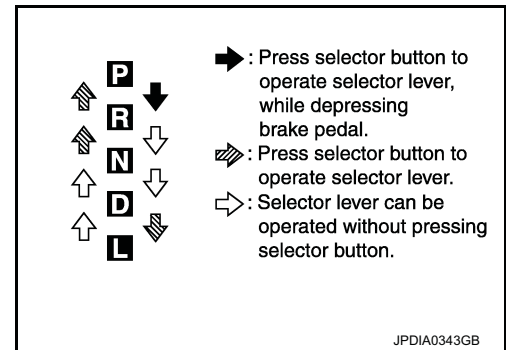
CVT POSITION

Inspection and Adjustment

INFOID:000000006325011

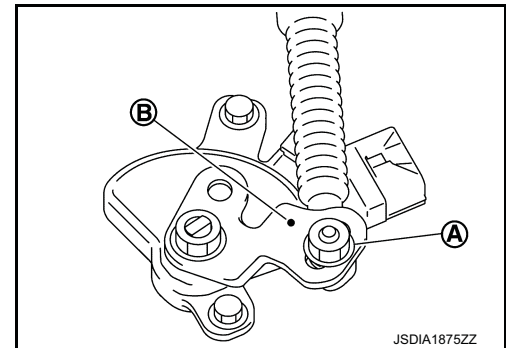
INSPECTION

1. Turn ON the ignition switch with the selector lever at the P position.
2. Press the selector button with the brake pedal depressed, and confirm that the lever can be shifted to positions other than P. Also confirm that shifting is not allowed from the P position to other position without depressing the brake pedal.
3. Move the selector lever and check for "excessive effort", "sticking", "noise" or "rattle".
4. Confirm that selector lever stops at each position with the feel of engagement when it is moved through all the positions. Check whether or not the actual position the selector lever is in matches the position shown by the transaxle body.
5. Make sure that the selector lever is shifted to all the shift positions in the manner shown in the figure.
6. When the selector button is pressed without applying forward/backward force to the selector lever at "P", "R", "N" and "D" positions, there should be no "sticking" on the button operation.
7. The reverse lamp lights and the reverse warning buzzer sounds at the "R" position and the reverse lamp does not light and the reverse warning buzzer does not sound at other positions. Confirm that the buzzer does not sound when selector lever is in the "P" or "N" position, in particular, with the lever pushed against the "R" position.
8. Check that the engine can be started with the selector lever in the "P" and "N" positions only.
9. Check that the transaxle is locked when the selector lever is in the P position.



ADJUSTMENT

1. Shift the selector lever to the "P" position.
CAUTION:
Rotate the wheels at least a quarter turn and be certain the Park position mechanism is fully engaged.
2. Remove nut (A) and set manual lever (B) to the "P" position.
CAUTION:
Do not apply force to the manual lever.
3. Tighten nuts to the specified torque. Refer to [TM-561, "Exploded View"](#).
CAUTION:
In tightening, fix the manual lever.



DTC/CIRCUIT DIAGNOSIS

U0073 COMMUNICATION BUS A OFF

Description

INFOID:000000006325012

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

DTC Logic

INFOID:000000006325013

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
U0073	Control Module Communication Bus A Off	TCM communication blockage lasts for 2 seconds or more when turning ON the ignition switch. (Communication not established.)	Harness or connector (CAN communication line is error)

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

 With CONSULT

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

Is "U0073" detected?

- YES >> Go to [TM-448, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325014

For the diagnosis procedure, refer to [LAN-20, "Trouble Diagnosis Flow Chart"](#).

U0100 LOST COMMUNICATION (ECM A)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

U0100 LOST COMMUNICATION (ECM A)

Description

INFOID:000000006508997

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

DTC Logic

INFOID:000000006325016

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
U0100	Lost Communication With ECM/PCM A	When the ignition switch is ON, TCM is unable to receive the CAN communications signal from ECM continuously for 2 seconds or more.	• ECM • Harness or connector (CAN communication line is open or shorted)

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

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

Is "U0100" detected?

YES >> Go to [TM-449, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325017

For the diagnosis procedure, refer to [LAN-20, "Trouble Diagnosis Flow Chart"](#).

U0140 LOST COMMUNICATION (BCM)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

U0140 LOST COMMUNICATION (BCM)

Description

INFOID:000000006508998

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

DTC Logic

INFOID:000000006325019

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
U0140	Lost Communication With Body Control Module	When the ignition switch is ON, TCM is unable to receive the CAN communications signal from BCM continuously for 2 seconds or more.	• BCM • Harness or connector (CAN communication line is open or shorted)

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

ⓘ With CONSULT

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

Is "U0140" detected?

YES >> Go to [TM-450, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325020

For the diagnosis procedure, refer to [LAN-20, "Trouble Diagnosis Flow Chart"](#).

U0141 LOST COMMUNICATION (BCM A)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

U0141 LOST COMMUNICATION (BCM A)

Description

INFOID:000000006509001

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

DTC Logic

INFOID:000000006325022

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
U0141	Lost Communication With Body Control Module A	When the ignition switch is turned ON, TCM continues no reception of the CAN communication signal from IPDM E/R for 2 seconds or more.	• IPDM E/R • Harness or connector (CAN communication line is open or shorted)

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

ⓘ With CONSULT

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

Is "U0141" detected?

- YES >> Go to [TM-448, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325023

For the diagnosis procedure, refer to [LAN-20, "Trouble Diagnosis Flow Chart"](#).

U0155 LOST COMMUNICATION (IPC)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

U0155 LOST COMMUNICATION (IPC)

Description

INFOID:000000006509372

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

DTC Logic

INFOID:000000006325025

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
U0155	Lost Communication With Instrument Panel Cluster (IPC) Control Module	When the ignition switch is ON, TCM is unable to receive the CAN communications signal from the combination meter continuously for 2 seconds or more.	- Combination meter - Harness or connector (CAN communication line is open or shorted)

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

④ With CONSULT

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

Is "U0155" detected?

YES >> Go to [TM-452, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325026

For the diagnosis procedure, refer to [LAN-20, "Trouble Diagnosis Flow Chart"](#).

U0300 CAN COMMUNICATION DATA

Description

INFOID:000000006509877

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

DTC Logic

INFOID:000000006325028

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
U0300	Internal Control Module Software Incompatibility	When the ignition switch is ON, the data length transmitted from each control unit is shorter than the specified length and the status continues for 2 seconds or more.	Control unit other than TCM

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Start the engine and wait for 5 seconds or more.
2. Check the DTC.

Is "U0300" detected?

- YES >> Go to [TM-453, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325029

1. CONTROL UNIT CHECK

Check the number of control units replaced before "U0300" is detected.

Is one control unit replaced?

- YES >> The specification of the control unit replaced may be incorrect. Check the part number and the specification.
 NO >> GO TO 2.

2. CONTROL UNIT CHECK

 With CONSULT

1. Remove one of the control unit replaced.
2. Assemble the old control unit before replacement.
3. Turn ignition switch ON, and wait for 2 seconds or more.
4. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "U0300" detected?

- YES >> Turn OFF the ignition switch and check other control units in the same manner.
 NO >> The specification of the control unit removed may be incorrect. Check the part number and the specification.

U1000 CAN COMM CIRCUIT

Description

INFOID:000000006509878

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

DTC Logic

INFOID:000000006325031

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
U1000	CAN Communication Line	When the ignition switch is ON, TCM cannot send the CAN communication signal continuously for 2 seconds or more.	Harness or connector (CAN communication line is open or shorted)

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

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

Is "U1000" detected?

YES >> Go to [TM-454, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325032

For the diagnosis procedure, refer to [LAN-20, "Trouble Diagnosis Flow Chart"](#).

U1117 LOST COMMUNICATION (ABS)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

U1117 LOST COMMUNICATION (ABS)

Description

INFOID:000000006509879

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

DTC Logic

INFOID:000000006325037

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
U1117	Lost Communication With ABS	When the ignition switch is ON, TCM is unable to receive the CAN communications signal from ABS actuator and electric unit (control unit) continuously for 2 seconds or more.	• ABS actuator and electric unit (control unit) • Harness or connector (CAN communication line is open or shorted)

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

Ⓔ With CONSULT

1. Start the engine and wait for 5 seconds or more.
2. Check the DTC.

Is "U1117" detected?

- YES >> Go to [TM-448, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325038

For the diagnosis procedure, refer to [LAN-20, "Trouble Diagnosis Flow Chart"](#).

P062F EEPROM

Description

INFOID:00000000655450

TCM compares the calculated value stored in the flash ROM with the value stored in TCM. If the calculated value does not agree with the stored value, TCM judges this as a malfunction.

DTC Logic

INFOID:000000006325045

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P062F	Internal Control Module EEPROM Error	Flash ROM error is detected when turning ON the ignition switch.	- TCM (flash ROM) - Harness or connector [TCM power supply (back-up) circuit is open or shorted]

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine.
2. Check the DTC.

Is "P062F" detected?

- YES >> Go to [TM-456, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325046

1. CHECK INTERMITTENT INCIDENT

Refer to [GI-51, "Intermittent Incident"](#).

Is the inspection result normal?

- YES >> Replace the TCM. Refer to [TM-568, "Removal and Installation"](#).
 NO >> Repair or replace malfunctioning parts.

P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P0705 TRANSMISSION RANGE SENSOR A

DTC Logic

INFOID:000000006325047

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0705	Transmission Range Sensor A Circuit (PRNDL Input)	Two or more range signals simultaneously stay ON continuously for 5 seconds under the following diagnosis condition 1 and 2: • Diagnosis condition 1 (continued for 5 seconds or more) - TCM power supply voltage: 10 – 16 V • Diagnosis condition 2 (continued for 2 seconds or more) - Vehicle speed: Less than 3 km/h (2 MPH) - Accelerator pedal position: 0.6/8 or less - Idle switch: ON - Stop lamp switch: ON	• Harness or connector (Short circuit between transmission range switch and TCM) • Transmission range switch

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine.
2. Maintain the following conditions.

Accelerator pedal position : 0.0/8
Brake pedal : Depressed
Vehicle speed : 0 km/h (0 MPH)

3. Shift the selector lever through entire positions from "P" to "L". (Hold the selector lever at each position for 10 seconds or more.)
4. Check the first trip DTC.

Is "P0705" detected?

YES >> Go to [TM-457, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325048

1. CHECK TCM INPUT SIGNALS

 With CONSULT

1. Turn ignition switch ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "D POSITION SW", "N POSITION SW", "R POSITION SW", "P POSITION SW" and "L POSITION SW".
4. Shift the selector lever through entire positions from "P" to "L" and check ON/OFF of each monitor item.

Monitor item	Test condition	Condition
D POSITION SW	Selector lever: "D" position	On
	Other than the above	Off

P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Monitor item	Test condition	Condition
N POSITION SW	Selector lever: "N" position	On
	Other than the above	Off
R POSITION SW	Selector lever: "R" position	On
	Other than the above	Off
P POSITION SW	Selector lever: "P" position	On
	Other than the above	Off
L POSITION SW	Selector lever: "L" position	On
	Other than the above	Off

⑧ Without CONSULT

1. Turn the ignition switch OFF.
2. Disconnect the TCM connector.
3. Turn ignition switch ON.
4. Shift the selector lever from "P" to "L" and check the voltage between the TCM harness connector terminals and the ground.

TCM		Ground	Test condition	Voltage
Connector	Terminal			
F19	2	Ground	Selector lever: “ L ” position	Battery voltage
			Other than the above	Approx. 0 V
	4		Selector lever: “D” position	Battery voltage
			Other than the above	Approx. 0 V
	5		Selector lever: “N” position	Battery voltage
			Other than the above	Approx. 0 V
	6		Selector lever: “R” position	Battery voltage
			Other than the above	Approx. 0 V
	7		Selector lever: “P” position	Battery voltage
			Other than the above	Approx. 0 V

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO-1 ["D POSITION SW" is "ON" when selector is not in "D" position. (Or connector terminal 4 is at power voltage.)]>>GO TO 2.

NO-2 ["N POSITION SW" is "ON" when selector is not in "N" position. (Or connector terminal 5 is at power voltage.)]>>GO TO 4.

NO-3 ["R POSITION SW" is "ON" when selector is not in "R" position. (Or connector terminal 6 is at power voltage.)]>>GO TO 6.

NO-4 ["P POSITION SW" is "ON" when selector is not in "P" position. (Or connector terminal 7 is at power voltage.)]>>GO TO 8.

NO-5 ["L POSITION SW" is "ON" when selector is not in "L" position. (Or connector terminal 2 is at power voltage.)]>>GO TO 10.

2. CHECK D POSITION SW CIRCUIT (PART 1)

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

P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

TCM			Continuity
Connector	Terminal		
F19	4	2	Not existed
		5	
		6	
		7	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CHECK D POSITION SW CIRCUIT (PART 2)

1. Disconnect the transmission position switch connector.
2. Turn ignition switch ON.
3. Check the voltage between the TCM harness connector terminal and ground.

TCM		Ground	Voltage
Connector	Terminal		
F19	4	Ground	Approx. 0 V

Is the inspection result normal?

YES >> GO TO 12.

NO >> Repair or replace the malfunctioning parts.

4.CHECK N POSITION SW CIRCUIT (PART 1)

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

TCM			Continuity
Connector	Terminal		
F19	5	2	Not existed
		4	
		6	
		7	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.CHECK N POSITION SW CIRCUIT (PART 2)

1. Disconnect the transmission position switch connector.
2. Turn ignition switch ON.
3. Check the voltage between the TCM harness connector terminal and ground.

TCM		Ground	Voltage
Connector	Terminal		
F19	5	Ground	Approx. 0 V

Is the inspection result normal?

YES >> GO TO 12.

NO >> Repair or replace the malfunctioning parts.

6.CHECK P POSITION SW CIRCUIT (PART 1)

1. Turn the ignition switch OFF.

P0705 TRANSMISSION RANGE SENSOR A

[CVT: RE0F11A]

< DTC/CIRCUIT DIAGNOSIS >

2. Disconnect the TCM connector.
3. Check the continuity between the TCM harness connector terminals.

TCM			Continuity
Connector	Terminal		
F19	7	2	Not existed
		4	
		5	
		6	

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace the malfunctioning parts.

7. CHECK P POSITION SW CIRCUIT (PART 2)

1. Disconnect the transmission position switch connector.
2. Turn ignition switch ON.
3. Check the voltage between the TCM harness connector terminal and ground.

TCM		Ground	Voltage
Connector	Terminal		
F19	7	Ground	Approx. 0 V

Is the inspection result normal?

YES >> GO TO 12.

NO >> Repair or replace the malfunctioning parts.

8. CHECK R POSITION SW CIRCUIT (PART1)

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

TCM			Continuity
Connector	Terminal		
F19	6	2	Not existed
		4	
		5	
		7	

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace the malfunctioning parts.

9. CHECK R POSITION SW CIRCUIT (PART 2)

1. Disconnect the transmission position switch connector.
2. Turn ignition switch ON.
3. Check the voltage between the TCM harness connector terminal and ground.

TCM		Ground	Voltage
Connector	Terminal		
F19	6	Ground	Approx. 0 V

Is the inspection result normal?

YES >> GO TO 12.

NO >> Repair or replace the malfunctioning parts.

P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

10.CHECK 1: L POSITION SWITCH CIRCUIT (PART 1)

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

TCM			Continuity
Connector	Terminal		
F19	2	4	Not existed
		5	
		6	
		7	

Is the inspection result normal?

YES >> GO TO 11.

NO >> Repair or replace the malfunctioning parts.

11.CHECK 2: L POSITION SWITCH CIRCUIT (PART 2)

1. Disconnect the transmission position switch connector.
2. Turn ignition switch ON.
3. Check the voltage between the TCM harness connector terminal and ground.

TCM		Ground	Voltage
Connector	Terminal		
F19	2	Ground	Approx. 0 V

Is the inspection result normal?

YES >> GO TO 12.

NO >> Repair or replace the malfunctioning parts.

12.CHECK TRANSMISSION RANGE SWITCH

Check the transmission range switch. Refer to [TM-461, "Component Inspection \(Transmission Range Switch\)"](#).

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (Transmission Range Switch)

INFOID:0000000006325049

1.CHECK TRANSMISSION RANGE SWITCH

Check continuity between transmission range switch connector terminals.

Transmission range switch	Condition	Continuity
Terminal		
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

P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Transmission range switch Terminal	Condition	Continuity
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 >> There is a malfunction of transmission range switch. Replace transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

P0706 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P0706 TRANSMISSION RANGE SENSOR A

DTC Logic

INFOID:000000006325050

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0706	Transmission Range Sensor A Circuit Range/Performance	All range signals stay OFF continuously for 30 seconds under the following diagnosis condition 1 and 2: • Diagnosis condition 1 (continued for 30 seconds or more) - TCM power supply voltage: 10 – 16 V • Diagnosis condition 2 (continued for 2 seconds or more) - Vehicle speed: Less than 3 km/h (2 MPH) - Accelerator pedal position: 0.6/8 or less - Idle switch: ON - Stop lamp switch: ON	• Harness or connector (Open circuit between ignition switch and transmission range switch/open circuit between transmission range switch and TCM) • Transmission range switch • Control cable

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Maintain the following conditions.

Accelerator pedal position : 0.0/8
Brake pedal : Depressed
Vehicle speed : 0 km/h (0 MPH)

3. Shift the selector lever through entire positions from "P" to "L". (Hold the selector lever at each position for 35 seconds or more.)
4. Check the first trip DTC.

Is "P0706" detected?

YES >> Go to [TM-463, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325051

1. ADJUSTMENT OF CONTROL CABLE

Adjust the control cable. Refer to [TM-447, "Inspection and Adjustment"](#).

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

Ⓜ With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Results" in "TRANSMISSION".
3. Touch "Erase".
4. Perform "DTC CONFIRMATION PROCEDURE". Refer to [TM-463, "DTC Logic"](#).

Is "P0706" detected?

YES >> GO TO 3.
NO >> INSPECTION END

P0706 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

3.CHECK POWER CIRCUIT

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

Transmission range switch		Ground	Voltage
Connector	Terminal		
F51	3	Ground	10 – 16 V

Is the inspection result normal?

YES >> GO TO 4.

NO-1 (Without stop/start system)>>GO TO 7.

NO-2 (With stop/start system)>>GO TO 9.

4.CHECK CIRCUIT BETWEEN TRANSMISSION RANGE SWITCH AND TCM (PART 1)

1. Turn the ignition switch OFF.
2. Disconnect the TCM connector.
3. Check the continuity between the transmission range switch harness connector terminals and the TCM harness connector terminals.

Transmission range switch		TCM		Continuity
Connector	Terminal	Connector	Terminal	
F51	4	F19	7	Existed
	5		6	
	6		5	
	7		4	
	8		2	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.CHECK CIRCUIT BETWEEN TRANSMISSION RANGE SWITCH AND TCM (PART 2)

Check the continuity between the transmission range switch harness connector terminals and ground.

Transmission range switch		Ground	Continuity
Connector	Terminal		
F51	4	Ground	Not existed
	5		
	6		
	7		
	8		

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace the malfunctioning parts.

6.CHECK TRANSMISSION RANGE SWITCH

Check the transmission range switch. Refer to [TM-465, "Component Inspection \(Transmission Range Switch\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

P0706 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

7.CHECK CIRCUIT BETWEEN IPDM E/R AND TRANSMISSION RANGE SWITCH (PART 1)

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

IPDM E/R		Transmission range switch		Continuity
Connector	Terminal	Connector	Terminal	
E14	57	F51	3	Existed

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace the malfunctioning parts.

8.CHECK CIRCUIT BETWEEN IPDM E/R AND TRANSMISSION RANGE SWITCH (PART 2)

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

IPDM E/R		Ground	Continuity
Connector	Terminal		
E14	57	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair or replace the malfunctioning parts.

9.DETECTION OF MALFUNCTION ITEMS (PART 1)

Check the following items:

- Harness open circuit or short circuit between the ignition switch and the transmission range switch. Refer to [PG-54, "TYPE A : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE A)* or [PG-208, "TYPE C : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE C)*.

*: Refer to [PG-15, "Application Notice"](#).

- 10A fuse [No. 63, fuse block (J/B)]. Refer to [PG-316, "TYPE A : Fuse, Connector and Terminal Arrangement"](#) (TYPE A)* or [PG-319, "TYPE C : Fuse, Connector and Terminal Arrangement"](#) (TYPE C)*.

*: Refer to [PG-15, "Application Notice"](#).

- Fuse block (J/B)

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

10.DETECTION OF MALFUNCTION ITEMS (PART 2)

Check the following items:

- Harness open circuit or short circuit between the ignition switch and the IPDM E/R. Refer to [PG-130, "TYPE B : Wiring Diagram - IGNITION POWER SUPPLY -"](#).
- 10A fuse (No. 52, IPDM E/R). Refer to [PG-335, "TYPE B : Fuse, Connector and Terminal Arrangement"](#).
- IPDM E/R

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (Transmission Range Switch)

INFOID:000000006576289

1.CHECK TRANSMISSION RANGE SWITCH

Check continuity between transmission range switch connector terminals.

P0706 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Transmission range switch Terminal	Condition	Continuity
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 >> There is a malfunction of transmission range switch. Replace transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

P0711 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P0711 TRANSMISSION FLUID TEMPERATURE SENSOR A

DTC Logic

INFOID:000000006325053

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0711	Transmission Fluid Temperature Sensor A Circuit Range/Performance	Under the following diagnosis conditions, CVT fluid temperature recognized by TCM does not change for 10 minutes or more in a temperature range. • Diagnosis condition - Selector lever: "D" position - Vehicle speed: 10 km/h (7 MPH) or more - Engine speed: 450 rpm or more - Accelerator pedal position: 1.0/8 or more - TCM power supply voltage: 10 – 16 V - CVT fluid temperature: Less than 10°C NOTE: Every time the CVT fluid temperature increases, reset the detection time and start the diagnosis again.	CVT fluid temperature sensor

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for a total of 10 minutes or more.

Selector lever	: "D" position
Accelerator pedal position	: 1.0/8 or more
Vehicle speed	: 20 km/h (12 MPH) or more

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

Is "P0711" detected?

YES >> Go to [TM-483, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325054

1. CHECK CVT FLUID TEMPERATURE SENSOR

1. Turn ignition switch OFF.
2. Disconnect the CVT unit connector.
3. Check the CVT fluid temperature sensor. Refer to [TM-468, "Component Inspection \(CVT Fluid Temperature Sensor\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace malfunctioning parts.

P0711 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Component Inspection (CVT Fluid Temperature Sensor)

INFOID:000000006325055

1. CHECK CVT FLUID TEMPERATURE SENSOR

Check resistance between CVT unit connector terminals.

CVT unit	Condition	Resistance
Terminal		
4 – 25	CVT fluid temperature: 20°C (68°C)	Approx. 6.5 kΩ
	CVT fluid temperature: 50°C (122°C)	Approx. 2.2 kΩ
	CVT fluid temperature: 80°C (176°C)	Approx. 0.87 kΩ

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of CVT fluid temperature sensor. Replace transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A

DTC Logic

INFOID:0000000006325056

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0712	Transmission Fluid Temperature Sensor A Circuit Low	The CVT fluid temperature identified by the TCM is 180°C (356°F) or more continuously for 5 seconds or more under the following diagnosis conditions: • Diagnosis conditions - Ignition switch: ON - TCM power supply voltage: 10 – 16 V	• Harness or connector (CVT fluid temperature sensor circuit is shorted to ground) • CVT fluid temperature sensor

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine and wait for 10 seconds or more.
2. Check the first trip DTC.

Is "P0712" detected?

YES >> Go to [TM-469, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000006325057

1. CHECK CIRCUIT BETWEEN TCM AND THE CVT UNIT

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

TCM		Ground	Continuity
Connector	Terminal		
F19	12	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2. CHECK CVT FLUID TEMPERATURE SENSOR

Check the CVT fluid temperature sensor. Refer to [TM-469, "Component Inspection \(CVT Fluid Temperature Sensor\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

Component Inspection (CVT Fluid Temperature Sensor)

INFOID:0000000006515743

1. CHECK CVT FLUID TEMPERATURE SENSOR

Check resistance between CVT unit connector terminals.

P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

CVT unit	Condition	Resistance
Terminal		
4 – 25	CVT fluid temperature: 20°C (68°C)	Approx. 6.5 kΩ
	CVT fluid temperature: 50°C (122°C)	Approx. 2.2 kΩ
	CVT fluid temperature: 80°C (176°C)	Approx. 0.87 kΩ

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of CVT fluid temperature sensor. Replace transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A

DTC Logic

INFOID:000000006325059

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0713	Transmission Fluid Temperature Sensor A Circuit High	The CVT fluid temperature identified by the TCM is -40°C (-40°F) or less continuously for 5 seconds or more under the following diagnosis conditions: • Diagnosis conditions - Ignition switch: ON - Vehicle speed: More than 10 km/h (7 MPH) - TCM power supply voltage: 10 – 16 V	• Harness or connector (CVT fluid temperature sensor circuit is open or shorted to power supply) • CVT fluid temperature sensor

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Maintain the following condition for 10 seconds or more.

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

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

Is "P0713" detected?

YES >> Go to [TM-469, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325060

1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 1)

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

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F19	12	F25	4	Existed
	11		25	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning part.

2. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 2)

1. Turn ignition switch ON.
2. Check the voltage between the TCM harness connector terminal and ground.

P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

TCM		Ground	Voltage
Connector	Terminal		
F19	12	Ground	Approx. 0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning part.

3.CHECK CVT FLUID TEMPERATURE SENSOR

Check the CVT fluid temperature sensor. Refer to [TM-472, "Component Inspection \(CVT Fluid Temperature Sensor\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (CVT Fluid Temperature Sensor)

INFOID:000000006515780

1.CHECK CVT FLUID TEMPERATURE SENSOR

Check resistance between CVT unit connector terminals.

CVT unit	Condition	Resistance
Terminal		
4 – 25	CVT fluid temperature: 20°C (68°C)	Approx. 6.5 kΩ
	CVT fluid temperature: 50°C (122°C)	Approx. 2.2 kΩ
	CVT fluid temperature: 80°C (176°C)	Approx. 0.87 kΩ

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of CVT fluid temperature sensor. Replace transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

P0715 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P0715 INPUT SPEED SENSOR A

DTC Logic

INFOID:000000006325062

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0715	Input/Turbine Speed Sensor A Circuit	The primary speed sensor value is less than 150 rpm continuously for 5 seconds or more under the following diagnosis conditions: • Diagnosis conditions - Secondary pulley speed: 1,000 rpm or more - TCM power supply voltage: 10 – 16 V The primary speed sensor value is 240 rpm or less continuously for 500 msec or more under the following diagnosis conditions: • Diagnosis conditions - 10-msec-ago primary pulley speed: 1,000 rpm or more - TCM power supply voltage: 10 – 16 V	• Harness or connector (Primary speed sensor circuit is open or shorted) • Primary speed sensor

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever : "L" POSITION

Vehicle speed : 40 km/h (25 MPH) or more

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

Is "P0715" detected?

YES >> Go to [TM-473, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325063

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 harness connector terminal and ground.

Primary speed sensor		Ground	Voltage
Connector	Terminal		
F30	3	Ground	10 – 16 V

Is the inspection result normal?

YES >> GO TO 2.

P0715 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

NO-1 (Without stop/start system)>>GO TO 6.

NO-2 (With stop/start system)>>GO TO 8.

2.CHECK PRIMARY SPEED SENSOR GROUND CIRCUIT

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

Primary speed sensor		Ground	Continuity
Connector	Terminal		
F30	1	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

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

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

Primary speed sensor		TCM		Continuity
Connector	Terminal	Connector	Terminal	
F30	2	F19	35	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.CHECK CIRCUIT BETWEEN PRIMARY SPEED SENSOR AND TCM (PART 1)

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

Primary speed sensor		Ground	Continuity
Connector	Terminal		
F30	2	Ground	Not existed

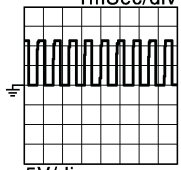
Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.CHECK TCM INPUT SIGNALS

1. Connect all of the disconnected connectors.
2. Lift the vehicle.
3. Start the engine.
4. Check frequency of primary speed sensor.

TCM		Ground	Condition	Data
Connector	Terminal			
F19	35	Ground	• Selector lever: "L" position • Vehicle speed: 20 km/h (12 MPH)	Approx. 1,100 Hz 1mSec/div  5V/div JSDIA1906GB

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

P0715 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

NO >> Replace the primary speed sensor. [TM-573, "Removal and Installation"](#).

6. CHECK CIRCUIT BETWEEN IPDM E/R AND PRIMARY SPEED SWITCH (PART 1)

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

IPDM E/R		Primary speed sensor		Continuity
Connector	Terminal	Connector	Terminal	
E14	57	F30	3	Existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace the malfunctioning parts.

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

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

IPDM E/R		Ground	Continuity
Connector	Terminal		
E14	57	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace the malfunctioning parts.

8. DETECTION OF MALFUNCTION ITEMS (PART 1)

Check the following items:

- Harness open circuit or short circuit between the ignition switch and the primary speed sensor connector terminal 3. Refer to [PG-54, "TYPE A : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE A)* or [PG-208, "TYPE C : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE C)*.

*: Refer to [PG-15, "Application Notice"](#).

- 10A fuse [No. 63, fuse block (J/B)]. Refer to [PG-316, "TYPE A : Fuse, Connector and Terminal Arrangement"](#) (TYPE A)* or [PG-319, "TYPE C : Fuse, Connector and Terminal Arrangement"](#) (TYPE C)*.

*: Refer to [PG-15, "Application Notice"](#).

- Fuse block (J/B)

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

9. DETECTION OF MALFUNCTION ITEMS (PART 2)

Check the following items:

- Harness open circuit or short circuit between the ignition switch and the IPDM E/R. Refer to [PG-130, "TYPE B : Wiring Diagram - IGNITION POWER SUPPLY -"](#).
- 10A fuse (No. 52, IPDM E/R). Refer to [PG-335, "TYPE B : Fuse, Connector and Terminal Arrangement"](#).
- IPDM E/R

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

P0720 OUTPUT SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P0720 OUTPUT SPEED SENSOR

DTC Logic

INFOID:000000006325064

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0720	Output Speed Sensor Circuit	The output speed sensor value is less than 150 rpm continuously for 5 seconds or more under the following diagnosis conditions: • Diagnosis conditions - Selector lever: "D", "L" or "R" position - Auxiliary gearbox shifting is not in progress. - When the "D" position switch, "L" position switch or "R" position switch is ON, the output speed has not experienced 250 rpm or more. - After shifting the selector lever, the input speed has experienced less than 300 rpm. - Secondary pulley speed: 1,500 rpm or more - TCM power supply voltage: 10 – 16 V The output speed sensor value is 90 rpm or less continuously for 500 msec or more under the following diagnosis conditions: • Diagnosis conditions - 10-msec-ago output speed: 730 rpm or more - TCM power supply voltage: 10 – 16 V	• Harness or connector (Output speed sensor circuit is open or shorted) • Output speed sensor

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever : "D" position
Vehicle speed : 55 km/h (34 MPH) or more

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

Is "P0720" detected?

