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TM

SECTION

TRANSAXLE & TRANSMISSION

TM

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BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

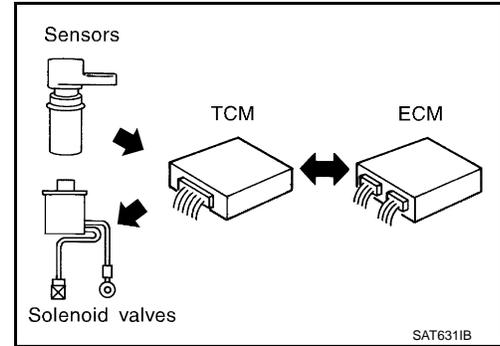
Work Flow

INFOID:000000003130455

INTRODUCTION

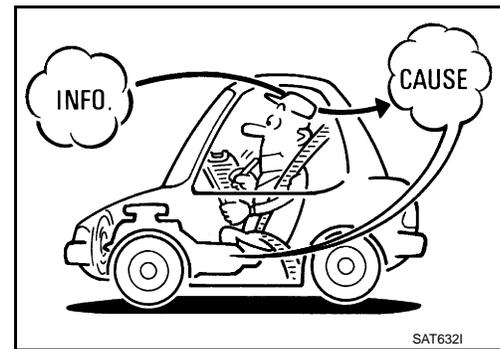
The TCM receives a signal from the vehicle speed sensor, accelerator pedal position sensor (throttle position sensor) or PNP switch. Then provides shift control or lock-up control via A/T solenoid valves. The TCM also communicates with the ECM by means of a signal transmitted from sensing elements used with the OBD-related parts of the A/T system for malfunction-diagnostic purposes. The TCM is capable of diagnosing malfunctioning parts while the ECM can store malfunctions in its memory.

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



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

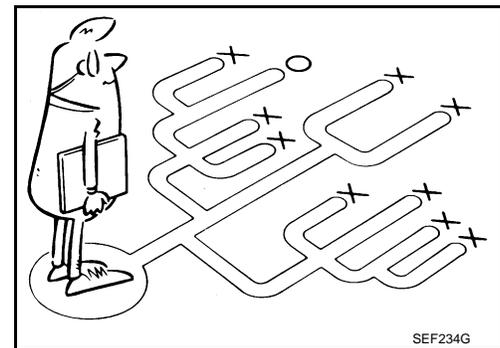
A visual check may not find the cause of the errors. A road test with CONSULT-III (or GST) or a circuit tester connected should be performed. Follow the "DETAILED FLOW".



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

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

Also check related Service bulletins.



DETAILED FLOW

1. COLLECT THE INFORMATION FROM THE CUSTOMER

Get the detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred) using diagnosis worksheet. Refer to [TM-6, "Diagnostic Work Sheet"](#).

>> GO TO 2.

2. CHECK SYMPTOM 1

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

- Fail-safe. Refer to [TM-111, "Fail-Safe"](#).
- A/T fluid inspection. Refer to [TM-141, "Inspection"](#).
- Stall test. Refer to [TM-146, "Inspection and Judgment"](#).
- Line pressure test. Refer to [TM-147, "Inspection and Judgment"](#).

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[5AT: RE5R05A]

>> GO TO 3.

3.CHECK DTC

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

Is any DTC detected?

YES >> GO TO 4.

NO >> GO TO 6.

4.PERFORM DIAGNOSTIC PROCEDURE

Perform "Diagnosis Procedure" for the displayed DTC.

>> GO TO 5.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform "DTC CONFIRMATION PROCEDURE" for the displayed DTC.

Is any DTC detected?

YES >> GO TO 4.

NO >> GO TO 6.

6.CHECK SYMPTOM 2

Try to confirm the symptom described by the customer.

Is any malfunction present?

YES >> GO TO 7.

NO >> INSPECTION END

7.ROAD TEST

Perform "ROAD TEST". Refer to [TM-149. "Description"](#).

>> GO TO 8.

8.CHECK SYMPTOM 3

Try to confirm the symptom described by the customer.

Is any malfunction present?

YES >> GO TO 2.

NO >> INSPECTION END

Diagnostic Work Sheet

INFOID:000000003130456

INFORMATION FROM CUSTOMER

KEY POINTS

- **WHAT**..... Vehicle and A/T model
- **WHEN**..... Date, Frequencies
- **WHERE**..... Road conditions
- **HOW**..... Operating conditions, Symptoms

Customer name MR/MS	Model and Year	VIN
Trans. Model	Engine	Mileage
Malfunction Date	Manuf. Date	In Service Date
Frequency	o Continuous o Intermittent (times a day)	

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[5AT: RE5R05A]

Symptoms	o Vehicle does not move. (o Any position o Particular position)	
	o No up-shift (o 1st → 2nd o 2nd → 3rd o 3rd → 4th o 4th → 5th)	
	o No down-shift (o 5th → 4th o 4th → 3rd o 3rd → 2nd o 2nd → 1st)	
	o Lock-up malfunction	
	o Shift point too high or too low.	
	o Shift shock or slip (o N → D o N → R o Lock-up o Any drive position)	
	o Noise or vibration	
	o No kick down	
	o No pattern select	
o Others ()		
A/T CHECK indicator lamp	o Continuously lit	o Not lit
Malfunction indicator lamp (MIL)	o Continuously lit	o Not lit

DIAGNOSTIC WORK SHEET

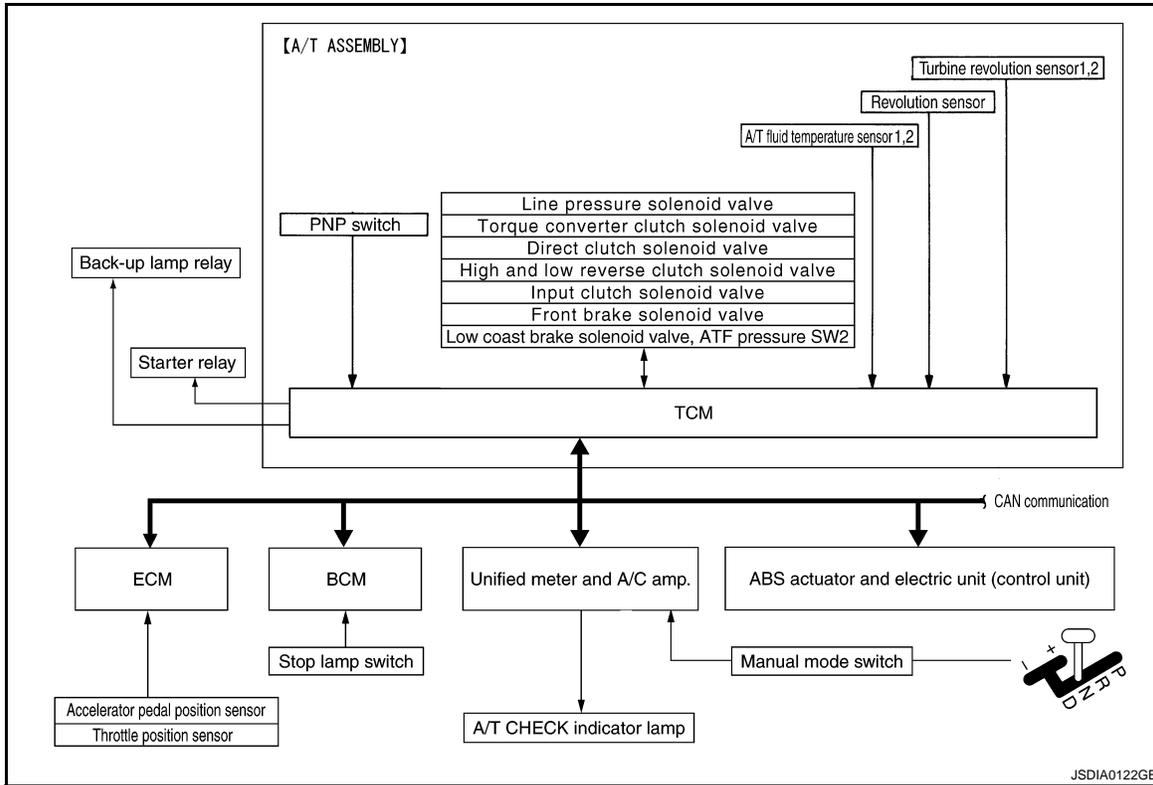
1	o Read the item on cautions concerning fail-safe and understand the customer's complaint.		TM-111	
2	o A/T fluid inspection, stall test and line pressure test			
	o A/T fluid inspection		TM-141	
		o Leak (Repair leak location.) o State o Amount		
	o Stall test		TM-146	
		o Torque converter one-way clutch o Front brake o High and low reverse clutch o Low coast brake o Forward brake o Reverse brake o Forward one-way clutch		
o Line pressure test - Suspected part:		TM-147		
3	o Perform self-diagnosis. — Check detected items to repair or replace malfunctioning part.		TM-40	
4	o Perform road test.			
	4-1	o Check before engine is started		
	4-2	o Check at idle		
	4-3	Cruise test	o Part 1	TM-150
			o Part 2	TM-151
			o Part 3	TM-152
o Check malfunction phenomena to repair or replace malfunctioning part after completing all road tests. Refer to TM-115, "Symptom Table" .				
5	o Drive vehicle to check that the malfunction phenomenon has been resolved.			
6	o Erase the results of the self-diagnosis from the TCM and the ECM.		EC-100, TM-36	

FUNCTION DIAGNOSIS

A/T CONTROL SYSTEM

System Diagram

INFOID:000000003130457



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System Description

INFOID:000000003130458

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.

TCM FUNCTION

The function of the TCM is to:

- Receive input signals transmitted from various switches and sensors.
- Determine required line pressure, shifting point, lock-up operation, engine brake operation, etc.
- Transmit required output signals to the respective solenoids.

SENSORS (or SIGNALS)		TCM		ACTUATORS
PNP switch Accelerator pedal position signal Closed throttle position signal Wide open throttle position signal Engine speed signal A/T fluid temperature sensor Revolution sensor Vehicle speed signal Manual mode switch signal Stop lamp switch signal Turbine revolution sensor ATF pressure switch	⇒	Shift control Line pressure control Lock-up control Engine brake control Timing control Fail-safe control Self-diagnosis CONSULT-III communication line Duet-EA control CAN system	⇒	Input clutch solenoid valve Direct clutch solenoid valve Front brake solenoid valve High and low reverse clutch solenoid valve Low coast brake solenoid valve Torque converter clutch solenoid valve Line pressure solenoid valve A/T CHECK indicator lamp Back-up lamp relay Starter relay

Input/Output Signal of TCM

A/T CONTROL SYSTEM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]

Control item		Line pressure control	Vehicle speed control	Shift control	Lock-up control	Engine brake control	Fail-safe function *3	Self-diagnostics function
Input	Accelerator pedal position signal *5	X	X	X	X	X	X	X
	Vehicle speed sensor A/T (revolution sensor)	X	X	X	X	X	X	X
	Vehicle speed sensor MTR *1, *5						X	
	Closed throttle position signal *5		X *2	X	X		X	X *4
	Wide open throttle position signal *5						X	X *4
	Turbine revolution sensor 1		X		X	X	X	X
	Turbine revolution sensor 2 (for 4th speed only)		X		X	X	X	X
	Engine speed signals *5	X	X	X	X	X	X	X
	Stop lamp switch signal *5		X	X	X			X *4
	A/T fluid temperature sensors 1, 2	X	X	X	X		X	X
	ASCD or ICC sensor integrated unit	Operation signal *5		X	X	X		
Overdrive cancel signal *5			X					
Output	Direct clutch solenoid		X	X			X	X
	Input clutch solenoid		X	X			X	X
	High and low reverse clutch solenoid		X	X			X	X
	Front brake solenoid		X	X			X	X
	Low coast brake solenoid (ATF pressure switch 2)		X	X		X	X	X
	Line pressure solenoid	X	X	X	X	X	X	X
	TCC solenoid				X		X	X
	A/T CHECK indicator lamp *6							X *4
	Starter relay						X	X

*1: Spare for vehicle speed sensor-A/T (revolution sensor)

*2: Spare for accelerator pedal position signal

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

*4: Used as a condition for starting self-diagnostics; if self-diagnostics are not started, it is judged that there is some kind of error.

*5: Input by CAN communications.

*6: Output by CAN communications.

CAN COMMUNICATION

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 error 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. Refer to [LAN-27, "CAN Communication Signal Chart"](#).

LINE PRESSURE CONTROL

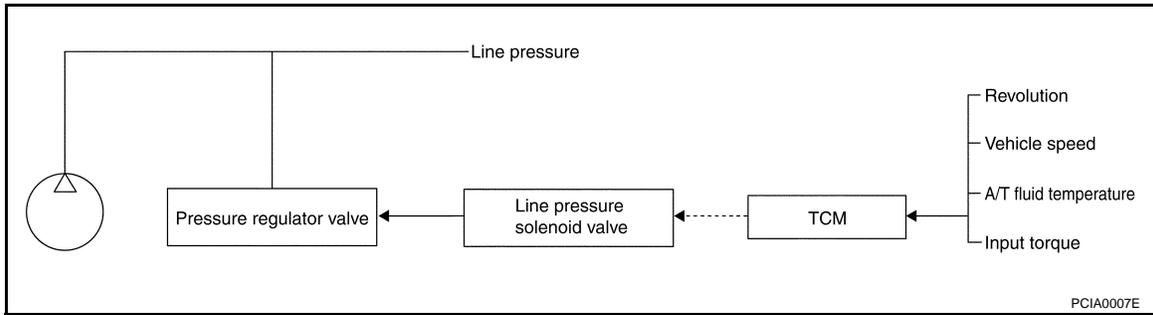
- When an input torque signal equivalent to the engine drive force is transmitted from the ECM to the TCM, the TCM controls the line pressure solenoid valve.

A/T CONTROL SYSTEM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]

- 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.

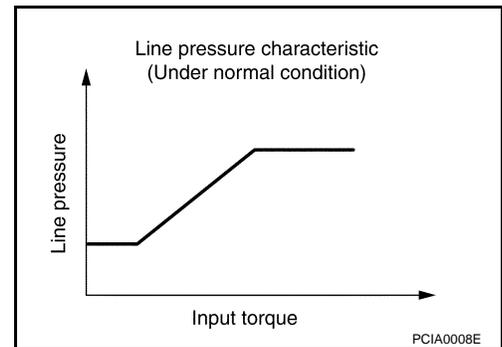


Line Pressure Control is Based On The TCM Line Pressure Characteristic Pattern

- 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.

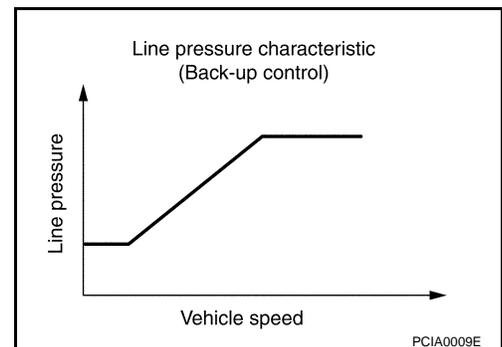
Normal Control

- 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.



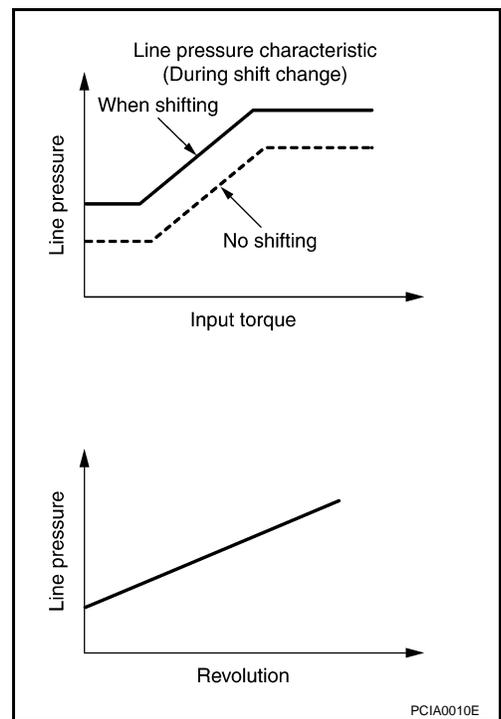
During Shift Change

A/T CONTROL SYSTEM

< FUNCTION DIAGNOSIS >

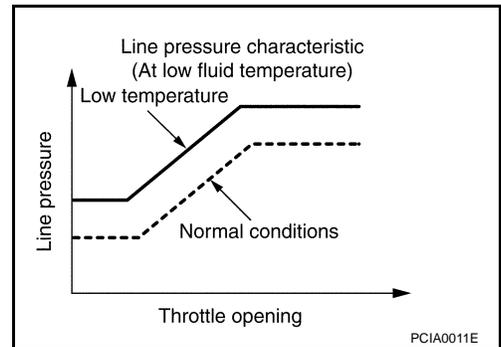
[5AT: RE5R05A]

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



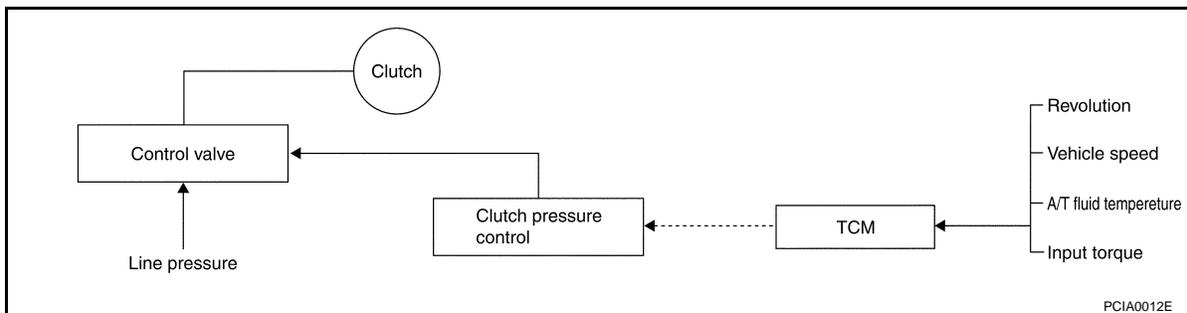
At Low Fluid Temperature

- 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 CONTROL

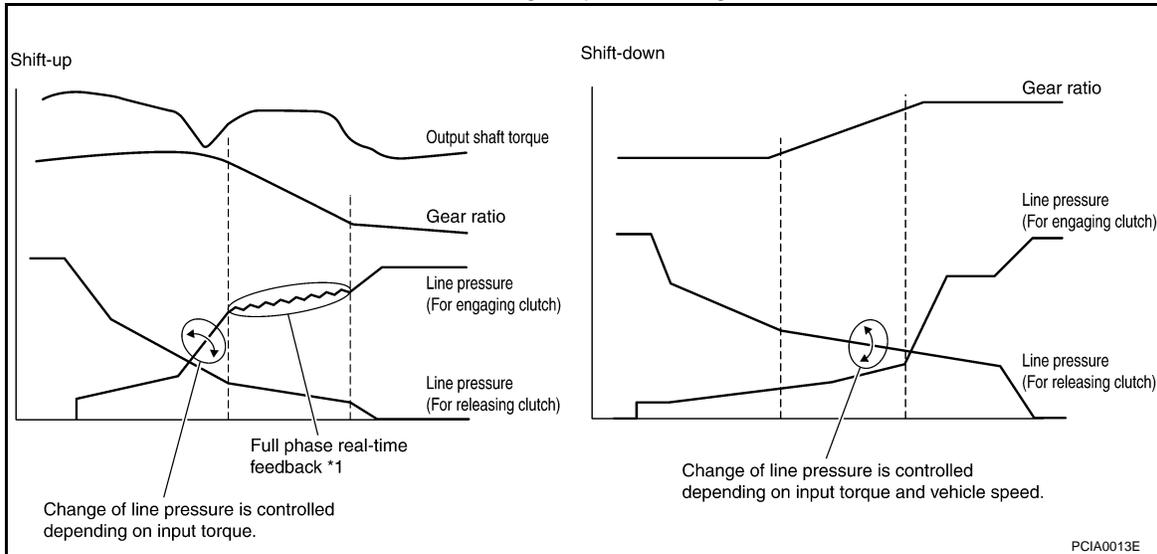
The clutch pressure control solenoid is controlled by the signals from the switches and sensors. Thus, the clutch pressure is adjusted to be appropriate to the engine load state and vehicle driving state. It becomes possible to finely control the clutch hydraulic pressure with high precision and a smoother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



Shift Change

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

Shift Change System Diagram



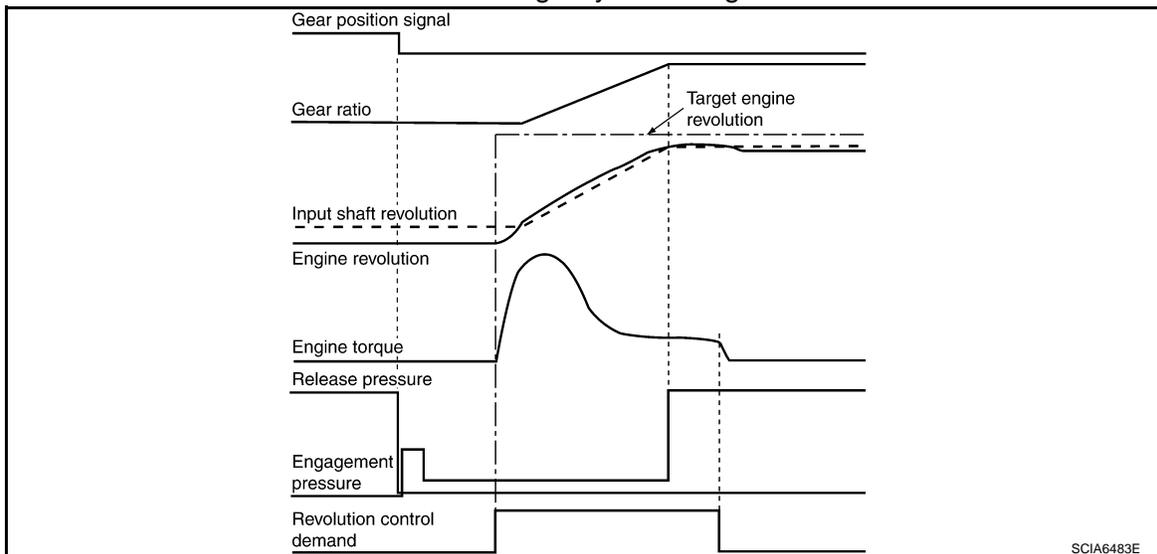
*1: Full phase real-time feedback control monitors movement of gear ratio at gear change, and controls oil pressure in real-time to achieve the best gear ratio.