YES >> Go to [TM-476, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325065

1. CHECK OUTPUT SPEED SENSOR POWER CIRCUIT

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

P0720 OUTPUT SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Output speed sensor		Ground	Voltage
Connector	Terminal		
F57	3	Ground	10 – 16 V

Is the inspection result normal?

YES >> GO TO 2.

NO-1 (Without stop/start system)>>GO TO 6.

NO-2 (With stop/start system)>>GO TO 8.

2.CHECK OUTPUT SPEED SENSOR GROUND CIRCUIT

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

Output speed sensor		Ground	Continuity
Connector	Terminal		
F57	1	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CHECK CIRCUIT BETWEEN OUTPUT SPEED SENSOR AND TCM (PART 1)

1. Turn ignition switch OFF.
2. Disconnect the TCM connector.
3. Check the continuity between the output speed sensor harness connector terminal and the TCM harness connector terminal.

Output speed sensor		TCM		Continuity
Connector	Terminal	Connector	Terminal	
F57	2	F19	24	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.CHECK CIRCUIT BETWEEN OUTPUT SPEED SENSOR AND TCM (PART 1)

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

Output speed sensor		Ground	Continuity
Connector	Terminal		
F57	2	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

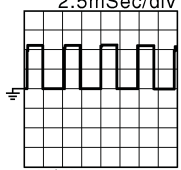
5.CHECK TCM INPUT SIGNALS

1. Connect all of the disconnected connectors.
2. Lift the vehicle.
3. Start the engine.
4. Check the frequency of the output speed sensor.

P0720 OUTPUT SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

TCM		Ground	Condition	Data
Connector	Terminal			
F19	24	Ground	- Selector lever: "L" position - Vehicle speed: 20 km/h (12 MPH)	Approx. 200 Hz 2.5mSec/div  5V/div JSDIA1904GB

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Replace the output speed sensor. Refer to [TM-575, "Removal and Installation"](#).

6. CHECK CIRCUIT BETWEEN IPDM E/R AND OUTPUT SPEED SENSOR (PART 1)

- Turn ignition switch OFF.
- Disconnect the IPDM E/R connector.
- Check the continuity between the IPDM E/R harness connector terminal and the output speed sensor harness connector terminal.

IPDM E/R		Output speed sensor		Continuity
Connector	Terminal	Connector	Terminal	
E14	57	F57	3	Existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace the malfunctioning parts.

7. CHECK CIRCUIT BETWEEN IPDM E/R AND OUTPUT SPEED SENSOR (PART 2)

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

IPDM E/R		Ground	Continuity
Connector	Terminal		
E14	57	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace the malfunctioning parts.

8. DETECTION OF MALFUNCTION ITEMS (PART 1)

Check the following items:

- Harness open circuit or short circuit between the ignition switch and the output speed sensor connector terminal 3. Refer to [PG-54, "TYPE A : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE A)* or [PG-208, "TYPE C : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE C)*.

*: Refer to [PG-15, "Application Notice"](#).

- 10A fuse [No. 63, fuse block (J/B)]. Refer to [PG-316, "TYPE A : Fuse, Connector and Terminal Arrangement"](#) (TYPE A)* or [PG-319, "TYPE C : Fuse, Connector and Terminal Arrangement"](#) (TYPE C)*.

*: Refer to [PG-15, "Application Notice"](#).

- Fuse block (J/B)

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

9. DETECTION OF MALFUNCTION ITEMS (PART 2)

Check the following items:

P0720 OUTPUT SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

- Harness open circuit or short circuit between the ignition switch and the IPDM E/R. Refer to [PG-130, "TYPE B : Wiring Diagram - IGNITION POWER SUPPLY -"](#).
- 10A fuse (No. 52, IPDM E/R). Refer to [PG-335, "TYPE B : Fuse, Connector and Terminal Arrangement"](#).
- IPDM E/R

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

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P0740 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P0740 TORQUE CONVERTER

DTC Logic

INFOID:000000006325066

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0740	Torque Converter Clutch Circuit/Open	The TCM torque converter clutch solenoid valve current monitor reading is 200 mA or less continuously for 5 seconds or more under the following diagnosis conditions: • Diagnosis conditions - Solenoid valve output current: 750 mA or more - GND short diagnosis of the solenoid valve circuit is not satisfied. - TCM power supply voltage: 10 – 16 V	• Harness or connector (Torque converter clutch solenoid valve circuit is open or shorted to power supply) • Torque converter clutch solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE OPERATION (PART 1)

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

>> GO TO 2.

2. PREPARATION BEFORE OPERATION (PART 2)

With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Confirm that the CVT fluid temperature is in the following range.

FLUID TEMP : 10°C (50°F) or more

With GST

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

NOTE:

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

Is the CVT fluid 10°C (50°F) or more?

YES >> GO TO 3.

NO >> 1. Warm the transaxle.
2. GO TO 3.

3. CHECK DTC DETECTION

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

Selector lever : "D" position

Vehicle speed : 40 km/h (25 MPH) or more

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

Is "P0740" detected?

YES >> Go to [TM-481, "Diagnosis Procedure"](#).

NO >> INSPECTION END

P0740 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Diagnosis Procedure

INFOID:000000006325067

1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

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

TCM harness connector		CVT unit harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F19	38	F25	6	Existed

Is the inspection result normal?

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

2.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check the torque converter clutch solenoid valve. Refer to [TM-481, "Component Inspection \(Torque Converter Clutch Solenoid Valve\)"](#).

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

Component Inspection (Torque Converter Clutch Solenoid Valve)

INFOID:000000006325068

1.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit Terminal	Ground	Condition	Resistance
6	Ground	CVT fluid temperature: 20°C (68°F)	Approx. 6.1 Ω
		CVT fluid temperature: 50°C (122°F)	Approx. 6.9 Ω
		CVT fluid temperature: 80°C (176°F)	Approx. 7.7 Ω

Is the inspection result normal?

- YES >> INSPECTION END
NO >> There is a malfunction of torque converter clutch solenoid valve. Replace transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

P0743 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P0743 TORQUE CONVERTER

DTC Logic

INFOID:000000006325069

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0743	Torque Converter Clutch Circuit Electrical	The TCM torque converter clutch solenoid valve current monitor reading is 200 mA or less continuously for 480 msec or more under the following diagnosis conditions: • Diagnosis conditions - Solenoid valve output current: 750 mA or more - GND short circuit diagnosis occurs in the solenoid valve drive circuit. - TCM power supply voltage: 10 – 16 V	• Harness or connector (Torque converter clutch solenoid valve circuit is shorted to ground) • Torque converter clutch solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE OPERATION (PART 1)

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

>> GO TO 2.

2. PREPARATION BEFORE OPERATION (PART 2)

With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Confirm that the CVT fluid temperature is in the following range.

FLUID TEMP : 10°C (50°F) or more

With GST

1. Start the engine.
2. Set the CVT fluid to 10°C (58°F) or more.

NOTE:

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

Is the CVT fluid 10°C (58°F) or more?

YES >> GO TO 3.

NO >> 1. Warm the transaxle.
2. GO TO 3.

3. CHECK DTC DETECTION

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

Selector lever : "D" position

Vehicle speed : 40 km/h (25 MPH) or more

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

Is "P0743" detected?

YES >> Go to [TM-483, "Diagnosis Procedure"](#).

NO >> INSPECTION END

P0743 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Diagnosis Procedure

INFOID:000000006325070

1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

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

TCM		Ground	Continuity
Connector	Terminal		
F19	38	Ground	Not existed

Is the inspection result normal?

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

2.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check the torque converter clutch solenoid valve. Refer to [TM-483, "Component Inspection \(Torque Converter Clutch Solenoid Valve\)"](#).

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

Component Inspection (Torque Converter Clutch Solenoid Valve)

INFOID:000000006519817

1.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit Terminal	Ground	Condition	Resistance
6	Ground	CVT fluid temperature: 20°C (68°F)	Approx. 6.1 Ω
		CVT fluid temperature: 50°C (122°F)	Approx. 6.9 Ω
		CVT fluid temperature: 80°C (176°F)	Approx. 7.7 Ω

Is the inspection result normal?

- YES >> INSPECTION END
NO >> There is a malfunction of torque converter clutch solenoid valve. Replace transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

P0744 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P0744 TORQUE CONVERTER

DTC Logic

INFOID:000000006325073

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0744	Torque converter clutch circuit intermittent	The torque converter slip speed is at or above a set value $(40 \text{ rpm} + (\text{Vehicle speed} / 2))$ continuously for 30 seconds or more under the following diagnosis conditions: • Diagnosis conditions - Selector lever: "D" position - Accelerator pedal position: 1.0/8 or more - Vehicle speed: 10 km/h (6 MPH) or more - Engine speed: 450 rpm or more - CVT fluid temperature: 20°C (68°F) – 180°C (356°F) - Lockup command is being given (except for slip lockup). - LU PRS: More than 0.2 MPa - TCM power supply voltage: 10 – 16 V	• Torque converter clutch solenoid valve • Control valve assembly • Torque converter

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE OPERATION 1

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

>> GO TO 2.

2. PREPARATION BEFORE OPERATION 2

With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Confirm that the CVT fluid temperature is in the range below.

FLUID TEMP : 20°C (68°F) or more

With GST

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

NOTE:

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

Is the CVT fluid 20°C (68°F) or more?

YES >> GO TO 3.

NO >> 1. Warm the transaxle.

2. GO TO 3.

3. CHECK DTC DETECTION

1. Drive the vehicle.
2. Maintain the following conditions for 40 seconds or more.

Selector lever : "D" position
Accelerator pedal position : 1.0/8 or more
Vehicle speed : 40 km/h (25 MPH) or more

P0744 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

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

Is "P0744" detected?

- YES >> Go to [TM-485. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325074

1.CHECK LINE PRESSURE

Perform line pressure test. Refer to [TM-446. "Work Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace the malfunction items.

2.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

1. Turn ignition switch OFF.
2. Disconnect CVT unit connector.
3. Check torque converter clutch solenoid valve. Refer to [TM-485. "Component Inspection \(Torque Converter Clutch Solenoid Valve\)"](#).

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-51. "Intermittent Incident"](#).
NO >> Repair or replace the malfunction items.

Component Inspection (Torque Converter Clutch Solenoid Valve)

INFOID:000000006519835

1.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit Terminal	Ground	Condition	Resistance
6	Ground	CVT fluid temperature: 20°C (68°F)	Approx. 6.1 Ω
		CVT fluid temperature: 50°C (122°F)	Approx. 6.9 Ω
		CVT fluid temperature: 80°C (176°F)	Approx. 7.7 Ω

Is the inspection result normal?

- YES >> INSPECTION END
NO >> There is a malfunction of torque converter clutch solenoid valve. Replace transaxle assembly. Refer to [TM-587. "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591. "HR12DDR : Removal and Installation"](#) (HR12DDR).

P0746 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P0746 PRESSURE CONTROL SOLENOID A

DTC Logic

INFOID:000000006325076

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0746	Pressure Control Solenoid A Performance/Stuck Off	The detecting condition A or detection condition B is detected twice or more (1 second or more later after detection of the first) in the same DC under the following diagnosis conditions: • Diagnosis conditions - After the ignition switch is ON, 500 msec or more have passed. - Selector lever: Other than "P" and "N" positions - Idle is not being detected. - Engine speed: 600 rpm or more - Primary pulley speed: 500 rpm or more - Auxiliary gearbox shifting is not in progress. - Acceleration/deceleration speed: -0.05 G or more - The primary pulley speed experienced 306 rpm or more and the secondary pulley speed experienced 230 rpm or more at least once. - The output speed is 107 rpm or less or the secondary pulley speed exceeds 61 rpm. • Detection condition A - Status with the shifting ratio of the primary pulley speed/secondary pulley ratio exceeding 2.55 is 200 msec or more continuously. • Detection condition B - Status with the shifting ratio of the primary pulley speed/secondary pulley ratio exceeding 3.35 is 100 msec or more continuously.	• Line pressure solenoid valve • Control valve assembly

NOTE:

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

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever	: "D" position
Accelerator pedal position	: 0.1/8 or more
Vehicle speed	: 40 km/h (25 MPH) or more

P0746 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

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

Is "P0746"detected?

- YES >> Go to [TM-487. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325077

1.CHECK LINE PRESSURE SOLENOID VALVE

1. Turn ignition switch OFF.
2. Disconnect CVT unit connector.
3. Check line pressure solenoid valve. Refer to [TM-487. "Component Inspection \(Line Pressure Solenoid Valve\)"](#)

Is the inspection result normal?

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

2.CHECK LINE PRESSURE

Perform line pressure test. Refer to [TM-446. "Work Procedure"](#).

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-51. "Intermittent Incident"](#).
NO >> Repair or replace the malfunction items.

Component Inspection (Line Pressure Solenoid Valve)

INFOID:000000006521207

1.CHECK LINE PRESSURE SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit Terminal	Ground	Condition	Resistance
2	Ground	CVT fluid temperature: 20°C (68°F)	Approx. 5.3 Ω
		CVT fluid temperature: 50°C (122°F)	Approx. 6.0 Ω
		CVT fluid temperature: 80°C (176°F)	Approx. 6.7 Ω

Is the inspection result normal?

- YES >> INSPECTION END
NO >> There is a malfunction of line pressure solenoid valve. Replace transaxle assembly. Refer to [TM-587. "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591. "HR12DDR : Removal and Installation"](#) (HR12DDR).

P0846 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P0846 TRANSMISSION FLUID PRESSURE SEN/SW B

DTC Logic

INFOID:000000006508917

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0846	Transmission Fluid Pressure Sensor/Switch B Circuit Range/Performance	The detection conditions continuously for 5 seconds or more under the following diagnosis conditions: • Diagnosis conditions - Selector lever: "D" position - The primary pulley speed experienced 306 rpm or more and the secondary pulley speed experienced 230 rpm or more at least once. - Stop lamp switch: OFF - Wheel spin is not being detected. - The rate of change in pulley ratio: Between -0.09 and +0.09 inclusive - Solenoid valve output current: 750 mA or more - GND short diagnosis of the solenoid valve circuit is not satisfied. - TCM power supply voltage: 10 – 16 V • Detection conditions - After the value of "Actual secondary pressure – Target secondary pressure" exceeds 0.675 MPa: • The rate of change in vehicle speed [km/h (MPH)]: Between -49 (-30) and +49 (+30) inclusive • The rate of change in accelerator pedal angle: Between -1.3/8 and +1.3/8 inclusive	• Secondary pressure sensor • Control valve assembly

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine.
2. Shift the selector lever to "D" position.
3. Drive the vehicle at a constant velocity of 40 km/h (25 MPH) at least for 10 seconds.

CAUTION:

At the same time, the accelerator pedal angle must be maintained constant.

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

Is "P0846" detected?

YES >> Go to [TM-488, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006508918

1. CHECK TCM INPUT SIGNAL

1. Start the engine.

P0846 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

2. Check voltage between TCM connector terminal and ground.

TCM		Ground	Condition	Voltage
Connector	Terminal			
F19	16	Ground	• Selector lever: "N" position • At idle	Approx. 0.88 – 0.92 V

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> There is a malfunction of secondary pressure sensor value. Replace transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

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P0847 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P0847 TRANSMISSION FLUID PRESSURE SEN/SW B

DTC Logic

INFOID:000000006325078

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0847	Transmission Fluid Pressure Sensor/Switch B Circuit Low	The secondary pressure sensor voltage is 0.09 V or less continuously for 5 seconds or more under the following diagnosis conditions: • Diagnosis conditions - CVT fluid temperature: More than -20°C (-4°F) - TCM power supply voltage: 10 – 16 V	• Harness or connector (Secondary pressure sensor circuit is open or shorted to ground) • Secondary pressure sensor • Control valve assembly

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Maintain the following conditions for 10 seconds or more.

FLUID TEMP : -19°C (-2.2°F) or more

5. Check the first trip DTC.

With GST

1. Start the engine and wait for at least 10 seconds.

CAUTION:

When the ambient temperature is -20°C (-4°F) or less and the engine is cold, warm up the engine for approximately 5 minutes.

2. Check the first trip DTC.

Is "P0847" detected?

YES >> Go to [TM-490, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325079

1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 1)

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

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F19	11	F25	25	Existed
	16		14	
	26		16	

P0847 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 2)

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

TCM		Ground	Continuity
Connector	Terminal		
F19	16	Ground	Not existed
	26		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CHECK TCM INPUT SIGNALS

1. Connect all connectors removed.
2. Start the engine.
3. Check the voltage between TCM harness connector terminal and ground.

TCM		Ground	Condition	Voltage
Connector	Terminal			
F19	16	Ground	• Selector lever: "N" position • Idle speed	Approx. 0.88 – 0.92 V

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> There is malfunction of the secondary pressure sensor. Replace the transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

P0848 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P0848 TRANSMISSION FLUID PRESSURE SEN/SW B

DTC Logic

INFOID:000000006325080

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0848	Transmission Fluid Pressure Sensor/Switch B Circuit Low	The secondary pressure sensor voltage is 4.7 V or more continuously for 5 seconds or more under the following diagnosis conditions: • Diagnosis conditions - CVT fluid temperature: More than -20°C (-4°F) - Secondary pressure target value: 5.7 MPa or less - TCM power supply voltage: 10 – 16 V	• Harness or connector (Secondary pressure sensor circuit is shorted to power supply) • Secondary pressure sensor • Control valve assembly

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Maintain the following conditions for 10 seconds or more.

FLUID TEMP : -19°C (-2.2°F) or more

5. Check the first trip DTC.

With GST

1. Start the engine and wait for at least 10 seconds.

CAUTION:

When the ambient temperature is -20°C (-4°F) or less and the engine is cold, warm up the engine for approximately 5 minutes.

2. Check the first trip DTC.

Is "P0848" detected?

YES >> Go to [TM-492, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325081

1. CHECK SECONDARY PRESSURE SENSOR POWER SUPPLY CIRCUIT

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

CVT unit		Ground	Voltage
Connector	Terminal		
F25	16	Ground	Approx. 5.0 V

Is the inspection result normal?

YES >> GO TO 2.

P0848 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

NO >> Repair or replace the malfunctioning parts.

2.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

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

TCM			Continuity
Connector	Terminal		
F19	16	Other than 16	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CHECK TCM INPUT SIGNALS

1. Connect all connectors removed.
2. Start the engine.
3. Check the voltage between TCM harness connector terminal and ground.

TCM		Ground	Condition	Voltage
Connector	Terminal			
F19	16	Ground	• Selector lever: "N" position • Idle speed	Approx. 0.88 – 0.92 V

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> There is a malfunction of the secondary pressure sensor. Replace the transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

P0863 TCM COMMUNICATION**DTC Logic**

INFOID:000000006325083

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0863	TCM Communication Circuit	An error is detected at the initial CAN diagnosis of TCM.	TCM

DTC CONFIRMATION PROCEDURE**1.PREPARATION BEFORE WORK**

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

>> GO TO 2.

2.CHECK DTC DETECTION With CONSULT

1. Turn ignition switch ON.
2. Check the DTC.

Is "P0863" detected?

- YES >> Go to [TM-494, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325084

1.CHECK INTERMITTENT INCIDENTRefer to [GI-51, "Intermittent Incident"](#).Is the inspection result normal?

- YES >> Replace the TCM. Refer to [TM-568, "Removal and Installation"](#).
NO >> Repair or replace malfunctioning parts.

P0962 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P0962 PRESSURE CONTROL SOLENOID A

DTC Logic

INFOID:000000006325085

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0962	Pressure Control Solenoid A Control Circuit Low	The line pressure solenoid valve current is 200 mA or less continuously for 200 msec or more under the following diagnosis conditions: • Diagnosis conditions - Solenoid output current: 750 mA or more - GND short diagnosis of the solenoid drive circuit is satisfied. - TCM power supply voltage: 10 – 16 V	• Harness or connector (Line pressure solenoid valve circuit is shorted to ground) • Line pressure solenoid valve

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P0962" detected?

YES >> Go to [TM-495, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325086

1. CHECK CIRCUIT BETWEEN TCM AND THE CVT UNIT

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

TCM		Ground	Continuity
Connector	Terminal		
F19	30	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2. CHECK LINE PRESSURE SOLENOID VALVE

Check the line pressure solenoid valve. Refer to [TM-495, "Component Inspection \(Line Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

Component Inspection (Line Pressure Solenoid Valve)

INFOID:000000006525207

1. CHECK LINE PRESSURE SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

P0962 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

CVT unit Terminal	Ground	Condition	Resistance
2	Ground	CVT fluid temperature: 20°C (68°F)	Approx. 5.3 Ω
		CVT fluid temperature: 50°C (122°F)	Approx. 6.0 Ω
		CVT fluid temperature: 80°C (176°F)	Approx. 6.7 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of line pressure solenoid valve. Replace transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

P0963 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P0963 PRESSURE CONTROL SOLENOID A

DTC Logic

INFOID:000000006325087

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P0963	Pressure Control Solenoid A Control Circuit High	The line pressure solenoid valve current is 200 mA or less continuously for 200 msec or more under the following diagnosis conditions: • Diagnosis conditions - Solenoid output current: 750 mA or more - GND short diagnosis of the solenoid drive circuit is not satisfied. - TCM power supply voltage: 10 – 16 V	• Harness or connector (Line pressure solenoid valve circuit is open or shorted to power supply) • Line pressure solenoid valve

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P0963" detected?

YES >> Go to [TM-497, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325088

1. CHECK CIRCUIT BETWEEN TCM AND THE CVT UNIT

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

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F19	30	F25	2	Existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2. CHECK LINE PRESSURE SOLENOID VALVE

Check the line pressure solenoid valve. Refer to [TM-497, "Component Inspection \(Line Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

Component Inspection (Line Pressure Solenoid Valve)

INFOID:000000006525208

1. CHECK LINE PRESSURE SOLENOID VALVE

P0963 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Check resistance between CVT unit connector terminal and ground.

CVT unit Terminal	Ground	Condition	Resistance
2	Ground	CVT fluid temperature: 20°C (68°F)	Approx. 5.3 Ω
		CVT fluid temperature: 50°C (122°F)	Approx. 6.0 Ω
		CVT fluid temperature: 80°C (176°F)	Approx. 6.7 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of line pressure solenoid valve. Replace transaxle assembly. Refer to [TM-587. "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591. "HR12DDR : Removal and Installation"](#) (HR12DDR).

P1586 G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P1586 G SENSOR

DTC Logic

INFOID:0000000006325089

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P1586	G Sensor Circuit Electrical	When the following diagnosis conditions are satisfied and the detection conditions are satisfied twice in the same DC: • Diagnosis conditions - While driving - TCM power supply voltage: $10\text{ V} \leq \text{TCM power supply voltage} \leq 16\text{ V}$ • Detection condition - The G sensor detection voltage is 0.7 V or less continuously for 5 seconds or more When the following diagnosis conditions are satisfied and the detection conditions are satisfied twice in the same DC: • Diagnosis conditions - While driving - TCM power supply voltage: $10\text{ V} \leq \text{TCM power supply voltage} \leq 16\text{ V}$ • Detection condition - The G sensor detection voltage is 3.2 V or more continuously for 5 seconds or more	• Harness or connector (G sensor circuit) • G sensor

NOTE:

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

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

④ With CONSULT

1. Start the engine.
2. Drive the vehicle for 10 seconds or more.
3. Stop the vehicle.

CAUTION:

Never stop the engine.

4. Repeat step 2 through 3.
5. Check the DTC.

Is "P1586" detected?

- YES >> Go to [TM-499, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000006325090

1. CHECK G SENSOR SIGNAL

④ With CONSULT

1. Park the vehicle on a level surface.
2. Turn ignition switch ON.

P1586 G SENSOR

[CVT: RE0F11A]

< DTC/CIRCUIT DIAGNOSIS >

3. Select "Data Monitor" in "TRANSMISSION".
4. Select "G SEN SLOPE".
5. Swing the vehicle and check if the value varies between -40.45% and 40.45%.

Monitor item	Condition	Standard
G SEN SLOPE	Flat road	0%
	Uphill	Positive value (Maximum 40.45%)
	Downhill	Negative value (Minimum -40.45%)

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 3.

2.G SENSOR CALIBRATION (PART 1)

With CONSULT

1. Select "Self Diagnostic Results" in "TRANSMISSION".
2. Touch "Erase".

>> Perform "G SENSOR CALIBRATION". Refer to [TM-440. "Procedure"](#).

3.CHECK SENSOR POWER SUPPLY

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

G sensor		Ground	Voltage
Connector	Terminal		
M13	3	Ground	Approx. 5.0 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 8.

4.CHECK CIRCUIT BETWEEN TCM AND G SENSOR (PART 1)

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

TCM		G sensor		Continuity
Connector	Terminal	Connector	Terminal	
F19	11	M13	2	Existed
	14		1	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.CHECK CIRCUIT BETWEEN TCM AND G SENSOR (PART 2)

Check the continuity between TCM harness connector terminals and ground.

TCM		Ground	Continuity
Connector	Terminal		
F19	11	Ground	Not existed
	16		

P1586 G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Is the inspection result normal?

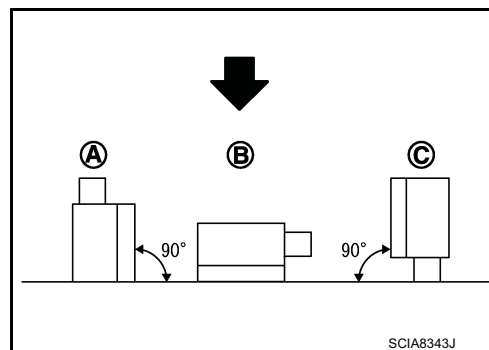
- YES >> GO TO 6.
NO >> Repair or replace the malfunctioning parts.

6.CHECK G SENSOR

1. Remove the G sensor. [TM-570, "Removal and Installation"](#).
2. Connect the all connectors.
3. Turn ignition switch ON.
4. Check the voltage between TCM harness connector terminal and ground.

← : Direction of gravitational force

TCM		Ground	Test condition	Voltage
Connector	Terminal			
F19	14	Ground	Vertical (-1G) (A)	Approx. 1.17 V
			Horizontal (B)	Approx.2.5 V
			Vertical (1G) (C)	Approx.3.83 V



Is the inspection result normal?

- YES >> GO TO 7.
NO >> Replace G sensor. [TM-570, "Removal and Installation"](#).

7.G SENSOR CALIBRATION (PART 2)

With CONSULT

1. Install G sensor. [TM-570, "Removal and Installation"](#).
2. Select "Self Diagnostic Results" in "TRANSMISSION".
3. Touch "Erase".

>> Perform "G SENSOR CALIBRATION". Refer to [TM-440, "Procedure"](#).

8.CHECK SENSOR POWER SUPPLY CIRCUIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect the TCM connector.
3. Check continuity between TCM harness connector terminal and G sensor harness connector terminal.

TCM		G sensor		Continuity
Connector	Terminal	Connector	Terminal	
F19	26	M13	3	Existed

Is the inspection result normal?

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

9.CHECK SENSOR POWER SUPPLY CIRCUIT (PART 2)

Check the continuity between TCM harness connector terminal and ground.

TCM		Ground	Continuity
Connector	Terminal		
F19	26	Ground	Not existed

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

P1588 G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P1588 G SENSOR

DTC Logic

INFOID:000000006325091

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P1588	G Sensor Circuit Range/Performance	When the following diagnosis conditions are satisfied and the detection conditions are satisfied twice in the same DC: • Diagnosis condition (1 second or more) - The rate of change in G sensor detection value (mV): Between -15 and +15 inclusive • Detection condition - The rate of change in acceleration/deceleration stays +0.0273 G or more/-0.0273 or less at least for 5 seconds or more	G sensor

NOTE:

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

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

④ With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "G SPEED".
4. Drive the vehicle.
5. Maintain the following conditions for 8 seconds or more.

Selector lever : "D" position

G SPEED : 0.05 G or more

6. Stop the vehicle.

CAUTION:

Never stop the engine.

7. Repeat steps 4 through 6.
8. Check the DTC.

Is "P1588" detected?

YES >> Go to [TM-502, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325092

1. CHECK G SENSOR SIGNAL

④ With CONSULT

1. Park the vehicle on a level surface.
2. Turn ignition switch ON.
3. Select "Data Monitor" in "TRANSMISSION".
4. Select "G SEN SLOPE".

P1588 G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

- Swing the vehicle and check if the value varies between -40.45% and 40.45%.

Monitor item	Condition	Standard
G SEN SLOPE	Flat road	0%
	Uphill	Positive value (Maximum 40.45%)
	Downhill	Negative value (Minimum -40.45%)

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 3.

2.G SENSOR CALIBRATION (PART 1)

Ⓜ With CONSULT

- Select "Self Diagnostic Results" in "TRANSMISSION".
- Touch "Erase".

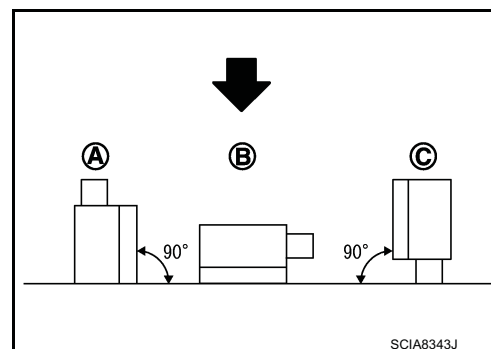
>> Perform "G SENSOR CALIBRATION". Refer to [TM-440, "Procedure"](#).

3.CHECK G SENSOR

- Remove the G sensor. [TM-570, "Removal and Installation"](#).
- Connect the all connectors.
- Turn ignition switch ON.
- Check the voltage between TCM harness connector terminal and ground.

← : Direction of gravitational force

TCM		Ground	Test condition	Voltage
Connector	Terminal			
F19	14	Ground	Vertical (-1G) (A)	Approx. 1.17 V
			Horizontal (B)	Approx. 2.5 V
			Vertical (1G) (C)	Approx. 3.83 V



Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace G sensor. [TM-570, "Removal and Installation"](#).

4.G SENSOR CALIBRATION (PART 2)

Ⓜ With CONSULT

- Install G sensor. [TM-570, "Removal and Installation"](#).
- Select "Self Diagnostic Results" in "TRANSMISSION".
- Touch "Erase".

>> Perform "G SENSOR CALIBRATION". Refer to [TM-440, "Procedure"](#).

P1701 TCM

DTC Logic

INFOID:000000006325094

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P1701	Power Supply Circuit	The battery voltage supplied to the TCM is less than 8.4 V continuously for 200 msec or more under the following diagnosis condition: • Diagnosis condition - TCM power supply voltage: More than 11 V	Harness or connector (TCM power supply (back-up) circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the DTC.

Is "P1701" detected?

- YES >> Go to [TM-504, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325095

1. CHECK TCM POWER SUPPLY (BACK-UP) CIRCUIT

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

TCM		Ground	Voltage
Connector	Terminal		
F19	45	Ground	10 – 16 V
	46		

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
 NO >> GO TO 2.

2. DETECTION OF MALFUNCTION ITEMS

Check the following items:

- Open or short circuit of the harness between battery and TCM connector terminals 45 and 46. Refer to [PG-16, "TYPE A : Wiring Diagram - BATTERY POWER SUPPLY -"](#) (TYPE A)*, [PG-86, "TYPE B : Wiring Diagram - BATTERY POWER SUPPLY -"](#) (TYPE B)* or [PG-162, "TYPE C : Wiring Diagram - BATTERY POWER SUPPLY -"](#) (TYPE C)*.
 *: Refer to [PG-15, "Application Notice"](#).
- 10A fuse [No.17, fuse block (J/B)] (With stop/start system). Refer to [PG-316, "TYPE A : Fuse, Connector and Terminal Arrangement"](#) (TYPE A)* or [PG-319, "TYPE C : Fuse, Connector and Terminal Arrangement"](#) (TYPE C)*.
 *: Refer to [PG-315, "Application Notice"](#).
- 10A fuse (No.33, fuse and fusible link box) (Without stop/start system). Refer to [PG-325, "TYPE B : Fuse and Fusible Link Arrangement"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51. "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

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P1739 1GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P1739 1GR INCORRECT RATIO

DTC Logic

INFOID:000000006325096

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P1739	1GR Incorrect Ratio	The detection conditions continuously for 200 msec or more under the following diagnosis conditions: • Diagnosis conditions - Selector lever: Other than "P", "R" and "N" positions - Vehicle speed: 10 km/h (6 MPH) or more - Engine speed: More than 712 rpm - Output speed: More than 300 rpm - Secondary pulley speed: More than 300 rpm - A lapse of 500 msec or more after the stop lamp switch is turned from ON to OFF. - Command for the 1GR of auxiliary gearbox is in progress. - Auxiliary gearbox shifting is not in progress. - TCM power supply voltage: $10\text{ V} \leq \text{TCM power supply voltage} \leq 16\text{ V}$ • Detection conditions - Acceleration/deceleration: Less than -0.05 G - Actual auxiliary gearbox gear ratio – Auxiliary gearbox 1GR ratio $\geq 50\%$ The auxiliary gearbox gear ratio is $\pm 10\%$ or less for the auxiliary gearbox 2GR ratio continuously for 500 msec or more under the following diagnosis conditions: • Diagnosis conditions - Selector lever: Other than "P", "R" and "N" positions - Accelerator pedal position: 0.7/8 or more - Engine speed: More than 712 rpm - Secondary pulley speed: More than 300 rpm - Output speed: More than 300 rpm - Command for the 1GR of auxiliary gearbox is in progress. - Auxiliary gearbox shifting is not in progress. - TCM power supply voltage: $10\text{ V} \leq \text{TCM power supply voltage} \leq 16\text{ V}$	• High clutch & reverse brake solenoid valve • Control valve assembly

DTC CONFIRMATION PROCEDURE

CAUTION:

- Be sure to perform "[TM-507, "Diagnosis Procedure"](#)" and then perform "DTC CONFIRMATION PROCEDURE".
- Never perform "DTC CONFIRMATION PROCEDURE" before the repairs. Doing so may result in a secondary malfunction.
- Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

P1739 1GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

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

Selector lever : "L" POSITION
Accelerator pedal position : 0.7/8 or more
Vehicle speed : 10 km/h (6 MPH) or more

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

Is "P1739" detected?

YES >> Go to [TM-507, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325097

1.CHECK INTERMITTENT INCIDENT

Refer to [GI-51, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace the transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).
NO >> Repair or replace malfunctioning parts.

P173A 2GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P173A 2GR INCORRECT RATIO

DTC Logic

INFOID:000000006325101

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P173A	2GR Incorrect Ratio	The detection conditions continuously for 200 msec or more under the following diagnosis conditions: • Diagnosis conditions - Selector lever: Other than "P", "R" and "N" positions - Vehicle speed: 10 km/h (6 MPH) or more - Engine speed: More than 550 rpm - Output speed: More than 300 rpm - Secondary pulley speed: More than 300 rpm - A lapse of 500 msec or more after the stop lamp switch is turned from ON to OFF. - Command for the 2GR of auxiliary gearbox is in progress. - Auxiliary gearbox shifting is not in progress. - TCM power supply voltage: 10 – 16 V • Detection conditions - Acceleration/deceleration: Less than –0.05 G - Actual auxiliary gearbox gear ratio – Auxiliary gearbox 2GR ratio $\geq 50\%$ The auxiliary gearbox gear ratio is $\pm 10\%$ or less for the auxiliary gearbox 1GR ratio continuously for 500 msec or more under the following diagnosis conditions: • Diagnosis conditions - Selector lever: Other than "P", "R" and "N" positions - Accelerator pedal position: 0.7/8 or more - Engine speed: More than 550 rpm - Secondary pulley speed: More than 300 rpm - Output speed: More than 300 rpm - Command for the 2GR of auxiliary gearbox is in progress. - Auxiliary gearbox shifting is not in progress. - TCM power supply voltage: 10 – 16 V	• Low brake solenoid valve • Control valve assembly

DTC COFIRMATION PROCEDURE

CAUTION:

- Be sure to perform "[TM-509, "Diagnosis Procedure"](#)" and then perform "DTC CONFIRMATION PROCEDURE".
- Never perform "TC CONFIRMATION PROCEDURE" before the repairs. Doing so may result in a secondary malfunction.
- Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine.

P173A 2GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

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

Selector lever : "D" position
Accelerator pedal position : 0.7/8 or more
Vehicle speed : 45 km/h (28 MPH) or more

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

Is "P173A" detected?

YES >> Go to [TM-509, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325102

1.CHECK INTERMITTENT INCIDENT

Refer to [GI-51, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace the transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).
NO >> Repair or replace malfunctioning parts.

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P173B 1GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P173B 1GR INCORRECT RATIO

DTC Logic

INFOID:000000006325103

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P173B	1GR Incorrect Ratio	The auxiliary gearbox gear ratio is 2.232 or more for the auxiliary gearbox 1GR ratio continuously for 5 seconds or more under the following diagnosis conditions: • Diagnosis conditions - Selector lever: Other than "P", "R" and "N" positions - Accelerator pedal position: 0.7/8 or more - Engine speed: More than 550 rpm - Output speed: More than 300 rpm - Secondary pulley speed: More than 300 rpm - Command for the 1GR of auxiliary gearbox is in progress. - Auxiliary gearbox shifting is not in progress. - TCM power supply voltage: 10 – 16 V	• Low brake solenoid valve • Control valve assembly

DTC CONFIRMATION PROCEDURE

CAUTION:

- Be sure to perform "[TM-510, "Diagnosis Procedure"](#)" and then perform "DTC CONFIRMATION PROCEDURE".
- Never perform "DTC CONFIRMATION PROCEDURE" before the repairs. Doing so may result in a secondary malfunction.
- Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever	: "L" POSITION
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 10 km/h (6 MPH) or more

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

Is "P173B" detected?

YES >> Go to [TM-510, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325104

1. CHECK INTERMITTENT INCIDENT

Refer to [GI-51, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace the transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

P173B 1GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

NO >> Repair or replace malfunctioning parts.

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P173C 2GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P173C 2GR INCORRECT RATIO

DTC Logic

INFOID:000000006325105

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P173C	2GR Incorrect Ratio	The auxiliary gearbox gear ratio is 2.232 or more for the auxiliary gearbox 2GR ratio continuously for 5 seconds or more under the following diagnosis conditions: • Diagnosis conditions - Selector lever: Other than "P", "R" and "N" positions - Accelerator pedal position: 0.7/8 or more - Engine speed: More than 550 rpm - Output speed: More than 300 rpm - Secondary pulley speed: More than 300 rpm - Command for the 2GR of auxiliary gearbox is in progress. - Auxiliary gearbox shifting is not in progress. - TCM power supply voltage: 10 – 16 V	• High clutch & reverse brake solenoid valve • Control valve assembly

DTC CONFIRMATION PROCEDURE

CAUTION:

- Be sure to perform "[TM-512, "Diagnosis Procedure"](#)" and then perform "DTC CONFIRMATION PROCEDURE".
- Never perform "DTC CONFIRMATION PROCEDURE" before the repairs. Doing so may result in a secondary malfunction.
- Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever	: "D" POSITION
Accelerator pedal position	: 0.7/8 or more
Vehicle speed	: 45 km/h (28 MPH) or more

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

Is "P173C" detected?

- YES >> Go to [TM-512, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325106

1. CHECK INTERMITTENT INCIDENT

Refer to [GI-51, "Intermittent Incident"](#).

Is the inspection result normal?

- YES >> Replace the transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

P173C 2GR INCORRECT RATIO

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

NO >> Repair or replace malfunctioning parts.

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P17B4 LOW BRAKE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P17B4 LOW BRAKE SOLENOID

DTC Logic

INFOID:000000006325107

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17B4	Low Brake Solenoid Circuit Low	The TCM low brake solenoid valve current monitor reading is 200 mA or less continuously for 480 msec or more under the following diagnosis conditions: • Diagnosis conditions - Solenoid valve output current: 750 mA or more - GND short circuit diagnosis occurs in the solenoid valve drive circuit. - TCM power supply voltage: 10 – 16 V	• Harness or connector (Low brake solenoid valve circuit shorted to ground) • Low brake solenoid valve

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine.
2. Shift the selector lever to "D" position and wait for 5 seconds or more.
3. Check the first trip DTC.

Is "P17B4" detected?

YES >> Go to [TM-514, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325108

1. CHECK CIRCUIT BETWEEN TCM AND THE CVT UNIT

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

TCM		Ground	Continuity
Connector	Terminal		
F19	39	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2. CHECK LOW BRAKE SOLENOID VALVE

Check the low brake solenoid valve. Refer to [TM-514, "Component Inspection \(Low Brake Solenoid Valve\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

Component Inspection (Low Brake Solenoid Valve)

INFOID:000000006528616

1. CHECK LOW BRAKE SOLENOID VALVE

P17B4 LOW BRAKE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Check resistance between CVT unit connector terminal and ground.

CVT unit	Ground	Condition	Resistance
Terminal			
22	Ground	CVT fluid temperature: 20°C (68°F)	Approx. 5.3 Ω
		CVT fluid temperature: 50°C (122°F)	Approx. 6.0 Ω
		CVT fluid temperature: 80°C (176°F)	Approx. 6.7 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of low brake solenoid valve. Replace transaxle assembly. Refer to [TM-587. "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591. "HR12DDR : Removal and Installation"](#) (HR12DDR).

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P17B5 LOW BRAKE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P17B5 LOW BRAKE SOLENOID

DTC Logic

INFOID:000000006325109

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17B5	Low Brake Solenoid Circuit High	The TCM low brake solenoid valve current monitor reading is 200 mA or less continuously for 200 msec or more under the following diagnosis conditions: • Diagnosis conditions - Solenoid valve output current: 750 mA or more - GND short diagnosis of the solenoid valve circuit is not satisfied. - TCM power supply voltage: 10 – 16 V	• Harness or connector (Low brake solenoid valve circuit is open or shorted to power supply) • Low brake solenoid valve

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine.
2. Shift the selector lever to "D" position and wait for 5 seconds or more.
3. Check the first trip DTC.

Is "P17B5" detected?

YES >> Go to [TM-516. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325110

1. CHECK CIRCUIT BETWEEN TCM AND THE CVT UNIT

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

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F19	39	F25	22	Existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2. CHECK LOW BRAKE SOLENOID VALVE

Check the low brake solenoid valve. Refer to [TM-517. "Component Inspection \(Low Brake Solenoid Valve\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51. "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

P17B5 LOW BRAKE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Component Inspection (Low Brake Solenoid Valve)

INFOID:0000000006528617

1.CHECK LOW BRAKE SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit Terminal	Ground	Condition	Resistance
22	Ground	CVT fluid temperature: 20°C (68°F)	Approx. 5.3 Ω
		CVT fluid temperature: 50°C (122°F)	Approx. 6.0 Ω
		CVT fluid temperature: 80°C (176°F)	Approx. 6.7 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of low brake solenoid valve. Replace transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

P17B7 HIGH CLUTCH & REVERSE BRAKE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P17B7 HIGH CLUTCH & REVERSE BRAKE SOLENOID

DTC Logic

INFOID:000000006325111

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17B7	High Clutch & Reverse Brake Solenoid Circuit Low	The TCM high clutch & reverse brake solenoid valve current monitor reading is 200 mA or less continuously for 200 msec or more under the following diagnosis conditions: • Diagnosis conditions - Solenoid valve output current: 750 mA or more - GND short circuit diagnosis occurs in the solenoid valve drive circuit. - TCM power supply voltage: 10 – 16 V	• Harness or connector (High& clutch reverse brake solenoid valve circuit shorted to ground) • High clutch & reverse brake solenoid valve

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

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

>> GO TO 2.

2.CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P17B7" detected?

YES >> Go to [TM-518. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325112

1.CHECK CIRCUIT BETWEEN TCM AND THE CVT UNIT

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

TCM		Ground	Continuity
Connector	Terminal		
F19	37	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2.CHECK HIGH CLUTCH & REVERSE BRAKE SOLENOID VALVE

Check the high clutch & reverse brake solenoid valve. Refer to [TM-518. "Component Inspection \(High Clutch & Reverse Brake Solenoid Valve\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51. "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

Component Inspection (High Clutch & Reverse Brake Solenoid Valve)

INFOID:000000006528641

1.CHECK HIGH CLUTCH & REVERSE BRAKE SOLENOID VALVE

P17B7 HIGH CLUTCH & REVERSE BRAKE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Check resistance between CVT unit connector terminal and ground.

CVT unit Terminal	Ground	Condition	Resistance
23	Ground	CVT fluid temperature: 20°C (68°F)	Approx. 5.3 Ω
		CVT fluid temperature: 50°C (122°F)	Approx. 6.0 Ω
		CVT fluid temperature: 80°C (176°F)	Approx. 6.7 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of high & reverse brake solenoid valve. Replace transaxle assembly.
Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

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P17B8 HIGH CLUTCH & REVERSE BRAKE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P17B8 HIGH CLUTCH & REVERSE BRAKE SOLENOID

DTC Logic

INFOID:000000006325113

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17B8	High Clutch & Reverse Brake Solenoid Circuit High	The TCM high clutch & reverse brake solenoid valve current monitor reading is 200 mA or less continuously for 200 msec or more under the following diagnosis conditions: • Diagnosis conditions - Solenoid valve output current: 750 mA or more - GND short diagnosis of the solenoid valve circuit is not satisfied. - TCM power supply voltage: 10 – 16 V	• Harness or connector (High clutch & reverse brake solenoid valve circuit is open or shorted to power supply) • High clutch & reverse brake solenoid valve

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more
2. Check the first trip DTC.

Is "P17B8" detected?

YES >> Go to [TM-520, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325114

1. CHECK CIRCUIT BETWEEN TCM AND THE CVT UNIT

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

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F19	37	F25	23	Existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2. CHECK HIGH CLUTCH & REVERSE BRAKE SOLENOID VALVE

Check the high clutch & reverse brake solenoid valve. Refer to [TM-521, "Component Inspection \(High Clutch & Reverse Brake Solenoid Valve\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

P17B8 HIGH CLUTCH & REVERSE BRAKE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Component Inspection (High Clutch & Reverse Brake Solenoid Valve)

INFOID:000000006528741

1.CHECK HIGH CLUTCH & REVERSE BRAKE SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit Terminal	Ground	Condition	Resistance
23	Ground	CVT fluid temperature: 20°C (68°F)	Approx. 5.3 Ω
		CVT fluid temperature: 50°C (122°F)	Approx. 6.0 Ω
		CVT fluid temperature: 80°C (176°F)	Approx. 6.7 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of high & reverse brake solenoid valve. Replace transaxle assembly.
Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

P17BA PRIMARY PRESSURE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P17BA PRIMARY PRESSURE SOLENOID

DTC Logic

INFOID:000000006325115

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17BA	Primary Pressure Solenoid Circuit Low	The primary pressure solenoid valve current is 200 mA or less continuously for 480 msec or more under the following diagnosis conditions: • Diagnosis conditions - Solenoid valve output current: 750 mA or more - GND short circuit diagnosis occurs in the solenoid valve drive circuit. - TCM power supply voltage: 10 – 16 V	• Harness or connector (Primary pressure solenoid valve circuit shorted to ground) • Primary pressure solenoid valve

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P17BA" detected?

YES >> Go to [TM-522, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325116

1. CHECK CIRCUIT BETWEEN TCM AND THE CVT UNIT

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

TCM		Ground	Continuity
Connector	Terminal		
F19	40	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2. CHECK PRIMARY PRESSURE SOLENOID VALVE

Check the primary pressure solenoid valve. Refer to [TM-522, "Component Inspection \(Primary Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

Component Inspection (Primary Pressure Solenoid Valve)

INFOID:000000006528742

1. CHECK PRIMARY PRESSURE SOLENOID VALVE

P17BA PRIMARY PRESSURE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Check resistance between CVT unit connector terminal and ground.

CVT unit Terminal	Ground	Condition	Resistance
3	Ground	CVT fluid temperature: 20°C (68°F)	Approx. 5.3 Ω
		CVT fluid temperature: 50°C (122°F)	Approx. 6.0 Ω
		CVT fluid temperature: 80°C (176°F)	Approx. 6.7 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of primary pressure solenoid valve. Replace transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

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P17BB PRIMARY PRESSURE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P17BB PRIMARY PRESSURE SOLENOID

DTC Logic

INFOID:000000006325117

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P17BB	Primary Pressure Solenoid Circuit High	The primary pressure solenoid valve current is 200 mA or less continuously for 200 msec or more under the following diagnosis conditions: • Diagnosis conditions - Solenoid valve output current: 750 mA or more - GND short diagnosis of the solenoid valve circuit is not satisfied. - TCM power supply voltage: 10 – 16 V	• Harness or connector (Primary pressure solenoid valve circuit open or shorted to power supply) • Primary pressure solenoid valve

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P17BB" detected?

YES >> Go to [TM-524, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325118

1. CHECK CIRCUIT BETWEEN TCM AND THE CVT UNIT

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

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F19	40	F25	3	Existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2. CHECK PRIMARY PRESSURE SOLENOID VALVE

Check the primary pressure solenoid valve. Refer to [TM-525, "Component Inspection \(Primary Pressure Solenoid Valve\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).
NO >> Repair or replace the malfunctioning parts.

P17BB PRIMARY PRESSURE SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Component Inspection (Primary Pressure Solenoid Valve)

INFOID:000000006528772

1.CHECK PRIMARY PRESSURE SOLENOID VALVE

Check resistance between CVT unit connector terminal and ground.

CVT unit Terminal	Ground	Condition	Resistance
3	Ground	CVT fluid temperature: 20°C (68°F)	Approx. 5.3 Ω
		CVT fluid temperature: 50°C (122°F)	Approx. 6.0 Ω
		CVT fluid temperature: 80°C (176°F)	Approx. 6.7 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of primary pressure solenoid valve. Replace transaxle assembly. Replace transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

P188E ELECTRIC OIL PUMP

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P188E ELECTRIC OIL PUMP

DTC Logic

INFOID:000000006325119

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P188E	Electric Oil Pump	Under the following conditions, the status signal (duty) sent from the electric oil pump is 45% or less or 55% or more continuously for 1 second. • Diagnosis conditions (Status of satisfying all conditions is 1 second or more continuously.) - Operation command of electric oil pump - ON command of electric oil pump relay	• Harness or connector • Electric oil pump • Electric oil pump relay • TCM
		Under the following conditions, the status signal (duty) sent from the electric oil pump is 25% or less or 35% or more continuously for 1 second. • Diagnosis conditions (Status of satisfying all conditions is 1 second or more continuously.) - Stop command of electric oil pump - ON command of electric oil pump relay	

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION (PART 1)

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

Selector lever : "D" position

Vehicle speed : 5 km/h (3 MPH) or more

3. Check "Self Diagnostic Results" in "TRANSMISSION".

Is "P188E" detected?

YES >> Go to [TM-532, "Diagnosis Procedure"](#).

NO >> GO TO 3.

3. CHECK DTC DETECTION (PART 2)

1. Maintain stop/start system operation state for 5 seconds or more. Refer to [EC3-68, "STOP/START SYSTEM : System Description"](#) (HR12DE) or [EC3-867, "STOP/START SYSTEM : System Description \(CVT Models\)"](#) (HR12DDR).

NOTE:

If the engine restarts automatically 5 seconds later, the system may be in fail safe.

2. Check "Self Diagnostic Results" of "TRANSMISSION".

Is "P188E" detected?

YES >> Go to [TM-532, "Diagnosis Procedure"](#).

NO >> INSPECTION END

P188E ELECTRIC OIL PUMP

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

INFOID:000000006325120

Diagnosis Procedure

1.ELECTRIC OIL PUMP RELAY

Check the electric oil pump relay. Refer to [TM-529, "Component Inspection \(Electric Oil Pump Relay\)"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the electric oil pump relay. Refer to [TM-331, "CVT CONTROL SYSTEM : Component Parts Location"](#).

2.CHECK ELECTRIC OIL PUMP RELAY POWER CIRCUIT

1. Check 10A fuse [No.77, fuse block (J/B)]. Refer to [PG-316, "TYPE A : Fuse, Connector and Terminal Arrangement"](#).
2. Check the voltage between the electric oil pump relay harness connector terminal and ground.

Electric oil pump relay		Ground	Condition	Voltage
Connector	Terminal			
E57	2	Ground	Always	10 – 16 V
	3			

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CHECK CIRCUIT BETWEEN TCM AND ELECTRIC OIL PUMP RELAY

1. Disconnect the TCM harness connector.
2. Check the continuity between TCM harness connector terminal and electric oil pump relay harness connector terminal.

NOTE:

- A diode is located between TCM and the electric oil pump relay.
- To check diode, refer to [TM-529, "Component Inspection \(Diode\)"](#).

TCM		Electric oil pump relay		Continuity
+		-		
Connector	Terminal	Connector	Terminal	
F19	1	E57	1	Existed

Electric oil pump relay		TCM		Continuity
+		-		
Connector	Terminal	Connector	Terminal	
E57	1	F19	1	Not existed

3. Check for the continuity between the electric oil pump relay harness connector terminal and ground.

Electric oil pump relay		Ground	Continuity
Connector	Terminal		
E57	1	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.CHECK ELECTRIC OIL PUMP RELAY SIGNAL

1. Install the electric oil pump relay.
2. Connect the TCM harness connector.
3. Check the voltage between the TCM harness connector terminal and ground.

P188E ELECTRIC OIL PUMP

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

TCM		Ground	Condition	Voltage
Connector	Terminal			
F19	1	Ground	Ignition switch: OFF	10 – 16 V
			• Selector lever: "D" position • Vehicle speed: 5 km/h (3 MPH)	0 V

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace TCM. Refer to [TM-568, "Removal and Installation"](#).

5. CHECK TCM COMMAND SIGNAL

 With CONSULT

1. Turn ignition switch ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "ELECTRIC OP DUTY".

Monitor item	Condition	Reference value/Status
ELECTRIC OP DUTY	Ignition switch: ON	5 – 15%

4. Start the engine.
5. Activate stop/start system. Refer to [EC3-68, "STOP/START SYSTEM : System Description"](#) (HR12DE) or [EC3-867, "STOP/START SYSTEM : System Description \(CVT Models\)"](#) (HR12DDR).

Monitor item	Condition	Reference value/Status
ELECTRIC OP DUTY	Stop/start system operating	60 – 70%

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace TCM. Refer to [TM-568, "Removal and Installation"](#).

6. CHECK ELECTRIC OIL PUMP STATUS SIGNAL

 With CONSULT

1. Turn ignition switch OFF.
2. Turn ignition switch ON.
3. Select "Data Monitor" in "TRANSMISSION".
4. Select "E-OP DUTY MON".

Monitor item	Condition	Reference value/Status
E-OP DUTY MON	Ignition switch: ON	0%

5. Start the engine.

Monitor item	Condition	Reference value/Status
E-OP DUTY MON	• Selector lever: "D" position • Vehicle speed: 5 km/h (3 MPH)	25 – 35%

6. Activate stop/start system. Refer to [EC3-68, "STOP/START SYSTEM : System Description"](#) (HR12DE) or [EC3-867, "STOP/START SYSTEM : System Description \(CVT Models\)"](#) (HR12DDR).

Monitor item	Condition	Reference value/Status
E-OP DUTY MON	Stop/start system operating	45 – 55%

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> There is a malfunction of the electric oil pump. Replace the transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#).

P188E ELECTRIC OIL PUMP

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Component Inspection (Electric Oil Pump Relay)

INFOID:000000006586176

1.ELECTRIC OIL PUMP RELAY

1. Remove the electric oil pump relay. Refer to [TM-331, "CVT CONTROL SYSTEM : Component Parts Location"](#).
2. Apply voltage of 12 V between the electric oil pump relay connector terminals 1 and 2.
CAUTION:
 - **Never cause shorting between terminals.**
 - **When applying voltage, put a fuse between terminals.**
3. Check continuity between the electric oil pump relay connector terminals 3 and 5.

Electric oil pump relay	Condition	Continuity
Terminal		
3 – 5	Apply voltage between terminals 1 and 2.	Existed
	Do not apply voltage between terminals 1 and 2.	Not existed

Is the check result normal?

YES >> INSPECTION END

NO >> Replace the electric oil pump relay. Refer to [TM-331, "CVT CONTROL SYSTEM : Component Parts Location"](#).

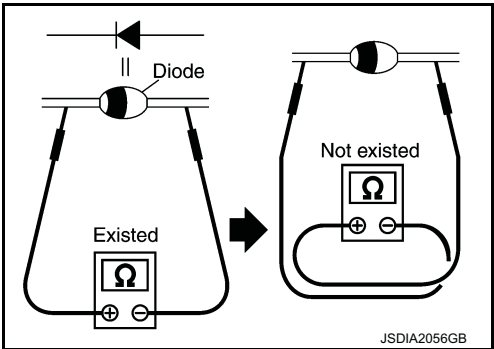
Component Inspection (Diode)

INFOID:000000006586177

- Check continuity with a tester.
- The diode is normal if the result is as shown in the figure when the polarity is reversed.

NOTE:

Tester specifications may vary depending on the tester type. Refer to the handling manual of the tester before checking continuity.



P188F ELECTRIC OIL PUMP

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P188F ELECTRIC OIL PUMP

DTC Logic

INFOID:000000006325121

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P188F	Electric Oil Pump	After the following detection condition are met during stop/start system operation, the detection condition is met again in the same DC and during 2nd or later stop/start system operation. - Detection condition - The line pressure is less than 0.06 MPa continuously for 10 seconds. CAUTION: When the detection condition is met during the 1st stop/start system operation and the ignition switch is turned OFF, diagnosis starts from the beginning.	Electric oil pump

NOTE:

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

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

- Start the engine.
- Maintain stop/start system operation state for 10 seconds or more. [EC3-68, "STOP/START SYSTEM : System Description"](#) (HR12DE) or [EC3-867, "STOP/START SYSTEM : System Description \(CVT Models\)"](#) (HR12DDR).
- Restart the engine and drive.
- Maintain stop/start system operation state for 10 seconds or more again.

NOTE:

If the engine restarts automatically 10 seconds later, the system may be in fail safe.

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

Is "P188F" detected?

YES >> Go to [TM-530, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325122

1. AIR BLEEDING OF ELECTRIC OIL PUMP

Perform air bleeding of the electric oil pump. Refer to [TM-441, "Procedure"](#).

>> GO TO 2.

2. CHECK DTC DETECTION

Perform DTC confirmation procedure. [TM-530, "DTC Logic"](#).

Is "P188F" detected?

P188F ELECTRIC OIL PUMP

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

YES >> Replace the transaxle assembly. Replace transaxle assembly. Refer to [TM-587, "HR12DE : Removal and Installation"](#) (HR12DE) or [TM-591, "HR12DDR : Removal and Installation"](#) (HR12DDR).

NO >> INSPECTION END

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P1890 ELECTRIC OIL PUMP RELAY

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P1890 ELECTRIC OIL PUMP RELAY

DTC Logic

INFOID:000000006325123

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P1890	Electric Oil Pump Relay	Although TCM is giving command of the electric oil pump relay OFF, the status signal (duty) from the electric oil pump is input continuously for 5 seconds.	• Harness or connector • Electric oil pump relay • TCM

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

1. Turn ignition switch ON and wait for 5 seconds or more.
2. Check "Self Diagnostic Results" in "TRANSMISSION".

Is "P1890" detected?

YES >> Go to [TM-532, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325124

1. ELECTRIC OIL PUMP RELAY

Check the electric oil pump relay. Refer to [TM-533, "Component Inspection \(Electric Oil Pump Relay\)"](#).

Is the check result normal?

YES >> GO TO 2.

NO >> Replace the electric oil pump relay. Refer to [TM-533, "Component Inspection \(Electric Oil Pump Relay\)"](#).

2. CHECK ELECTRIC OIL PUMP RELAY POWER CIRCUIT

1. Check 10A fuse [No.77, fuse block (J/B)]. Refer to [PG-316, "TYPE A : Fuse, Connector and Terminal Arrangement"](#).
2. Check the voltage between the electric oil pump relay harness connector terminal and ground.

Electric oil pump relay		Ground	Condition	Voltage
Connector	Terminal			
E57	2	Ground	Always	10 – 16 V
	3			

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3. CIRCUIT CHECK BETWEEN TCM AND ELECTRIC OIL PUMP RELAY

1. Disconnect the TCM harness connector.
2. Check the continuity between TCM harness connector terminal and electric oil pump relay harness connector terminal.

NOTE:

P1890 ELECTRIC OIL PUMP RELAY

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

- A diode is located between TCM and the electric oil pump relay.
- To check diode, refer to [TM-534, "Component Inspection \(Diode\)"](#).