Blipping Control

This system makes transmission clutch engage readily by controlling (synchronizing) engine revolution according to the (calculation of) engine revolution after shifting down.

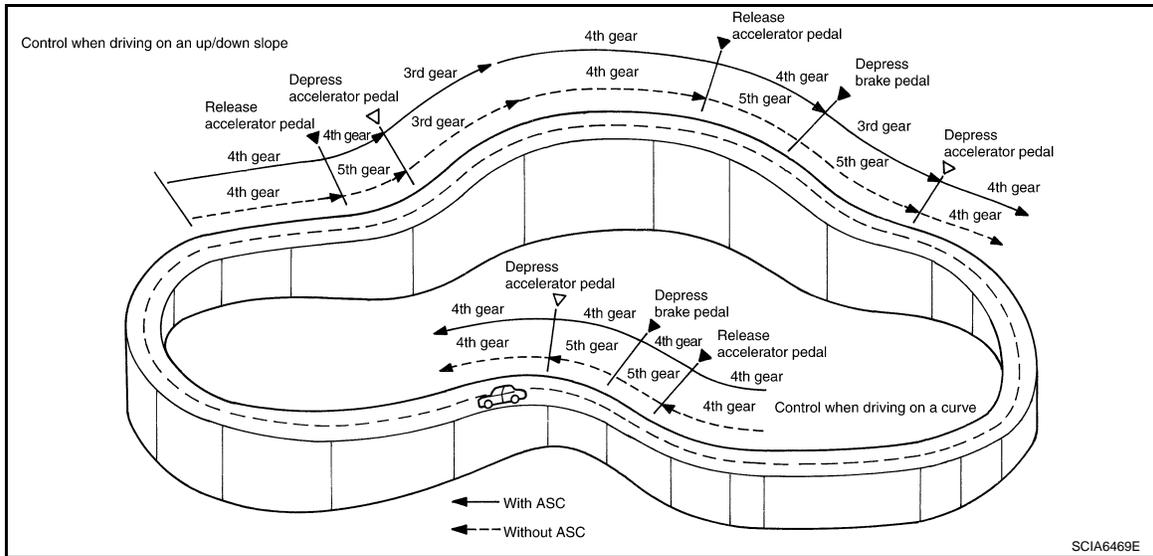
- “BLIPPING CONTROL” functions.
 - When downshifting by accelerator pedal depression at “D” position.
 - When downshifting under the manual mode.
- TCM selects “BLIPPING CONTROL” or “NORMAL SHIFT CONTROL” according to the gear position, the selector lever position, the engine torque and the speed when accelerating by pedal depression.
- Revolution control demand signal is transmitted from TCM to ECM under “BLIPPING CONTROL”.
- TCM synchronizes engine revolution according to the revolution control demand signal.

Shift Change System Diagram



ASC (Adoptive Shift Control)

ASC automatically shifts or hold at the 2nd, 3rd or 4th gear on certain roads (up/down slope and curve) and driving condition.



When Driving On an Up/Down Slope

- ASC judges up/down slope according to engine torque data transmitted from the ECM and vehicle speed. Holding gear at the 3rd or 4th on an up-slope prevents shift hunting and controls the vehicle to gain optimum driving force. On a down-slope, automatic shift-down to the 3rd or 4th gear controls to gain optimum engine brake.

When Driving On a Curve

- TCM receives the lateral G sensor signal from the ABS actuator control unit. It locks the gear to the 3rd or 4th position in moderate cornering or to the 2nd position in sharp cornering based on this signal. This prevents any upshift and kickdown during cornering, maintaining smooth vehicle travel.

DS Mode

- Changes to the shift schedule that mainly utilizes the high engine speed zone when ASC is active.
- DS mode can be switched according to the following method.
 - When the selector lever is in the "D" position, shifting the selector lever to manual shift gate enables switching to DS mode.
 - When in DS mode, shifting the selector lever to the main gate enables to cancel DS mode.

LOCK-UP CONTROL

The torque converter clutch piston in the torque converter is engaged to eliminate torque converter slip to increase power transmission efficiency.

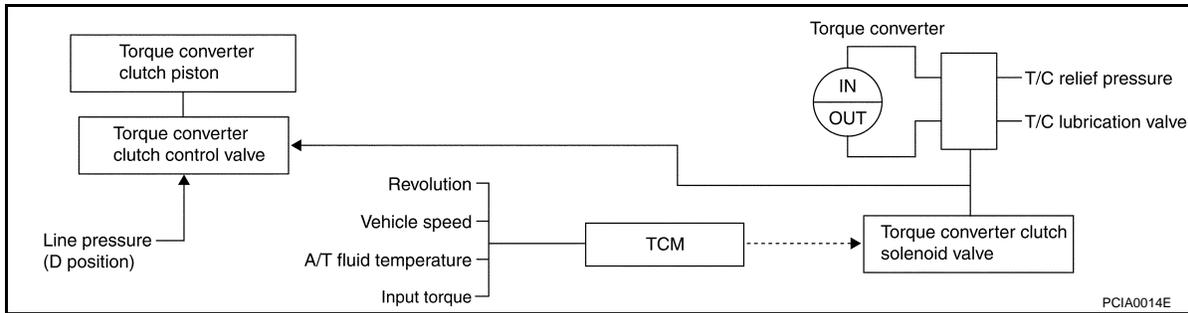
The torque converter clutch control valve operation is controlled by the torque converter clutch solenoid valve, which is controlled by a signal from TCM, and the torque converter clutch control valve engages or releases the torque converter clutch piston.

Lock-up operation condition table

Selector lever	"D" position			"M" position		
Gear position	5	4	3	5	4	3
Lock-up	×	—	—	×	×	×
Slip lock-up	×	×	×	—	—	—

Torque Converter Clutch Control Valve Control

Lock-up control system diagram



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

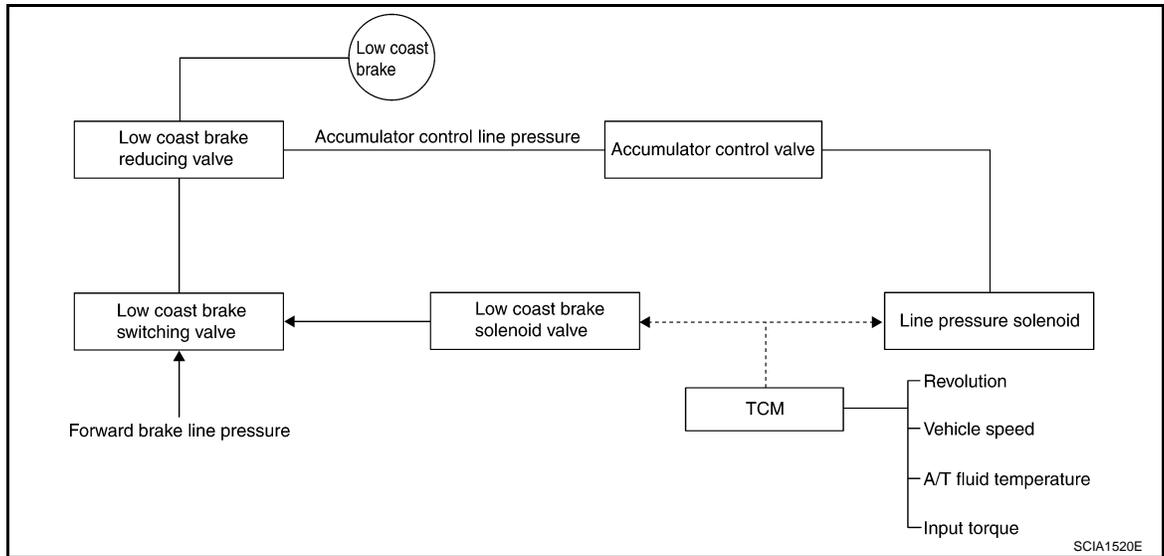
- The current output from the TCM to the torque converter clutch solenoid is varied to steadily increase the torque converter clutch solenoid pressure. In this way, the lock-up apply pressure gradually rises and while the torque converter clutch piston is put into half-clutched states, the torque converter 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 3rd, 4th and 5th gears at both low speed and when the accelerator has a low degree of opening.

ENGINE BRAKE CONTROL

- The forward one-way clutch transmits the drive force from the engine to the rear wheels. But the reverse drive from the rear wheels is not transmitted to the engine because the one-way clutch is idling. Therefore, the low coast brake solenoid is operated to prevent the forward one-way clutch from idling and the engine brake is operated in the same manner as conventionally.

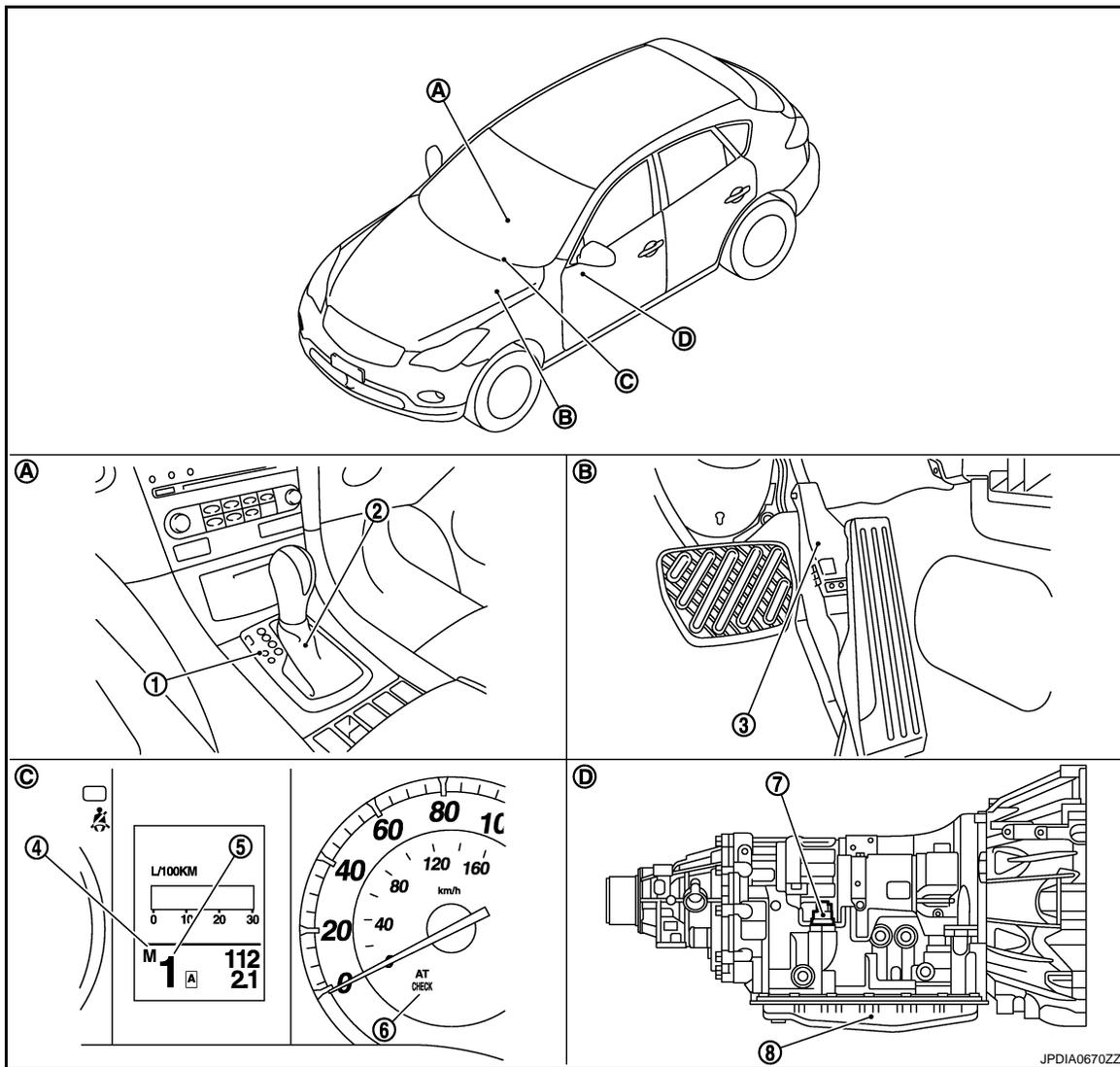


- The operation of the low coast brake solenoid switches the low coast brake switching valve and controls the coupling and releasing of the low coast brake.
The low coast brake reducing valve controls the low coast brake coupling force.

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Component Parts Location

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- | | | |
|--------------------------------------|-----------------------------|--------------------------------------|
| 1. Selector lever position indicator | 2. Control device assembly | 3. Accelerator pedal position sensor |
| 4. Manual mode indicator | 5. Shift position indicator | 6. A/T CHECK indicator lamp |
| 7. A/T assembly harness connector | 8. Control valve with TCM* | |
| A. Center console | B. Accelerator pedal | C. Combination meter |
| D. A/T assembly | | |

*: Control valve with TCM is included in A/T assembly.

NOTE:

- The following components are included in control device assembly (2).
 - Manual mode select switch
 - Manual mode position select switch
 - Shift position switch
- The following components are included in control valve with TCM (8).
 - TCM
 - Turbine revolution sensor 1, 2
 - Revolution sensor
 - A/T fluid temperature sensor 1, 2
 - PNP switch
 - Line pressure solenoid valve
 - Torque converter clutch solenoid valve
 - Direct clutch solenoid valve

A/T CONTROL SYSTEM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]

- High and low reverse clutch solenoid valve
- Input clutch solenoid valve
- Front brake solenoid valve
- Low coast brake solenoid valve
- ATF pressure switch 2

Component Description

INFOID:000000003130460

A/T ASSEMBLY

Name	Function
TCM	TM-49, "Description"
PNP switch	TM-50, "Description"
Vehicle speed sensor A/T (Revolution sensor)	TM-53, "Description"
Turbine revolution sensor 1	TM-52, "Description"
Turbine revolution sensor 2	
A/T fluid temperature sensor 1	TM-72, "Description"
A/T fluid temperature sensor 2	
Input clutch solenoid valve	TM-78, "Description"
Front brake solenoid valve	TM-79, "Description"
Direct clutch solenoid valve	TM-80, "Description"
High and low reverse clutch solenoid valve	TM-81, "Description"
Low coast brake solenoid valve	TM-82, "Description"
ATF pressure switch 2 (LC/B)	Detects any malfunction in the low coast brake hydraulic pressure. When it detects any malfunction, it puts the system into fail-safe mode.
Torque converter regulator valve	In order to prevent the pressure supplied to the torque converter from being excessive, the line pressure is adjusted to the optimum pressure (torque converter operating pressure).
Pressure regulator valve Pressure regulator plug Pressure regulator sleeve	Adjusts the oil discharged from the oil pump to the optimum pressure (line pressure) for the driving state.
Front brake control valve	When the front brake is coupled, adjusts the line pressure to the optimum pressure (front brake pressure) and supplies it to the front brake. (In 1st, 2nd, 3rd, and 5th gears, adjusts the clutch pressure.)
Accumulator control valve	Adjusts the pressure (accumulator control pressure) acting on the accumulator piston and low coast reducing valve to the pressure appropriate to the driving state.
Pilot valve A	Adjusts the line pressure and produces the constant pressure (pilot pressure) required for line pressure control, shift change control, and lock-up control.
Pilot valve B	Adjusts the line pressure and produces the constant pressure (pilot pressure) required for shift change control.
Low coast brake switching valve	During engine braking, supplies the line pressure to the low coast brake reducing valve.
Low coast brake reducing valve	When the low coast brake is coupled, adjusts the line pressure to the optimum pressure (low coast brake pressure) and supplies it to the low coast brake.
N-R accumulator	Produces the stabilizing pressure for when N-R is selected.
Direct clutch piston switching valve	Operates in 4th gear and switches the direct clutch coupling capacity.
High and low reverse clutch control valve	When the high and low reverse clutch is coupled, adjusts the line pressure to the optimum pressure (high and low reverse clutch pressure) and supplies it to the high and low reverse clutch. (In 1st, 3rd, 4th and 5th gears, adjusts the clutch pressure.)
Input clutch control valve	When the input clutch is coupled, adjusts the line pressure to the optimum pressure (input clutch pressure) and supplies it to the input clutch. (In 4th and 5th gears, adjusts the clutch pressure.)

A/T CONTROL SYSTEM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]

Name	Function
Direct clutch control valve	When the direct clutch is coupled, adjusts the line pressure to the optimum pressure (direct clutch pressure) and supplies it to the direct clutch. (In 2nd, 3rd, and 4th gears, adjusts the clutch pressure.)
TCC control valve TCC control plug TCC control sleeve	Switches the lock-up to operating or released. Also, by performing the lock-up operation transiently, lock-up smoothly.
Torque converter lubrication valve	Operates during lock-up to switch the torque converter, cooling, and lubrication system oil passage.
Cool by-pass valve	Allows excess oil to bypass cooler circuit without being fed into it.
Line pressure relief valve	Discharges excess oil from line pressure circuit.
N-D accumulator	Produces the stabilizing pressure for when N-D is selected.
Manual valve	Transmits line pressure to each circuit according to the select position. The circuits to which the line pressure is not transmitted drain.

EXCEPT A/T ASSEMBLY

Name	Function
Accelerator pedal position sensor	TM-71, "Description"
Throttle position sensor	
Manual mode switch	TM-85, "Description"
Starter relay	TM-47, "Description"

SHIFT MECHANISM

< FUNCTION DIAGNOSIS >

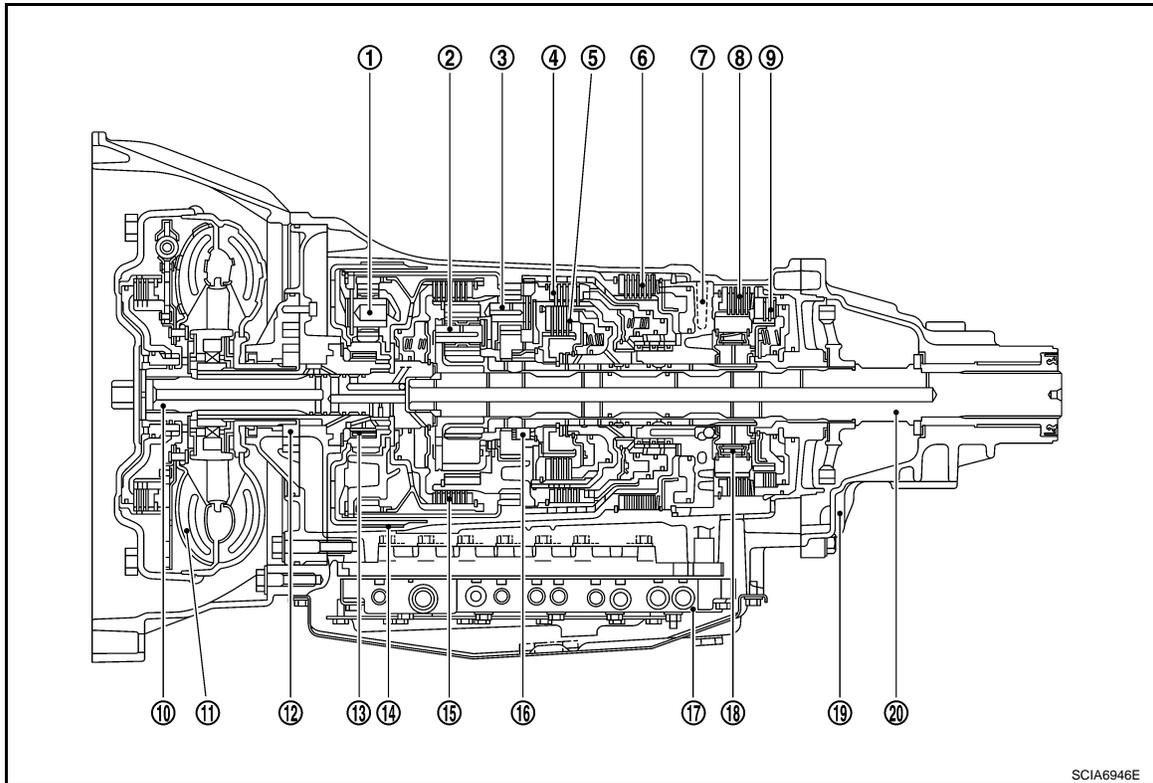
[5AT: RE5R05A]

SHIFT MECHANISM

Cross-Sectional View

INFOID:000000003130461

2WD MODELS



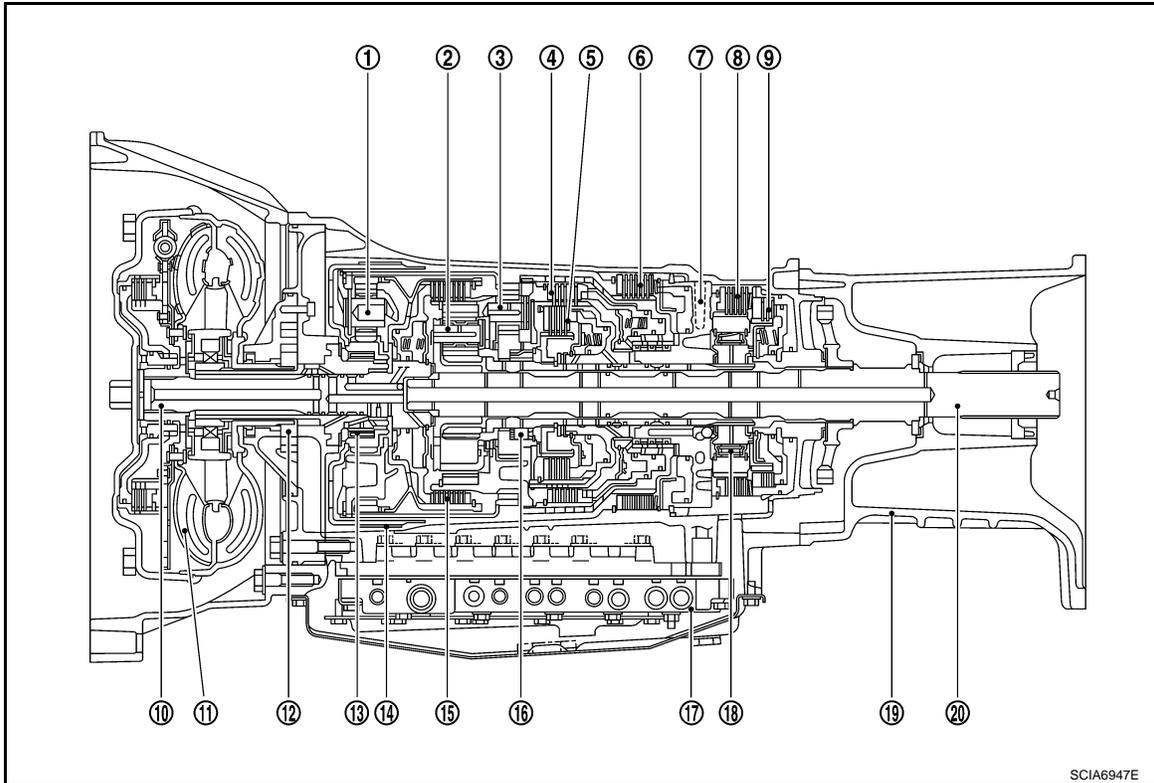
- | | | |
|-------------------------|--------------------------------|----------------------------|
| 1. Front planetary gear | 2. Mid planetary gear | 3. Rear planetary gear |
| 4. Direct clutch | 5. High and low reverse clutch | 6. Reverse brake |
| 7. Drum support | 8. Forward brake | 9. Low coast brake |
| 10. Input shaft | 11. Torque converter | 12. Oil pump |
| 13. 3rd one-way clutch | 14. Front brake | 15. Input clutch |
| 16. 1st one-way clutch | 17. Control valve with TCM | 18. Forward one-way clutch |
| 19. Rear extension | 20. Output shaft | |

AWD MODELS

SHIFT MECHANISM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]

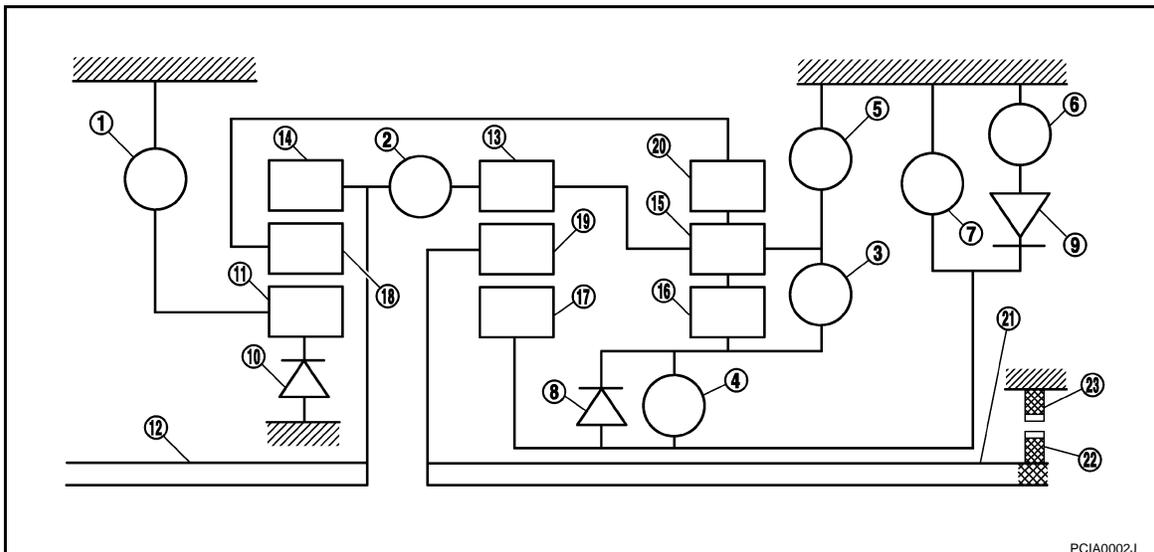


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|-------------------------|--------------------------------|----------------------------|
| 1. Front planetary gear | 2. Mid planetary gear | 3. Rear planetary gear |
| 4. Direct clutch | 5. High and low reverse clutch | 6. Reverse brake |
| 7. Drum support | 8. Forward brake | 9. Low coast brake |
| 10. Input shaft | 11. Torque converter | 12. Oil pump |
| 13. 3rd one-way clutch | 14. Front brake | 15. Input clutch |
| 16. 1st one-way clutch | 17. Control valve with TCM | 18. Forward one-way clutch |
| 19. Adapter case | 20. Output shaft | |

System Diagram

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|--------------------------------|------------------|------------------|
| 1. Front brake | 2. Input clutch | 3. Direct clutch |
| 4. High and low reverse clutch | 5. Reverse brake | 6. Forward brake |

SHIFT MECHANISM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]

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|------------------------|-------------------------|---------------------------|
| 7. Low coast brake | 8. 1st one-way clutch | 9. Forward one-way clutch |
| 10. 3rd one-way clutch | 11. Front sun gear | 12. Input shaft |
| 13. Mid internal gear | 14. Front internal gear | 15. Rear carrier |
| 16. Rear sun gear | 17. Mid sun gear | 18. Front carrier |
| 19. Mid carrier | 20. Rear internal gear | 21. Output shaft |
| 22. Parking gear | 23. Parking pawl | |

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System Description

INFOID:000000003130463

C

DESCRIPTION

With the use of three sets of planetary gears, A/T enables 5-speed transmission for forward and 1-speed transmission for backward, depending on the combination of 3 sets of multiple-disc clutches, 3 sets of multiple-disc brakes, a brake band, and 3 sets of one-way clutches.

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CLUTCH AND BAND CHART

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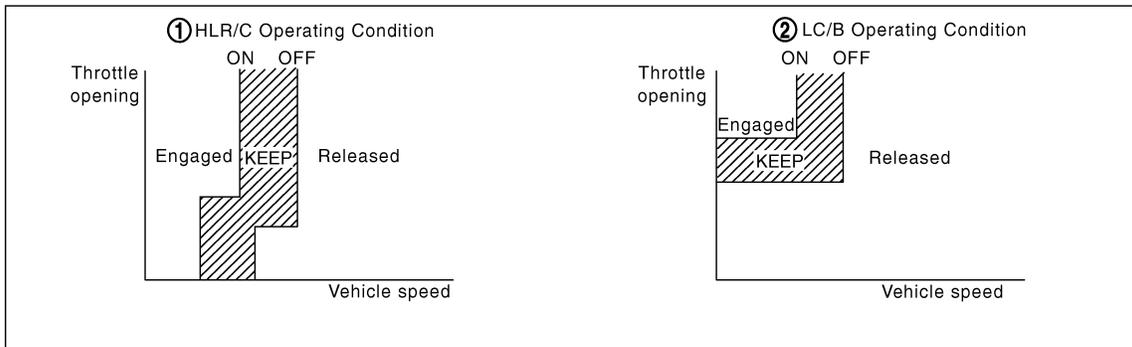
SHIFT MECHANISM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]

Shift position		I/C	HLR/C	D/C	R/B	FR/B	LC/B	Fwd/B	1st OWC	Fwd OWC	3rd OWC	Remarks
P			△			△						PARK POSITION
R			○		○	○			◎		◎	REVERSE POSITION
N			△			△						NEUTRAL POSITION
D,DS	1 st		△ *			△	△ **	○	◎	◎	◎	Automatic shift 1→2→3→4→5
	2 nd			○		△		○		◎	◎	
	3 rd		○	○		○		△	◇		◎	
	4 th	○	○	○				△	◇			
	5 th	○	○			○		△	◇		◇	
M5	5 th	○	○			○		△	◇		◇	Locks* (held stationary) in 5th gear
M4	4 th	○	○	○				△	◇			Locks* (held stationary) in 4th gear
M3	3 rd		○	○		○		△	◇		◎	Locks* (held stationary) in 3rd gear
M2	2 nd			○		○	○	○		◎	◎	Locks* (held stationary) in 2nd gear
M1	1 st		○			○	○	○	◎	◎	◎	Locks* (held stationary) in 1st gear

- * : Down shift automatically according to the vehicle speed.
- – Operates
 - ◎ – Operates during “progressive” acceleration.
 - ◇ – Operates and affects power transmission while coasting.
 - △ – Line pressure is applied but does not affect power transmission.
 - △ * – Operates under conditions shown in illustration ①.
 - △ ** – Operates under conditions shown in illustration ②. Delay control is applied during D(4,3,2,1) → N shift



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POWER TRANSMISSION

“N” Position

Since both the forward brake and the reverse brake are released, torque from the input shaft drive is not transmitted to the output shaft.

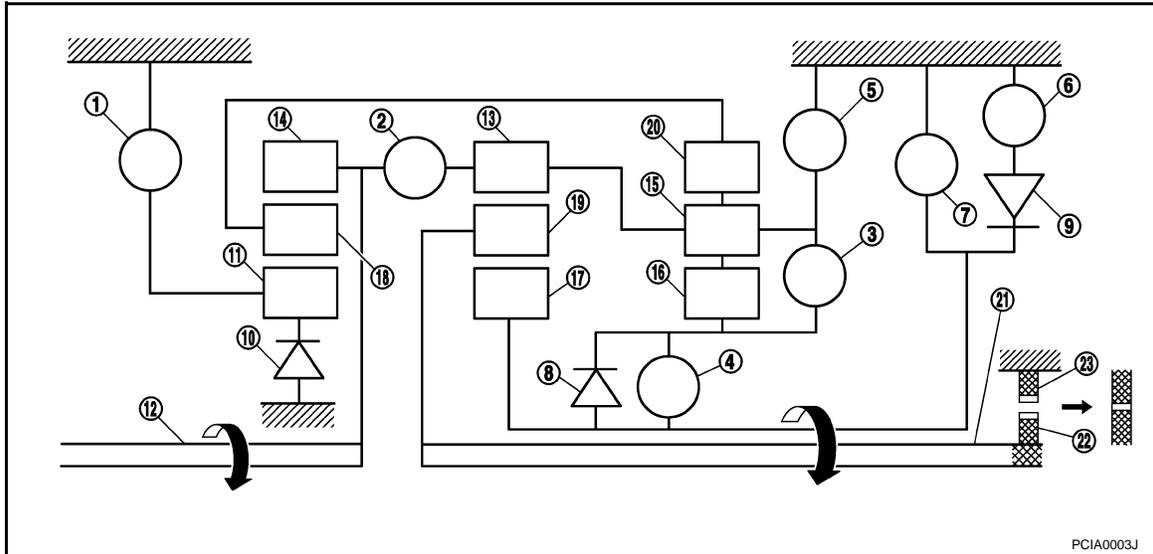
“P” Position

SHIFT MECHANISM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]

- The same as for the “N” position, both the forward brake and the reverse brake are released, so torque from the input shaft drive is not transmitted to the output shaft.
- The parking pawl linked with the selector lever meshes with the parking gear and fastens the output shaft mechanically.



- | | | |
|--------------------------------|-------------------------|---------------------------|
| 1. Front brake | 2. Input clutch | 3. Direct clutch |
| 4. High and low reverse clutch | 5. Reverse brake | 6. Forward brake |
| 7. Low coast brake | 8. 1st one-way clutch | 9. Forward one-way clutch |
| 10. 3rd one-way clutch | 11. Front sun gear | 12. Input shaft |
| 13. Mid internal gear | 14. Front internal gear | 15. Rear carrier |
| 16. Rear sun gear | 17. Mid sun gear | 18. Front carrier |
| 19. Mid carrier | 20. Rear internal gear | 21. Output shaft |
| 22. Parking gear | 23. Parking pawl | |

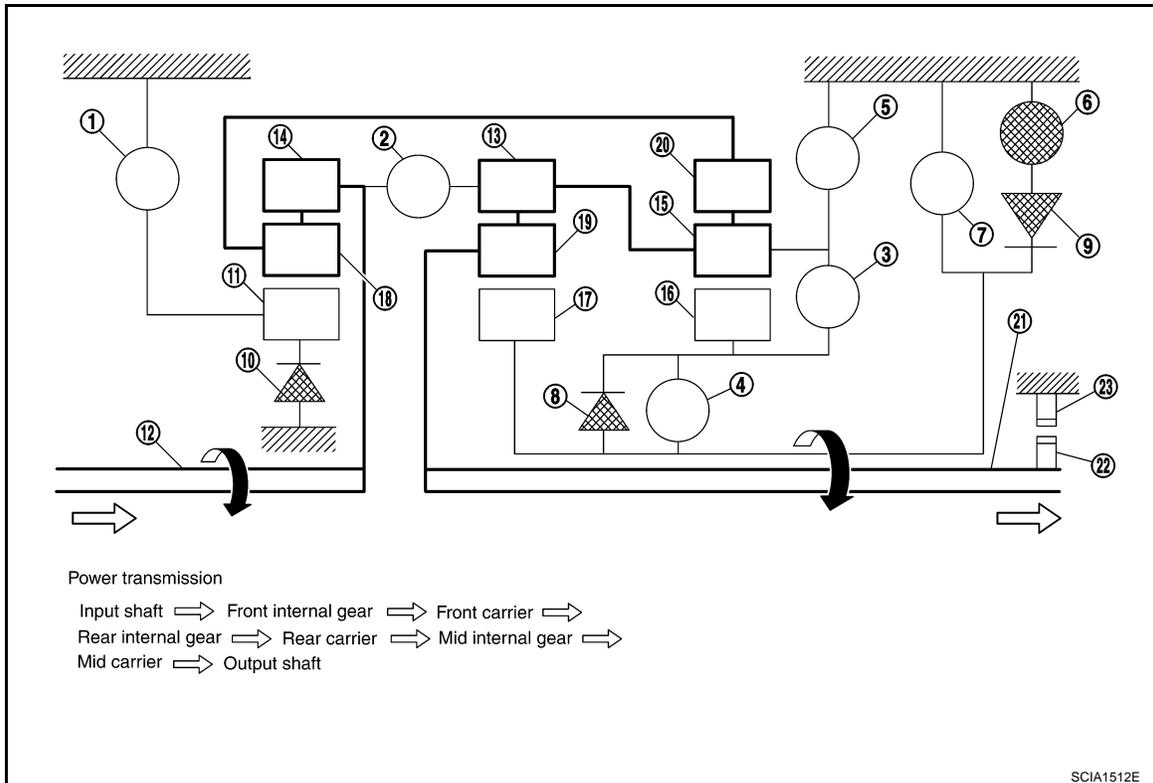
“D1” and “DS1” Positions

- The forward brake and the forward one-way clutch regulate reverse rotation of the mid sun gear.
- The 1st one-way clutch regulates reverse rotation of the rear sun gear.
- The 3rd one-way clutch regulates reverse rotation of the front sun gear.
- During deceleration, the mid sun gear turns forward, so the forward one-way clutch idles and the engine brake is not activated.