TCM		Electric oil pump relay		Continuity
+		-		
Connector	Terminal	Connector	Terminal	
F19	1	E57	1	Existed

Electric oil pump relay		TCM		Continuity
+		-		
Connector	Terminal	Connector	Terminal	
E57	1	F19	1	Not existed

3. Check for the continuity between the electric oil pump relay connector terminal and ground.

Electric oil pump relay		Ground	Continuity
Connector	Terminal		
E57	1	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.CHECK ELECTRIC OIL PUMP RELAY SIGNAL

1. Install the electric oil pump relay.
2. Connect the TCM harness connector.
3. Check the voltage between the TCM harness connector terminal and ground.

TCM		Ground	Condition	Voltage
Connector	Terminal			
F19	1	Ground	Ignition switch: OFF	10 – 16 V
			• Selector lever: "D" position • Vehicle speed: 5 km/h (3 MPH)	0 V

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Replace TCM. Refer to [TM-568, "Removal and Installation"](#).

Component Inspection (Electric Oil Pump Relay)

INFOID:000000006325125

1.ELECTRIC OIL PUMP RELAY

1. Remove the electric oil pump relay. Refer to [TM-331, "CVT CONTROL SYSTEM : Component Parts Location"](#).
2. Apply voltage of 12 V between the electric oil pump relay connector terminals 1 and 2.
CAUTION:
 - **Never cause shorting between terminals.**
 - **When applying voltage, put a fuse between terminals.**
3. Check continuity between the electric oil pump relay connector terminals 3 and 5.

Electric oil pump relay	Condition	Continuity
Terminal		
3 – 5	Apply voltage between terminals 1 and 2.	Existed
	Do not apply voltage between terminals 1 and 2.	Not existed

Is the check result normal?

P1890 ELECTRIC OIL PUMP RELAY

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

YES >> INSPECTION END

NO >> Replace the electric oil pump relay. Refer to [TM-331, "CVT CONTROL SYSTEM : Component Parts Location"](#).

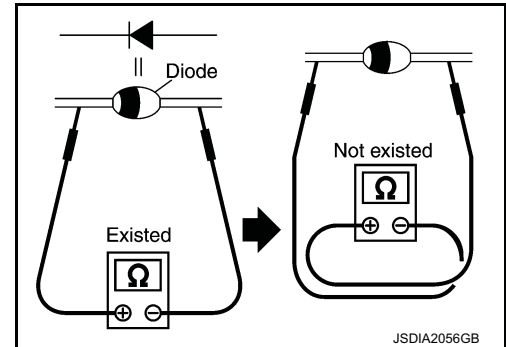
Component Inspection (Diode)

INFOID:000000006584728

- Check continuity with a tester.
- The diode is normal if the result is as shown in the figure when the polarity is reversed.

NOTE:

Tester specifications may vary depending on the tester type. Refer to the handling manual of the tester before checking continuity.



P2765 CLUTCH B SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

P2765 CLUTCH B SPEED SENSOR

DTC Logic

INFOID:000000006325126

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition	Possible causes
P2765	Input/Turbine Speed Sensor B Circuit	The secondary speed sensor value is less than 150 rpm continuously for 5 seconds or more under the following diagnosis conditions: • Diagnosis conditions - Primary pulley speed: 1,000 rpm or more - TCM power supply voltage: 10 – 16 V The secondary pulley speed sensor value is 240 rpm or less continuously for 500 msec or more under the following diagnosis conditions: • Diagnosis condition - 10-msec-ago secondary pulley speed: 1,000 rpm or more - TCM power supply voltage: 10 – 16 V	• Harness or connector (Secondary speed sensor circuit is open or shorted) • Secondary speed sensor

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

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

>> GO TO 2.

2. CHECK DTC DETECTION

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

Selector lever : "D" position

Vehicle speed : 55 km/h (34 MPH) or more

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

Is "P2765" detected?

YES >> Go to [TM-535, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006325127

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 the voltage between the secondary speed sensor harness connector terminal and ground.

Secondary speed sensor		Ground	Voltage
Connector	Terminal		
F31	3	Ground	10 – 16 V

Is the inspection result normal?

YES >> GO TO 2.

P2765 CLUTCH B SPEED SENSOR

[CVT: RE0F11A]

< DTC/CIRCUIT DIAGNOSIS >

NO-1 (Without stop/start system)>>GO TO 6.

NO-2 (With stop/start system)>>GO TO 8.

2.CHECK SECONDARY SPEED SENSOR GROUND CIRCUIT

Check continuity between of the primary speed sensor harness connector terminal and ground.

Secondary speed sensor		Ground	Continuity
Connector	Terminal		
F31	1	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

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

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

Secondary speed sensor		TCM		Continuity
Connector	Terminal	Connector	Terminal	
F31	2	F19	34	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.CHECK CIRCUIT BETWEEN SECONDARY SPEED SENSOR AND TCM (PART 2)

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

Secondary speed sensor		Ground	Continuity
Connector	Terminal		
F31	2	Ground	Not existed

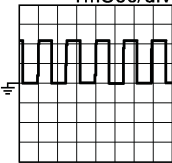
Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.CHECK TCM INPUT SIGNALS

1. Connect all of the disconnected connectors.
2. Lift the vehicle.
3. Start the engine.
4. Check frequency of secondary speed sensor.

TCM		Ground	Condition	Data
Connector	Terminal			
F19	34	Ground	• Selector lever: "L" position • Vehicle speed: 20 km/h (12 MPH)	Approximately 700 Hz 1mSec/div  5V/div JSDIA1905GB

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

P2765 CLUTCH B SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

NO >> Replace the secondary speed sensor. [TM-574, "Removal and Installation"](#).

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

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

IPDM E/R		Secondary speed sensor		Continuity
Connector	Terminal	Connector	Terminal	
E14	57	F31	3	Existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace the malfunctioning parts.

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

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

IPDM E/R		Ground	Continuity
Connector	Terminal		
E14	57	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace the malfunctioning parts.

8.DETECTION OF MALFUNCTION ITEMS (PART 1)

Check the following items:

- Harness open circuit or short circuit between the ignition switch and the secondary speed sensor connector terminal 3. Refer to [PG-54, "TYPE A : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE A)* or [PG-208, "TYPE C : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE C)*.

*: Refer to [PG-15, "Application Notice"](#).

- 10A fuse [No. 63, fuse block (J/B)]. Refer to [PG-316, "TYPE A : Fuse, Connector and Terminal Arrangement"](#) (TYPE A)* or [PG-319, "TYPE C : Fuse, Connector and Terminal Arrangement"](#) (TYPE C)*.

*: Refer to [PG-15, "Application Notice"](#).

- Fuse block (J/B)

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

9.DETECTION OF MALFUNCTION ITEMS (PART 2)

Check the following items:

- Harness open circuit or short circuit between the ignition switch and the IPDM E/R. Refer to [PG-130, "TYPE B : Wiring Diagram - IGNITION POWER SUPPLY -"](#).
- 10A fuse (No. 52, IPDM E/R). Refer to [PG-335, "TYPE B : Fuse, Connector and Terminal Arrangement"](#).
- IPDM E/R

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

MAIN POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

MAIN POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:000000006534870

1.CHECK TCM POWER CIRCUIT 1

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

TCM		Ground	Voltage
Connector	Terminal		
F19	45	Ground	10 – 16 V
	46		

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 4.

2.CHECK TCM POWER CIRCUIT 2

Check the voltage between the TCM harness connector terminals and ground.

TCM		Ground	Condition	Voltage
Connector	Terminal			
F19	47	Ground	Ignition switch ON	10 – 16 V
			Ignition switch OFF	Approx. 0 V
	48		Ignition switch ON	10 – 16 V
			Ignition switch OFF	Approx. 0 V

Is the inspection result normal?

YES >> GO TO 3.

NO-1 (Without stop/start system)>>GO TO 5.

NO-2 (With stop/start system)>>GO TO 7.

3.CHECK TCM GROUND CIRCUIT

Check the continuity between TCM harness connector terminals and ground.

TCM		Ground	Continuity
Connector	Terminal		
F19	41	Ground	Existed
	42		

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

4.DETECT MALFUNCTION ITEMS (PART 1)

Check the following items:

- Open or short circuit of the harness between battery and TCM connector terminals 45 and 46. Refer to [PG-16, "TYPE A : Wiring Diagram - BATTERY POWER SUPPLY -" \(TYPE A\)*](#), [PG-86, "TYPE B : Wiring Diagram - BATTERY POWER SUPPLY -" \(TYPE B\)*](#), [PG-162, "TYPE C : Wiring Diagram - BATTERY POWER SUPPLY -" \(TYPE C\)*](#) or [PG-246, "TYPE D : Wiring Diagram - BATTERY POWER SUPPLY -" \(TYPE D\)*](#).
*: Refer to [PG-15, "Application Notice"](#).
- 10A fuse [No.17, fuse block (J/B)] (With stop/start system). Refer to [PG-316, "TYPE A : Fuse, Connector and Terminal Arrangement" \(TYPE A\)*](#) or [PG-319, "TYPE C : Fuse, Connector and Terminal Arrangement" \(TYPE C\)*](#).
*: Refer to [PG-315, "Application Notice"](#).

MAIN POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

- 10A fuse (No.33, fuse and fusible link box) (Without stop/start system). Refer to [PG-325, "TYPE B : Fuse and Fusible Link Arrangement"](#) (TYPE B)* or [PG-330, "TYPE D : Fuse and Fusible Link Arrangement"](#) (TYPE D)*.

*: Refer to [PG-15, "Application Notice"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

5.CHECK CIRCUIT BETWEEN IPDM E/R AND TCM (PART 1)

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

IPDM E/R		TCM		Continuity
Connector	Terminal	Connector	Terminal	
E14	57	F19	47	Existed
			48	

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace the malfunctioning parts.

6.CHECK CIRCUIT BETWEEN IPDM E/R AND TCM (PART 2)

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

IPDM E/R		Ground	Continuity
Connector	Terminal		
E14	57	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace the malfunctioning parts.

7.DETECT MALFUNCTION ITEMS (PART 2)

Check the following items:

- Harness open circuit or short circuit between the ignition switch and the TCM connector terminals 47 and 48. Refer to [PG-54, "TYPE A : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE A)* or [PG-208, "TYPE C : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE C)*.

*: Refer to [PG-15, "Application Notice"](#).

- 10A fuse [No. 63, fuse block (J/B)]. Refer to [PG-316, "TYPE A : Fuse, Connector and Terminal Arrangement"](#) (TYPE A)* or [PG-319, "TYPE C : Fuse, Connector and Terminal Arrangement"](#) (TYPE C)*.

*: Refer to [PG-15, "Application Notice"](#).

- Fuse block (J/B)

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

8.DETECTION OF MALFUNCTION ITEMS (PART 3)

Check the following items:

- Harness open circuit or short circuit between the ignition switch and the IPDM E/R. Refer to [PG-130, "TYPE B : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE B)* or [PG-261, "TYPE D : Wiring Diagram - IGNITION POWER SUPPLY -"](#) (TYPE D)*.

*: Refer to [PG-15, "Application Notice"](#).

- 10A fuse (No. 52, IPDM E/R). Refer to [PG-335, "TYPE B : Fuse, Connector and Terminal Arrangement"](#) (TYPE B)* or [PG-337, "TYPE D : Fuse, Connector and Terminal Arrangement"](#) (TYPE D)*.

*: Refer to [PG-15, "Application Notice"](#).

- IPDM E/R

MAIN POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

SPORT MODE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

SPORT MODE SWITCH

Component Function Check

INFOID:000000006534877

1.CHECK SPORT INDICATOR LAMP FUNCTION

Check SPORT indicator lamp turns ON for approx. 2 seconds when ignition switch turns ON.

Is the inspection results normal?

YES >> GO TO 2.

NO >> Go to [TM-544, "Diagnosis Procedure"](#).

2.CHECK SPORT MODE SWITCH FUNCTION

1. Shift the selector lever to "D" position.
2. Check that SPORT indicator lamp turns ON/OFF when sport mode switch is operated.

Is the inspection results normal?

YES >> INSPECTION END

NO >> Go to [TM-541, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000006534878

1.CHECK SPORT MODE SWITCH CIRCUIT

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

CVT shift selector			Voltage
Connector	Terminal		
M64	1	2	Approx. 5 V

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 4.

2.CHECK SPORT MODE SWITCH

Check sport mode switch. Refer to [TM-542, "Component Inspection \(Sport Mode Switch\)"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CHECK CVT SHIFT SELECTOR HARNESS

Check CVT shift selector harness. Refer to [TM-542, "Component Inspection \(CVT Shift Selector Harness\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

4.CHECK GROUND CIRCUIT

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

CVT shift selector		Ground	Continuity
Connector	Terminal		
M64	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

SPORT MODE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

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

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

Combination meter		CVT shift selector		Continuity
Connector	Terminal	Connector	Terminal	
M34	28	M64	1	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace the malfunctioning parts.

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

Check the continuity between combination meter harness connector terminal and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M34	28	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace the malfunctioning parts.

7.CHECK COMBINATION METER INPUT SIGNAL

1. Connect all of the disconnected connectors.
2. Turn ignition switch ON.
3. Select "Data Monitor" in "METER/M&A".
4. Select "O/D OFF SW".
5. Check that "O/D OFF SW" turns ON/OFF when sport mode switch is operated. Refer to [MWI-55, "Reference Value"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Replace combination meter. Refer to [MWI-155, "Removal and Installation"](#).

Component Inspection (Sport Mode Switch)

INFOID:0000000006534879

1.CHECK SPORT MODE SWITCH

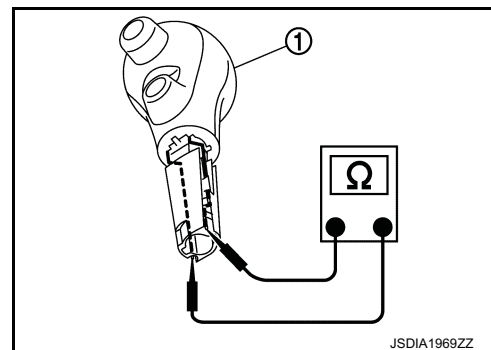
Check the continuity between wires of selector lever knob (1)

Condition	Continuity
Sport mode switch is depressed	Existed
Sport mode switch is released	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the selector lever knob. Refer to [TM-557, "Removal and Installation"](#).



INFOID:0000000006534880

Component Inspection (CVT Shift Selector Harness)

1.CHECK CVT SHIFT SELECTOR HARNESS

SPORT MODE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

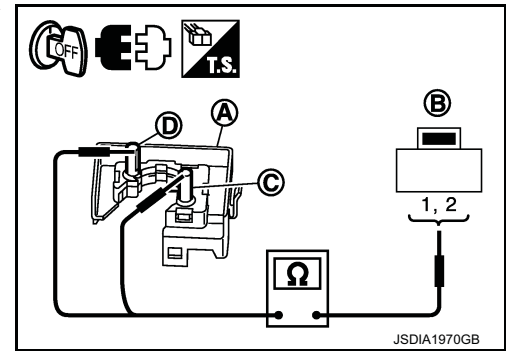
Check continuity between harness plate (A) and CVT shift selector harness connector (B).

Harness plate	CVT shift selector harness connector	Continuity
	Terminal	
C	1	Existed
D	2	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace CVT shift selector harness. Refer to [TM-558. "Disassembly and Assembly"](#).



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SPORT INDICATOR CIRCUIT

Component Function Check

INFOID:000000006534881

1.CHECK SPORT INDICATOR LAMP FUNCTION

Check SPORT indicator lamp turns ON for approx. 2 seconds when ignition switch turns ON.

Is the inspection results normal?

- YES >> INSPECTION END
 NO >> Go to [TM-544, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000006534882

1.CHECK DTC (TCM)

 With CONSULT

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

Is any DTC detected?

- YES >> Check DTC detected item. Refer to [TM-393, "DTC Index"](#).
 NO >> GO TO 2.

2.CHECK DTC (COMBINATION METER)

 With CONSULT

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

Is any DTC detected?

- YES >> Check DTC detected item. Refer to [MWI-77, "DTC Index"](#).
 NO >> GO TO 3.

3.CHECK COMBINATION METER INPUT SIGNAL

 With CONSULT

1. Shift the selector lever to "D" position.
2. Select "Data Monitor" in "METER/M&A".
3. Select "O/D OFF IND".
4. Check that "O/D OFF IND" turns ON/OFF when sport mode switch is operated. Refer to [MWI-55, "Reference Value"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-155, "Removal and Installation"](#).
 NO >> GO TO 4.

4.CHECK TCM INPUT/OUTPUT SIGNAL

 With CONSULT

1. Select "Data Monitor" in "TRANSMISSION".
2. Select "SPORT MODE SW".
3. Check that "SPORT MODE SW" turns ON/OFF when sport mode switch is operated. Refer to [TM-377, "Reference Value"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-155, "Removal and Installation"](#).
 NO >> Check sport mode switch. Refer to [TM-541, "Diagnosis Procedure"](#).

SHIFT POSITION INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

SHIFT POSITION INDICATOR CIRCUIT

Component Parts Function Inspection

INFOID:000000006325130

1.CHECK SHIFT POSITION INDICATOR

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

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Go to [TM-545, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000006325131

1.CHECK TCM INPUT/OUTPUT SIGNAL

Ⓔ With CONSULT

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 the CONSULT screen, and shift position indicator display on the combination meter are identical.

Is the check result normal?

- YES >> INSPECTION END
NO-1 ("RANGE" is changed but is not displayed on the shift position indicator.)>>Check "Self Diagnostic Result" in "TRANSMISSION".
NO-2 ("RANGE" and shift position indicator are different.)>>Check "Self Diagnostic Result" in "TRANSMISSION".
NO-3 (Specific "RANGE" is not displayed on the shift position indicator.)>>Check "Self Diagnostic Result" in "METER/M&A".

SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

SHIFT LOCK SYSTEM

Component Function Check

INFOID:000000006562028

1.CHECK SHIFT LOCK OPERATION (PART 1)

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

Can the selector lever be shifted to any other position?

- YES >> Go to [TM-546, "Diagnosis Procedure"](#).
NO >> GO TO 2.

2.CHECK SHIFT LOCK OPERATION (PART 2)

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

Can the selector lever be shifted to any other position?

- YES >> INSPECTION END
NO >> Go to [TM-546, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000006562029

1.CHECK POWER SOURCE (PART 1)

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

Stop lamp switch		Ground	Voltage
Connector	Terminal		
E115	3	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 9.

2.CHECK STOP LAMP SWITCH (PART 1)

Check stop lamp switch. Refer to [TM-549, "Component Inspection \(Stop Lamp Switch\)"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 10.

3.CHECK CIRCUIT BETWEEN STOP LAMP SWITCH AND CVT SHIFT SELECTOR (PART 1)

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

Stop lamp switch		CVT shift selector		Continuity
Connector	Terminal	Connector	Terminal	
E115	4	M64	5	Existed

Is the inspection result normal?

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

4.CHECK CIRCUIT BETWEEN STOP LAMP SWITCH AND CVT SHIFT SELECTOR (PART 1)

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

SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Stop lamp switch		Ground	Continuity
Connector	Terminal		
E115	4	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.CHECK GROUND CIRCUIT

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

CVT shift selector		Ground	Continuity
Connector	Terminal		
M64	4	Ground	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace the malfunctioning parts.

6.CHECK PART POSITION SWITCH

1. Disconnect park position switch connector.
2. Check park position switch. Refer to [TM-548, "Component Inspection \(Park Position Switch\)"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace the malfunctioning parts.

7.CHECK SHIFT LOCK SOLENOID

1. Disconnect shift lock solenoid connector.
2. Check shift lock solenoid. Refer to [TM-548, "Component Inspection \(Shift Lock Solenoid\)"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace the malfunctioning parts.

8.CHECK CVT SHIFT SELECTOR HARNESS

Check CVT shift selector harness. Refer to [TM-548, "Component Inspection \(CVT Shift Selector Harness\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

9.DETECT MALFUNCTIONING ITEM

Check the following items:

- Open or short circuit of the harness between ignition switch and stop lamp switch connector. Refer to [PG-54, "TYPE A : Wiring Diagram - IGNITION POWER SUPPLY -" \(TYPE A\)*](#), [PG-130, "TYPE B : Wiring Diagram - IGNITION POWER SUPPLY -" \(TYPE B\)*](#) or [PG-208, "TYPE C : Wiring Diagram - IGNITION POWER SUPPLY -" \(TYPE C\)*](#).

*: Refer to [PG-15, "Application Notice"](#).

- Ignition switch
- 10A fuse [No.3, fuse block (J/B)]. Refer to [PG-316, "TYPE A : Fuse, Connector and Terminal Arrangement" \(TYPE A\)*](#), [PG-318, "TYPE B : Fuse, Connector and Terminal Arrangement" \(TYPE B\)*](#) or [PG-319, "TYPE C : Fuse, Connector and Terminal Arrangement" \(TYPE C\)*](#).

*: Refer to [PG-15, "Application Notice"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

10.CHECK INSTALLATION POSITION OF STOP LAMP SWITCH

SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Adjust stop lamp switch position. Refer to [BR-160, "Inspection and Adjustment"](#) (Except for Europe), [BR-55, "Inspection and Adjustment"](#) [For Europe (LHD)], [BR-102, "Inspection and Adjustment"](#) [For Europe (RHD)].

>> GO TO 11.

11. CHECK STOP LAMP SWITCH (PART 2)

Check stop lamp switch. Refer to [TM-549, "Component Inspection \(Stop Lamp Switch\)"](#).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace the malfunctioning parts.

Component Inspection (Shift Lock Solenoid)

INFOID:0000000006562030

1. CHECK SHIFT LOCK SOLENOID

Apply voltage to terminals of shift lock solenoid connector and check that shift lock solenoid is activated.

CAUTION:

- Connect the fuse between the terminals when applying the voltage.
- Never cause shorting between terminals.

Shift lock solenoid		Condition	Status
+ (fuse)	–		
Terminal			
1	2	Apply battery voltage between terminals 1 and 2.	Shift lock solenoid operates

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace shift lock unit. Refer to [TM-558, "Disassembly and Assembly"](#).

Component Inspection (Park Position Switch)

INFOID:0000000006562031

1. CHECK PARK POSITION SWITCH

Check continuity between park position switch connector terminals.

CAUTION:

- Connect the fuse between the terminals when applying the voltage.
- Never cause shorting between terminals.

Park position switch	Condition	Continuity
Terminal		
1 – 2	Shift selector lever to “P” position.	Existed
	Other than above	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace park position switch. Refer to [TM-558, "Disassembly and Assembly"](#).

Component Inspection (CVT Shift Selector Harness)

INFOID:0000000006562032

1. CHECK CVT SHIFT SELECTOR HARNESS (PART 1)

Check continuity between CVT shift selector harness connector terminal and shift lock solenoid harness connector terminal.

CVT shift selector		Shift lock solenoid		Continuity
Connector	Terminal	Connector	Terminal	
M324	3	M326	1	Existed

SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F11A]

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace CVT shift selector harness. Refer to [TM-558, "Disassembly and Assembly"](#).

2.CHECK CVT SHIFT SELECTOR HARNESS (PART 2)

Check continuity between shift lock solenoid harness connector terminal and park position switch harness connector terminal.

Shift lock solenoid		Park position switch		Continuity
Connector	Terminal	Connector	Terminal	
M326	2	M325	1	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace CVT shift selector harness. Refer to [TM-558, "Disassembly and Assembly"](#).

3.CHECK CVT SHIFT SELECTOR HARNESS (PART 3)

Check continuity between park switch harness connector terminal and CVT shift selector harness connector terminal.

Park switch		CVT shift selector		Continuity
Connector	Terminal	Connector	Terminal	
M325	2	M324	4	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace CVT shift selector harness. Refer to [TM-558, "Disassembly and Assembly"](#).

4.CHECK CVT SHIFT SELECTOR HARNESS (PART 4)

Check harness cladding CVT shift selector harness for damage.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace CVT shift selector harness. Refer to [TM-558, "Disassembly and Assembly"](#).

Component Inspection (Stop Lamp Switch)

INFOID:0000000006562033

1.CHECK STOP LAMP SWITCH

Check the continuity between the stop lamp switch connector terminals.

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace stop lamp switch. Refer to [BR-170, "Exploded View"](#) (Except for Europe), [BR-65, "Exploded View"](#) [For Europe (LHD)], [BR-112, "Exploded View"](#) [For Europe (RHD)].

CVT CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F11A]

SYMPTOM DIAGNOSIS

CVT CONTROL SYSTEM

Symptom Table

INFOID:000000006325141

The diagnosis item number indicates the order of check. Start checking in the order from 1.

Symptom diagnosis chart 1-1

Symptom		Check under on board condition (repair and part replacement)						Replace the transaxle assembly.											
		Engine system	Incorrect adjustment of CVT fluid level	Line pressure is out of the standard value.	Control cable	Electric system													
						TCM	Sport switch	Primary speed sensor (P0715)	Secondary speed sensor (P2765)	Output speed sensor (P0720)	Transmission position switch (P0705, P0706)	Secondary pressure sensor (P0846, P0847, P0848)	Primary pressure solenoid valve (P17BA, P17BB)	Line pressure solenoid valve (P0746, P0962, P0963)	Lock-up solenoid valve (P0740, P0743, P0744)	High clutch &reverse brake solenoid valve (P1739, P173C, P17B7, P17B8)	Low brake solenoid valve (P173A, P173B, P17B4, P17B5)	CVT fluid temperature sensor (P0711, P0712, P0713)	
		<u>EC3-164 (HR12DE)</u> <u>EC3-974 (HR12DDR)</u>	<u>TM-443</u>	<u>TM-445</u>	<u>TM-447</u>	<u>TM-377</u>	<u>TM-541</u>	<u>TM-393</u>											
Driving is not possible.	The engine speed increases in “D”, “L”, or “R” position, but the vehicle cannot start.	1	1	1	1	1		1	1			1	2		1		1	1	2
	Engine stall occurs in “D”, “L”, or “R” position and the vehicle does not start.				1	1		1	1			1	1	1	1		1	1	2
	Acceleration at start is not sufficient in “D”, “L”, or “R” position.	1		2		1		1	1	1	2	2	1	1	2	1	1	1	
	The engine speed increases suddenly in “D”, “L”, or “R” position during driving.		1	1								2	1	1		1	1		
	Engine brake is suddenly applied in “D” or “R” position during driving.	1		1										1	1		1	1	

CVT CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F11A]

Symptom		Check under on board condition (repair and part replacement)					Replace the transaxle assembly.											
		Engine system	Incorrect adjustment of CVT fluid level	Line pressure is out of the standard value.	Control cable	Electric system												
						TCM	Sport switch	Primary speed sensor (P0715)	Secondary speed sensor (P2765)	Output speed sensor (P0720)	Transmission position switch (P0705, P0706)	Secondary pressure sensor (P0846, P0847, P0848)	Primary pressure solenoid valve (P17BA, P17BB)	Line pressure solenoid valve (P0746, P0962, P0963)	Lock-up solenoid valve (P0740, P0743, P0744)	High clutch &reverse brake solenoid valve (P1739, P173C, P17B7, P17B8)	Low brake solenoid valve (P173A, P173B, P17B4, P17B5)	CVT fluid temperature sensor (P0711, P0712, P0713)
		EC3-164 (HR12DE) EC3-974 (HR12DDR)	TM-443	TM-445	TM-447	TM-377	TM-541	TM-393										
Shifting is not possible.	The engine races when the auxiliary gearbox is shifted from 1GR ⇔ 2GR.	2		1										1		1		
	Engine braking is not effective in “L” position.			1	1	1		1	1		1		2	1	1		1	
	Shifting does not occur with sport mode.					1	1	1	1	1		1	1					
	Engine stall occurs immediately before stop at deceleration in “D” or “L” position.									1				1				
	During driving in “D” position, slippage occurs in lockup or lockup is not possible.					1		1	1	1	1	2	1	1	1		1	

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CVT CONTROL SYSTEM

[CVT: RE0F11A]

< SYMPTOM DIAGNOSIS >

Symptom diagnosis chart 1-2

Symptom		Replace the transaxle assembly.												
		Oil pressure control		Power transmission										
		Valve body, control valve	Oil pump	Torque converter	Pulley, steel belt	Low brake	High clutch	Reverse brake	Bearings	Counter gear	Planetary gear	Reduction gear	Final gear, differential gear	Parking mechanism
		TM-587												
Driving is not possible.	The engine speed increases in "D", "L", or "R" position, but the vehicle cannot start.	1	1		1	1 (In "D" or "L")		1 (In "R")		1	1	1	1	
	Engine stall occurs in "D", "L", or "R" position and the vehicle does not start.	1							1	1	1	1	1	1
	Acceleration at start is not sufficient in "D", "L", or "R" position.	1		1		1 (In "D" or "L")		1 (In "R")						
	The engine speed increases suddenly in "D", "L", or "R" position during driving.	1	1		1	1 (In "D" or "L")	1 (In "D" or "L")	1 (In "R")						
	Engine brake is suddenly applied in "D" or "R" position during driving.	1				1 (In "D" or "L")	1 (In "D" or "L")	1 (In "R")						
Shifting is not possible.	The engine races when the auxiliary gearbox is shifted from 1GR ⇔ 2GR.	1	1		2	1	1							
	Engine braking is not effective in "L" position.	1	2	1	2	1	1							
	Shifting does not occur with sport mode.													
	Engine stall occurs immediately before stop at deceleration in "D" or "L" position.	1		1										
	During driving in "D" position, slippage occurs in lockup or lockup is not possible.	1		1										

CVT CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F11A]

Symptom diagnosis chart 2-1

Symptom		Check under on board condition (repair and part replacement)										Replace the transaxle assembly.								
		Engine system	Incorrect adjustment of CVT fluid level	Line pressure is out of the standard value.	Control cable	Electric system														
						TCM	Sport switch	Primary speed sensor (P0715)	Secondary speed sensor (P2765)	Output speed sensor (P0720)	Transmission position switch (P0705, P0706)	Secondary pressure sensor (P0846, P0847, P0848)	Primary pressure solenoid valve (P17BA, P17BB)	Line pressure solenoid valve (P0746, P0962, P0963)	Lock-up solenoid valve (P0740, P0743, P0744)	High clutch &reverse brake solenoid valve (P1739, P173C, P17B7, P17B8)	Low brake solenoid valve (P173A, P173B, P17B4, P17B5)	CVT fluid temperature sensor (P0711, P0712, P0713)		
		EC3-164 (HR12DE) EC3-974 (HR12DDR)	TM-443	TM-445	TM-447	TM-377	TM-541	TM-393												
Shock vibration Noise	Shock at start is large in “D”, “L”, or “R” position.			1								2		1	1					
	Shock is large when the auxiliary gearbox is shifted from 1GR → 2GR.	2		1		2								2	2		1	1		
	Shock in lockup is large during driving in “D” or “L” position.					1									1					
	Shock is large when the lever is shifted from “N” → “D” and “N” → “R” positions.	1		1		2		1	1		1			1	1	1	1	1		
	Shock is large when the lever is shifted from “D” → “L” position.																			
	Vibration occurs in “D”, “L”, or “R” position during driving.	1	1	1		1				1		2			1	1	1			
	Noise occurs during driving.		1																	
	Noise occurs in idling.	1	1																	