SHIFT MECHANISM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]



- | | | |
|--------------------------------|-------------------------|---------------------------|
| 1. Front brake | 2. Input clutch | 3. Direct clutch |
| 4. High and low reverse clutch | 5. Reverse brake | 6. Forward brake |
| 7. Low coast brake | 8. 1st one-way clutch | 9. Forward one-way clutch |
| 10. 3rd one-way clutch | 11. Front sun gear | 12. Input shaft |
| 13. Mid internal gear | 14. Front internal gear | 15. Rear carrier |
| 16. Rear sun gear | 17. Mid sun gear | 18. Front carrier |
| 19. Mid carrier | 20. Rear internal gear | 21. Output shaft |
| 22. Parking gear | 23. Parking pawl | |

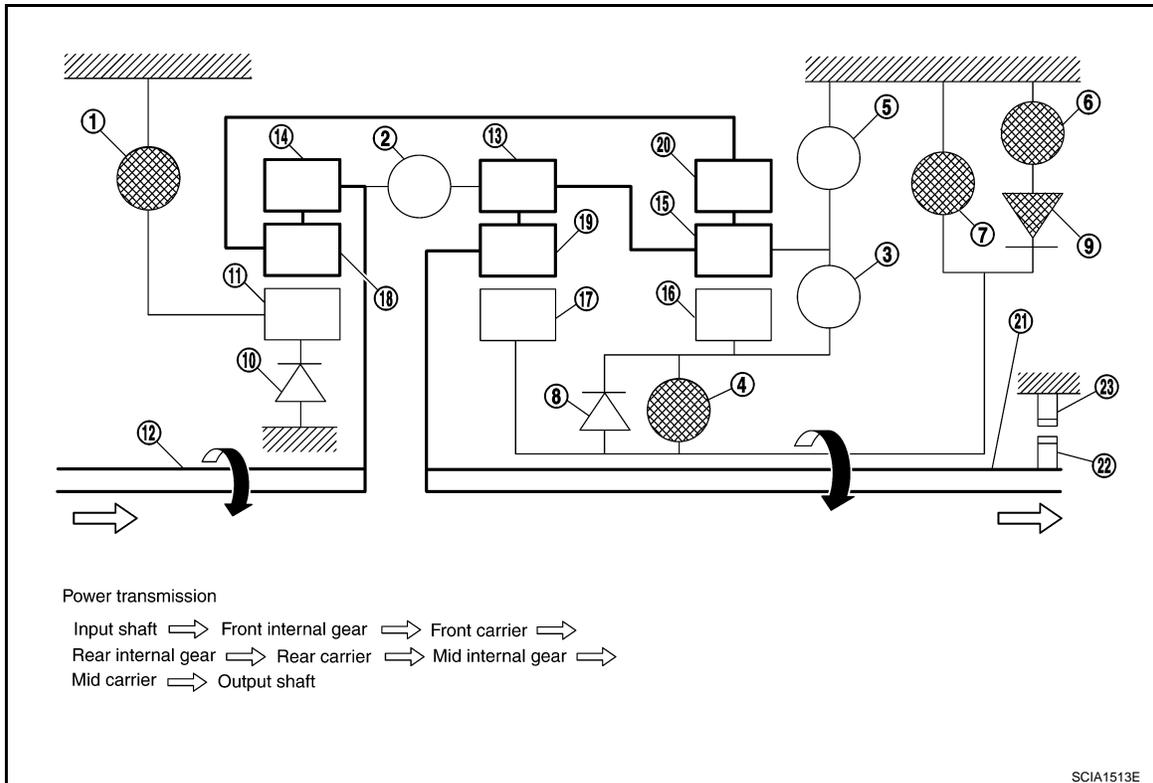
"M1" Position

- The front brake fastens the front sun gear.
- The forward brake and the forward one-way clutch regulate reverse rotation of the mid sun gear.
- High and low reverse clutch connects the rear sun gear and the mid sun gear.
- The low coast brake fastens the mid sun gear.
- During deceleration, the low coast brake regulates forward rotation of the mid sun gear and the engine brake functions.

SHIFT MECHANISM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]



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|--------------------------------|-------------------------|---------------------------|
| 1. Front brake | 2. Input clutch | 3. Direct clutch |
| 4. High and low reverse clutch | 5. Reverse brake | 6. Forward brake |
| 7. Low coast brake | 8. 1st one-way clutch | 9. Forward one-way clutch |
| 10. 3rd one-way clutch | 11. Front sun gear | 12. Input shaft |
| 13. Mid internal gear | 14. Front internal gear | 15. Rear carrier |
| 16. Rear sun gear | 17. Mid sun gear | 18. Front carrier |
| 19. Mid carrier | 20. Rear internal gear | 21. Output shaft |
| 22. Parking gear | 23. Parking pawl | |

“D2” and “DS2” Positions

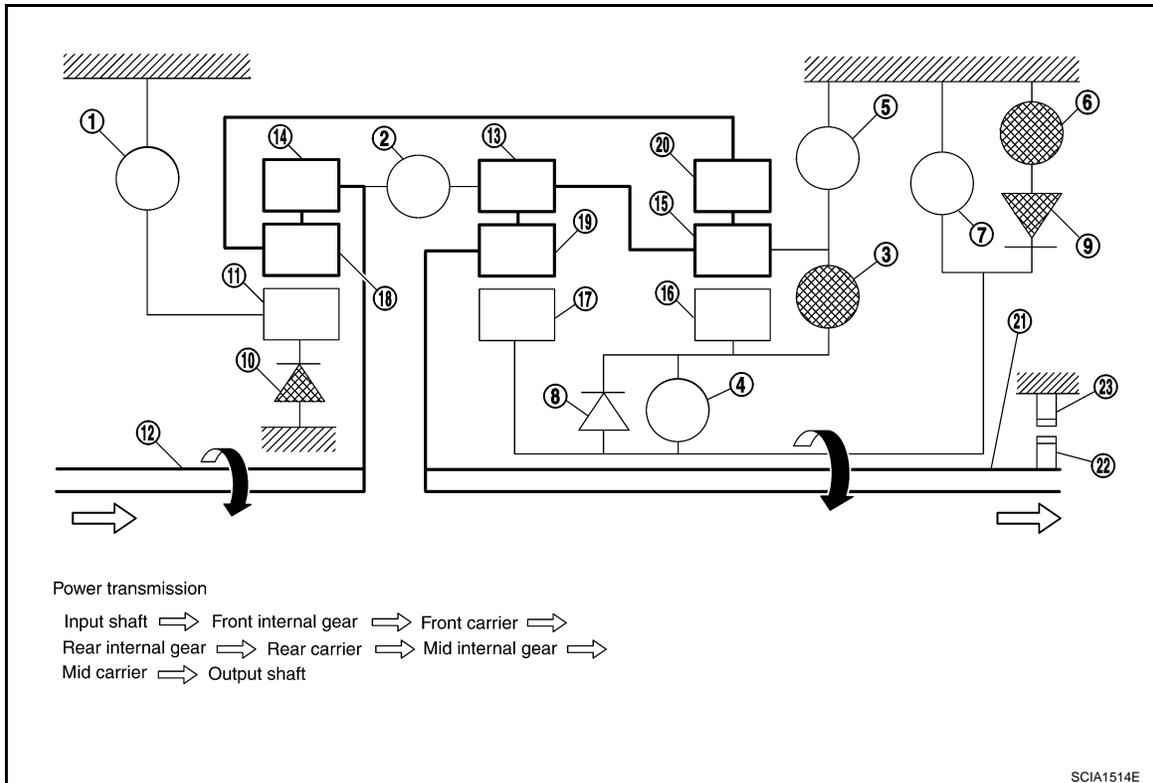
- The forward brake and the forward one-way clutch regulate reverse rotation of the mid sun gear.
- The 3rd one-way clutch regulates reverse rotation of the front sun gear.
- The direct clutch is coupled, and the rear carrier and rear sun gear are connected.
- During deceleration, the mid sun gear turns forward, so the forward one-way clutch idles and engine brake is not activated.

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SHIFT MECHANISM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]



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|--------------------------------|-------------------------|---------------------------|
| 1. Front brake | 2. Input clutch | 3. Direct clutch |
| 4. High and low reverse clutch | 5. Reverse brake | 6. Forward brake |
| 7. Low coast brake | 8. 1st one-way clutch | 9. Forward one-way clutch |
| 10. 3rd one-way clutch | 11. Front sun gear | 12. Input shaft |
| 13. Mid internal gear | 14. Front internal gear | 15. Rear carrier |
| 16. Rear sun gear | 17. Mid sun gear | 18. Front carrier |
| 19. Mid carrier | 20. Rear internal gear | 21. Output shaft |
| 22. Parking gear | 23. Parking pawl | |

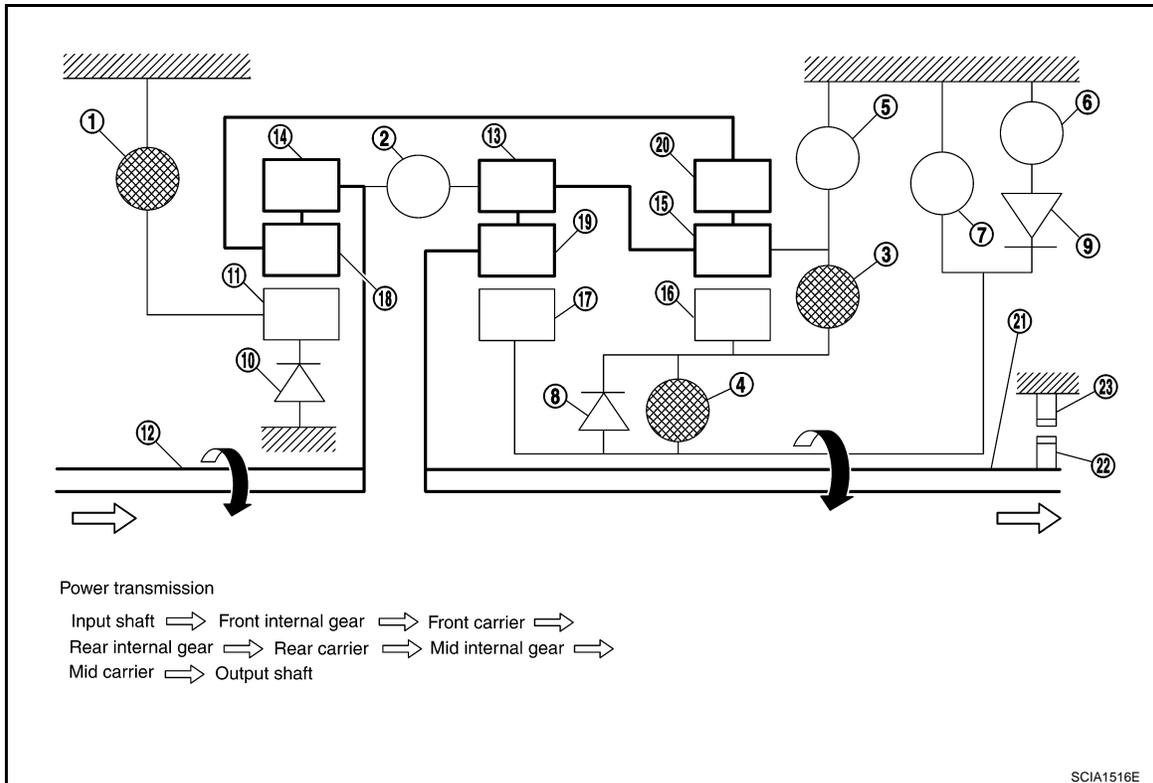
"M2" Position

- The front brake fastens the front sun gear.
- The forward brake and the forward one-way clutch regulate reverse rotation of the mid sun gear.
- The direct clutch is coupled, and the rear carrier and rear sun gear are connected.
- The low coast brake fastens the mid sun gear.
- During deceleration, the low coast brake regulates forward rotation of the mid sun gear and the engine brake functions.

SHIFT MECHANISM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]



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|--------------------------------|-------------------------|---------------------------|
| 1. Front brake | 2. Input clutch | 3. Direct clutch |
| 4. High and low reverse clutch | 5. Reverse brake | 6. Forward brake |
| 7. Low coast brake | 8. 1st one-way clutch | 9. Forward one-way clutch |
| 10. 3rd one-way clutch | 11. Front sun gear | 12. Input shaft |
| 13. Mid internal gear | 14. Front internal gear | 15. Rear carrier |
| 16. Rear sun gear | 17. Mid sun gear | 18. Front carrier |
| 19. Mid carrier | 20. Rear internal gear | 21. Output shaft |
| 22. Parking gear | 23. Parking pawl | |

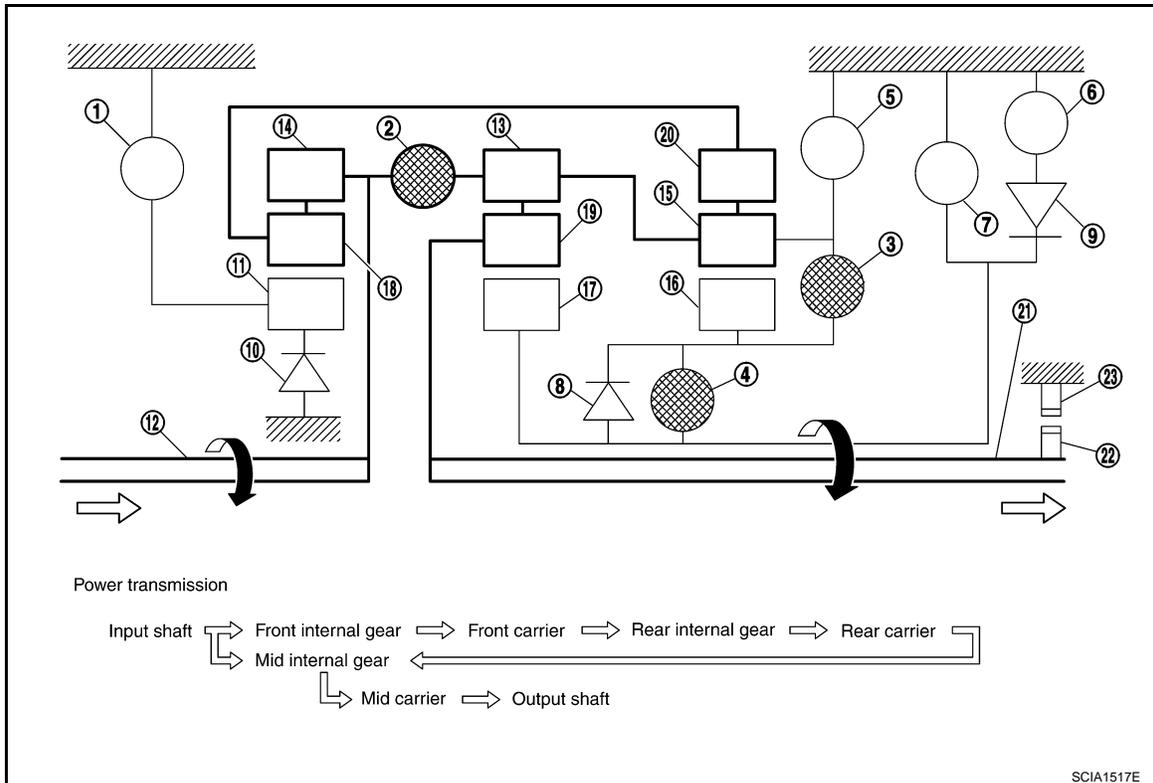
“D4”, “DS4” and “M4” Positions

- The direct clutch is coupled, and the rear carrier and rear sun gear are connected.
- The high and low reverse clutch is coupled, and the mid sun gear and rear sun gear are connected.
- The input clutch is coupled, and the front internal gear and mid internal gear are connected.
- The drive power is conveyed to the front internal gear, mid internal gear, and rear carrier and the three planetary gears rotate forward as one unit.

SHIFT MECHANISM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]



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|--------------------------------|-------------------------|---------------------------|
| 1. Front brake | 2. Input clutch | 3. Direct clutch |
| 4. High and low reverse clutch | 5. Reverse brake | 6. Forward brake |
| 7. Low coast brake | 8. 1st one-way clutch | 9. Forward one-way clutch |
| 10. 3rd one-way clutch | 11. Front sun gear | 12. Input shaft |
| 13. Mid internal gear | 14. Front internal gear | 15. Rear carrier |
| 16. Rear sun gear | 17. Mid sun gear | 18. Front carrier |
| 19. Mid carrier | 20. Rear internal gear | 21. Output shaft |
| 22. Parking gear | 23. Parking pawl | |

"D5", "DS5" and "M5" Positions

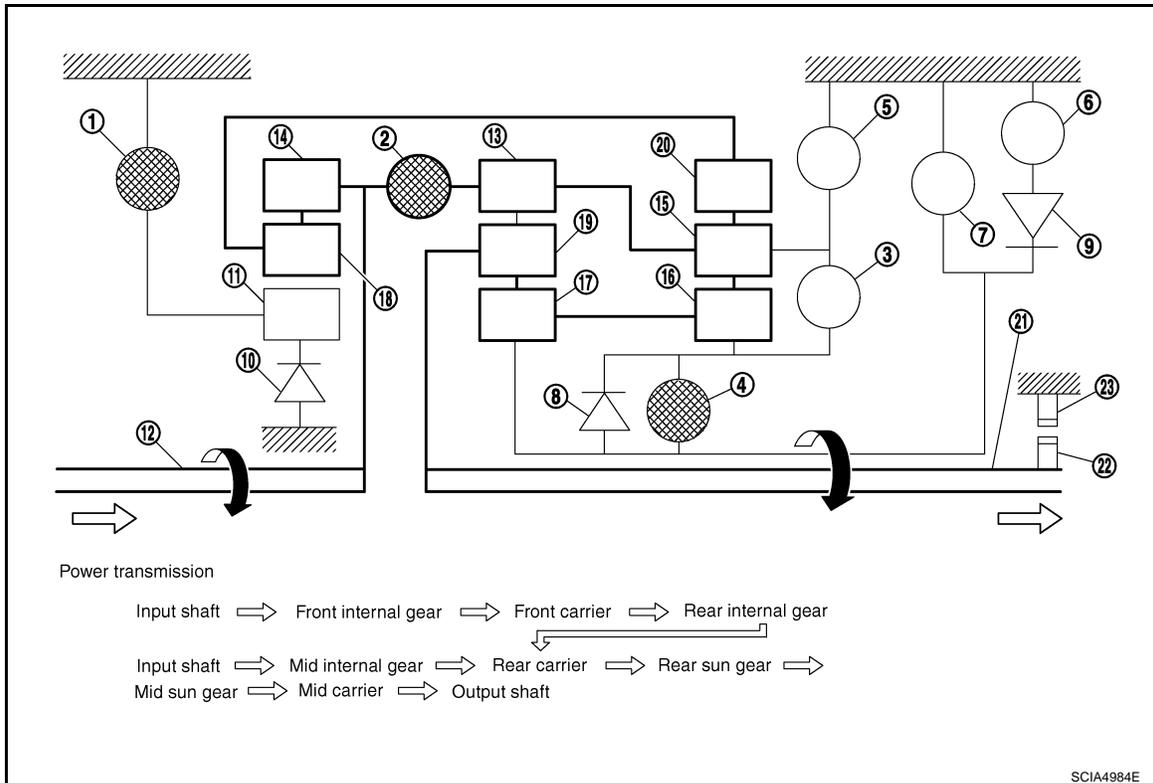
- The front brake fastens the front sun gear.
- The input clutch is coupled, and the front internal gear and mid internal gear are connected.
- The high and low reverse clutch is coupled, and the mid sun gear and rear sun gear are connected.