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CVT CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F11A]

Symptom		Check under on board condition (repair and part replacement)							Replace the transaxle assembly.												
		Engine system	Incorrect adjustment of CVT fluid level	Line pressure is out of the standard value.	Control cable	Electric system															
						TCM	Sport switch	Primary speed sensor (P0715)	Secondary speed sensor (P2765)	Output speed sensor (P0720)	Transmission position switch (P0705, P0706)	Secondary pressure sensor (P0846, P0847, P0848)	Primary pressure solenoid valve (P17BA, P17BB)	Line pressure solenoid valve (P0746, P0962, P0963)	Lock-up solenoid valve (P0740, P0743, P0744)	High clutch &reverse brake solenoid valve (P1739, P173C, P17B7, P17B8)	Low brake solenoid valve (P173A, P173B, P17B4, P17B5)	CVT fluid temperature sensor (P0711, P0712, P0713)			
		EC3-164 (HR12DE) EC3-974 (HR12DDR)	TM-443	TM-445	TM-447	TM-377	TM-541	TM-393													
Other	Starter operates in “D”, “L”, or “R” position.				1	1					1										
	Starter does not operate in “P” or “N” position.				1	1					1										
	Engine stall occurs in “D”, “L”, or “R” position during stop.	1				1				1					1						
	Engine stall occurs in “P” or “N” position during stop.	1				1				1					1						
	Parking lock does not operate in “P” position.				1						1										
	Parking lock cannot be cancelled when the selector lever is shifted from “P” position to other position.				1						1										

CVT CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F11A]

Symptom diagnosis chart 2-2

Symptom		Replace the transaxle assembly.												
		Oil pressure control		Power transmission										
		Valve body, control valve	Oil pump	Torque converter	Pulley, steel belt	Low brake	High clutch	Reverse brake	Bearings	Counter gear	Planetary gear	Reduction gear	Final gear, differential gear	Parking mechanism
		TM-587												
Shock vibration Noise	Shock at start is large in "D", "L", or "R" position.	1			1	1 (In "D" or "L")		1 (In "R")		2	2	2	2	
	Shock is large when the auxiliary gearbox is shifted from 1GR → 2GR.	1				1	1							
	Shock in lockup is large during driving in "D" or "L" position.	1		1										
	Shock is large when the lever is shifted from "N" → "D" and "N" → "R" positions.	1				1 (("N" → "D"))		1 (("N" → "D"))						
	Shock is large when the lever is shifted from "D" → "L" position.	1				1	1							
	Vibration occurs in "D", "L", or "R" position during driving.	1	1	1	1	1 (In "D" or "L")	1 (In "D" or "L")	1 (In "R")	1	1	1	1	1	
	Noise occurs during driving.	1	1		1				1	1	1	1	1	
	Noise occurs in idling.	1	1		1				1	1	1			
Other	Starter operates in "D", "L", or "R" position.													
	Starter does not operate in "P" or "N" position.													
	Engine stall occurs in "D", "L", or "R" position during stop.	1		1										
	Engine stall occurs in "P" or "N" position during stop.													
	Parking lock does not operate in "P" position.													1
	Parking lock cannot be cancelled when the selector lever is shifted from "P" position to other position.													1

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PERIODIC MAINTENANCE

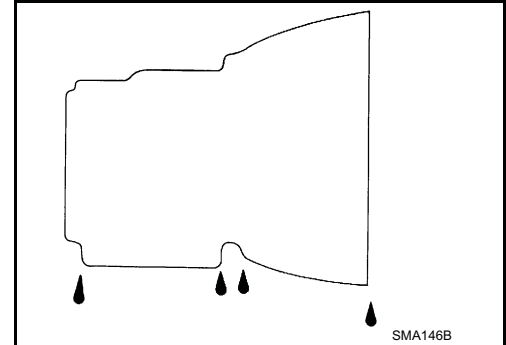
CVT FLUID

Inspection

INFOID:000000006428799

FLUID LEAKAGE

- Check transaxle surrounding area (oil seal and plug etc.)for fluid leakage.
- If anything is found, repair or replace damaged parts and adjust CVT fluid level. Refer to [TM-443, "Adjustment"](#).



CVT SHIFT SELECTOR

< REMOVAL AND INSTALLATION >

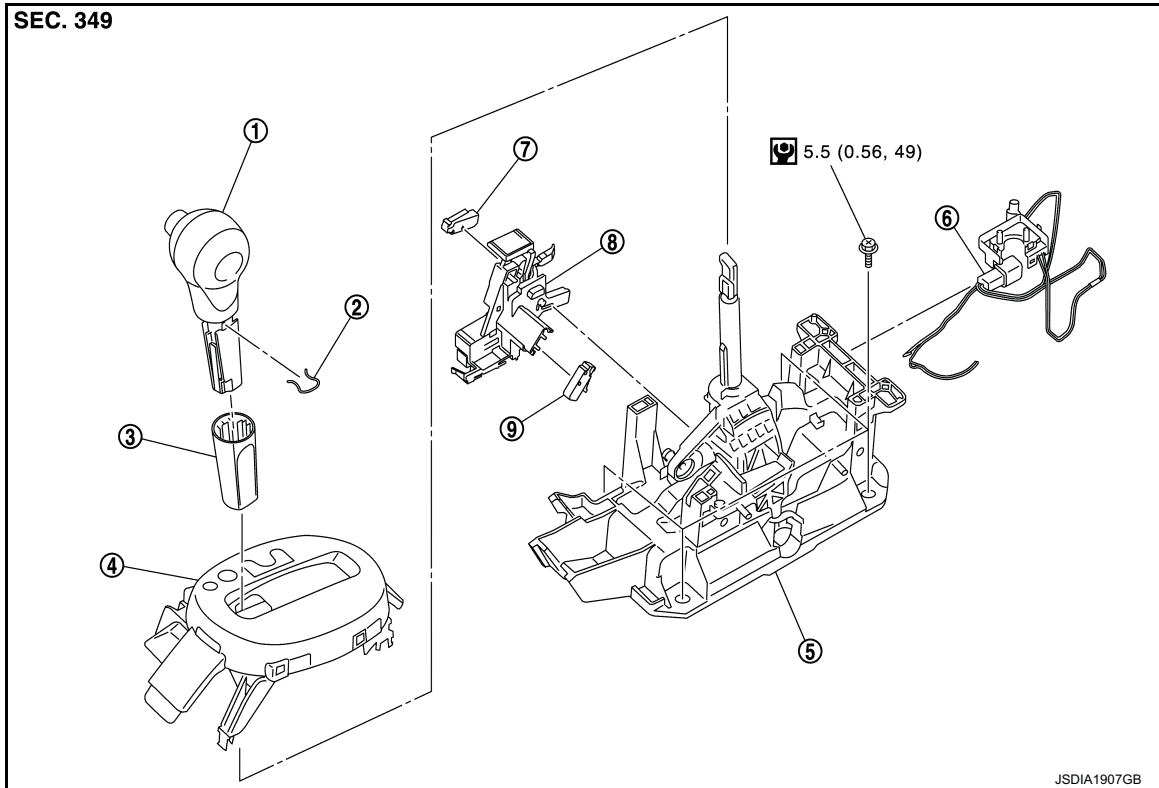
[CVT: RE0F11A]

REMOVAL AND INSTALLATION

CVT SHIFT SELECTOR

Exploded View

INFOID:000000006428473



1. Selector lever knob	2. Lock pin	3. Knob cover
4. Position indication panel	5. CVT shift selector assembly	6. CVT shift selector harness assembly
7. Detent switch*	8. Shift lock unit	9. Park position switch

 :N·m (kg-m, in-lb)

*: Push engine starter

Removal and Installation

INFOID:000000006428474

REMOVAL

1. Disconnect battery cable from negative terminal. Refer to [PG-529, "FOR MAINTENANCE REQUIRED BATTERY MODELS : Exploded View"](#).
2. Shift the selector lever in the "N" position.
3. Remove the center console. Refer to [IP-24, "Removal and Installation"](#).
4. Disconnect the CVT shift selector connector.
5. Shift the selector lever to the "P" position.
6. Remove the key interlock cable from the CVT shift selector assembly. Refer to [TM-564, "Exploded View"](#).
7. Remove the control cable from the CVT shift selector assembly. Refer to [TM-561, "Exploded View"](#).
8. Remove the CVT shift selector assembly.

INSTALLATION

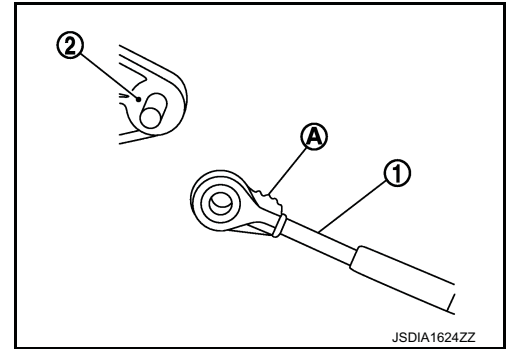
Note the following, and install in the reverse order of removal.

CVT SHIFT SELECTOR

< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

- When connecting the control cable (1) to the CVT shift selector assembly (2), face the grooved surface of the rib (A) up and insert the control cable until it stops.

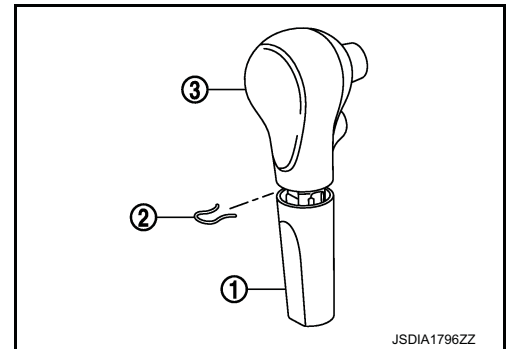


Disassembly and Assembly

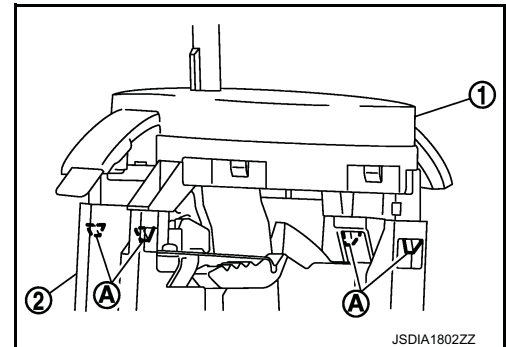
INFOID:000000006428475

DISASSEMBLY

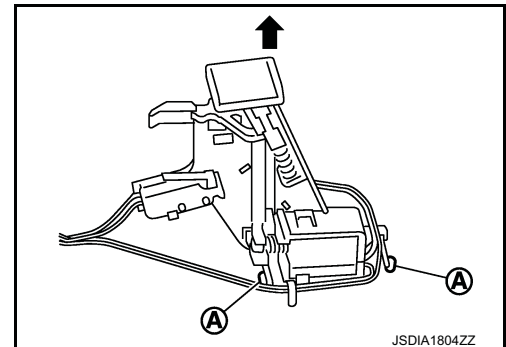
- Slide the selector lever knob cover (1) down.
CAUTION:
Never damage the knob cover.
- Pull out the lock pin (2).
- Pull the selector lever knob (3) and knob cover upwards to remove them.
- Remove the position lamp.



- Disengage the hooks (A) (4 locations), and lift up the position indication panel (1) to separate it from the CVT shift selector assembly (2).
CAUTION:
Never damage the CVT shift selector assembly.



- Lift up the shift lock unit pawl (A), and pull the unit out in the direction indicated by the arrow (↖) in the figure to separate it from the CVT shift selector assembly.
- Disconnect the park position switch connector, detent switch connector, and shift lock solenoid connector from the shift lock unit.
NOTE:
Remove the shift lock solenoid before disconnecting the shift lock solenoid connector.

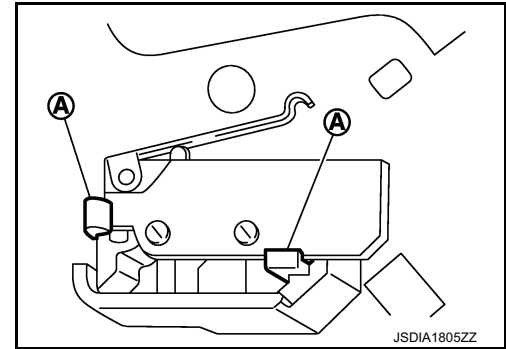


CVT SHIFT SELECTOR

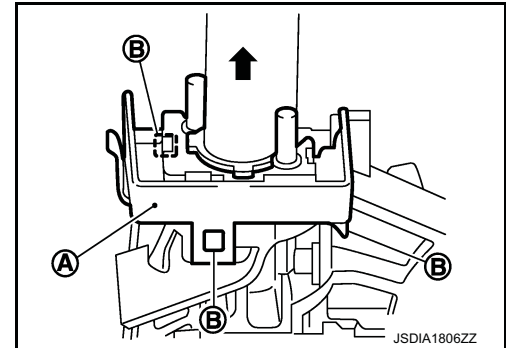
< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

8. Lift up the park position switch and detent switch pawls (A) and pull forward to remove.
9. Remove the key interlock rod.



10. Free any harnesses that are fastened to the CVT shift selector.
11. Lift up the sports mode switch connector (A) pawls (B), and pull in the direction indicated by the arrow (←) in the figure to remove.

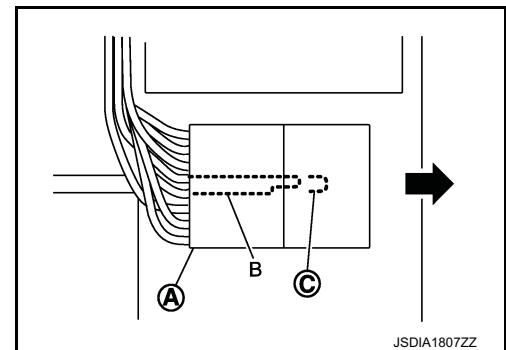


12. Use a terminal tool or similar instrument (B) and press the pawl (C) on the rear side of the CVT shift selector harness connector (A). Then pull it in the direction of the arrow (←) in the figure to remove.

CAUTION:

Never damage the CVT shift selector assembly.

13. Disconnect the CVT shift selector harness from the CVT shift selector.



INSTALLATION

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

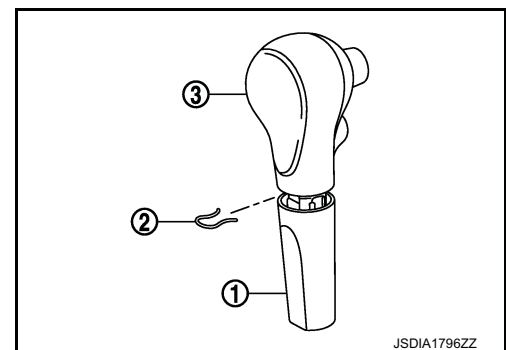
- Follow the procedure below and place the selector knob onto the CVT shift selector.

1. Install the lock pin (2) onto the selector lever knob (3).
2. Install the knob cover (1) onto the selector lever knob.
3. Press the selector lever knob onto the selector lever until it clicks.

CAUTION:

- **When pressing the selector lever knob onto the selector lever, never press the selector lever knob button.**
- **Never strike the selector lever knob to press it into place.**

4. After installing selector lever knob, pull the knob to check that it does not become disconnected.

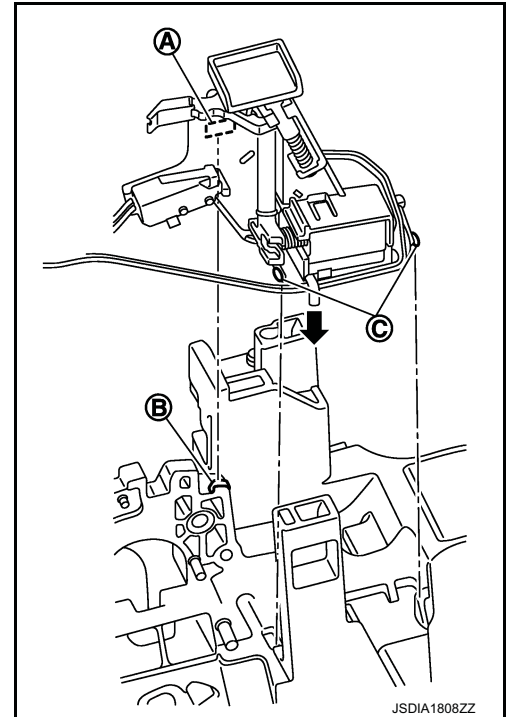


CVT SHIFT SELECTOR

< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

- Follow the procedure below and press the shift lock unit onto the CVT shift selector.
1. Connect the connectors.
 2. Align the indented part (A) of the shift lock unit with the projecting part (B) of the CVT shift selector.
 3. Insert the shift lock unit until the pawls (C) make a click sound.



Inspection

INFOID:000000006428476

INSPECTION AFTER INSTALLATION

Check the CVT position. If a malfunction is found, adjust the CVT position. Refer to [TM-447, "Inspection and Adjustment"](#).

CONTROL CABLE

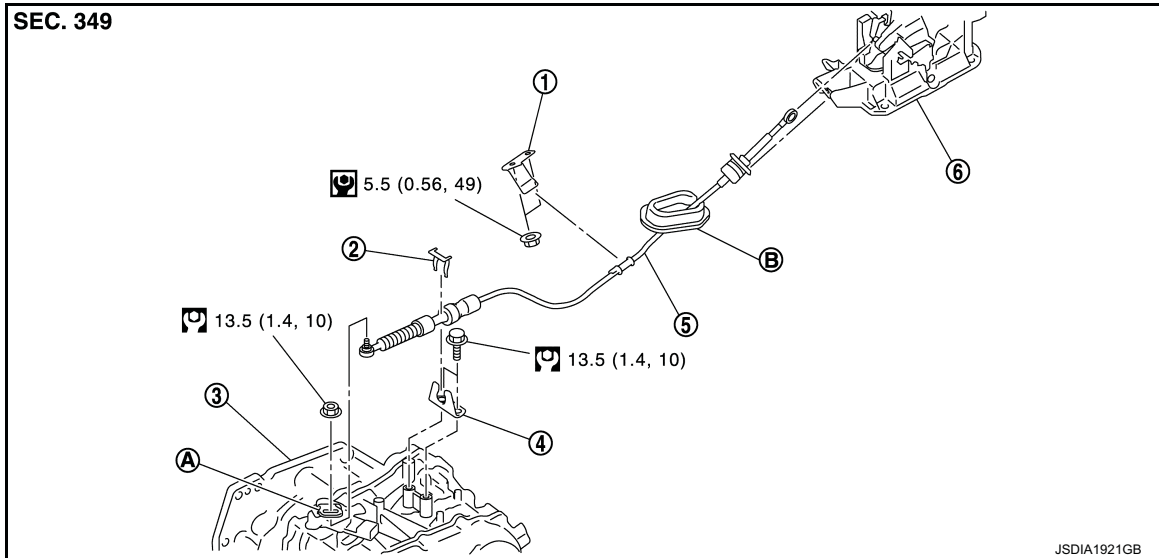
< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

CONTROL CABLE

Exploded View

INFOID:000000006428679



1. Bracket B	2. Lock plate	3. Transaxle assembly
4. Bracket A	5. Control cable	6. CVT shift selector assembly
A: Manual lever	B: Grommet	

: N·m (kg-m, ft-lb)

: N·m (kg-m, in-lb)

Removal and Installation

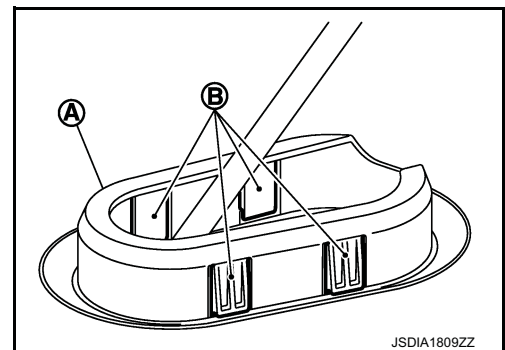
INFOID:000000006428680

INSTALLATION

CAUTION:

Always apply the parking brake before performing removal and installation.

1. Remove the air duct (inlet), air cleaner cover assembly and air cleaner body assembly (for HR12DE). Refer to [EM-33, "TYPE 1 : Removal and Installation"](#).
2. Remove the inlet tube (for HR12DDR). Refer to [EM-209, "Removal and Installation"](#).
3. Remove the control cable from the CVT shift selector assembly.
4. Disengage the pawls (B) of the grommet (A), and pull downwards to remove.
5. Remove the control cable installation nut from the manual lever.

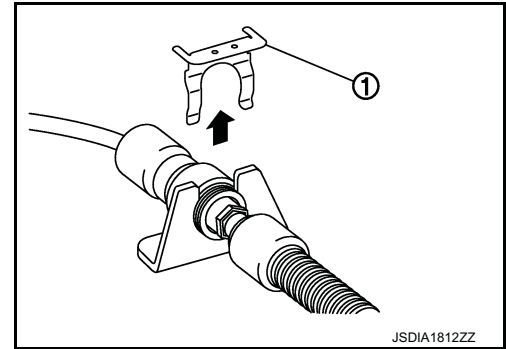


CONTROL CABLE

< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

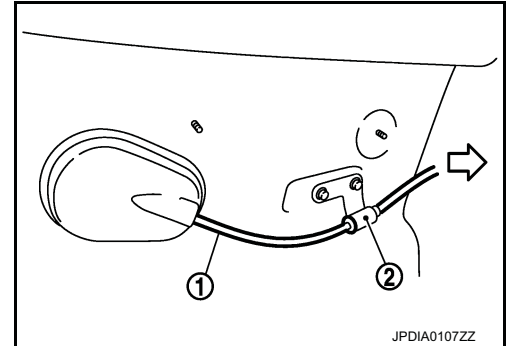
6. Remove the lock plate (1).



7. Lift up the heat plate.

8. Remove the control cable (1) from the bracket (2).

⇐ :Vehicle front



9. Remove the control cable from the vehicle.

10. Remove bracket.

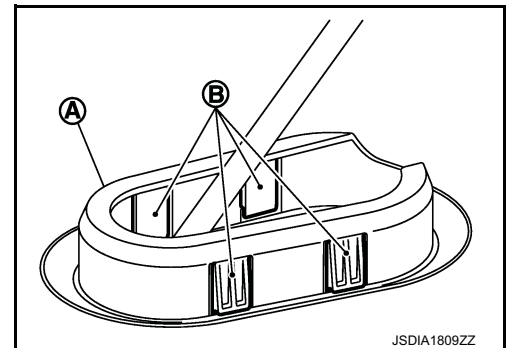
INSTALLATION

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

- From below the vehicle, press the grommet (A) into place until the pawls (B) make a click sound.

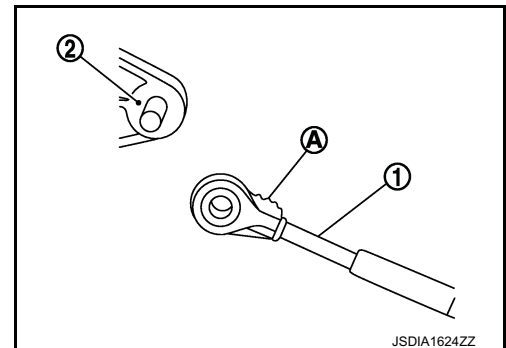
CAUTION:

- Place the grommet on the floor, then fasten it in place from below the vehicle.
- Check that pulling down on the grommet does not disconnect it.



- Pay attention to the following when connecting the control cable to the CVT shift selector.

1. When connecting the control cable (1) to the CVT shift selector assembly (2), face the grooved surface of the rib (A) up and insert the control cable until it stops.



CONTROL CABLE

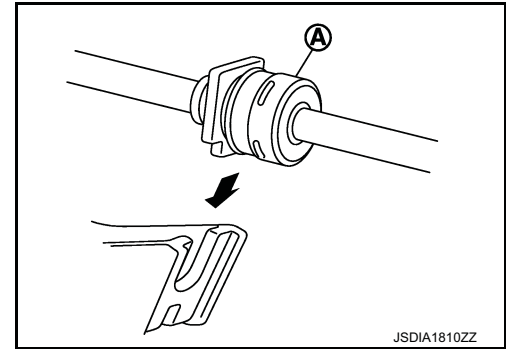
< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

2. Install the socket (A) onto the CVT shift selector.

CAUTION:

- Place the socket onto the CVT shift lever, then fasten it in place from above.
- Check that the pulling on the socket does not disconnect it.



Inspection

INFOID:000000006428681

INSPECTION AFTER INSTALLATION

Check the CVT position. If a malfunction is found, adjust the CVT position. Refer to [TM-447. "Inspection and Adjustment"](#).

KEY INTERLOCK CABLE

< REMOVAL AND INSTALLATION >

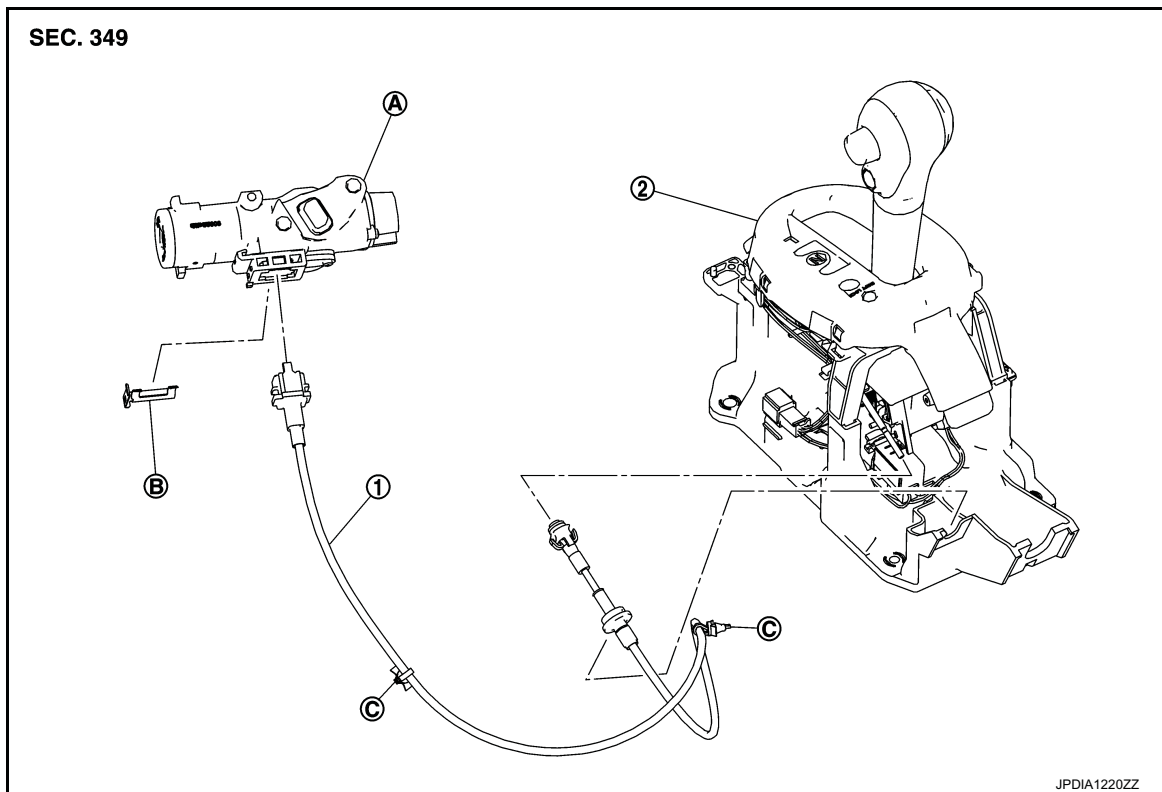
[CVT: RE0F11A]