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SHIFT MECHANISM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]



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|--------------------------------|-------------------------|---------------------------|
| 1. Front brake | 2. Input clutch | 3. Direct clutch |
| 4. High and low reverse clutch | 5. Reverse brake | 6. Forward brake |
| 7. Low coast brake | 8. 1st one-way clutch | 9. Forward one-way clutch |
| 10. 3rd one-way clutch | 11. Front sun gear | 12. Input shaft |
| 13. Mid internal gear | 14. Front internal gear | 15. Rear carrier |
| 16. Rear sun gear | 17. Mid sun gear | 18. Front carrier |
| 19. Mid carrier | 20. Rear internal gear | 21. Output shaft |
| 22. Parking gear | 23. Parking pawl | |

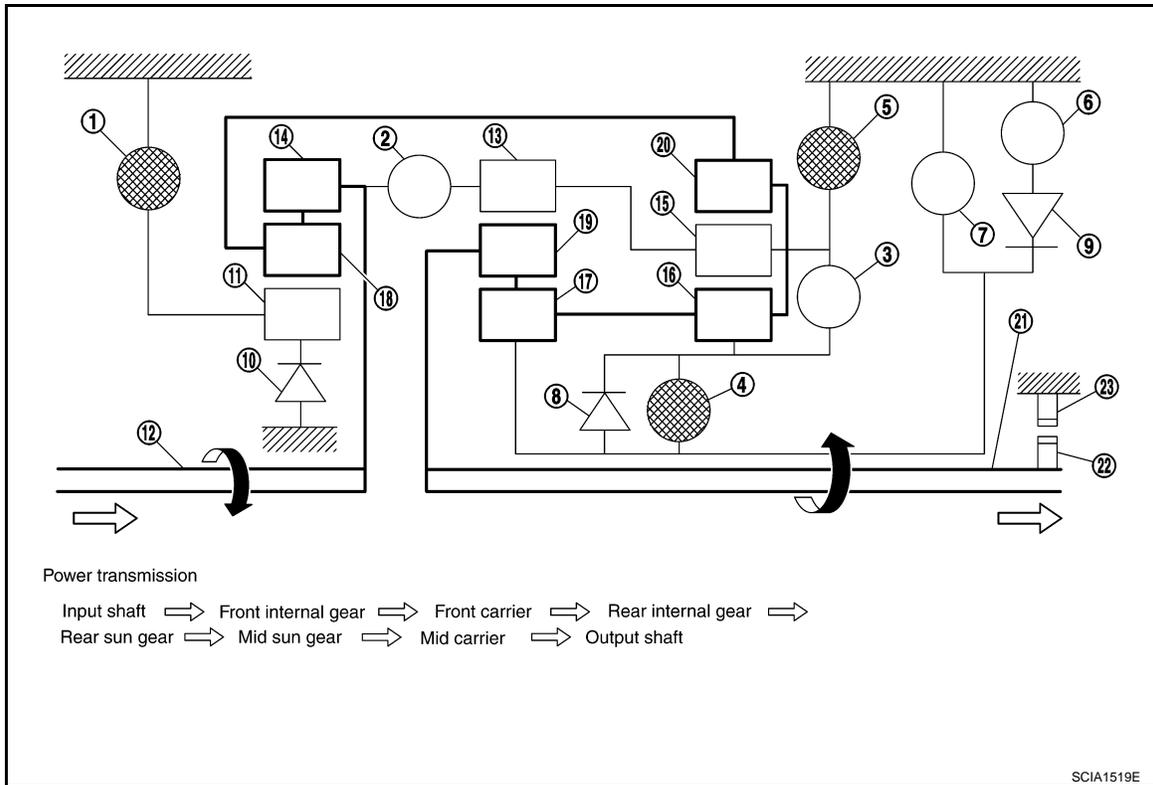
"R" Position

- The front brake fastens the front sun gear.
- The high and low reverse clutch is coupled, and the mid sun gear and rear sun gear are connected.
- The reverse brake fastens the rear carrier.

SHIFT MECHANISM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]



- | | | |
|--------------------------------|-------------------------|---------------------------|
| 1. Front brake | 2. Input clutch | 3. Direct clutch |
| 4. High and low reverse clutch | 5. Reverse brake | 6. Forward brake |
| 7. Low coast brake | 8. 1st one-way clutch | 9. Forward one-way clutch |
| 10. 3rd one-way clutch | 11. Front sun gear | 12. Input shaft |
| 13. Mid internal gear | 14. Front internal gear | 15. Rear carrier |
| 16. Rear sun gear | 17. Mid sun gear | 18. Front carrier |
| 19. Mid carrier | 20. Rear internal gear | 21. Output shaft |
| 22. Parking gear | 23. Parking pawl | |

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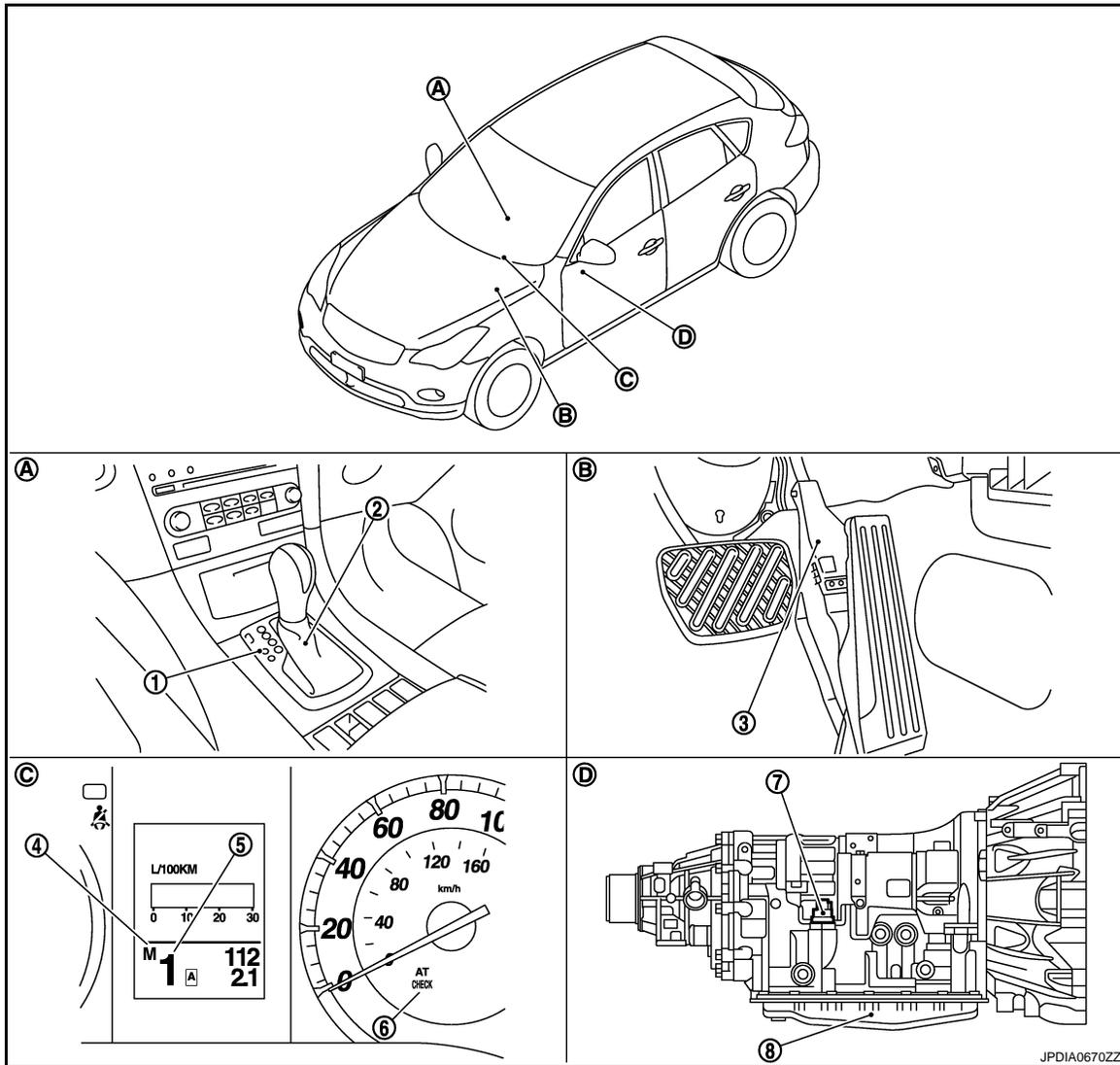
SHIFT MECHANISM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]

Component Parts Location

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|--------------------------------------|-----------------------------|--------------------------------------|
| 1. Selector lever position indicator | 2. Control device assembly | 3. Accelerator pedal position sensor |
| 4. Manual mode indicator | 5. Shift position indicator | 6. A/T CHECK indicator lamp |
| 7. A/T assembly harness connector | 8. Control valve with TCM* | |
| A. Center console | B. Accelerator pedal | C. Combination meter |
| D. A/T assembly | | |

*: Control valve with TCM is included in A/T assembly.

NOTE:

- The following components are included in control device assembly (2).
 - Manual mode select switch
 - Manual mode position select switch
 - Shift position switch
- The following components are included in control valve with TCM (8).
 - TCM
 - Turbine revolution sensor 1, 2
 - Revolution sensor
 - A/T fluid temperature sensor 1, 2
 - PNP switch
 - Line pressure solenoid valve
 - Torque converter clutch solenoid valve
 - Direct clutch solenoid valve

SHIFT MECHANISM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]

- High and low reverse clutch solenoid valve
- Input clutch solenoid valve
- Front brake solenoid valve
- Low coast brake solenoid valve
- ATF pressure switch 2

Component Description

INFOID:000000003130465

Name of the Part (Abbreviation)	Function
Front brake (FR/B)	Fastens the front sun gear.
Input clutch (I/C)	Connects the input shaft, the front internal gear and the mid internal gear.
Direct clutch (D/C)	Connects the rear carrier and the rear sun gear.
High and low reverse clutch (HLR/C)	Connects the mid sun gear and the rear sun gear.
Reverse brake (R/B)	Fastens the rear carrier.
Forward brake (Fwd/B)	Fastens the mid sun gear.
Low coast brake (LC/B)	Fastens the mid sun gear.
1st one-way clutch (1st OWC)	Allows the rear sun gear to turn freely forward relative to the mid sun gear but fastens it for reverse rotation.
Forward one-way clutch (Fwd OWC)	Allows the mid sun gear to turn freely in the forward direction but fastens it for reverse rotation.
3rd one-way clutch (3rd OWC)	Allows the front sun gear to turn freely in the forward direction but fastens it for reverse rotation.
Torque converter	Amplifies driving force the engine, and transmits it to transmission input shaft.
Oil pump	Driven by the engine, oil pump supplies oil to torque converter, control valve assembly, and each lubricating system.

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SHIFT LOCK SYSTEM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]

SHIFT LOCK SYSTEM

System Description

INFOID:000000003130466

The selector lever cannot be shifted from the “P” position unless the brake pedal is depressed while the ignition switch is ON.

The shift lock is unlocked by the shift lock unit that is activated when the ignition switch is ON and the stop lamp switch is turned ON (brake pedal is depressed).

Therefore, the shift lock unit receives no ON signal and the shift lock remains locked if the above conditions are not fulfilled. (However, a shift operation is allowed if the shift lock release button is pressed.)

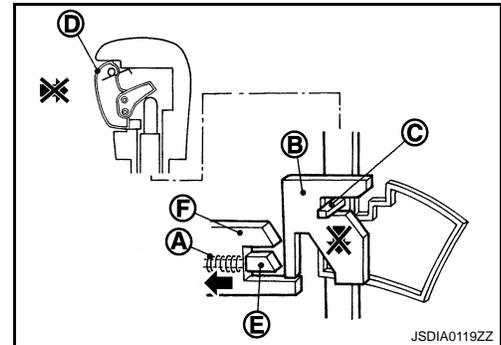
SHIFT LOCK OPERATION AT “P” POSITION

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

The shift lock solenoid (A) inside the shift lock unit is not energized if the brake pedal is not depressed while the ignition switch is ON.

The lock plate (B) lowers according to the downward movement of the position pin (C) when the selector button (D) is pressed, and presses only slider B (E) into the shift lock unit. Slider A (F) located below the lock plate prevents the downward movement of the lock plate with the spring force. The selector lever cannot be shifted from the “P” position for this reason.

However, slider A is forcibly pressed into the shift lock unit, allowing the selector lever to shift if the shift lock release button is pressed.

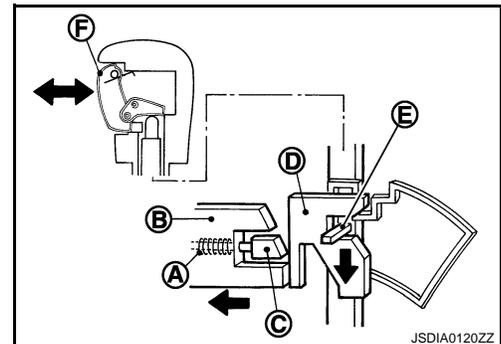


When Brake Pedal Is Depressed (Shift Operation Allowed)

The shift lock solenoid (A) inside the shift lock unit is energized and the relative positions of sliders A (B) and B (C) are maintained when the brake pedal is depressed while the ignition switch is ON.

The lock plate (D) lowers according to the downward movement of the position pin (E), thrusting away sliders A and B, when the selector button (F) is pressed.

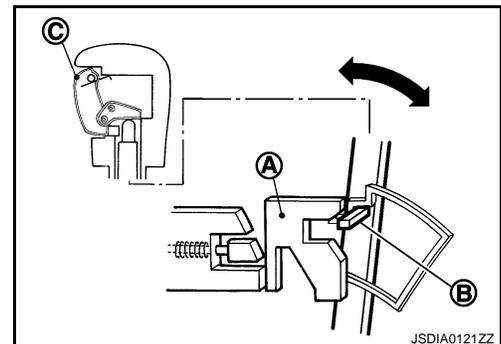
The position pin lowers to the position that allows shift operation for this reason. As a result, the selector lever can be shifted out of the P position.



OPERATION AT OTHER THAN “P” POSITION

The shift lock function will not operate at any position other than “P” because the lock plate (A) is only set for the “P” position. Accordingly, the selector lever can be shifted to any position regardless of the brake operation.

The position pin (B) enters the “P” position thrusting away the lock plate when the selector lever is shifted to the “P” position. Then, the shift mechanism is locked when the selector button (C) is released.



“P” POSITION RETAINING MECHANISM (IGNITION SWITCH LOCK)

When ignition switch is not in the ON position, power is not applied to the shift lock solenoid in the shift lock unit. This causes shift lock state, and then “P” position is retained.

When an actuating system in the shift lock unit has a malfunction, selector lever is unable to operate from the “P” position even when pressing the brake pedal with the ignition switch ON. However, when pressing the shift lock release button, slider A is forcibly pressed into the shift lock unit. This allows shift lock to be released and selector lever enables the select operation from the “P” position.

CAUTION:

Do not use the shift lock release button except when the select lever is inoperative even when pressing the brake pedal with the ignition switch ON.

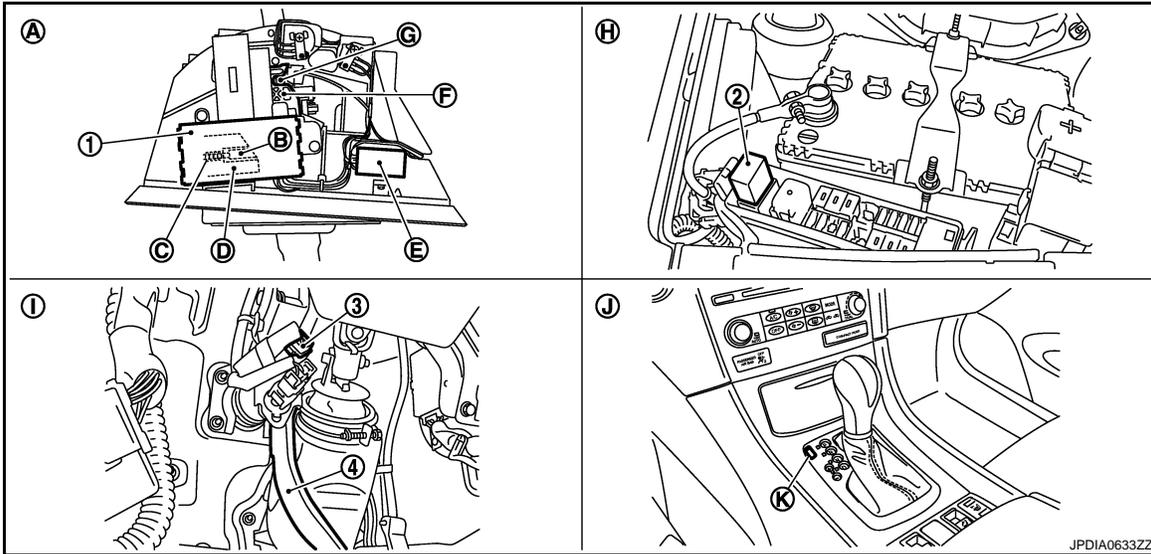
SHIFT LOCK SYSTEM

< FUNCTION DIAGNOSIS >

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Component Parts Location

INFOID:000000003130467



- | | | |
|----------------------------|-------------------------------------|------------------------|
| 1. Shift lock unit | 2. Shift lock relay | 3. Stop lamp switch |
| 4. Brake pedal | | |
| A. Control device assembly | B. Slider B | C. Shift lock solenoid |
| D. Slider A | E. Control device harness connector | F. Lock plate |
| G. Position pin | H. Fuse, fusible link and relay box | I. Brake pedal, upper |
| J. A/T console finisher | K. Shift lock cover * | |

*: Shift lock release button becomes operative by removing shift lock cover.

Component Description

INFOID:000000003130468

Component		Function
Control device assembly	Shift lock unit	Shift lock solenoid TM-92. "Description"
		Lock plate The lock plate restricts the position pin stroke by selector button operation according to the shift lock unit status.
		Shift lock release button Pressing the shift lock release button cancels the shift lock forcibly.
	Position pin	The position pin, linking with the selector button, restricts the selector lever movement.
Shift lock relay		TM-92. "Description"
Stop lamp switch		

ON BOARD DIAGNOSTIC (OBD) SYSTEM

Diagnosis Description

INFOID:000000003130469

DESCRIPTION

The A/T system has two self-diagnostic systems.

The first is the emission-related on board diagnostic system (OBD-II) performed by the TCM in combination with the ECM. The malfunction is indicated by the MIL (malfunction indicator lamp) and is stored as a DTC in the ECM memory but not the TCM memory.

The second is the TCM original self-diagnosis indicated by the A/T CHECK indicator lamp. The malfunction is stored in the TCM memory. The detected items are overlapped with OBD-II self-diagnostic items. For detail, refer to [TM-40. "CONSULT-III Function \(TRANSMISSION\)"](#).

OBD-II FUNCTION

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

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

ONE OR TWO TRIP DETECTION LOGIC OF OBD-II

One Trip Detection Logic

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

Two Trip Detection Logic

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

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

OBD-II DIAGNOSTIC TROUBLE (DTC)

How to Read DTC and 1st Trip DTC

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

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

These DTC are prescribed by SAE J2012.

(CONSULT-III also displays the malfunctioning component or system.)

- **1st trip DTC No. is the same as DTC No.**
- **Output of the diagnostic trouble code indicates that the indicated circuit has a malfunction. However, in case of the Mode II and GST, they do not indicate whether the malfunction is still occurring or occurred in the past and returned to normal.**
CONSULT-III can identify them as shown below, therefore, CONSULT-III (if available) is recommended.

Freeze Frame Data and 1st Trip Freeze Frame Data

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

Data which are stored in the ECM memory, along with the 1st trip DTC, are called 1st trip freeze frame data, and the data, stored together with the DTC data, are called freeze frame data and displayed on CONSULT-III or GST. The 1st trip freeze frame data can only be displayed on the CONSULT-III screen, not on the GST. For detail, refer to [EC-113. "CONSULT-III Function"](#).