KEY INTERLOCK CABLE

Exploded View

INFOID:000000006428682

RHD Models



1. Key interlock cable

2. CVT shift selector assembly

A: Key cylinder

B: Clip

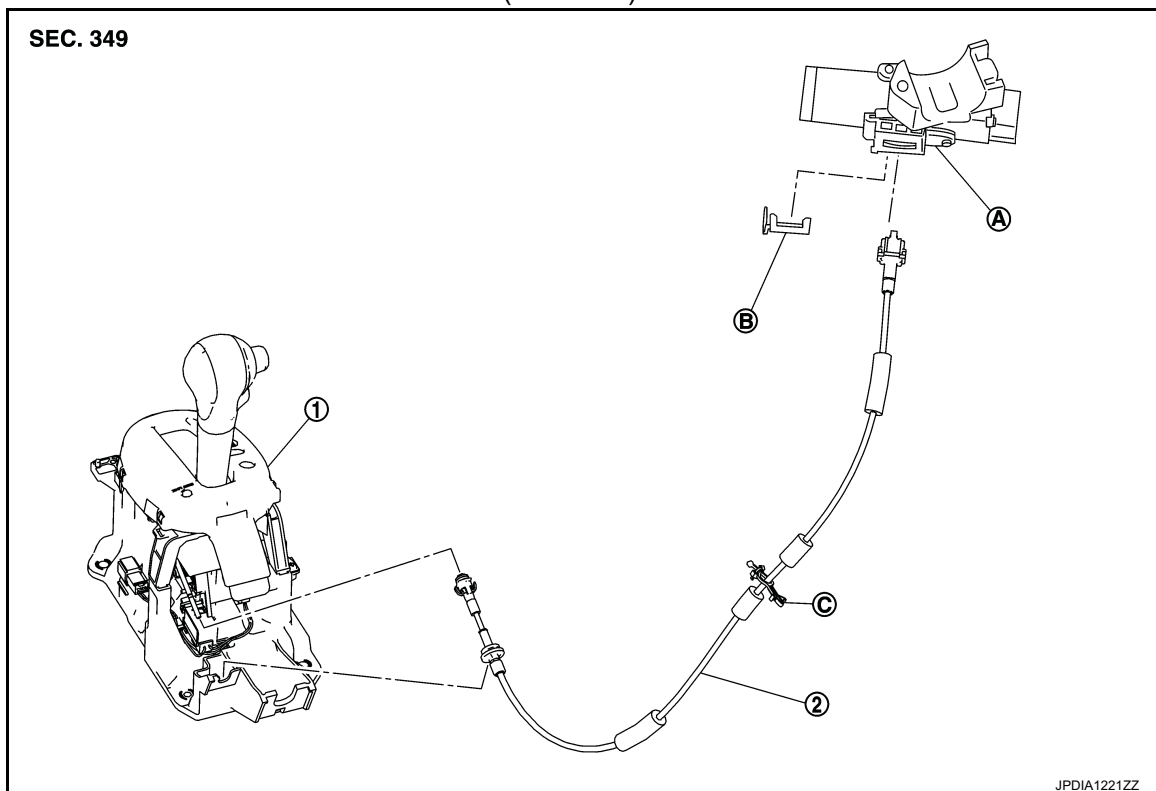
C: Clip

KEY INTERLOCK CABLE

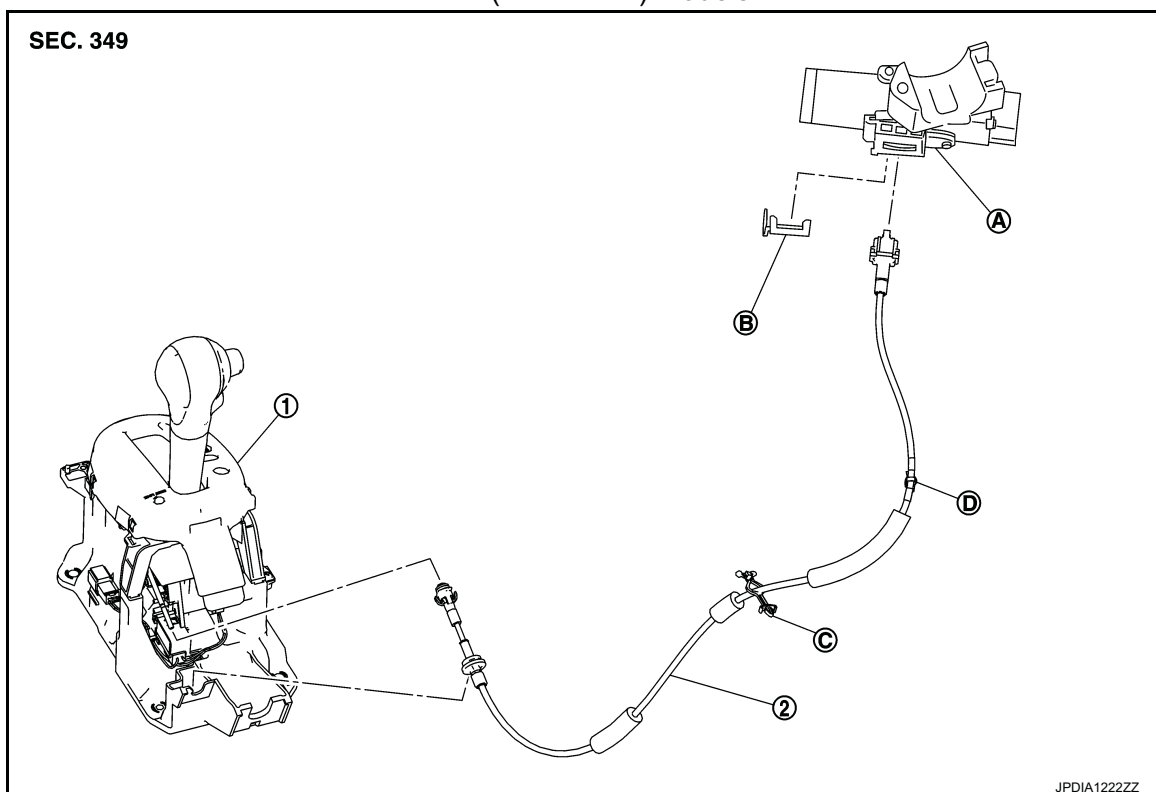
< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

LHD (HR12DE) Models



LHD (HR12DDR) Models



KEY INTERLOCK CABLE

< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

Removal and Installation

INFOID:000000006428683

REMOVAL

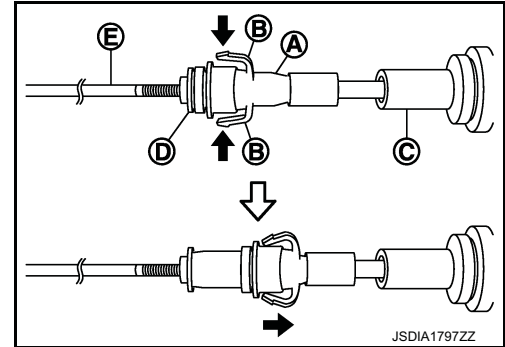
CAUTION:

Always apply the parking brake before performing removal and installation.

1. Shift the selector lever to the "P" position.
2. Remove the selector lever knob. Refer to [TM-557, "Exploded View"](#).
3. Remove the center console. Refer to [IP-24, "Exploded View"](#).
4. Press the pawls (B) of the key interlock cable slider (A) while sliding it in the direction of the casing cap (C), and separate the adjusting holder (D) and slider.

E :Key interlock rod

5. Remove the key interlock cable from the CVT shift selector.
6. Remove the steering column lower cover and driver instrument lower panel. Refer to [IP-14, "Exploded View"](#).

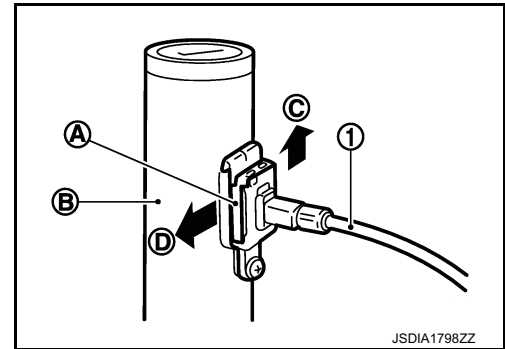


7. Lift clip (A) in the direction of the arrow (←C) and remove in the direction of the arrow (←D).

1 :Key interlock cable

B :Key cylinder

8. Remove the key interlock cable from the key cylinder.
9. Disengage the clip and disconnect the key interlock cable from the vehicle.



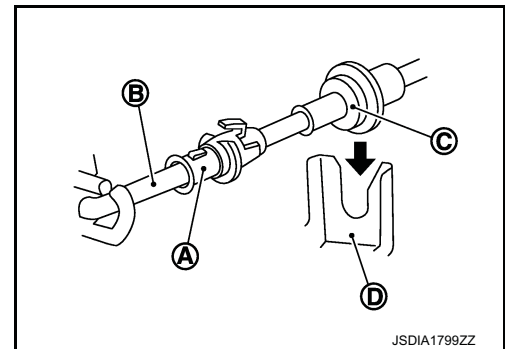
INSTALLATION

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

- Install the adjusting holder (A) onto the key interlock rod (B), then install the casing cap (C) onto the CVT shift selector cable bracket (D).

CAUTION:

- When installing the key interlock cable, never bend or twist the cable forcefully.
- After connecting the key interlock cable to the CVT shift selector cable bracket, be sure to check that the casing cap is completely fastened to the cable bracket. If the casing cap is easily displaced, replace the key interlock cable.



KEY INTERLOCK CABLE

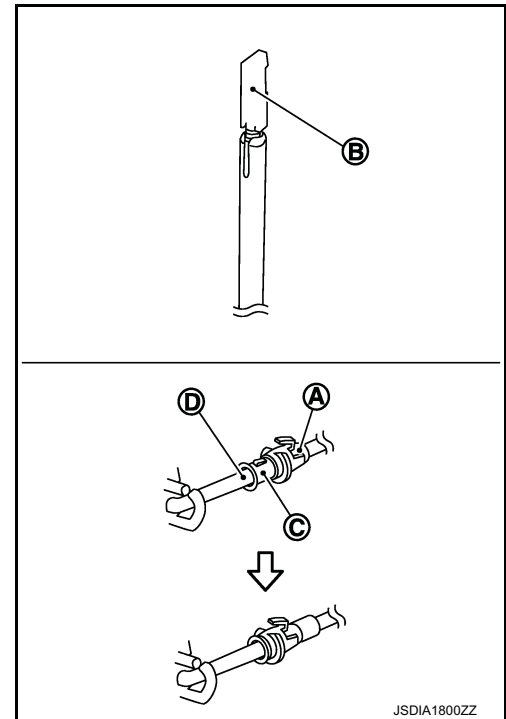
< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

- While pressing the detent rod (B) down, slide the key interlock cable slider (A) toward the key interlock rod (D) side, and install the adjusting holder (C) and key interlock rod.

CAUTION:

- **Never squeeze the pawls on the key interlock cable slider when holding the slider.**
- **Never apply force in a perpendicular direction to the key interlock rod when sliding the slider.**



Inspection

INFOID:000000006428684

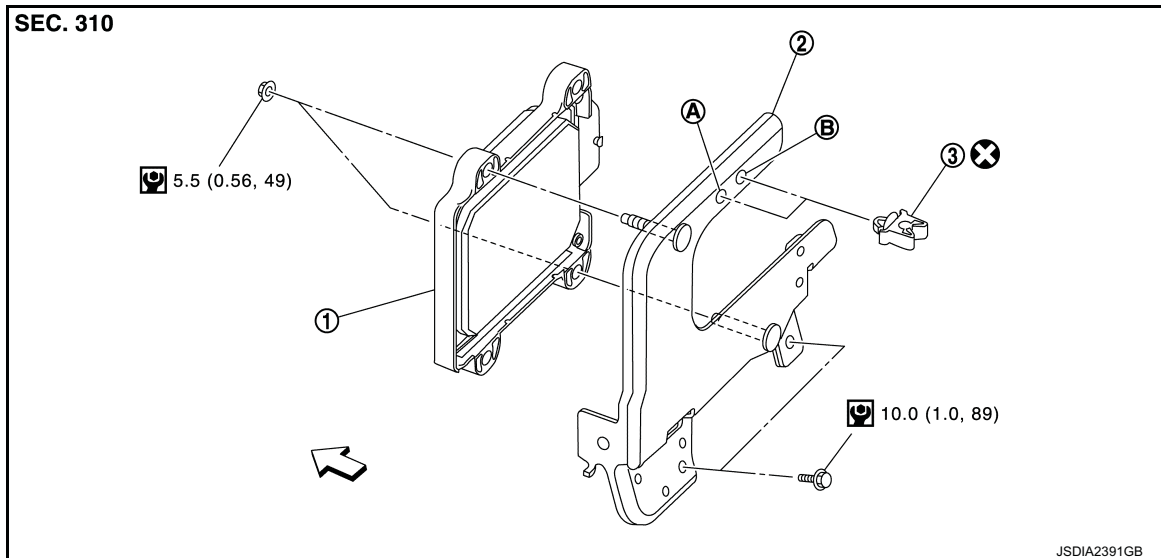
INSPECTION AFTER INSTALLATION

- Check the CVT position. If a malfunction is found, adjust the CVT position. Refer to [TM-447, "Inspection and Adjustment"](#).
- The key can be removed only when the selector lever is in the "P" position.
- It must not be possible to turn the ignition switch to LOCK when the selector lever is not in the "P" position.

TCM

Exploded View

INFOID:000000006428718



1. TCM	2. Bracket	3. Clips
A. Battery type: 38B20	B. Battery type: 80D23L-HR, Q-85	

↶ : Vehicle front

⊗ : Always replace after every disassembly.

⊙ : N·m (kg-m, in-lb)

Removal and Installation

INFOID:000000006428719

CAUTION:

When replacing TCM, note the “CVTF DETERIORATION DATE” value displayed on CONSULT-III “CONFORM CVTF DETERIORATION” in MAINTENANCE BOOKLET, before start the operation.

NOTE:

When replacing the TCM and transaxle assembly as a set, replace the transaxle assembly first and then replace the TCM. Refer to [TM-435, "Description"](#).

REMOVAL

1. Remove the battery. Refer to [PG-529, "FOR MAINTENANCE REQUIRED BATTERY MODELS : Removal and Installation"](#).
2. Disconnect the TCM connector.
3. Remove the TCM and bracket as a set.
4. Remove the TCM from the bracket.

INSTALLATION

Installation is the reverse order of removal.

Adjustment

INFOID:000000006428720

ADJUSTMENT AFTER INSTALLATION

Perform "ADDITIONAL SERVICE WHEN REPLACING TCM". Refer to [TM-435, "Description"](#).

AIR BREATHER HOSE

< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

AIR BREATHER HOSE

Removal and Installation

INFOID:000000006325156

REMOVAL

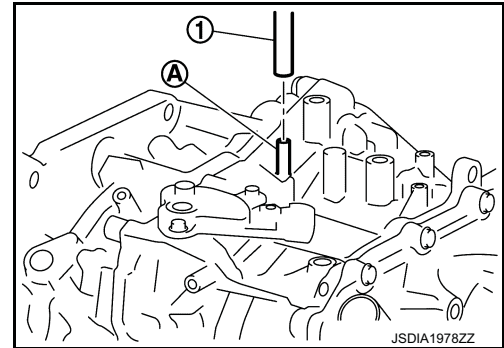
Remove air breather hose from transaxle assembly.

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.
- Be sure to insert it fully until its end reaches the stop, When inserting air breather hose (1) to transaxle tube (A).



G SENSOR

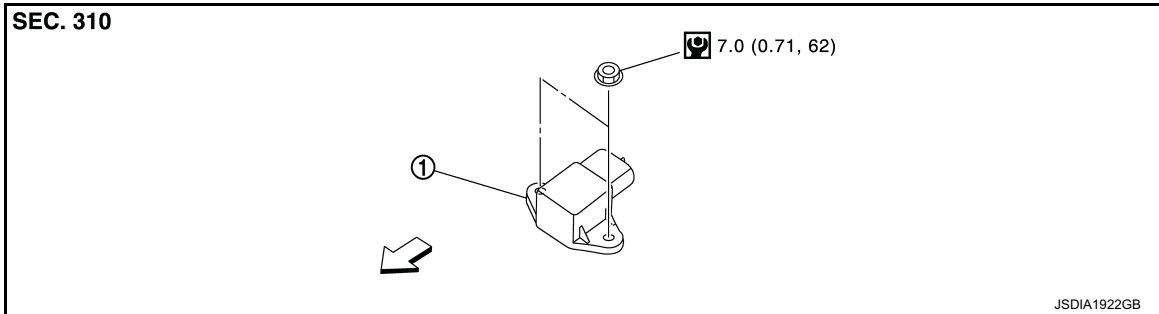
< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

G SENSOR

Exploded View

INFOID:0000000006325157



1. G sensor

↩ : Vehicle front

⊙ : N·m (kg-m, in-lb)

Removal and Installation

INFOID:0000000006325158

CAUTION:

- Never drop or strike G sensor, because it has little tolerance for impact.
- Never use a power tool to avoid impact.

REMOVAL

1. Disconnect the battery cable from the negative terminal. Refer to [PG-529, "FOR MAINTENANCE REQUIRED BATTERY MODELS : Removal and Installation"](#).
2. Remove center console. Refer to [IP-24, "Removal and Installation"](#).
3. Disconnect G sensor harness connector.
4. Remove G sensor.

INSTALLATION

Installation is the reverse order of removal.

Adjustment

INFOID:0000000006325159

ADJUSTMENT AFTER INSTALLATION

Perform "G SENSOR". Refer to [TM-440, "Description"](#).

OIL PAN

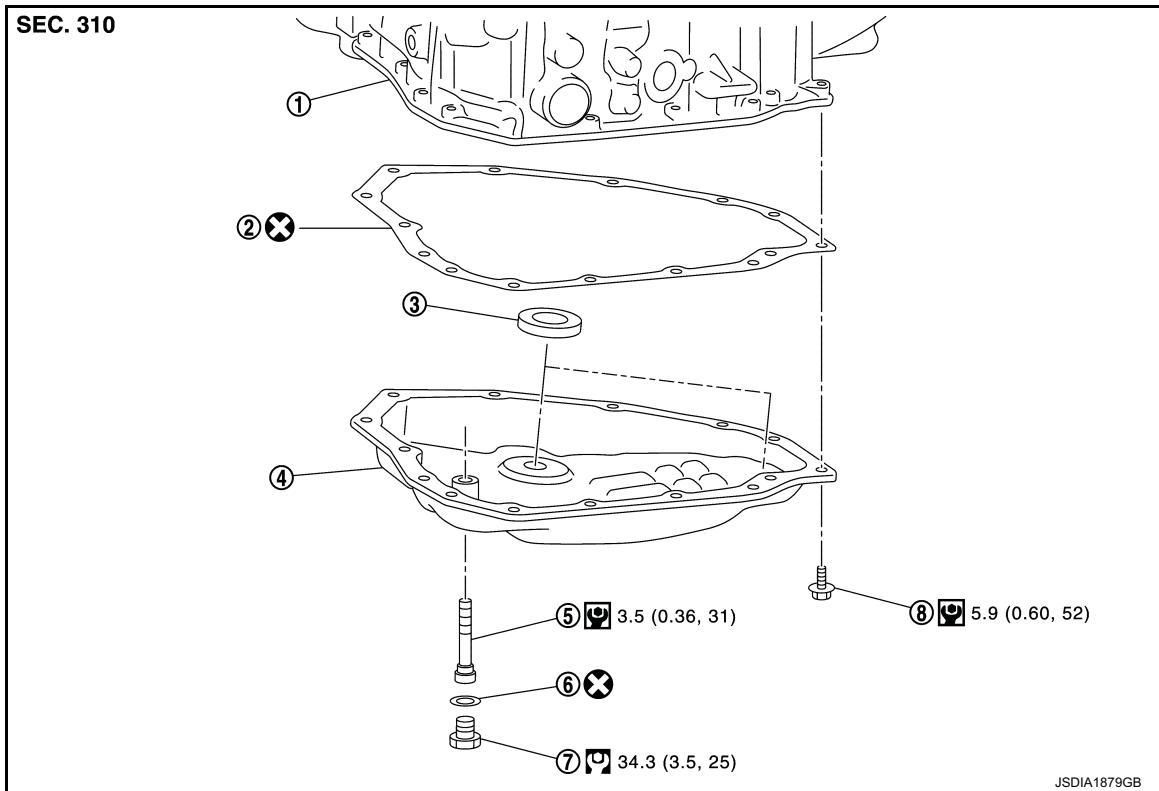
< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

OIL PAN

Exploded View

INFOID:000000006428724



1. Transaxle assembly	2. Oil pan gasket	3. Magnet
4. Oil pan	5. Overflow tube	6. Drain plug gasket
7. Drain plug	8. Oil pan fitting bolt	

⊗ : Always replace after every disassembly.

⊙ : N·m (kg-m, ft-lb)

⊙ : N·m (kg-m, it-lb)

Removal and Installation

INFOID:000000006428725

REMOVAL

1. Remove the drain plug and overflow tube, and then drain the CVT fluid.

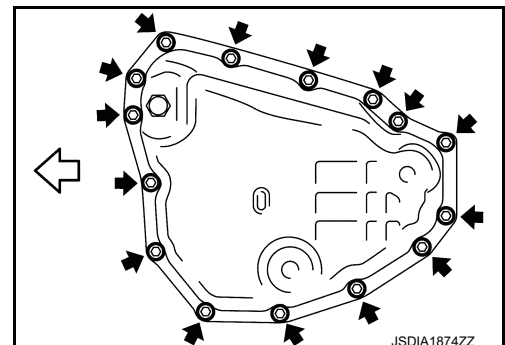
CAUTION:

Use caution when looking into the drain hole as there is the risk of fluid entering the eye.

2. Remove the drain plug gasket from the drain plug.
3. Remove the oil pan mounting bolts (←), and then remove the oil pan and oil pan gasket.

← : Vehicle front

4. Remove the magnets from the oil pan.



OIL PAN

< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

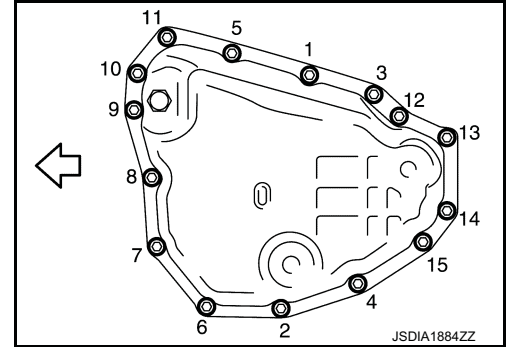
INSTALLATION

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

CAUTION:

- **Never reuse oil pan gasket and drain plug gasket.**
- **When installing the oil pan mounting bolts, be sure to use new bolts.**
- **Completely remove all moisture, oil and old gasket, etc. from the oil pan gasket mounting surface of transaxle case and oil pan.**
- **When installing the overflow tube, be sure to tighten to the specified torque. If it is not tightened to the specified torque, the tube may be damaged.**
- When the oil pan is installed, tighten bolts in the order shown in the figure after temporarily tightening the oil pan mounting bolt.

← :Vehicle front



Inspection and Adjustment

INFOID:000000006428726

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. Refer to [TM-556, "Inspection"](#).

ADJUSTMENT AFTER INSTALLATION

Check the CVT fluid level. Refer to [TM-443, "Adjustment"](#).

PRIMARY SPEED SENSOR

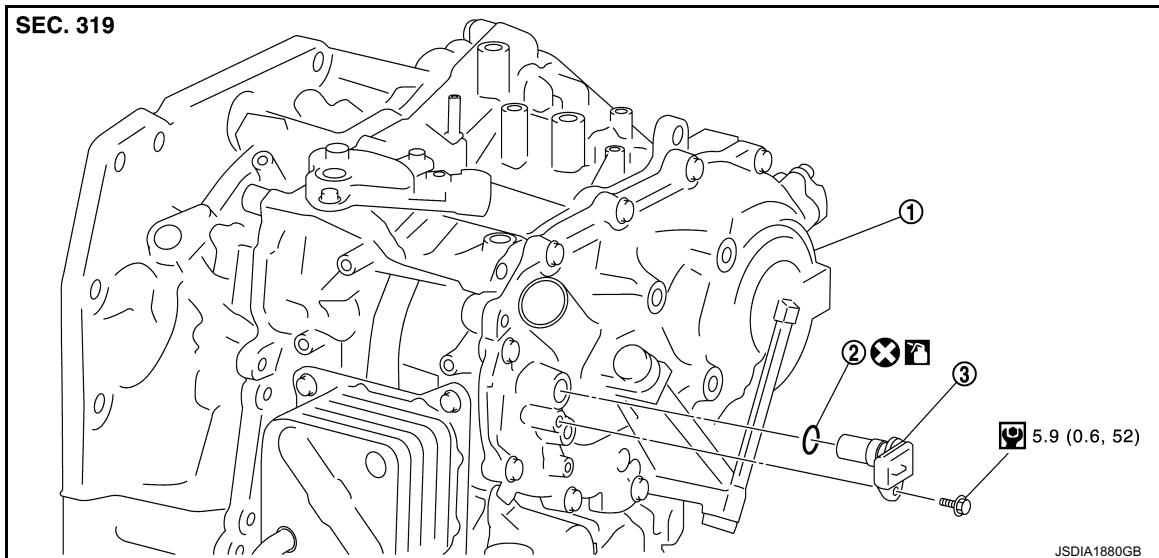
< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

PRIMARY SPEED SENSOR

Exploded View

INFOID:000000006428727



1. Transaxle assembly

2. O-ring

3. Primary speed sensor

⇐ : Vehicle front

⊗ : Always replace after every disassembly.

Ⓐ : N m (kg-m, in-lb)

🛢 : Genuine NISSAN CVT Fluid NS-2

Removal and Installation

INFOID:000000006428728

REMOVAL

1. Disconnect battery cable from negative terminal. Refer to [PG-529. "FOR MAINTENANCE REQUIRED BATTERY MODELS : Removal and Installation"](#).
2. Remove fender protector (LH). Refer to [EXT-21. "FENDER PROTECTOR : Removal and Installation"](#).
3. Disconnect the primary speed sensor connector.
4. Remove the primary speed sensor.
5. Remove the O-ring from the primary speed sensor.

INSTALLATION

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

CAUTION:

- Never reuse O-ring.
- Apply Genuine NISSAN CVT Fluid NS-2 to the O-ring.

Inspection and Adjustment

INFOID:000000006428729

INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage. Refer to [TM-556. "Inspection"](#).

ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-443. "Adjustment"](#).

SECONDARY SPEED SENSOR

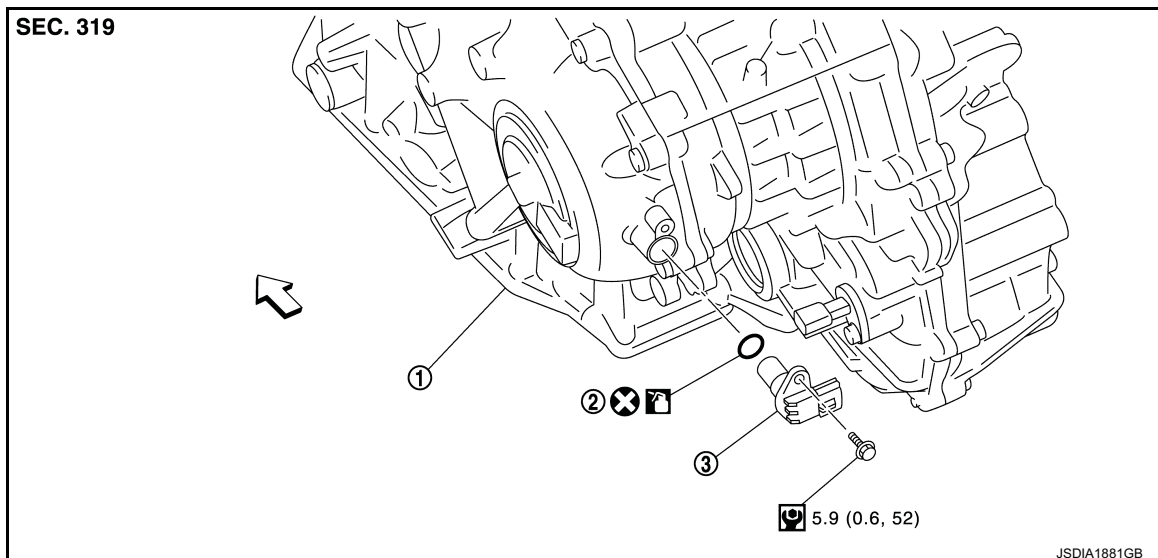
< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

SECONDARY SPEED SENSOR

Exploded View

INFOID:000000006428736



1. Transaxle assembly

2. O-ring

3. Secondary speed sensor

↖ : Vehicle front

⊗ : Always replace after every disassembly.

Ⓐ : N·m (kg-m, in-lb)

🛢 : Genuine NISSAN CVT Fluid NS-2

Removal and Installation

INFOID:000000006428737

REMOVAL

1. Disconnect battery cable from negative terminal. Refer to [PG-529, "FOR MAINTENANCE REQUIRED BATTERY MODELS : Removal and Installation"](#).
2. Disconnect the secondary speed sensor connector.
NOTE:
Lift up the vehicle and perform the work from rear of the unit.
3. Remove the secondary speed sensor.
4. Remove the O-ring from the secondary speed sensor.

INSTALLATION

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

CAUTION:

- Never reuse O-ring.
- Apply Genuine NISSAN CVT Fluid NS-2 to the O-ring.

Inspection and Adjustment

INFOID:000000006428738

INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage. Refer to [TM-556, "Inspection"](#).

ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-443, "Adjustment"](#).

OUTPUT SPEED SENSOR

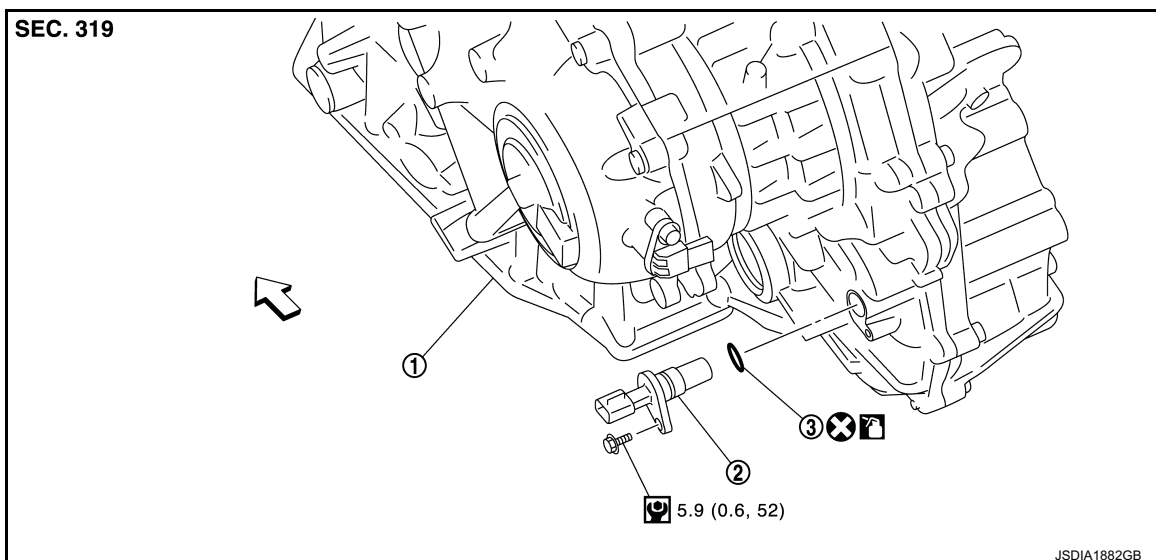
< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

OUTPUT SPEED SENSOR

Exploded View

INFOID:000000006428739



1. Transaxle assembly

2. Output speed sensor

3. O-ring

↔ : Vehicle front

⊗ : Always replace after every disassembly.

Ⓒ : N·m (kg-m, in-lb)

🛢 : Genuine NISSAN CVT Fluid NS-2

Removal and Installation

INFOID:000000006428740

REMOVAL

1. Disconnect battery cable from negative terminal. Refer to [PG-529. "FOR MAINTENANCE REQUIRED BATTERY MODELS : Removal and Installation"](#).
2. Disconnect the output speed sensor connector.
NOTE:
Lift up the vehicle and perform the work from rear of the unit.
3. Remove the output speed sensor.
4. Remove the O-ring from the output speed sensor.

INSTALLATION

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

CAUTION:

- **Never reuse O-ring.**
- **Apply Genuine NISSAN CVT Fluid NS-2 to the O-ring.**

Inspection and Adjustment

INFOID:000000006428741

INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage. Refer to [TM-556. "Inspection"](#).

ADJUSTMENT AFTER INSTALLATION

Check the CVT fluid level. Refer to [TM-443. "Adjustment"](#).

DIFFERENTIAL SIDE OIL SEAL

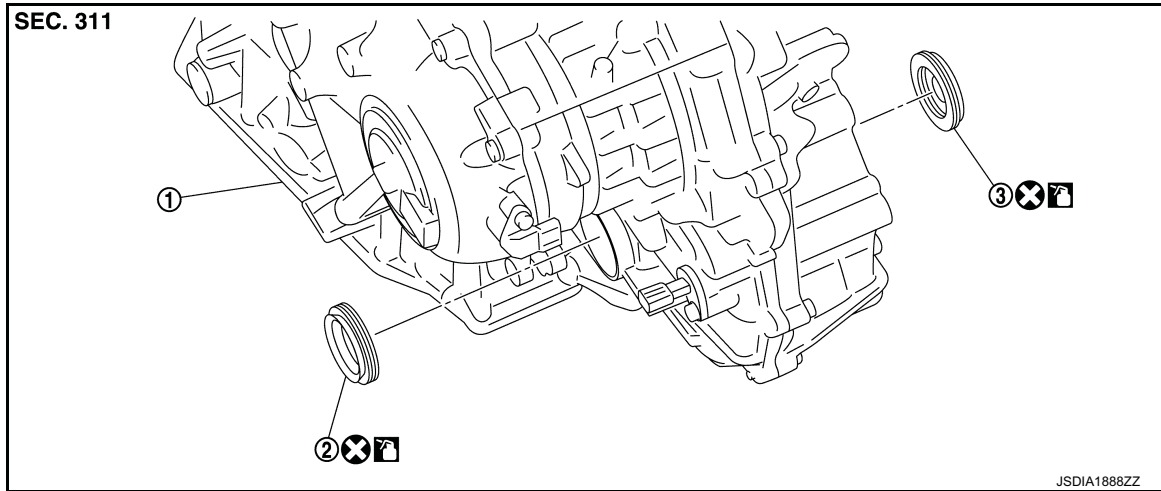
< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

DIFFERENTIAL SIDE OIL SEAL

Exploded View

INFOID:000000006428791



1. Transaxle assembly 2. Differential side oil seal (left side) 3. Differential side oil seal (right side)

↔ : Vehicle front

⊗ : Always replace after every disassembly.

🔧 : Genuine NISSAN CVT Fluid NS-2

Removal and Installation

INFOID:000000006428792

REMOVAL

NOTE:

Cap or plug openings to prevent fluid from spilling.

1. Remove the left and right front drive shafts. Refer to [FAX-102, "Removal and Installation"](#) (Except for Europe), [FAX-59, "EXCEPT FOR K9K : Removal and Installation"](#) (For Europe).
2. Use oil seal remover or a similar means and remove the differential side oil seal.

CAUTION:

When removing the differential side oil seal, be careful not to scratch the oil seal mounting surfaces of the transaxle case and converter housing.

INSTALLATION

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

CAUTION:

- **Never reuse differential side oil seal.**
- **Apply Genuine NISSAN CVT Fluid NS-2 to the differential side oil seal lip and around the oil seal.**
- **When inserting the drive shaft, be sure to use a protector (SST: KV38107900). Refer to [FAX-102, "Removal and Installation"](#) (Except for Europe), [FAX-59, "EXCEPT FOR K9K : Removal and Installation"](#) (For Europe).**

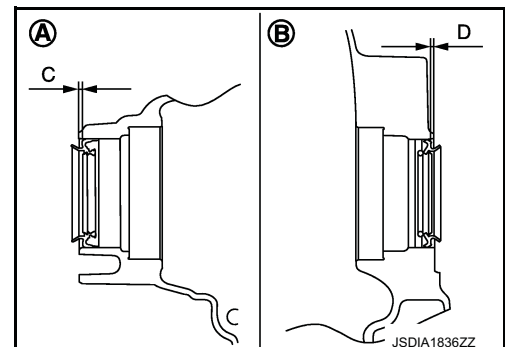
Use a drift (commercial service tool) and drive the differential side oil seal in until the amount of oil seal projection from the case edge matches dimensions (C) and (D).

CAUTION:

Be careful not to scratch the lip of the differential side oil seal when press-fitting it.

A : Differential side oil seal (left side)

B : Differential side oil seal (right side)



DIFFERENTIAL SIDE OIL SEAL

< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

Dimension “C” :Height difference from case end surface is within 1.8 ± 0.5 mm (0.071 $\pm$ 0.020 in).

Dimension “D” :Height difference from case end surface is within 1.8 ± 0.5 mm (0.071 $\pm$ 0.020 in).

NOTE:

The reference is the pull-in direction of the differential side oil seal.

Drift to be used:

Location	Commercial Service Tools
Transaxle case side	Commercial service tool with outer dia. 56 mm (2.20 in) and inner dia. 50 mm (1.97 in)
Converter housing side	

Inspection and Adjustment

INFOID:000000006428793

INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage. Refer to [TM-556, "Inspection"](#).

ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-443, "Adjustment"](#).

WATER HOSE

< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

WATER HOSE

Information

INFOID:000000007256577

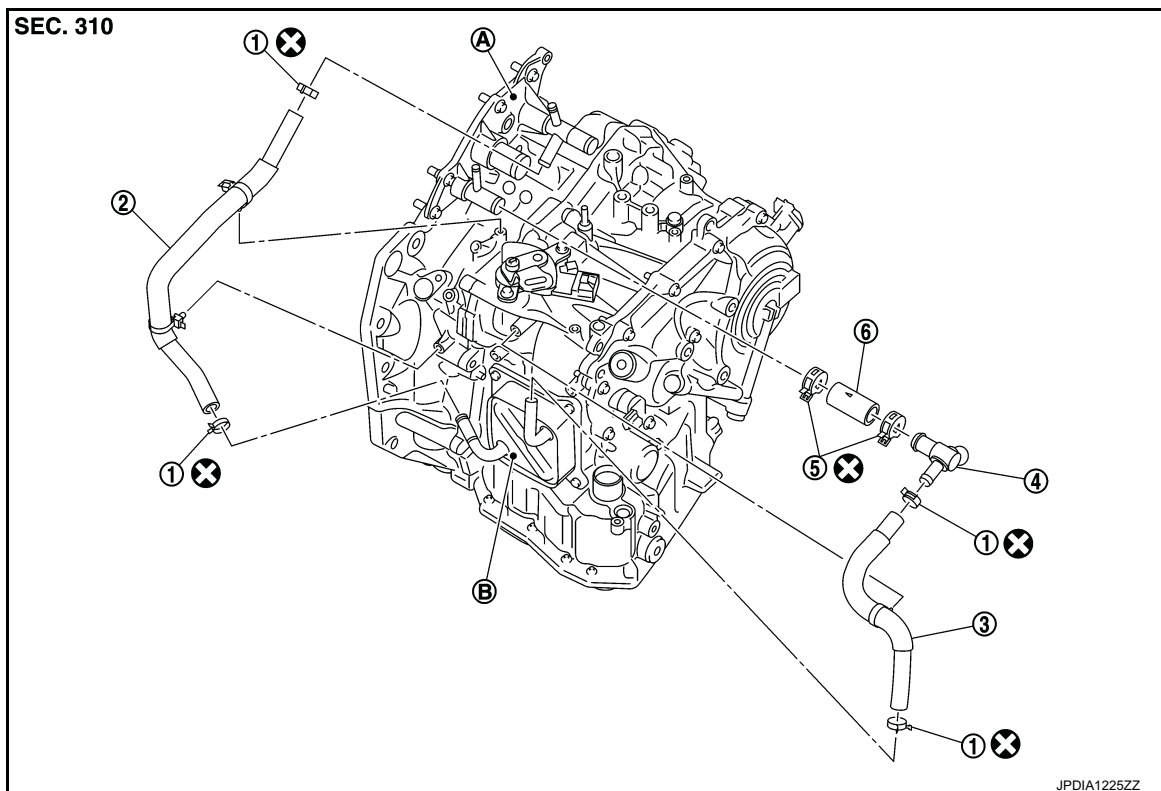
Refer to the following table when removing, installing or replacing the water hose component.

Vehicle type	Service information
For Europe and Hong Kong with HR12DE	TYPE1
Except for Europe and Hong Kong with HR12DE	TYPE2
For Europe with HR12DDR	TYPE3

TYPE 1

TYPE 1 : Exploded View

INFOID:000000006710164



1. Hose clamp	2. Water hose A	3. Water hose B
4. Water bypass pipe	5. Hose clamp	6. Water hose C
A: Water outlet	B: Oil warmer	

⊗ : Always replace after every disassembly.

TYPE 1 : Removal and Installation

INFOID:000000006710165

REMOVAL

WARNING:

Never remove the radiator cap when the engine is hot. Serious burns could occur from high pressure coolant escaping from the radiator.

CAUTION:

Perform these steps after the coolant temperature has cooled sufficiently.

1. Remove the air cleaner cover and body. [EM-33, "TYPE 1 : Removal and Installation"](#).
2. Remove the battery and the battery plate. Refer to [PG-529, "FOR MAINTENANCE REQUIRED BATTERY MODELS : Exploded View"](#).

WATER HOSE

< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

3. Pull out the CVT water hose A, B, C and bypass pipe.

NOTE:

Cap or plug openings to prevent coolant from spilling.

INSTALLATION

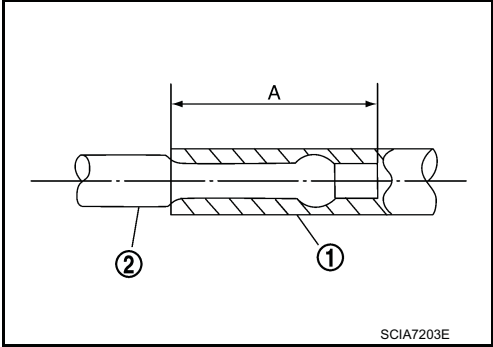
Note the following, and install in the reverse order of removal.

CAUTION:

Never reuse hose clamp.

- When water hose (1) is inserted into tube (2), refer to insertion length "A" below.

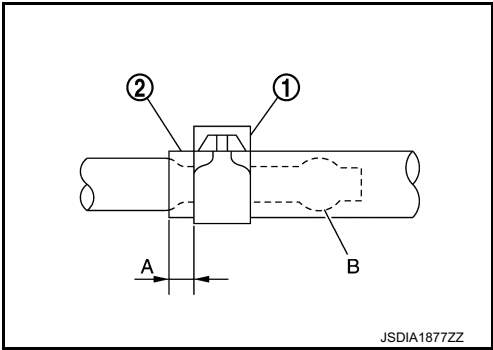
Insertion length "A" : 27 mm (1.06 in)



- When hose clamp (1) is installed on CVT water hose (2), refer to dimension "A" below.

Dimension "A" : 5 – 7 mm (0.20 – 0.28 in)

- The hose clamp should not come on bulge (B).



Water hose	Hose end	Direction of paint mark	Direction of hose clamp tab
Water hose A	Water outlet side	Up side of vehicle	45 degrees left at upper part of the vehicle
	Oil warmer side	Vehicle front	Vehicle front
Water hose B	Oil warmer side	Vehicle front	Left of vehicle
	Water bypass pipe	—	Up side of vehicle
Water hose C	Water bypass pipe	—	Vehicle front
	Water outlet side	—	Vehicle front

TYPE 1 : Inspection

INFOID:000000006710166

INSPECTION AFTER INSTALLATION

Start the engine, and check the joints for coolant leakage. Refer to [CO-13. "Inspection"](#).

TYPE 2

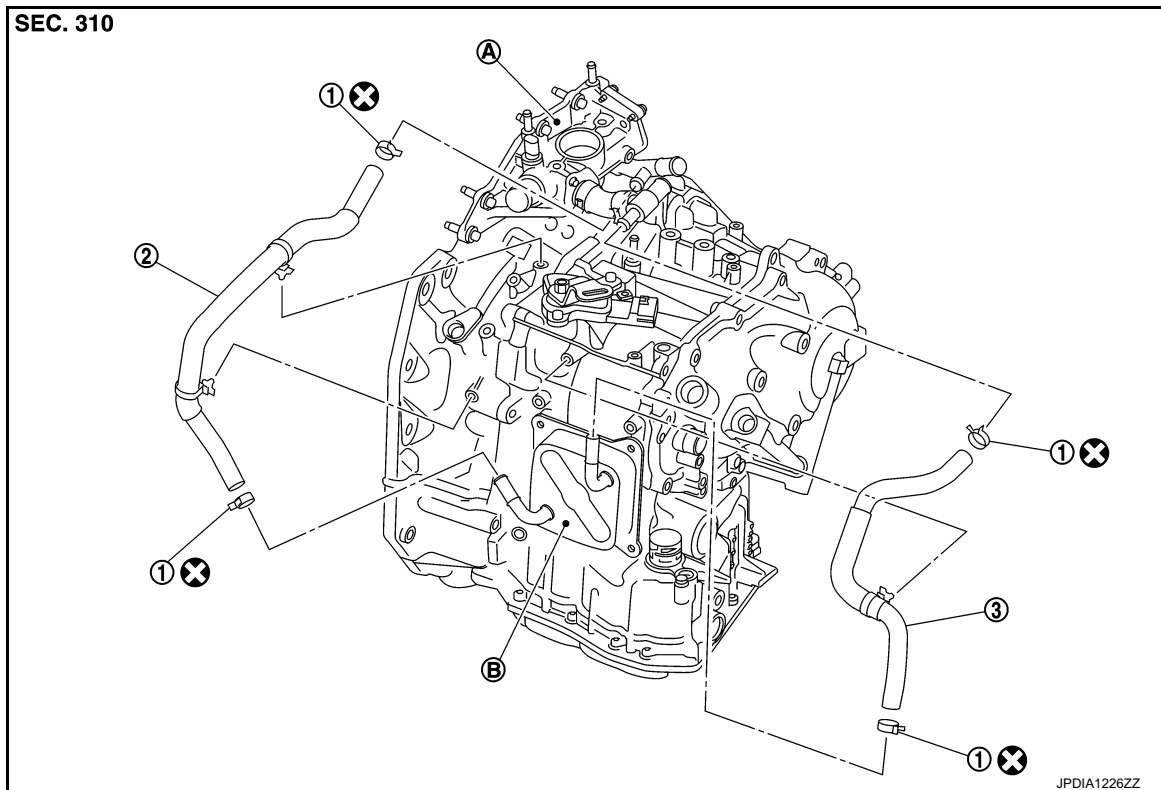
WATER HOSE

< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

TYPE 2 : Exploded View

INFOID:000000006325175



TYPE 2 : Removal and Installation

INFOID:000000006325176

REMOVAL

WARNING:

Never remove the radiator cap when the engine is hot. Serious burns could occur from high pressure coolant escaping from the radiator.

CAUTION:

Perform these steps after the coolant temperature has cooled sufficiently.

1. Remove the air cleaner cover and body. [EM-33, "TYPE 1 : Removal and Installation"](#).
2. Remove the battery and the battery plate. Refer to [PG-529, "FOR MAINTENANCE REQUIRED BATTERY MODELS : Exploded View"](#).
3. Pull out the CVT water hose A and B.

NOTE:

Cap or plug openings to prevent coolant from spilling.

INSTALLATION

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

CAUTION:

Never reuse hose clamp.

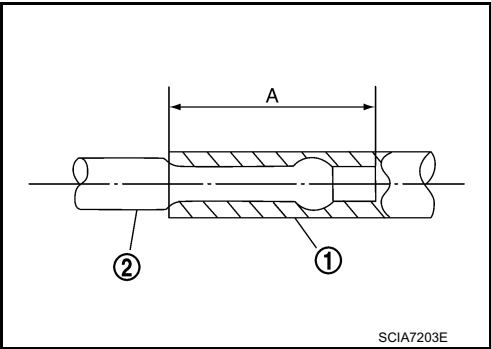
WATER HOSE

< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

- When water hose (1) is inserted into tube (2), refer to insertion length "A" below.

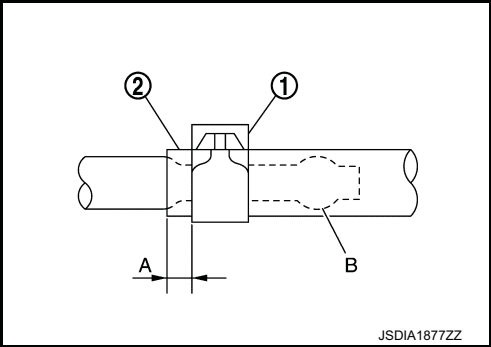
Insertion length "A" : 27 mm (1.06 in)



- When hose clamp (1) is installed on CVT water hose (2), refer to dimension "A" below.

Dimension "A" : 5 – 7 mm (0.20 – 0.28 in)

- The hose clamp should not come on bulge (B).



Water hose	Hose end	Direction of paint mark	Direction of hose clamp tab
Water hose A	Water outlet side	Up side of vehicle	45 degrees left at upper part of the vehicle
	Oil warmer side	Vehicle front	Vehicle front
Water hose B	Oil warmer side	Vehicle front	Left of vehicle
	Water outlet side	Up side of vehicle	Up side of vehicle

TYPE 2 : Inspection

INFOID:000000006325177

INSPECTION AFTER INSTALLATION

Start the engine, and check the joints for coolant leakage. Refer to [CO-13, "Inspection"](#).

TYPE 3

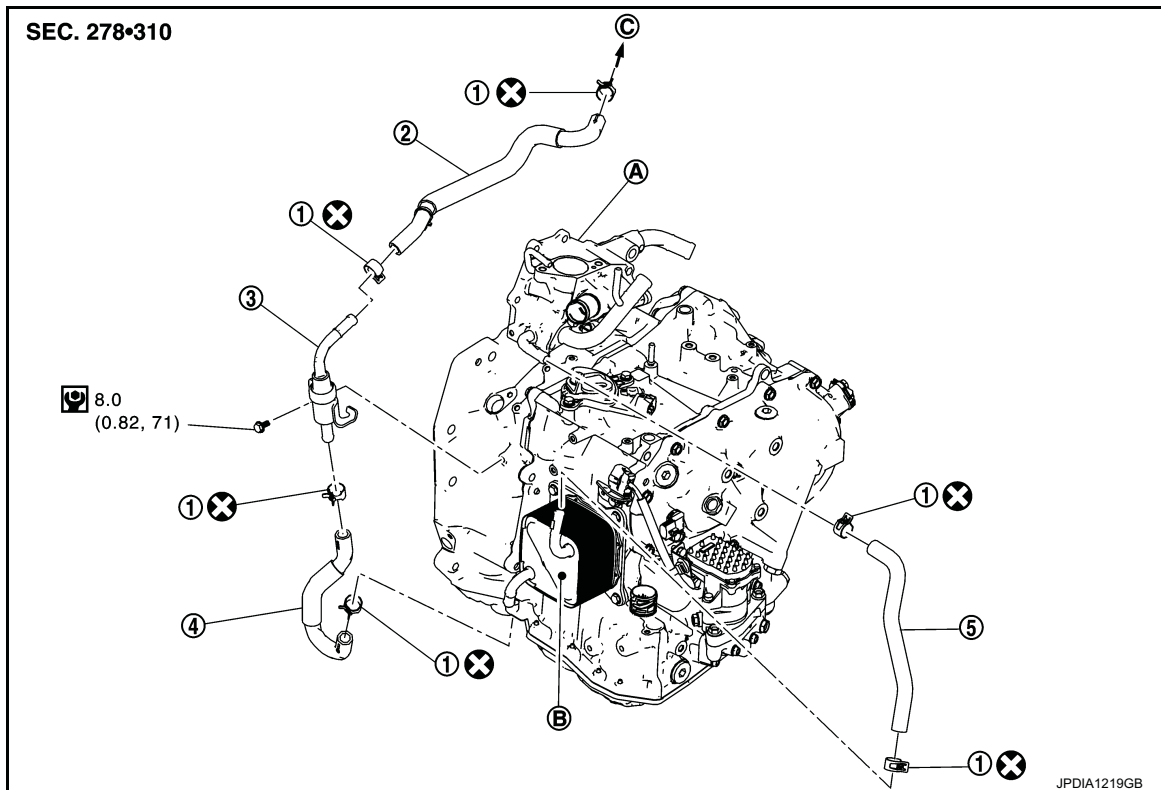
WATER HOSE

< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

TYPE 3 : Exploded View

INFOID:000000007256865



1. Hose clamp	2. Water hose A	3. Heater Thermostat
4. Water hose B	5. Water hose C	
A: Water outlet	B: CVT oil warmer	C: To water bypass pipe

⊗ : Always replace after every disassembly.

Ⓒ : N·m (kg-m, in-lb)

TYPE 3 : Removal and Installation

INFOID:000000007256866

REMOVAL

WARNING:

Never remove the radiator cap when the engine is hot. Serious burns could occur from high pressure coolant escaping from the radiator.

CAUTION:

Perform these steps after the coolant temperature has cooled sufficiently.

1. Remove the inlet tube. Refer to [EM-209, "Removal and Installation"](#).
2. Remove the air inlet tube 1. Refer to [EM-206, "Removal and Installation"](#).
3. Remove the battery and the battery plate. Refer to [PG-529, "FOR MAINTENANCE REQUIRED BATTERY MODELS : Exploded View"](#).
4. Pull out the water hose A, B and C.

NOTE:

Cap or plug openings to prevent coolant from spilling.

5. Remove the heater thermostat assembly.

INSTALLATION

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

CAUTION:

Never reuse hose clamp.

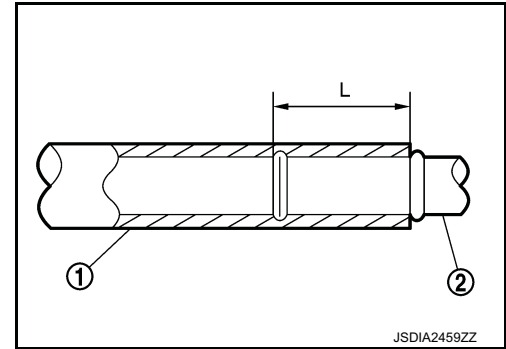
- Refer to the following when installing water hoses.

WATER HOSE

< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

Water hose (1)	Installation side tube (2)	Direction of paint mark	Hose insertion depth "L"
Water hose A	Water bypass pipe	Upward	27 mm (1.06 in) (End reaches the 2-stage bulge.)
	Heater thermostat assembly	Downward	
Water hose B	Heater thermostat assembly	Frontward	
	CVT oil warmer	Frontward	
Water hose C	CVT oil warmer	Frontward	
	Water outlet	Upward	

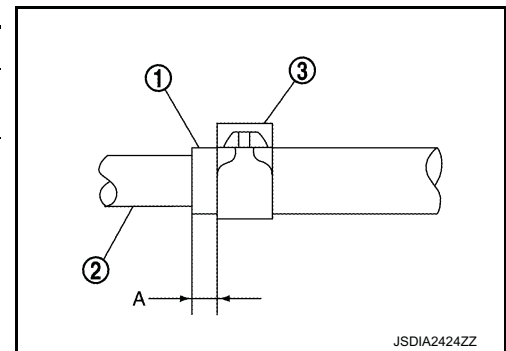


- Refer to the followings when installing hose clamp.

CAUTION:

Hose clamp should not interfere with the bulge of fluid cooler tube.

Water hose (1)	Installation side tube (2)	Hose clamp (3)	
		Direction of tab	Clamping position "A"
Water hose A	Water bypass pipe	Upward	5 – 7 mm (0.20 – 0.28 in) from hose end
	Heater thermostat assembly	Downward	
Water hose B	Heater thermostat assembly	Frontward	
	CVT oil warmer	Frontward	
Water hose C	CVT oil warmer	Leftward	
	Water outlet	Upward	



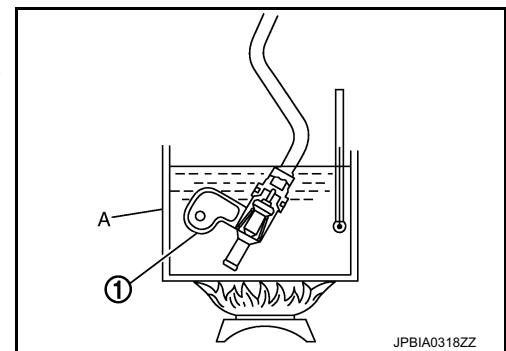
TYPE 3 : Inspection

INFOID:000000007256867

INSPECTION AFTER REMOVAL

Heater Thermostat

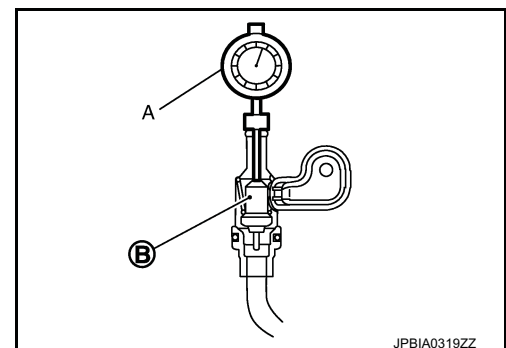
- Fully immerse the heater thermostat (1) in a container (A) filled with water. Continue heating the water while stirring.
- Continue heating the heater thermostat for 5 minutes or more after bringing the water to a boil.
- Quickly take the heater thermostat out of the hot water, measure the heater thermostat within 10 seconds.



- Place dial indicator (A) on the pellet (B) and measure the elongation from the initial state.

Standard : Refer to [TM-597, "Heater Thermostat"](#).

- If out of standard, replace heater thermostat.



WATER HOSE

< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

INSPECTION AFTER INSTALLATION

Start the engine, and check the joints for coolant leakage. Refer to [CO-13. "Inspection"](#).

PLUG

< REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

PLUG

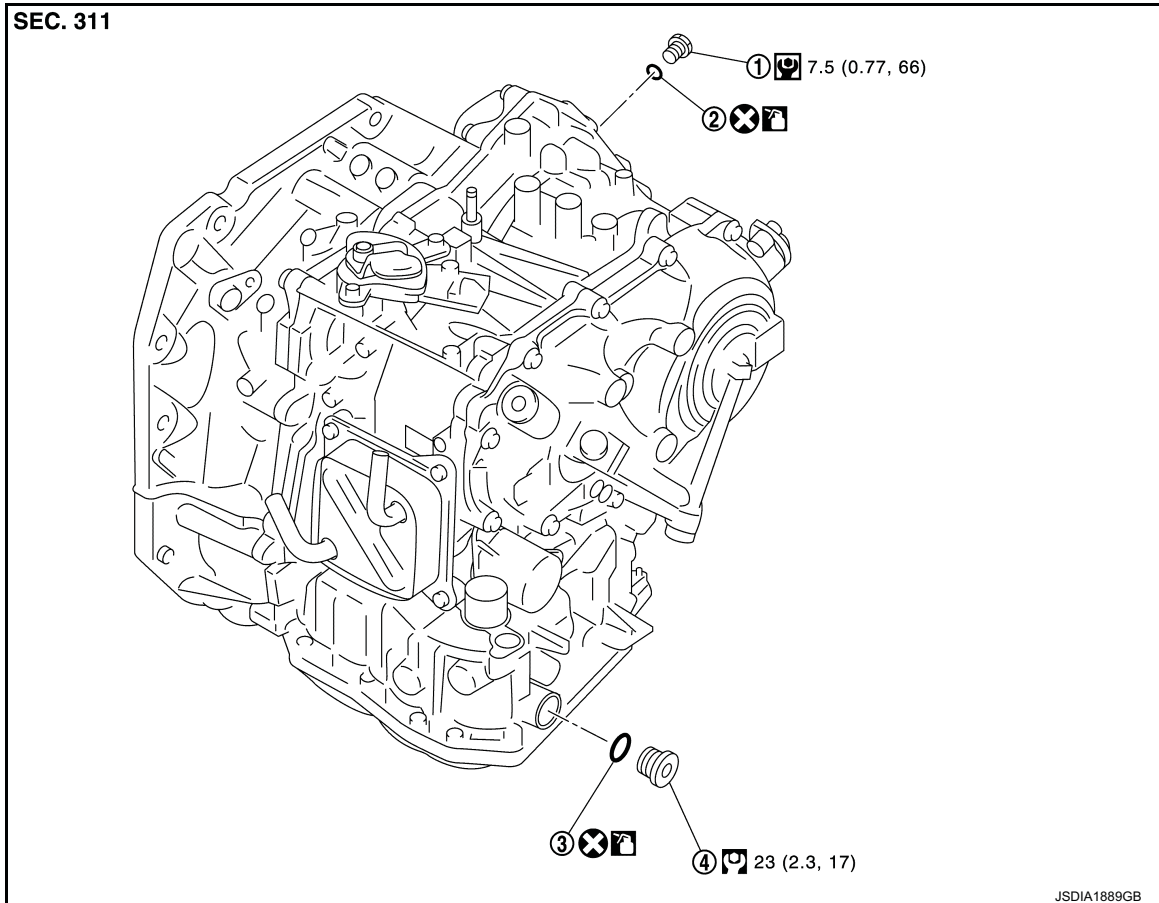
Description

INFOID:0000000006325178

Replace the O-ring if oil leakage or exudes from the plug.

Exploded View

INFOID:0000000006325179



1. Plug

2. O-ring

3. O-ring

4. Plug

⊗ : Always replace after every disassembly.

🔧 : N·m (kg-m, ft-lb)

🔧 : N·m (kg-m, in-lb)

💧 : Genuine NISSAN CVT Fluid NS-2

Removal and Installation

INFOID:0000000006325180

NOTE:

Replace the O-rings if oil leakage or exudes from the plugs.

REMOVAL

Remove the plugs and O-rings.

INSTALLATION

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

CAUTION:

- Never reuse O-ring.
- Apply Genuine NISSAN CVT Fluid NS-2 to O-ring.

Inspection and Adjustment

INFOID:000000006325181

INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage. Refer to [TM-556, "Inspection"](#).

ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-443, "Adjustment"](#).