Only one set of freeze frame data (either 1st trip freeze frame data or freeze frame data) can be stored in the ECM. 1st trip freeze frame data is stored in the ECM memory along with the 1st trip DTC. There is no priority for 1st trip freeze frame data and it is updated each time a different 1st trip DTC is detected. However, once freeze frame data (2nd trip detection/MIL on) is stored in the ECM memory, 1st trip freeze frame data is no

ON BOARD DIAGNOSTIC (OBD) SYSTEM

< FUNCTION DIAGNOSIS >

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longer stored. Remember, only one set of freeze frame data can be stored in the ECM. The ECM has the following priorities to update the data.

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

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

How to Erase DTC

The diagnostic trouble code can be erased by CONSULT-III, GST or ECM DIAGNOSTIC TEST MODE as described following.

- **If the battery cable is disconnected from the terminal, the DTC will be lost within 24 hours.**
- **When you erase the DTC, using CONSULT-III or GST is easier and quicker than switching the mode selector on the ECM.**

The following emission-related diagnostic information is cleared from the ECM memory when erasing DTC related to OBD-II. For details, refer to [EC-514, "DTC Index"](#).

- **Diagnostic trouble codes (DTC)**
- **1st trip diagnostic trouble codes (1st trip DTC)**
- **Freeze frame data**
- **1st trip freeze frame data**
- **System readiness test (SRT) codes**
- **Test values**

How to Erase DTC (With CONSULT-III)

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

How to Erase DTC (With GST)

1. If the ignition switch stays ON after repair work, be sure to turn ignition switch OFF once. Wait at least 10 seconds and then turn it ON (engine stopped) again.
2. Perform "Erase Self-diagnosis". Refer to [TM-39, "Diagnosis Description"](#).
3. Perform "How to Erase DTC (WITH GST)". Refer to [EC-100, "Diagnosis Description"](#).

How to Erase DTC (No tools)

1. If the ignition switch stays ON after repair work, be sure to turn ignition switch OFF once. Wait at least 10 seconds and then turn it ON (engine stopped) again.
2. Perform "Erase Self-diagnosis". Refer to [TM-39, "Diagnosis Description"](#).
3. Perform "How to Erase DTC (No tools)". Refer to [EC-100, "Diagnosis Description"](#).

OBD-II SELF-DIAGNOSTIC PROCEDURE (WITH GST)

Refer to [EC-122, "Diagnosis Tool Function"](#).

OBD-II SELF-DIAGNOSTIC PROCEDURE (NO TOOLS)

Refer to "MALFUNCTION INDICATOR LAMP (MIL)". Refer to [EC-100, "Diagnosis Description"](#).

MALFUNCTION INDICATOR LAMP (MIL)

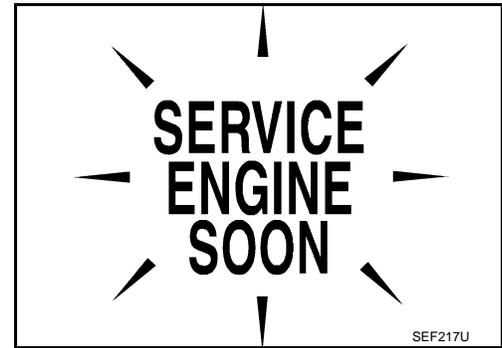
Description

ON BOARD DIAGNOSTIC (OBD) SYSTEM

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]

- The MIL is located on the combination meters.
1. The MIL will light up when the ignition switch is turned ON without the engine running. This is a bulb check. If the MIL does not light up, refer to [EC-463. "Component Function Check"](#).
 2. When the engine is started, the MIL should go off. If the MIL remains on, the on board diagnostic system has detected engine system malfunction.



DIAGNOSIS SYSTEM (TCM)

Diagnosis Description

INFOID:000000003130470

 TCM SELF-DIAGNOSTIC PROCEDURE (NO TOOLS)

Description

As a method for locating the suspected circuit, when the self-diagnostics start signal is input, the memory for the malfunction location is output and the A/T CHECK indicator lamp flashes to display the corresponding DTC.

Operation Procedure

1. Start the engine with selector lever in "P" position. Warm engine to normal operating temperature.
2. Turn ignition switch ON and OFF at least twice, then leave it in the OFF position.
3. Wait 10 seconds.
4. Turn ignition switch ON. (Do not start the engine.)
5. Check A/T CHECK indicator lamp comes on for about 2 seconds.

CAUTION:

If A/T CHECK indicator lamp does not come on, refer to [TM-115. "Symptom Table"](#).

6. Turn ignition switch OFF.
7. Keep pressing shift lock release button.
8. Shift the selector lever from "P" to "D" position.
9. Release accelerator pedal. (Set the closed throttle position signal ON.)
10. Depress brake pedal. (Stop lamp switch signal ON.)
11. Turn ignition switch ON. (Do not start the engine.)
12. Wait 3 seconds.
13. Shift the selector lever to the manual shift gate side. (Manual mode signal ON.)
14. Release brake pedal. (Stop lamp switch signal OFF.)
15. Shift the selector lever to "D" position. (Manual mode signal OFF.)
16. Depress brake pedal. (Stop lamp switch signal ON.)
17. Release brake pedal. (Stop lamp switch signal OFF.)
18. Depress accelerator pedal fully and release it.
19. Check A/T CHECK indicator lamp. Refer to "Judgment Self-diagnosis Code".

CAUTION:

If the system does not go into self-diagnosis, refer to [TM-115. "Symptom Table"](#).

Judgment Self-diagnosis Code

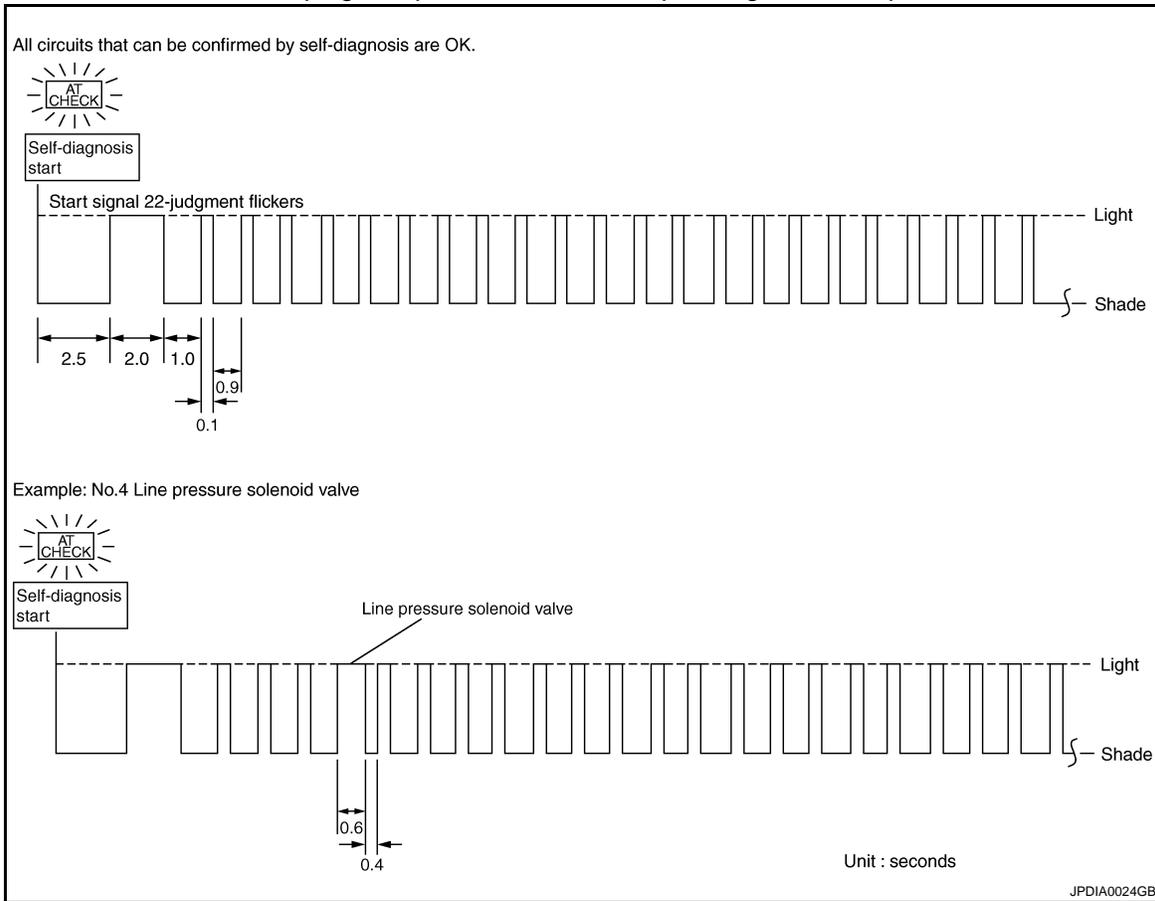
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DIAGNOSIS SYSTEM (TCM)

< FUNCTION DIAGNOSIS >

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If there is a malfunction, the lamp lights up for the time corresponding to the suspect circuit.



No.	Malfunctioning item	No.	Malfunctioning item
1	Revolution sensor TM-53	12	A/T interlock TM-76
2	Direct clutch solenoid valve TM-80	13	A/T 1st engine braking TM-77
3	Torque converter clutch solenoid valve TM-68 , TM-69	14	Start signal TM-47
4	Line pressure solenoid valve TM-70	15	Accelerator pedal position sensor TM-71
5	Input clutch solenoid valve TM-78	16	Engine speed signal TM-56
6	Front brake solenoid valve TM-79	17	CAN communication line TM-46
7	Low coast brake solenoid valve TM-82 , TM-83	18	1st gear function TM-58
8	High and low reverse clutch solenoid valve TM-81	19	2nd gear function TM-60
9	PNP switch TM-50	20	3rd gear function TM-62
10	A/T fluid temperature sensor TM-72	21	4th gear function TM-64
11	Turbine revolution sensor TM-52	22	5th gear function TM-66

Erase Self-diagnosis

In order to make it easier to find the cause of hard-to-duplicate malfunctions, malfunction information is stored into the control unit as necessary during use by the user. This memory is not erased no matter how many times the ignition switch is turned ON and OFF.

However, this information is erased by turning ignition switch OFF after performing self-diagnostics or by erasing the memory using the CONSULT-III.

CONSULT-III Function (TRANSMISSION)

INFOID:000000003130471

CONSULT-III APPLICATION ITEMS

DIAGNOSIS SYSTEM (TCM)

< FUNCTION DIAGNOSIS >

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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 item.
Data Monitor	Monitor the input/output signal of the control unit in real time.
CAN Diagnostic Support Monitor	It monitors the status of CAN communication.
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.

SELF DIAGNOSTIC RESULTS

Display Items List

X: Applicable, —: Not applicable

Items (CONSULT-III screen terms)	TCM self-diagnosis	OBD-II (DTC)	Reference page
	"TRANSMISSION" with CONSULT-III	MIL ^{*1} , "ENGINE" with CONSULT-III or GST	
CAN COMM CIRCUIT	U1000	U1000	TM-46
STARTER RELAY/CIRC	P0615	—	TM-47
TCM	P0700	P0700	TM-49
PNP SW/CIRC	P0705	P0705	TM-50
TURBINE REV S/CIRC	P0717	P0717	TM-52
VEH SPD SEN/CIR AT	P0720	P0720	TM-53
ENGINE SPEED SIG	P0725	P0725	TM-56
A/T 1ST GR FNCTN	P0731	P0731	TM-58
A/T 2ND GR FNCTN	P0732	P0732	TM-60
A/T 3RD GR FNCTN	P0733	P0733	TM-62
A/T 4TH GR FNCTN	P0734	P0734	TM-64
A/T 5TH GR FNCTN	P0735	P0735	TM-66
TCC SOLENOID/CIRC	P0740	P0740	TM-68
A/T TCC S/V FNCTN	P0744	P0744 ^{*2}	TM-69
L/PRESS SOL/CIRC	P0745	P0745	TM-70
TP SEN/CIRC A/T	P1705	—	TM-71
ATF TEMP SEN/CIRC	P1710	P0710	TM-72
VEH SPD SE/CIR-MTR	P1721	—	TM-75
A/T INTERLOCK	P1730	P1730	TM-76
A/T 1ST E/BRAKING	P1731	—	TM-77
I/C SOLENOID/CIRC	P1752	P1752	TM-78
FR/B SOLENOID/CIRC	P1757	P1757	TM-79
D/C SOLENOID/CIRC	P1762	P1762	TM-80
HLR/C SOL/CIRC	P1767	P1767	TM-81
LC/B SOLENOID/CIRC	P1772	P1772	TM-82
LC/B SOLENOID FNCT	P1774	P1774	TM-83
MANU MODE SW/CIRC	P1815	—	TM-85
NO DTC IS DETECTED FURTHER TESTING MAY BE REQUIRED	X	X	—

*1: Refer to [TM-36, "Diagnosis Description"](#).

*2: These malfunctions cannot be displayed MIL if another malfunction is assigned to MIL.

DIAGNOSIS SYSTEM (TCM)

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]

DATA MONITOR

Display Items List

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

Monitored item (Unit)	Monitor Item Selection			Remarks
	ECU IN-PUT SIG-NALS	MAIN SIG-NALS	SELEC-TION FROM ITEM	
VHCL/S SE-A/T (km/h)	X	X	▼	Revolution sensor
VHCL/S SE-MTR (km/h)	X	—	▼	—
ACCELE POSI (0.0/8)	X	—	▼	Accelerator pedal position signal
THROTTLE POSI (0.0/8)	X	X	▼	Degree of opening for accelerator recognized by the TCM. For fail-safe operation, the specific value used for control is displayed.
CLSD THL POS (On/Off)	X	—	▼	Signal input with CAN communications.
W/O THL POS (On/Off)	X	—	▼	
GEAR	—	X	▼	Gear position recognized by the TCM updated after gear-shifting.
ENGINE SPEED (rpm)	X	X	▼	—
TURBINE REV (rpm)	X	X	▼	—
OUTPUT REV (rpm)	X	X	▼	—
GEAR RATIO	—	X	▼	—
TC SLIP SPEED (rpm)	—	X	▼	Difference between engine speed and torque converter input shaft speed.
F SUN GR REV (rpm)	—	—	▼	—
F CARR GR REV (rpm)	—	—	▼	—
ATF TEMP SE 1 (V)	X	—	▼	—
ATF TEMP SE 2 (V)	X	—	▼	—
ATF TEMP 1 (°C)	—	X	▼	Temperature of A/T fluid in the oil pan.
ATF TEMP 2 (°C)	—	X	▼	Temperature of A/T fluid at the exit of torque converter.
BATTERY VOLT (V)	X	—	▼	—
ATF PRES SW 1 (On/Off)	X	X	▼	—
ATF PRES SW 2 (On/Off)	X	X	▼	(For LC/B solenoid)
ATF PRES SW 3 (On/Off)	X	X	▼	—
ATF PRES SW 5 (On/Off)	X	X	▼	—
ATF PRES SW 6 (On/Off)	X	X	▼	—
PNP SW 1 (On/Off)	X	—	▼	—
PNP SW 2 (On/Off)	X	—	▼	—
PNP SW 3 (On/Off)	X	—	▼	—
PNP SW 4 (On/Off)	X	—	▼	—

DIAGNOSIS SYSTEM (TCM)

< FUNCTION DIAGNOSIS >

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Monitored item (Unit)	Monitor Item Selection			Remarks
	ECU IN-PUT SIG-NALS	MAIN SIG-NALS	SELEC-TION FROM ITEM	
SLCT LVR POSI	—	X	▼	Selector lever position is recognized by the TCM. For fail-safe operation, the specific value used for control is displayed.
MANU MODE SW (On/Off)	X	—	▼	—
NON M-MODE SW (On/Off)	X	—	▼	—
UP SW LEVER (On/Off)	X	—	▼	—
DOWN SW LEVER (On/Off)	X	—	▼	—
SFT UP ST SW (On/Off)	—	—	▼	Not mounted but displayed.
SFT DWN ST SW (On/Off)	—	—	▼	
ABS SIGNAL (On/Off)	—	—	▼	—
ACC OD CUT (On/Off)	—	—	▼	Intelligent cruise control (ICC) system.
ACC SIGNAL (On/Off)	—	—	▼	
TCS GR/P KEEP (On/Off)	—	—	▼	—
TCS SIGNAL 2 (On/Off)	—	—	▼	—
TCS SIGNAL 1 (On/Off)	—	—	▼	—
TCC SOLENOID (A)	—	X	▼	—
LINE PRES SOL (A)	—	X	▼	—
I/C SOLENOID (A)	—	X	▼	—
FR/B SOLENOID (A)	—	X	▼	—
D/C SOLENOID (A)	—	X	▼	—
HLR/C SOL (A)	—	X	▼	—
ON OFF SOL (On/Off)	—	—	▼	LC/B solenoid
TCC SOL MON (A)	—	—	▼	—
L/P SOL MON (A)	—	—	▼	—
I/C SOL MON (A)	—	—	▼	—
FR/B SOL MON (A)	—	—	▼	—
D/C SOL MON (A)	—	—	▼	—
HLR/C SOL MON (A)	—	—	▼	—
ON OFF SOL MON (On/Off)	—	—	▼	LC/B solenoid
P POSI IND (On/Off)	—	—	▼	—
R POSI IND (On/Off)	—	—	▼	—
N POSI IND (On/Off)	—	—	▼	—
D POSI IND (On/Off)	—	—	▼	—
4TH POSI IND (On/Off)	—	—	▼	—
3RD POSI IND (On/Off)	—	—	▼	—
2ND POSI IND (On/Off)	—	—	▼	—

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DIAGNOSIS SYSTEM (TCM)

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]

Monitored item (Unit)	Monitor Item Selection			Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	SELECTION FROM ITEM	
1ST POSI IND (On/Off)	—	—	▼	—
MANU MODE IND (On/Off)	—	—	▼	—
POWER M LAMP (On/Off)	—	—	▼	Not mounted but displayed.
F-SAFE IND/L (On/Off)	—	—	▼	—
ATF WARN LAMP (On/Off)	—	—	▼	Not mounted but displayed.
BACK-UP LAMP (On/Off)	—	—	▼	—
STARTER RELAY (On/Off)	—	—	▼	—
PNP SW3 MON (On/Off)	—	—	▼	—
C/V CLB ID1	—	—	▼	—
C/V CLB ID2	—	—	▼	—
C/V CLB ID3	—	—	▼	—
UNIT CLB ID1	—	—	▼	—
UNIT CLB ID2	—	—	▼	—
UNIT CLB ID3	—	—	▼	—
TRGT GR RATIO	—	—	▼	—
TRGT PRES TCC (kPa)	—	—	▼	—
TRGT PRES L/P (kPa)	—	—	▼	—
TRGT PRES I/C (kPa)	—	—	▼	—
TRGT PRE FR/B (kPa)	—	—	▼	—
TRGT PRES D/C (kPa)	—	—	▼	—
TRG PRE HLR/C (kPa)	—	—	▼	—
SHIFT PATTERN	—	—	▼	—
DRV CST JUDGE	—	—	▼	—
START RLY MON	—	—	▼	—
NEXT GR POSI	—	—	▼	—
SHIFT MODE	—	—	▼	—
MANU GR POSI	—	—	▼	—
VEHICLE SPEED (km/h)	—	X	▼	Vehicle speed recognized by the TCM.
1 POSITION SW (On/Off)	X	—	▼	Not mounted but displayed.
OD CONT SW (On/Off)	X	—	▼	
HOLD SW (On/Off)	X	—	▼	
BRAKESW (On/Off)	X	—	▼	Stop lamp switch
POWERSHIFT SW (On/Off)	X	—	▼	Not mounted but displayed.
ASCD-OD CUT (On/Off)	—	—	▼	—

DIAGNOSIS SYSTEM (TCM)

< FUNCTION DIAGNOSIS >

[5AT: RE5R05A]

Monitored item (Unit)	Monitor Item Selection			Remarks
	ECU IN-PUT SIG-NALS	MAIN SIG-NALS	SELEC-TION FROM ITEM	
ASCD-CRUISE (On/Off)	—	—	▼	—
DS RANGE (On/Off)	X	—	▼	—

DTC & SRT CONFIRMATION

DTC WORK SUPPORT

DTC WORK SUPPORT item	Description	Check item
1ST GR FNCTN P0731	Following items for "1st gear function" can be confirmed. <ul style="list-style-type: none"> • Self-diagnosis status (whether the diagnosis is being performed or not) • Self-diagnostic results (OK or NG) 	<ul style="list-style-type: none"> • Input clutch solenoid valve • Front brake solenoid valve • Direct clutch solenoid valve • High and low reverse clutch solenoid valve • Each clutch and brake • Hydraulic control circuit
2ND GR FNCTN P0732	Following items for "2nd gear function" can be confirmed. <ul style="list-style-type: none"> • Self-diagnosis status (whether the diagnosis is being performed or not) • Self-diagnostic results (OK or NG) 	
3RD GR FNCTN P0733	Following items for "3rd gear function" can be confirmed. <ul style="list-style-type: none"> • Self-diagnosis status (whether the diagnosis is being performed or not) • Self-diagnostic results (OK or NG) 	
4TH GR FNCTN P0734	Following items for "4th gear function" can be confirmed. <ul style="list-style-type: none"> • Self-diagnosis status (whether the diagnosis is being performed or not) • Self-diagnostic results (OK or NG) 	
5TH GR FNCTN P0735	Following items for "5th gear function" can be confirmed. <ul style="list-style-type: none"> • Self-diagnosis status (whether the diagnosis is being performed or not) • Self-diagnostic results (OK or NG) 	

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COMPONENT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:000000003130472

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:000000003130473

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is detected when...	Possible cause
U1000	CAN COMM CIRCUIT	17th	TCM is not transmitting or receiving CAN communication signal for 2 seconds or more.	<ul style="list-style-type: none"> Harness or connectors (CAN communication line is open or shorted.) TCM

DTC CONFIRMATION PROCEDURE

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

1. Start the engine.
2. Run engine for at least 6 consecutive seconds at idle speed.
3. Select “Self Diagnostic Results” mode for “TRANSMISSION”.