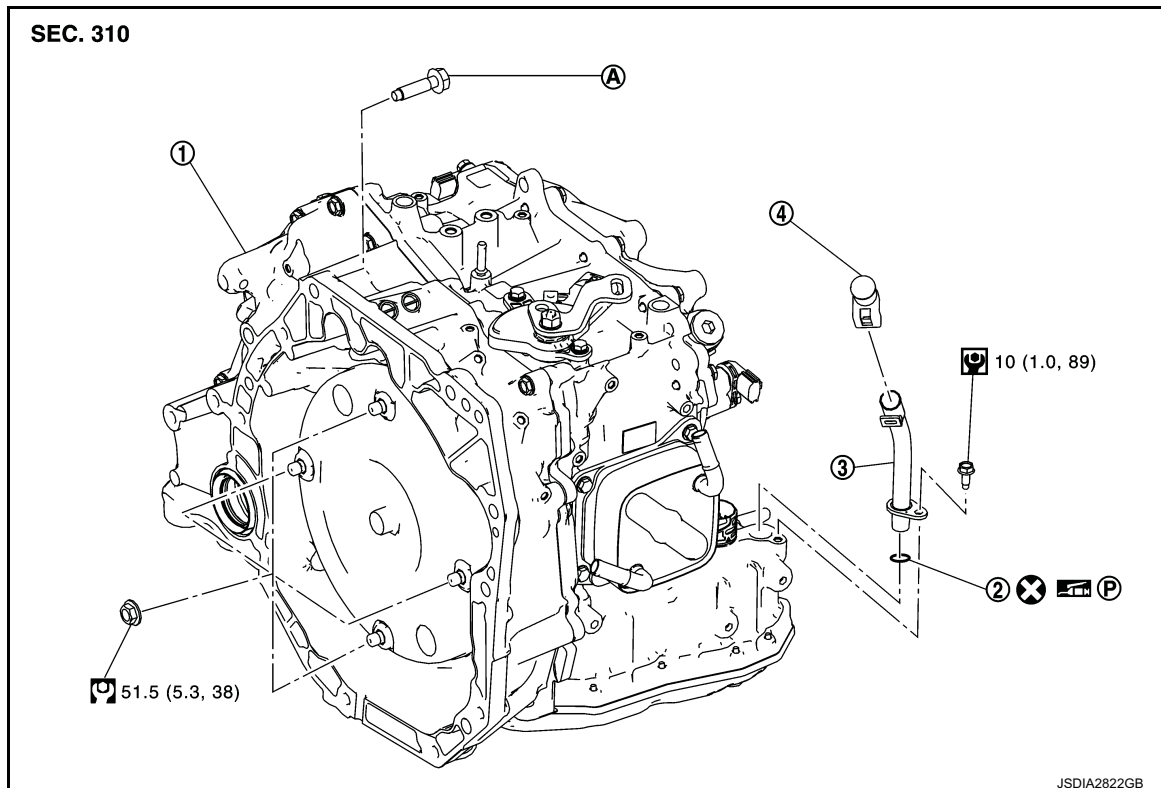
UNIT REMOVAL AND INSTALLATION

TRANSMISSION ASSEMBLY

HR12DE

HR12DE : Exploded View

INFOID:000000006325182



1. Transaxle assembly 2. O-ring 3. CVT fluid charging pipe

4. CVT fluid level gauge

A: : For the tightening torque, refer to [TM-587, "HR12DE : Removal and Installation"](#).

⊗ : Always replace after every disassembly.

⊙ : N·m (kg-m, ft-lb)

⊙ : N·m (kg-m, in-lb)

Ⓟ : Apply petroleum jelly

HR12DE : Removal and Installation

INFOID:000000006325183

REMOVAL

WARNING:

Never open the radiator cap or drain plug when the engine is hot. Hot liquid may spray out, causing serious injury.

CAUTION:

Perform these steps after the coolant temperature has cooled sufficiently.

NOTE:

- When replacing the TCM and transaxle assembly as a set, replace the transaxle assembly first and then replace the TCM. Refer to [TM-435, "Description"](#).
- Cap or plug openings to prevent fluid from spilling.

- Remove the battery. Refer to [PG-529, "FOR MAINTENANCE REQUIRED BATTERY MODELS : Removal and Installation"](#).

TRANSMISSION ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

2. Remove the TCM. Refer to [TM-568, "Removal and Installation"](#).
3. Remove the battery plate.
4. Remove the air duct, air cleaner cover assembly and air cleaner body assembly. Refer to [EM-33, "TYPE 1 : Removal and Installation"](#).
5. Disconnect the connectors and harnesses.
 - For CVT unit connector, refer to [TM-328, "EXCEPT FOR EUROPE : Removal and Installation Procedure for CVT Unit Connector"](#).
 - Transmission range switch connector
 - Primary speed sensor connector
 - Secondary speed sensor connector
 - Output speed sensor connector
 - Crankshaft position sensor (POS) connector
 - Electric oil pump sub-harness connector (With stop/start system)
 - Ground
6. Disconnect the control cable from the transaxle assembly. Refer to [TM-561, "Exploded View"](#).
7. Remove the CVT water hose from the engine side. [TM-578, "Information"](#).
NOTE:
Coolant leaks out. Use a cap, plug, or other means to prevent leakage.
8. Remove the left and right drive shafts. Refer to [FAX-102, "Removal and Installation"](#) (Except for Europe), [FAX-59, "EXCEPT FOR K9K : Removal and Installation"](#) (For Europe).
9. Remove the heat insulator. Refer to [EM-42, "Exploded View"](#).
10. Remove crankshaft position sensor (POS) from converter housing. Refer to [EM-132, "Exploded View"](#).
CAUTION:
 - **Never subject it to impact by dropping or hitting it.**
 - **Never disassemble.**
 - **Never allow metal filings, etc. to get on the sensor's front edge magnetic area.**
 - **Never place in an area affected by magnetism.**
11. Remove starter motor. Refer to [STR-64, "HR12DE : Removal and Installation"](#).
12. Remove the right and left fender protectors. Refer to [EXT-21, "FENDER PROTECTOR : Removal and Installation"](#).
13. Rotate the crankshaft and remove the nuts that secure the drive plate to the torque converter from the starter motor mount.
CAUTION:
Rotate crankshaft clockwise (as viewed from the front of the engine).
14. Remove the rear torque rod. Refer to [EM-116, "Exploded View"](#).
15. Set a transmission jack under the transaxle assembly.
CAUTION:
Be careful not to contact the drain plug when setting the transmission jack.
16. Set a transmission jack under the engine assembly.
CAUTION:
Be careful not to contact the drain plug when setting the transmission jack.
17. Remove the left engine mount insulator. Refer to [EM-116, "Exploded View"](#).
18. Remove the left engine mount bracket (transaxle side). Refer to [EM-116, "Exploded View"](#).
19. Remove the bolts that fasten the transaxle assembly and engine assembly.
20. Remove the transaxle assembly from the vehicle.
CAUTION:
Never drop the torque converter.

INSTALLATION

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

CAUTION:

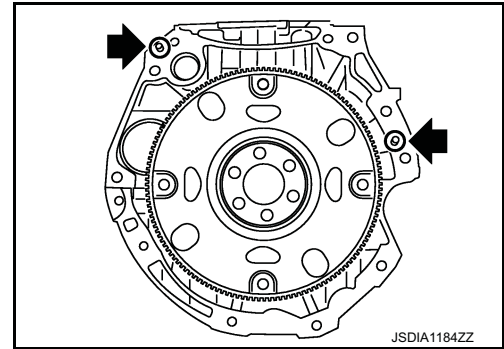
- **Never reuse O-ring.**
- **Apply Vaseline to the O-ring.**

TRANSMISSION ASSEMBLY

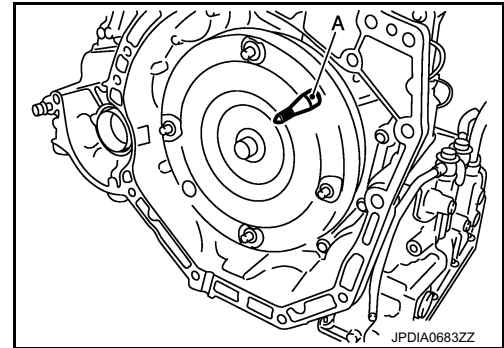
< UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

- When installing the transaxle assembly onto the engine assembly, check the engagement of the dowel pin (↔).



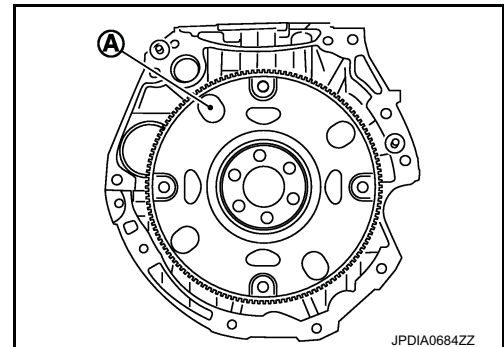
- When using drive plate location guide, install drive plate location guide (Commercial service tool: 31197EU50A) (A) to drive plate location guide mounting part of torque converter.



- Rotate the crankshaft so that the drive plate location guide insert hole (A) of the drive plate is aligned with the drive plate location guide that is installed on the torque converter.

CAUTION:

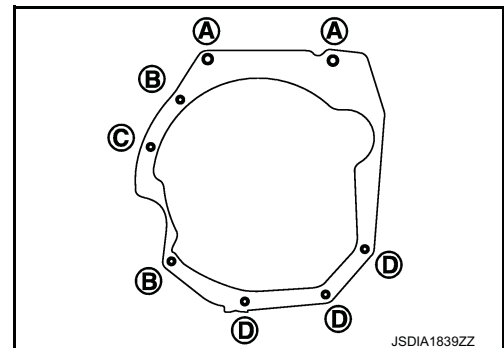
- Rotate the crankshaft clockwise (as viewed from the front of the engine).
- Be careful that torque converter stud bolt is aligned to drive plate hole position. Otherwise stud bolt contacts drive plate.
- Temporarily tighten drive plate and torque converter connecting nuts and tighten to the specified torque.



Tightening torque : 51.5 N·m (5.3 kg-m, 38 ft-lb)

CAUTION:

- Rotate crankshaft clockwise (as viewed from the front of the engine).
- Check the tightening torque for the crankshaft pulley mounting bolts after the bolts fastening the drive plate and torque converter have been tightened and the crankshaft pulley mounting bolts have been secured. Refer to [EM-65, "Removal and Installation"](#).
- Install the transaxle assembly and engine assembly mounting bolts according to the following standards.



TRANSMISSION ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

Bolt position	A	B	C	D
Direction of insertion	Transaxle assembly ⇒ Engine assembly	Engine assembly ⇒ Transaxle assembly		
Quantity	2	2	1	3
Nominal length [mm (in)]	40 (1.57)	44 (1.73)	69 (2.72)	49 (1.93)
Tightening torque N·m (kg-m, ft-lb)	48 (4.9, 35)			

HR12DE : Inspection and Adjustment

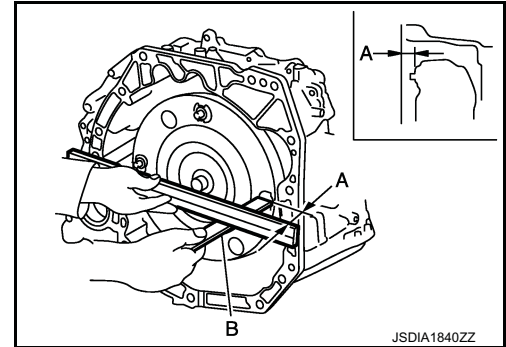
INFOID:000000006325184

INSPECTION BEFORE INSTALLATION

Check the distance "A" between the converter housing and torque converter.

- B : Scale
C : Straightedge

Dimension "A" : [TM-597, "Torque Converter"](#)



JSDIA1840ZZ

INSPECTION AFTER INSTALLATION

Check the following items:

- CVT fluid leakage
- For CVT position, refer to [TM-447, "Inspection and Adjustment"](#).
- Start the engine and check for coolant leakage from the parts which are removed and reinstalled.

ADJUSTMENT AFTER INSTALLATION

- Adjust the CVT fluid level. [TM-443, "Adjustment"](#).
- Perform "ADDITIONAL SERVICE WHEN REPLACE TRANSAXLE ASSEMBLY". Refer to [TM-437, "Description"](#).

HR12DDR

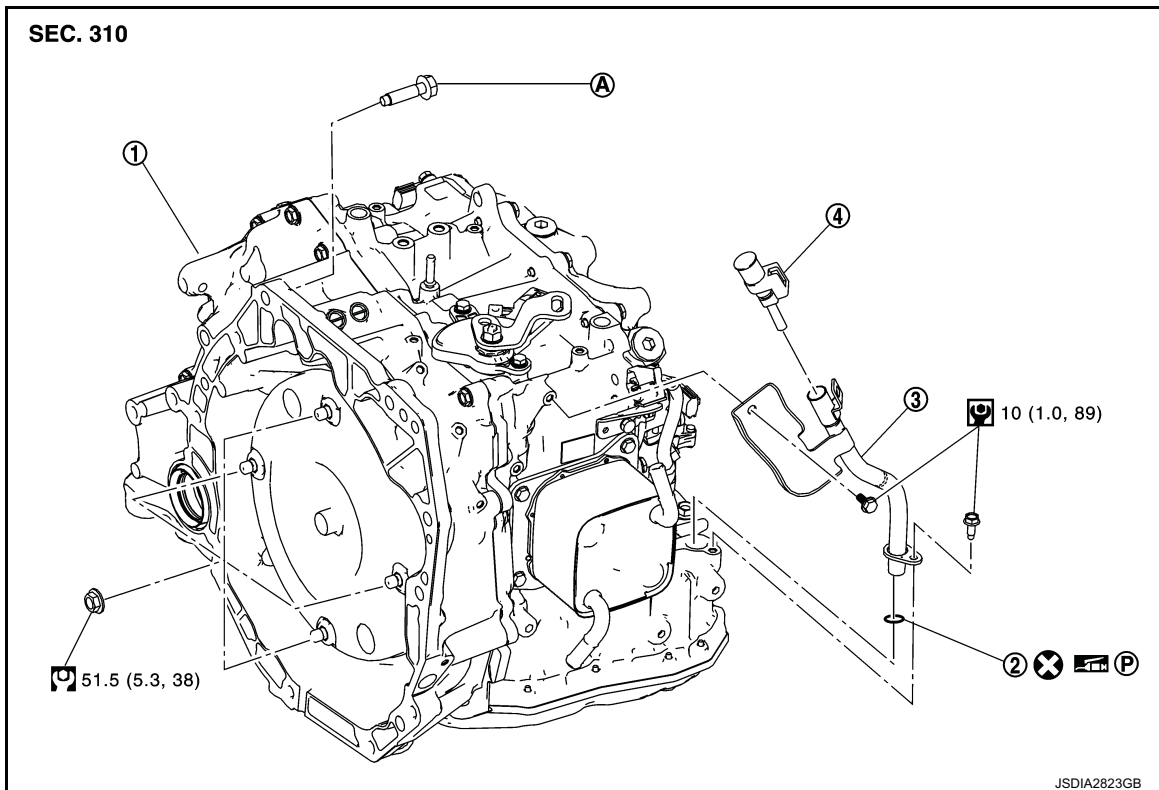
TRANSMISSION ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

HR12DDR : Exploded View

INFOID:000000007292173



1. Transaxle assembly 2. O-ring 3. CVT fluid charging pipe

4. CVT fluid level gauge

A: : For the tightening torque, refer to [TM-591, "HR12DDR : Removal and Installation"](#).

⊗ : Always replace after every disassembly.

⊙ : N·m (kg-m, ft-lb)

⊙ : N·m (kg-m, in-lb)

⊙ : Apply petroleum jelly

HR12DDR : Removal and Installation

INFOID:000000007292174

REMOVAL

WARNING:

Never open the radiator cap or drain plug when the engine is hot. Hot liquid may spray out, causing serious injury.

CAUTION:

Perform these steps after the coolant temperature has cooled sufficiently.

NOTE:

- When replacing the TCM and transaxle assembly as a set, replace the transaxle assembly first and then replace the TCM. Refer to [TM-435, "Description"](#).
- Cap or plug openings to prevent fluid from spilling.

1. Remove the battery. Refer to [PG-529, "FOR MAINTENANCE REQUIRED BATTERY MODELS : Removal and Installation"](#).
2. Remove the TCM. Refer to [TM-568, "Removal and Installation"](#).
3. Remove the battery plate.
4. Remove the air inlet tube 1. Refer to [EM-206, "Removal and Installation"](#).
5. Disconnect the connectors and harnesses.

TRANSMISSION ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

- For CVT unit connector, refer to [TM-328, "EXCEPT FOR EUROPE : Removal and Installation Procedure for CVT Unit Connector"](#).
 - Transmission range switch connector
 - Primary speed sensor connector
 - Secondary speed sensor connector
 - Output speed sensor connector
 - Crankshaft position sensor (POS) connector
 - Electric oil pump sub-harness connector
 - Ground
6. Disconnect the control cable from the transaxle assembly. Refer to [TM-561, "Exploded View"](#).
7. Remove the CVT water hose from the engine side. [TM-578, "Information"](#).
- NOTE:**
Coolant leaks out. Use a cap, plug, or other means to prevent leakage.
8. Remove the left and right drive shafts. Refer to [FAX-59, "EXCEPT FOR K9K : Removal and Installation"](#).
9. Remove the heat insulator. Refer to [EM-212, "Exploded View"](#).
10. Remove crankshaft position sensor (POS) from converter housing. Refer to [EM-274, "Exploded View"](#).
- CAUTION:**
- **Never subject it to impact by dropping or hitting it.**
 - **Never disassemble.**
 - **Never allow metal filings, etc. to get on the sensor's front edge magnetic area.**
 - **Never place in an area affected by magnetism.**
11. Remove starter motor. Refer to [STR-69, "HR12DDR : Removal and Installation"](#).
12. Remove the right and left fender protectors. Refer to [EXT-21, "FENDER PROTECTOR : Removal and Installation"](#).
13. Rotate the crankshaft and remove the nuts that secure the drive plate to the torque converter from the starter motor mount.
- CAUTION:**
Rotate crankshaft clockwise (as viewed from the front of the engine).
14. Remove front suspension member. Refer to [FSU-38, "Removal and Installation"](#).
15. Remove exhaust front tube. Refer to [EX-11, "Exploded View"](#).
16. Set a transmission jack under the transaxle assembly.
- CAUTION:**
Be careful not to contact the drain plug when setting the transmission jack.
17. Set a transmission jack under the engine assembly.
- CAUTION:**
Be careful not to contact the drain plug when setting the transmission jack.
18. Remove the engine mounting insulator (LH). Refer to [EM-265, "Exploded View"](#).
19. Remove the engine mounting bracket (LH) (transaxle side). Refer to [EM-265, "Exploded View"](#).
20. Remove the bolts that fasten the transaxle assembly and engine assembly.
21. Remove the transaxle assembly from the vehicle.
- CAUTION:**
Never drop the torque converter.

INSTALLATION

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

CAUTION:

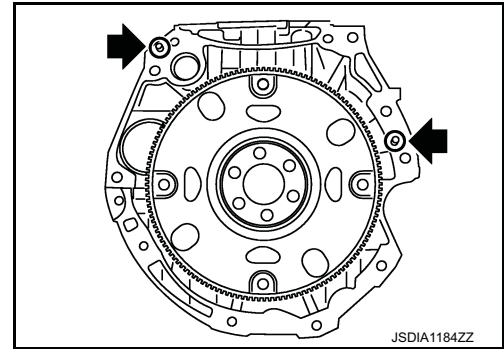
- **Never reuse O-ring.**
- **Apply Vaseline to the O-ring.**

TRANSMISSION ASSEMBLY

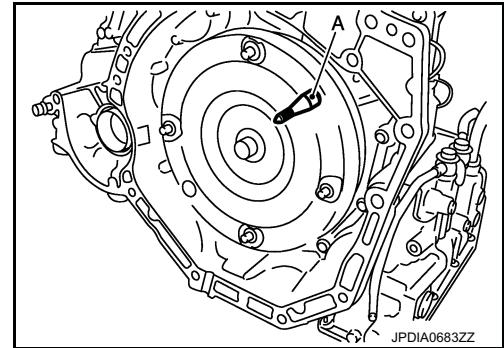
< UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

- When installing the transaxle assembly onto the engine assembly, check the engagement of the dowel pin (↔).



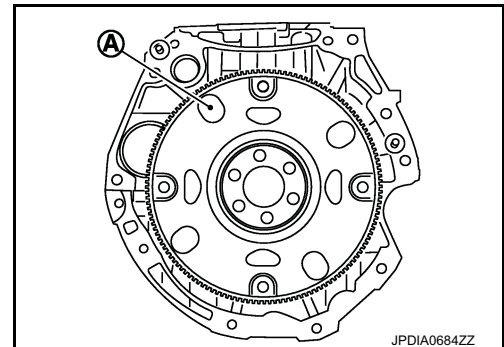
- When using drive plate location guide, install drive plate location guide (Commercial service tool: 31197EU50A) (A) to drive plate location guide mounting part of torque converter.



- Rotate the crankshaft so that the drive plate location guide insert hole (A) of the drive plate is aligned with the drive plate location guide that is installed on the torque converter.

CAUTION:

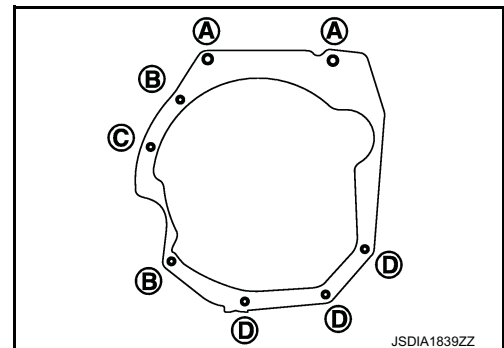
- Rotate the crankshaft clockwise (as viewed from the front of the engine).
- Be careful that torque converter stud bolt is aligned to drive plate hole position. Otherwise stud bolt contacts drive plate.
- Temporarily tighten drive plate and torque converter connecting nuts and tighten to the specified torque.



Tightening torque : 51.5 N·m (5.3 kg-m, 38 ft-lb)

CAUTION:

- Rotate crankshaft clockwise (as viewed from the front of the engine).
- Check the tightening torque for the crankshaft pulley mounting bolts after the bolts fastening the drive plate and torque converter have been tightened and the crankshaft pulley mounting bolts have been secured. Refer to [EM-234, "Removal and Installation"](#).
- Install the transaxle assembly and engine assembly mounting bolts according to the following standards.



TRANSMISSION ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F11A]

Bolt position	A	B	C	D
Direction of insertion	Transaxle assembly ⇒ Engine assembly	Engine assembly ⇒ Transaxle assembly		
Quantity	2	2	1	3
Nominal length [mm (in)]	40 (1.57)	44 (1.73)	69 (2.72)	49 (1.93)
Tightening torque N·m (kg-m, ft-lb)	48 (4.9, 35)			

HR12DDR : Inspection and Adjustment

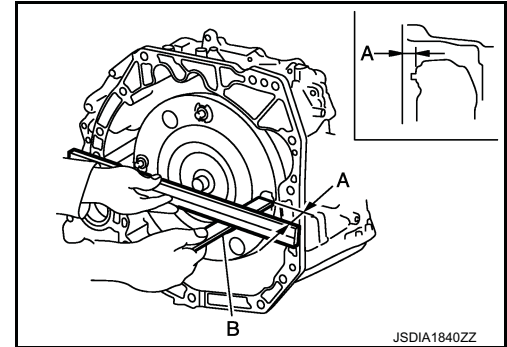
INFOID:000000007292175

INSPECTION BEFORE INSTALLATION

Check the distance "A" between the converter housing and torque converter.

- B : Scale
C : Straightedge

Dimension "A" : [TM-597, "Torque Converter"](#)



INSPECTION AFTER INSTALLATION

Check the following items:

- CVT fluid leakage
- For CVT position, refer to [TM-447, "Inspection and Adjustment"](#).
- Start the engine and check for coolant leakage from the parts which are removed and reinstalled.

ADJUSTMENT AFTER INSTALLATION

- Adjust the CVT fluid level. [TM-443, "Adjustment"](#).
- Perform "ADDITIONAL SERVICE WHEN REPLACE TRANSAXLE ASSEMBLY". Refer to [TM-437, "Description"](#).

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[CVT: RE0F11A]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specification

INFOID:000000006325185

Destination		For Europe		For Hong Kong	Except for Europe and Hong Kong
Engine model		HR12DDR	HR12DE		
Drive type		2WD			
Transaxle model		RE0F11A			
Transaxle model code number		3JX9B	3JX0A, 3JX0C, 3JX0D		3JX9A
Stall torque ratio		1.91 : 1	1.82 : 1		
Pulley ratio	Forward	2.200 – 0.550			
	Reverse	2.200			
Auxiliary gearbox gear ratio	1GR	1.821			
	2GR	1.000			
	Reverse	1.714			
Counter gear		0.967			
Final drive		3.882			
Recommended fluid		Genuine NISSAN CVT Fluid NS-2*1			
Fluid capacity		Approx. 6.9 liter (6-1/8 Imp qt)*2			

CAUTION:

- Use only Genuine NISSAN CVT Fluid NS-2. Never mix with other fluid.
- Use only Genuine NISSAN CVT Fluid NS-2. Using transmission fluid other than Genuine NISSAN CVT Fluid NS-2 will damage the CVT, which is not covered by the (NISSAN new vehicle limited) warranty.

*1: Refer to [MA-29, "Fluids and Lubricants"](#).

*2: The CVT fluid capacity is the reference value.

Shift Characteristics

INFOID:000000006325186

For Europe

HR12DE

Unit: rpm

Throttle position	Shift pattern	Engine speed	
		At 40 km/h (25 MPH)	At 60 km/h (37 MPH)
2/8	"D" position (Sport mode ON)	1,800 – 3,200	2,600 – 3,500
	"D" position (Sport mode OFF)	1,500 – 3,200	1,600 – 3,500
	"L" position	2,900 – 3,700	3,800 – 4,600
8/8	"D" position (Sport mode ON)	4,000 – 4,800	4,600 – 5,400
	"D" position (Sport mode OFF)	4,000 – 4,800	4,600 – 5,400
	"L" position	4,000 – 4,800	4,600 – 5,400

CAUTION:

Lock-up is engaged at the vehicle speed of approximately 10 km/h (11 MPH) to 90 km/h (56 MPH).

HR12DDR

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[CVT: RE0F11A]

Unit: rpm

Throttle position	Shift pattern	Engine speed	
		At 40 km/h (25 MPH)	At 60 km/h (37 MPH)
2/8	"D" position (Sport mode ON)	1,800 – 3,100	2,600 – 3,400
	"D" position (Sport mode OFF)	1,600 – 3,100	1,900 – 3,400
	"L" position	2,900 – 3,700	3,800 – 4,600
8/8	"D" position (Sport mode ON)	4,000 – 4,800	4,600 – 5,400
	"D" position (Sport mode OFF)	4,000 – 4,800	4,600 – 5,400
	"L" position	4,000 – 4,800	4,600 – 5,400

CAUTION:

Lock-up is engaged at the vehicle speed of approximately 10 km/h (11 MPH) to 90 km/h (56 MPH).

For Hong Kong

Unit: rpm

Throttle position	Shift pattern	Engine speed	
		At 40 km/h (25 MPH)	At 60 km/h (37 MPH)
2/8	"D" position (Sport mode ON)	1,800 – 3,200	2,700 – 3,500
	"D" position (Sport mode OFF)	1,500 – 3,200	1,600 – 3,500
	"L" position	2,900 – 3,700	4,100 – 4,900
8/8	"D" position (Sport mode ON)	4,000 – 4,800	4,600 – 5,400
	"D" position (Sport mode OFF)	4,000 – 4,800	4,600 – 5,400
	"L" position	4,000 – 4,800	4,600 – 5,400

CAUTION:

Lock-up is engaged at the vehicle speed of approximately 10 km/h (11 MPH) to 90 km/h (56 MPH).

Except for Europe and Hong Kong

Unit: rpm

Throttle position	Shift pattern	Engine speed	
		At 40 km/h (25 MPH)	At 60 km/h (37 MPH)
2/8	"D" position (Sport mode ON)	1,800 – 3,200	2,700 – 3,500
	"D" position (Sport mode OFF)	1,500 – 3,200	1,600 – 3,500
	"L" position	2,900 – 4,000	4,100 – 4,900
8/8	"D" position (Sport mode ON)	4,000 – 4,800	4,600 – 5,400
	"D" position (Sport mode OFF)	4,000 – 4,800	4,600 – 5,400
	"L" position	4,000 – 4,800	4,600 – 5,400

CAUTION:

Lock-up is engaged at the vehicle speed of approximately 10 km/h (11 MPH) to 90 km/h (56 MPH).

Stall Speed

INFOID:000000006325187

For Europe

HR12DE

Stall speed	2,360 – 2,770 rpm

HR12DDR

Stall speed	2,430 – 2,940 rpm

For Hong Kong

Stall speed	2,320 – 2,730 rpm

Except for Europe and Hong Kong

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[CVT: RE0F11A]

Stall speed	2,475 – 2,775 rpm

Line Pressure

INFOID:000000006570536

For Europe

HR12DE

Unit: MPa (bar, kg/cm², psi)

Shift selector position	Engine speed	Line pressure
"P" and "N"	At idle	0.50 (5.0, 5.1, 72.5)
"R" and "D"	At idle	0.50 (5.0, 5.1, 72.5)– 1.18 (11.8, 12.0, 171.1)
	At stall	4.04 (40.4, 41.2, 585.8) – 4.54 (45.4, 46.3, 658.3)

HR12DDR

Unit: MPa (bar, kg/cm², psi)

Shift selector position	Engine speed	Line pressure
"P" and "N"	At idle	0.50 (5.0, 5.1, 72.5)
"R" and "D"	At idle	0.50 (5.0, 5.1, 72.5)– 1.08 (10.8, 11.0, 156.6)
	At stall	4.50 (45.0, 45.9, 652.5) – 5.00 (50.0, 51.0, 725.0)

For Hong Kong

Unit: MPa (bar, kg/cm², psi)

Shift selector position	Engine speed	Line pressure
"P" and "N"	At idle	0.50 (5.0, 5.1, 72.5)
"R" and "D"	At idle	0.50 (5.0, 5.1, 72.5) – 1.18 (11.8, 12.0, 171.1)
	At stall	4.04 (40.4, 41.2, 585.8) – 4.54 (45.4, 46.3, 658.3)

Except for Europe and Hong Kong

Unit: MPa (bar, kg/cm², psi)

Shift selector position	Engine speed	Line pressure
"P" and "N"	At idle	0.50 (5.0, 5.1, 72.5)
"R" and "D"	At idle	0.50 (5.0, 5.1, 72.5)
	At stall	4.04 (40.4, 41.2, 585.8) – 4.54 (45.4, 46.3, 658.3)

Torque Converter

INFOID:000000006325188

Distance "A" between the converter housing and torque converter	16.2 mm

Heater Thermostat

INFOID:000000007257579

Standard

Valve lift	5.0 mm or more/85°C (0.197 in or more/203°F)

Reference value

Valve opening temperature	69 – 73°C (156 – 163°F)