With GST

Follow the procedure “With CONSULT-III”

Is “U1000 CAN COMM CIRCUIT” detected?

- YES >> Go to [TM-46. "Diagnosis Procedure"](#).
- NO >> Check intermittent incident. Refer to [GI-38. "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130474

1. CHECK CAN COMMUNICATION CIRCUIT

With CONSULT-III

1. Start the engine.
2. Select “Self Diagnostic Results” mode for “TRANSMISSION”.

Is “U1000 CAN COMM CIRCUIT” detected?

- YES >> Go to LAN section. Refer to [LAN-18. "Trouble Diagnosis Flow Chart"](#).
- NO >> Check intermittent incident. Refer to [GI-38. "Intermittent Incident"](#).

P0615 START SIGNAL

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P0615 START SIGNAL

Description

INFOID:000000003130475

TCM prohibits cranking other than at "P" or "N" position.

DTC Logic

INFOID:000000003130476

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is detected when...	Possible cause
P0615	STARTER RELAY/CIRC	14th	If this signal is ON other than in "P" or "N" position, this is judged to be a malfunction. (And if it is OFF in "P" or "N" position, this too is judged to be a malfunction.)	<ul style="list-style-type: none"> • Harness or connectors (Starter relay and TCM circuit is open or shorted.) • Starter relay circuit

DTC CONFIRMATION PROCEDURE

NOTE:

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

1. CHECK DTC DETECTION

Ⓜ With CONSULT-III

1. Shift the selector lever in "P" or "N" position.
2. Turn ignition switch ON and wait for at least 2 seconds.
3. Select "Self Diagnostic Results" mode for "TRANSMISSION".

Is "P0615 STARTER RELAY/CIRC" detected?

- YES >> Go to [TM-47, "Diagnosis Procedure"](#).
 NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130477

1. CHECK STARTER RELAY SIGNAL

1. Turn ignition switch ON.
2. Check voltage between IPDM E/R connector terminal and ground.

IPDM E/R connector		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
E5	30	Ground	Selector lever in "P" and "N" positions.	Battery voltage
			Selector lever in other positions.	0 V

Is the inspection result normal?

- YES >> Check starter relay circuit. Refer to [STR-9, "Wiring Diagram - STARTING SYSTEM -"](#).
 NO >> GO TO 2.

2. CHECK HARNESS BETWEEN A/T ASSEMBLY AND IPDM E/R (STEP 1)

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

P0615 START SIGNAL

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

A/T assembly vehicle side harness connector		IPDM E/R vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F51	9	E5	30	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3. CHECK HARNESS BETWEEN A/T ASSEMBLY AND IPDM E/R (STEP 2)

Check the continuity between A/T assembly vehicle side harness connector terminal and ground.

A/T assembly vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F51	9		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. DETECT MALFUNCTIONING ITEM (STEP 1)

Check the following.

- Check terminals of A/T assembly harness connector and IPDM E/R connector for damage.
- Check connector for loose connection.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5. CHECK TERMINAL CORD ASSEMBLY

1. Remove control valve with TCM. Refer to [TM-162, "Exploded View"](#).
2. Disconnect TCM connector.
3. Check continuity between A/T assembly harness connector terminal and TCM connector terminal.

A/T assembly harness connector		TCM connector		Continuity
Connector	Terminal	Connector	Terminal	
F51	9	F151	8	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace damaged parts.

6. DETECT MALFUNCTIONING ITEM (STEP 2)

Check the following.

- Check terminals of TCM connector and harness cladding for damage.
- Check connector for loose connection.

Is the inspection result normal?

YES >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#)

NO >> Repair or replace damaged parts.

P0700 TCM

Description

INFOID:000000003130478

The TCM consists of a microcomputer and connectors for signal input and output and for power supply. The TCM controls the A/T.

DTC Logic

INFOID:000000003130479

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is detect- ed when...	Possible cause
P0700	TCM	—	TCM is malfunctioning.	TCM

DTC CONFIRMATION PROCEDURE

NOTE:

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

1. CHECK DTC DETECTION

 **With CONSULT-III**

1. Start the engine.
2. Run engine for at least 2 consecutive seconds at idle speed.
3. Select “Self Diagnostic Results” mode for “TRANSMISSION”.

 **With GST**

Follow the procedure “With CONSULT-III”.

Is “P0700 TCM” detected?

- YES >> Go to [TM-49, "Diagnosis Procedure"](#).
- NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130480

1. CHECK DTC

 **With CONSULT-III**

1. Turn ignition switch ON.
2. Select “Self Diagnostic Results” mode for “TRANSMISSION”.
3. Touch “Erase”.
4. Turn ignition switch OFF and wait for at least 10 seconds.
5. Check the DTC again. Refer to [TM-49, "DTC Logic"](#)

Is “P0700 TCM” detected again?

- YES >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#).
- NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

P0705 PARK/NEUTRAL POSITION SWITCH

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P0705 PARK/NEUTRAL POSITION SWITCH

Description

INFOID:000000003130481

- The park/neutral position (PNP) switch includes the transmission range switch.
- The transmission range switch detects the selector lever position and transmits a signal to the TCM.

DTC Logic

INFOID:000000003130482

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is de- tected when...	Possible cause
P0705	PNP SW/CIRC	9th	<ul style="list-style-type: none">• PNP switch 1 – 4 signals input with impossible pattern.• “P” position is detected from “N” position without any other position being detected in between.	<ul style="list-style-type: none">• Harness or connectors [Park/neutral position (PNP) switches 1, 2, 3, 4 and TCM circuit is open or shorted.]• Park/neutral position (PNP) switches 1, 2, 3 and 4

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

1. Start the engine.
2. Select “Data Monitor” mode for “TRANSMISSION”.
3. Drive vehicle and maintain the following conditions for least 2 consecutive seconds.

ACCELE POSI : More than 1.0/8

With GST

Follow the procedure “With CONSULT-III”.

Is “P0705 PNP SW/CIRC” detected?

YES >> Go to [TM-50. "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38. "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130483

1. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

2. CHECK SUB-HARNESS

1. Disconnect park/neutral position switch connector and TCM connector.
2. Check continuity between park/neutral position switch connector terminals and TCM connector terminals.

P0705 PARK/NEUTRAL POSITION SWITCH

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

Park/neutral position switch connector		TCM connector		Continuity
Connector	Terminal	Connector	Terminal	
F154	1	F152	13	Existed
	2		11	
	3		12	
	5		14	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3. DETECT MALFUNCTIONING ITEM

Check the following.

- Check terminals of park/neutral position switch connector and TCM connector, and harness cladding for damage.
- Check connector for loose connection.

Is the inspection result normal?

YES >> Replace the control valve with TCM. Refer to [TM-162. "Exploded View"](#).

NO >> Repair or replace damaged parts.

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P0717 TURBINE REVOLUTION SENSOR

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P0717 TURBINE REVOLUTION SENSOR

Description

INFOID:000000003130484

The turbine revolution sensor detects input shaft rpm (revolutions per minute). It is located on the input side of the A/T. Monitors revolution of sensor 1 and sensor 2 for non-standard conditions.

DTC Logic

INFOID:000000003130485

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is detected when...	Possible cause
P0717	TURBINE REV S/CIRC	11th	<ul style="list-style-type: none">TCM does not receive the proper voltage signal from the sensor.TCM detects an irregularity only at position of 4th gear for turbine revolution sensor 2.	<ul style="list-style-type: none">Harness or connectors (Sensor circuit is open or shorted.)Turbine revolution sensor 1 and/or 2

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK DTC DETECTION

Ⓜ With CONSULT-III

- Start the engine.
- Select "Data Monitor" mode for "TRANSMISSION".
- Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.

VHCL/S SE-A/T : 40 km/h (25 MPH) or more

ACCELE POSI : More than 0.5/8

ENGINE SPEED : 1,500 rpm or more

SLCT LVR POSI : "D" position

GEAR (Turbine revolution sensor 1) : "4" or "5" position

GEAR (Turbine revolution sensor 2) : All positions

Driving location : Driving the vehicle uphill (increased engine load) will help maintain the driving conditions required for this test.

Ⓜ With GST

Follow the procedure "With CONSULT-III".

Is "P0717 TURBINE REV S/CIRC" detected?

YES >> Go to [TM-52, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130486

1. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#).

NO >> Repair or replace damaged parts.

P0720 VEHICLE SPEED SENSOR A/T (REVOLUTION SENSOR)

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P0720 VEHICLE SPEED SENSOR A/T (REVOLUTION SENSOR)

Description

INFOID:000000003130487

The revolution sensor detects the revolution of the parking gear and emits a pulse signal. The pulse signal is transmitted to the TCM which converts it into vehicle speed.

DTC Logic

INFOID:000000003130488

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is detected when...	Possible cause
P0720	VEH SPD SEN/CIR AT	1st	<ul style="list-style-type: none"> Signal from vehicle speed sensor A/T (revolution sensor) not input due to cut line or the like. Unexpected signal input during running. After ignition switch is turned ON, unexpected signal input from vehicle speed sensor MTR before the vehicle starts moving. 	<ul style="list-style-type: none"> Harness or connectors (Sensor circuit is open or shorted.) Revolution sensor Vehicle speed sensor MTR

DTC CONFIRMATION PROCEDURE

CAUTION:

- Always drive vehicle at a safe speed.
- Be careful not to rev engine into the red zone on the tachometer.

NOTE:

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

1. CHECK REVOLUTION SENSOR AND VEHICLE SPEED SENSOR MTR

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Drive vehicle and check for an increase of "VHCL/S SE-A/T" value in response to "VHCL/S SE-MTR" value.

VHCL/S SE-A/T : Approximately matches the speedometer reading.

VHCL/S SE-MTR : Approximately matches the speedometer reading.

Are "VHCL/S SE-A/T" and "VHCL/S SE-MTR" values correct?

YES >> GO TO 2.

NO >> Go to [TM-54, "Diagnosis Procedure"](#).

2. CHECK DTC DETECTION 1

With CONSULT-III

1. Select "Data Monitor" mode for "TRANSMISSION".
2. Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.

VHCL/S SE-A/T : 30 km/h (19 MPH) or more

ACCELE POSI : More than 1.0/8

SLCT LVR POSI : "D" position

Drive location : Driving the vehicle uphill (increased engine load) will help maintain the driving conditions required for this test.

With GST

P0720 VEHICLE SPEED SENSOR A/T (REVOLUTION SENSOR)

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

Follow the procedure "With CONSULT-III".

Is "P0720 VEH SPD SEN/CIR AT" detected?

- YES >> Go to [TM-54, "Diagnosis Procedure"](#).
- NO >> GO TO 3.

3.CHECK DTC DETECTION 2

With CONSULT-III

1. Select "Data Monitor" mode for "TRANSMISSION".
2. Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.

- ACCELE POSI : More than 1.0/8
- ENGINE SPEED : 3,500 rpm or more
- SLCT LVR POSI : "D" position
- Drive location : Driving the vehicle uphill (increased engine load) will help maintain the driving conditions required for this test.

With GST

Follow the procedure "With CONSULT-III".

Is "P0720 VEH SPD SEN/CIR AT" detected?

- YES >> Go to [TM-54, "Diagnosis Procedure"](#).
- NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130489

1.CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

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

2.CHECK SUB-HARNESS

1. Disconnect park/neutral position switch connector and TCM connector.
2. Check continuity between park/neutral position switch connector terminals and TCM connector terminals.

Park/neutral position switch connector		TCM connector		Continuity
Connector	Terminal	Connector	Terminal	
F154	8	F152	20	Existed
	9		17	
	10		16	

Is the inspection result normal?

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

3.DETECT MALFUNCTIONING ITEM

Check the following.

- Check terminals of park/neutral position switch connector and TCM connector, and harness cladding for damage.
- Check connector for loose connection.

Is the inspection result normal?

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

4.REPLACE THE REVOLUTION SENSOR AND CHECK DTC

1. Replace the revolution sensor. Refer to [TM-180, "2WD : Exploded View"](#) (2WD) or [TM-198, "Exploded View"](#), [TM-208, "Disassembly"](#) (AWD).
2. Reinstall any parts removed.

P0720 VEHICLE SPEED SENSOR A/T (REVOLUTION SENSOR)

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

3. Perform "DTC CONFIRMATION PROCEDURE". Refer to [TM-53. "DTC Logic"](#).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the control valve with TCM. Refer to [TM-162. "Exploded View"](#).

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P0725 ENGINE SPEED SIGNAL

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P0725 ENGINE SPEED SIGNAL

Description

INFOID:000000003130490

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

DTC Logic

INFOID:000000003130491

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is de- tected when...	Possible cause
P0725	ENGINE SPEED SIG	16th	TCM does not receive the CAN communication signal from the ECM.	Harness or connectors (ECM to TCM circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Drive vehicle and maintain the following conditions for at least 10 consecutive seconds.

VHCL/S SE-A/T : 10 km/h (6 MPH) or more

ACCELE POSI : More than 1.0/8

SLCT LVR POSI : "D" position:

With GST

Follow the procedure "With CONSULT-III".

Is "P0725 ENGINE SPEED SIG" detected?

YES >> Go to [TM-56, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130492

1. CHECK DTC OF ECM

With CONSULT-III

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

Is any DTC other than "P0725 ENGINE SPEED SIG" detected?

YES >> Check DTC detected item. Refer to [EC-113, "CONSULT-III Function"](#).

NO >> GO TO 2.

2. CHECK DTC OF TCM

With CONSULT-III

Select "Self Diagnostic Results" mode for "TRANSMISSION".

Is any DTC other than "P0725 ENGINE SPEED SIG" detected?

YES >> Check DTC detected item. Refer to [TM-40, "CONSULT-III Function \(TRANSMISSION\)"](#).

NO >> GO TO 3.

3. CHECK THE IGNITION SIGNAL CIRCUIT

With CONSULT-III

P0725 ENGINE SPEED SIGNAL

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Check for engine speed change corresponding to "ACCELE POSI" while monitoring "ENGINE SPEED".

Item name	Condition	Value
ENGINE SPEED	Engine running	Closely matches the tachometer reading.
ACCELE POSI	Released accelerator pedal.	0.0/8
	Fully depressed accelerator pedal	8.0/8

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check ignition signal circuit. Refer to [EC-458, "Description"](#).

4.CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#).

NO >> Repair or replace damaged parts.

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P0731 A/T 1ST GEAR FUNCTION

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P0731 A/T 1ST GEAR FUNCTION

Description

INFOID:000000003130493

This malfunction is detected when the A/T does not shift into 1st gear 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:000000003130494

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is de- tected when...	Possible cause
P0731	A/T 1ST GR FNCTN	18th	TCM detects any incon- sistency in the actual gear ratio.	<ul style="list-style-type: none"> • Input clutch solenoid valve • Front brake solenoid valve • Direct clutch solenoid valve • High and low reverse clutch solenoid valve • Each clutch and brake • Hydraulic control circuit

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK ATF TEMPERATURE

Ⓟ With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Check ATF temperature is in the following range.

ATF TEMP 1 : 20°C (68°F) – 140°C (284°F)

Ⓟ With GST

1. Start the engine.
2. Drive vehicle for approximately 5 minutes in urban areas, GO TO 2.

Is ATF temperature within specified range?

YES >> GO TO 2.

NO >> Drive vehicle to warm ATF or stop engine to cool ATF.

2. CHECK SYMPTOM 1

Ⓟ With CONSULT-III

1. Select "DTC & SRT Confirmation" for "TRANSMISSION".
2. Select "1ST GR FNCTN P0731" of "DTC WORK SUPPORT" mode.
3. Drive vehicle and maintain the following conditions.

MANU MODE SW : ON

GEAR : "1" position

ACCELE POSI : 0.6/8 or more

VEHICLE SPEED : 10 km/h (6 MPH) or more

P0731 A/T 1ST GEAR FUNCTION

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

ENGINE SPEED : TURBINE REV – 50 rpm or more

TURBINE REV : 300 rpm or more

4. Keep the current driving status for at least 5 consecutive seconds if CONSULT-III screen changes from “OUT OF CONDITION” to “TESTING”.

CAUTION:

If “TESTING” does not appear on CONSULT-III for a long time, select “Self Diagnostic Results” mode for “TRANSMISSION”. In case a 1st trip DTC other than “P0731 A/T 1ST GR FNCTN” is shown, refer to “SELF DIAGNOSTIC RESULTS”. Refer to [TM-40, "CONSULT-III Function \(TRANSMISSION\)"](#).

 **With GST**

1. Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.

Manual mode switch : ON

Gear position : “1” position

Accelerator opening : 0.6/8 or more

Vehicle speed : 10 km/h (6 MPH) or more

2. Check DTC.

Is “STOP VEHICLE” or “COMPLETED RESULT NG” displayed? / Is “P0731 A/T 1ST GR FNCTN” detected?

YES-1 >> “STOP VEHICLE”: GO TO 3.

YES-2 >> “COMPLETED RESULT NG”: Go to [TM-59, "Diagnosis Procedure"](#).

YES-3 >> “P0731 A/T 1ST GR FNCTN” is detected: Go to [TM-59, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

3. CHECK SYMPTOM 2

 **With CONSULT-III**

1. Stop vehicle.

2. Drive vehicle in “D” position allowing it to shift from 1st to 5th gear and check shift timing and shift shock.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

NO >> Confirm malfunction phenomena by “ROAD TEST” to repair malfunctioning part. Refer to [TM-149, "Description"](#).

Diagnosis Procedure

INFOID:000000003130495

1. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

2. REPLACE CONTROL VALVE WITH TCM

1. Replace control valve with TCM. Refer to [TM-162, "Exploded View"](#).

2. Perform “DTC CONFIRMATION PROCEDURE”. Refer to [TM-58, "DTC Logic"](#).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Confirm malfunction phenomena by “ROAD TEST” to repair malfunctioning part. Refer to [TM-149, "Description"](#).

P0732 A/T 2ND GEAR FUNCTION

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P0732 A/T 2ND GEAR FUNCTION

Description

INFOID:000000003130496

This malfunction is detected when the A/T does not shift into 2nd gear 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:000000003130497

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is de- tected when...	Possible cause
P0732	A/T 2ND GR FNCTN	19th	TCM detects any incon- sistency in the actual gear ratio.	<ul style="list-style-type: none">• Input clutch solenoid valve• Front brake solenoid valve• Direct clutch solenoid valve• High and low reverse clutch solenoid valve• Each clutch and brake• Hydraulic control circuit

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK ATF TEMPERATURE

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Check ATF temperature is in the following range.

ATF TEMP 1 : 20°C (68°F) – 140°C (284°F)

With GST

1. Start the engine.
2. Drive vehicle for approximately 5 minutes in urban areas, GO TO 2.

Is ATF temperature within specified range?

YES >> GO TO 2.

NO >> Drive vehicle to warm ATF or stop engine to cool ATF.

2. CHECK SYMPTOM 1

With CONSULT-III

1. Select "DTC & SRT Confirmation" for "TRANSMISSION".
2. Select "2ND GR FNCTN P0732" of "DTC WORK SUPPORT" mode.
3. Drive vehicle and maintain the following conditions.

MANU MODE SW : ON

GEAR : "2" position

ACCELE POSI : 0.6/8 or more

VEHICLE SPEED : 10 km/h (6 MPH) or more

P0732 A/T 2ND GEAR FUNCTION

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

ENGINE SPEED : TURBINE REV – 50 rpm or more

TURBINE REV : 300 rpm or more

4. Keep the current driving status for at least 5 consecutive seconds if CONSULT-III screen changes from “OUT OF CONDITION” to “TESTING”.

CAUTION:

If “TESTING” does not appear on CONSULT-III for a long time, select “Self Diagnostic Results” mode for “TRANSMISSION”. In case a 1st trip DTC other than “P0732 A/T 2ND GR FNCTN” is shown, refer to “SELF DIAGNOSTIC RESULTS”. Refer to [TM-40, "CONSULT-III Function \(TRANSMISSION\)"](#).

 **With GST**

1. Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.

Manual mode switch : ON

Gear position : “2” position

Accelerator opening : 0.6/8 or more

Vehicle speed : 10 km/h (6 MPH) or more

2. Check DTC.

Is “STOP VEHICLE” or “COMPLETED RESULT NG” displayed? / Is “P0732 A/T 2ND GR FNCTN” detected?

YES-1 >> “STOP VEHICLE”: GO TO 3.

YES-2 >> “COMPLETED RESULT NG”: Go to [TM-61, "Diagnosis Procedure"](#).

YES-3 >> “P0732 A/T 2ND GR FNCTN” is detected: Go to [TM-61, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

3.CHECK SYMPTOM 2

 **With CONSULT-III**

1. Stop vehicle.

2. Drive vehicle in “D” position allowing it to shift from 1st to 5th gear and check shift timing and shift shock.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

NO >> Confirm malfunction phenomena by “ROAD TEST” to repair malfunctioning part. Refer to [TM-149, "Description"](#).

Diagnosis Procedure

INFOID:000000003130498

1.CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

2.REPLACE CONTROL VALVE WITH TCM

1. Replace control valve with TCM. Refer to [TM-162, "Exploded View"](#).

2. Perform “DTC CONFIRMATION PROCEDURE”. Refer to [TM-60, "DTC Logic"](#).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Confirm malfunction phenomena by “ROAD TEST” to repair malfunctioning part. Refer to [TM-149, "Description"](#).

P0733 A/T 3RD GEAR FUNCTION

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P0733 A/T 3RD GEAR FUNCTION

Description

INFOID:000000003130499

This malfunction is detected when the A/T does not shift into 3rd gear 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:000000003130500

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is de- tected when...	Possible cause
P0733	A/T 3RD GR FNCTN	20th	TCM detects any incon- sistency in the actual gear ratio.	<ul style="list-style-type: none">• Input clutch solenoid valve• Front brake solenoid valve• Direct clutch solenoid valve• High and low reverse clutch solenoid valve• Each clutch and brake• Hydraulic control circuit

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK ATF TEMPERATURE

Ⓟ With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Check ATF temperature is in the following range.

ATF TEMP 1 : 20°C (68°F) – 140°C (284°F)

Ⓟ With GST

1. Start the engine.
2. Drive vehicle for approximately 5 minutes in urban areas, GO TO 2.

Is ATF temperature within specified range?

YES >> GO TO 2.

NO >> Drive vehicle to warm ATF or stop engine to cool ATF.

2. CHECK SYMPTOM 1

Ⓟ With CONSULT-III

1. Select "DTC & SRT Confirmation" for "TRANSMISSION".
2. Select "3RD GR FNCTN P0733" of "DTC WORK SUPPORT" mode.
3. Drive vehicle and maintain the following conditions.

MANU MODE SW : ON

GEAR : "3" position

ACCELE POSI : 0.6/8 or more

VEHICLE SPEED : 10 km/h (6 MPH) or more

P0733 A/T 3RD GEAR FUNCTION

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

ENGINE SPEED : TURBINE REV – 50 rpm or more

TURBINE REV : 300 rpm or more

4. Keep the current driving status for at least 5 consecutive seconds if CONSULT-III screen changes from “OUT OF CONDITION” to “TESTING”.

CAUTION:

If “TESTING” does not appear on CONSULT-III for a long time, select “Self Diagnostic Results” mode for “TRANSMISSION”. In case a 1st trip DTC other than “P0733 A/T 3RD GR FNCTN” is shown, refer to “SELF DIAGNOSTIC RESULTS”. Refer to [TM-40, "CONSULT-III Function \(TRANSMISSION\)"](#).

 **With GST**

1. Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.

Manual mode switch : ON

Gear position : “3” position

Accelerator opening : 0.6/8 or more

Vehicle speed : 10 km/h (6 MPH) or more

2. Check DTC.

Is “STOP VEHICLE” or “COMPLETED RESULT NG” displayed? / Is “P0733 A/T 3RD GR FNCTN” detected?

YES-1 >> “STOP VEHICLE”: GO TO 3.

YES-2 >> “COMPLETED RESULT NG”: Go to [TM-63, "Diagnosis Procedure"](#).

YES-3 >> “P0733 A/T 3RD GR FNCTN” is detected: Go to [TM-63, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

3.CHECK SYMPTOM 2

 **With CONSULT-III**

1. Stop vehicle.

2. Drive vehicle in “D” position allowing it to shift from 1st to 5th gear and check shift timing and shift shock.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

NO >> Confirm malfunction phenomena by “ROAD TEST” to repair malfunctioning part. Refer to [TM-149, "Description"](#).

Diagnosis Procedure

INFOID:000000003130501

1.CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

2.REPLACE CONTROL VALVE WITH TCM

1. Replace control valve with TCM. Refer to [TM-162, "Exploded View"](#).

2. Perform “DTC CONFIRMATION PROCEDURE”. Refer to [TM-62, "DTC Logic"](#).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Confirm malfunction phenomena by “ROAD TEST” to repair malfunctioning part. Refer to [TM-149, "Description"](#).

P0734 A/T 4TH GEAR FUNCTION

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P0734 A/T 4TH GEAR FUNCTION

Description

INFOID:000000003130502

This malfunction is detected when the A/T does not shift into 4th gear 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:000000003130503

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is de- tected when...	Possible cause
P0734	A/T 4TH GR FNCTN	21st	TCM detects any incon- sistency in the actual gear ratio.	<ul style="list-style-type: none">• Input clutch solenoid valve• Front brake solenoid valve• Direct clutch solenoid valve• High and low reverse clutch solenoid valve• Each clutch and brake• Hydraulic control circuit

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK ATF TEMPERATURE

Ⓜ With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Check ATF temperature is in the following range.

ATF TEMP 1 : 20°C (68°F) – 140°C (284°F)

Ⓜ With GST

1. Start the engine.
2. Drive vehicle for approximately 5 minutes in urban areas, GO TO 2.

Is ATF temperature within specified range?

YES >> GO TO 2.

NO >> Drive vehicle to warm ATF or stop engine to cool ATF.

2. CHECK SYMPTOM 1

Ⓜ With CONSULT-III

1. Select "DTC & SRT Confirmation" for "TRANSMISSION".
2. Select "4TH GR FNCTN P0734" of "DTC WORK SUPPORT" mode.
3. Drive vehicle and maintain the following conditions.

MANU MODE SW : ON

GEAR : "4" position

ACCELE POSI : 0.6/8 or more

VEHICLE SPEED : 10 km/h (6 MPH) or more

P0734 A/T 4TH GEAR FUNCTION

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

ENGINE SPEED : TURBINE REV – 50 rpm or more

TURBINE REV : 300 rpm or more

4. Keep the current driving status for at least 5 consecutive seconds if CONSULT-III screen changes from “OUT OF CONDITION” to “TESTING”.

CAUTION:

If “TESTING” does not appear on CONSULT-III for a long time, select “Self Diagnostic Results” mode for “TRANSMISSION”. In case a 1st trip DTC other than “P0734 A/T 4TH GR FNCTN” is shown, refer to “SELF DIAGNOSTIC RESULTS”. Refer to [TM-40, "CONSULT-III Function \(TRANSMISSION\)"](#).

 **With GST**

1. Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.

Manual mode switch : ON

Gear position : “4” position

Accelerator opening : 0.6/8 or more

Vehicle speed : 10 km/h (6 MPH) or more

2. Check DTC.

Is “STOP VEHICLE” or “COMPLETED RESULT NG” displayed? / Is “P0734 A/T 4TH GR FNCTN” detected?

YES-1 >> “STOP VEHICLE”: GO TO 3.

YES-2 >> “COMPLETED RESULT NG”: Go to [TM-65, "Diagnosis Procedure"](#).

YES-3 >> “P0734 A/T 4TH GR FNCTN” is detected: Go to [TM-65, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

3.CHECK SYMPTOM 2

 **With CONSULT-III**

1. Stop vehicle.

2. Drive vehicle in “D” position allowing it to shift from 1st to 5th gear and check shift timing and shift shock.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

NO >> Confirm malfunction phenomena by “ROAD TEST” to repair malfunctioning part. Refer to [TM-149, "Description"](#).

Diagnosis Procedure

INFOID:000000003130504

1.CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

2.REPLACE CONTROL VALVE WITH TCM

1. Replace control valve with TCM. Refer to [TM-162, "Exploded View"](#).

2. Perform “DTC CONFIRMATION PROCEDURE”. Refer to [TM-64, "DTC Logic"](#).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Confirm malfunction phenomena by “ROAD TEST” to repair malfunctioning part. Refer to [TM-149, "Description"](#).

P0735 A/T 5TH GEAR FUNCTION

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P0735 A/T 5TH GEAR FUNCTION

Description

INFOID:000000003130505

This malfunction is detected when the A/T does not shift into 5th gear 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:000000003130506

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is de- tected when...	Possible cause
P0735	A/T 5TH GR FNCTN	22nd	TCM detects any incon- sistency in the actual gear ratio.	<ul style="list-style-type: none">• Input clutch solenoid valve• Front brake solenoid valve• Direct clutch solenoid valve• High and low reverse clutch solenoid valve• Each clutch and brake• Hydraulic control circuit

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK ATF TEMPERATURE

Ⓜ With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Check ATF temperature is in the following range.

ATF TEMP 1 : 20°C (68°F) – 140°C (284°F)

Ⓜ With GST

1. Start the engine.
2. Drive vehicle for approximately 5 minutes in urban areas, GO TO 2.

Is ATF temperature within specified range?

YES >> GO TO 2.

NO >> Drive vehicle to warm ATF or stop engine to cool ATF.

2. CHECK SYMPTOM 1

Ⓜ With CONSULT-III

1. Select "DTC & SRT Confirmation" for "TRANSMISSION".
2. Select "5TH GR FNCTN P0735" of "DTC WORK SUPPORT" mode.
3. Drive vehicle and maintain the following conditions.

MANU MODE SW : ON

GEAR : "5" position

ACCELE POSI : 0.6/8 or more

VEHICLE SPEED : 10 km/h (6 MPH) or more

P0735 A/T 5TH GEAR FUNCTION

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

ENGINE SPEED : TURBINE REV – 50 rpm or more

TURBINE REV : 300 rpm or more

4. Keep the current driving status for at least 5 consecutive seconds if CONSULT-III screen changes from “OUT OF CONDITION” to “TESTING”.

CAUTION:

If “TESTING” does not appear on CONSULT-III for a long time, select “Self Diagnostic Results” mode for “TRANSMISSION”. In case a 1st trip DTC other than “P0735 A/T 5TH GR FNCTN” is shown, refer to “SELF DIAGNOSTIC RESULTS”. Refer to [TM-40, "CONSULT-III Function \(TRANSMISSION\)"](#).

 **With GST**

1. Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.

Manual mode switch : ON

Gear position : “5” position

Accelerator opening : 0.6/8 or more

Vehicle speed : 10 km/h (6 MPH) or more

2. Check DTC.

Is “STOP VEHICLE” or “COMPLETED RESULT NG” displayed? / Is “P0735 A/T 5TH GR FNCTN” detected?

YES-1 >> “STOP VEHICLE”: GO TO 3.

YES-2 >> “COMPLETED RESULT NG”: Go to [TM-67, "Diagnosis Procedure"](#).

YES-3 >> “P0735 A/T 5TH GR FNCTN” is detected: Go to [TM-67, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

3. CHECK SYMPTOM 2

 **With CONSULT-III**

1. Stop vehicle.

2. Drive vehicle in “D” position allowing it to shift from 1st to 5th gear and check shift timing and shift shock.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

NO >> Confirm malfunction phenomena by “ROAD TEST” to repair malfunctioning part. Refer to [TM-149, "Description"](#).

Diagnosis Procedure

INFOID:000000003130507

1. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

2. REPLACE CONTROL VALVE WITH TCM

1. Replace control valve with TCM. Refer to [TM-162, "Exploded View"](#)

2. Perform “DTC CONFIRMATION PROCEDURE”. Refer to [TM-66, "DTC Logic"](#).

Is the inspection result normal?

YES >> INSPECTION END.

NO >> Confirm malfunction phenomena by “ROAD TEST” to repair malfunctioning part. Refer to [TM-149, "Description"](#).

P0740 TORQUE CONVERTER CLUTCH SOLENOID VALVE

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P0740 TORQUE CONVERTER CLUTCH SOLENOID VALVE

Description

INFOID:000000003130508

- The torque converter clutch solenoid valve is activated, with the gear in D3, D4, D5, M3, M4 and M5 by the TCM in response to signals transmitted from the vehicle speed sensor and accelerator pedal position sensor (throttle position sensor). Torque converter clutch piston operation will then be controlled.
- Lock-up operation, however, is prohibited when A/T fluid temperature is too low.
- When the accelerator pedal is depressed (less than 1.0/8) in lock-up condition, the engine speed should not change abruptly. If there is a big jump in engine speed, there is no lock-up.

DTC Logic

INFOID:000000003130509

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is detected when...	Possible cause
P0740	TCC SOLENOID/CIRC	3rd	Normal voltage not applied to solenoid due to cut line, short, or the like.	<ul style="list-style-type: none">• Harness or connectors (Solenoid circuit is open or shorted.)• Torque converter clutch solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.

VHCL/S SE-A/T : 80 km/h (50 MPH) or more

ACCELE POSI : 0.5/8 – 1.0/8

SLCT LVR POSI : "D" position

Drive location : Driving the vehicle uphill (increased engine load) will help maintain the driving conditions required for this test.

With GST

Follow the procedure "With CONSULT-III".

Is "P0740 TCC SOLENOID/CIRC" detected?

YES >> Go to [TM-68, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130510

1. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#).

NO >> Repair or replace damaged parts.

P0744 A/T TCC S/V FUNCTION (LOCK -UP)

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P0744 A/T TCC S/V FUNCTION (LOCK -UP)

Description

INFOID:000000003130511

This malfunction is detected when the A/T does not shift into 5th gear position or the torque converter clutch does not lock-up as instructed by the TCM. This is not only caused by electrical malfunction (circuits open or shorted) but also by mechanical malfunction such as control valve sticking, improper solenoid valve operation, etc.

DTC Logic

INFOID:000000003130512

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is detected when...	Possible cause
P0744	A/T TCC S/V FNCTN	3rd	<ul style="list-style-type: none"> A/T cannot perform lock-up even if electrical circuit is good. TCM detects as irregular by comparing difference value with slip rotation. 	<ul style="list-style-type: none"> Harness or connectors (Sensor circuit is open or shorted.) Torque converter clutch solenoid valve Hydraulic control circuit

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

- Start the engine.
- Select "Data Monitor" mode for "TRANSMISSION".
- Drive vehicle and maintain the following conditions for at least 30 consecutive seconds.

ACCELE POSI : More than 1.0/8

SLCT LVR POSI : "D" position

TCC SOLENOID : 0.4 – 0.6 A

VEHICLE SPEED : 80 km/h (50 MPH) or more

Driving location : Driving the vehicle uphill (increased engine load) will help maintain the driving conditions required for this test.

With GST

Follow the procedure "With CONSULT-III".

Is "P0744 A/T TCC S/V FNCTN" detected?

YES >> Go to [TM-69, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130513

1. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

OK >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#).

NG >> Repair or replace damaged parts.

P0745 LINE PRESSURE SOLENOID VALVE

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P0745 LINE PRESSURE SOLENOID VALVE

Description

INFOID:000000003130514

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

DTC Logic

INFOID:000000003130515

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is de- tected when...	Possible cause
P0745	L/PRESS SOL/CIRC	4th	<ul style="list-style-type: none">Normal voltage not applied to solenoid due to cut line, short, or the like.TCM detects as irregular by comparing target value with monitor value.	<ul style="list-style-type: none">Harness or connectors (Sensor circuit is open or shorted.)Line pressure solenoid valve

DTC CONFIRMATION PROCEDURE

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

- Start the engine and wait for at least 5 seconds.
- Select "Self Diagnostic Results" mode for "TRANSMISSION".

With GST

Follow the procedure "With CONSULT-III".

Is "P0745 L/PRESS SOL/CIRC" detected?

- YES >> Go to [TM-70, "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130516

1. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#).
NO >> Repair or replace damaged parts.

P1705 THROTTLE POSITION SENSOR

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P1705 THROTTLE POSITION SENSOR

Description

INFOID:000000003130517

Electric throttle control actuator consists of throttle control motor, accelerator pedal position sensor, throttle position sensor, etc. The actuator transmits a signal to the ECM, and ECM transmits signals to TCM with CAN communication.

DTC Logic

INFOID:000000003130518

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is de- tected when...	Possible cause
P1705	TP SEN/CIRC A/T	15th	TCM does not receive the proper accelerator pedal position signals (input by CAN communi- cation) from ECM.	Harness or connectors (Sensor circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

NOTE:

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

1.CHECK DTC DETECTION

With CONSULT-III

1. Start the engine and let it idle for 1 second.
2. Select "Self Diagnostic Results" mode for "TRANSMISSION".

Is "P1705 TP SEN/CIRC A/T" detected?

- YES >> Go to [TM-71, "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130519

1.CHECK DTC OF ECM

With CONSULT-III

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

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Check DTC detected item. Refer to [EC-113, "CONSULT-III Function"](#).

2.CHECK DTC OF TCM

With CONSULT-III

Select "Self Diagnostic Results" mode for "TRANSMISSION".

Is any DTC other than "P1705 TP SEN/CIRC A/T" detected?

- YES >> Check DTC detected item. Refer to [TM-40, "CONSULT-III Function \(TRANSMISSION\)"](#).
NO >> GO TO 3.

3.CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#).
NO >> Repair or replace damaged parts.

P1710 A/T FLUID TEMPERATURE SENSOR

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P1710 A/T FLUID TEMPERATURE SENSOR

Description

INFOID:000000003130520

The A/T fluid temperature sensor detects the A/T fluid temperature and transmits a signal to the TCM.

DTC Logic

INFOID:000000003130521

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is de- tected when...	Possible cause
P1710	ATF TEMP SEN/CIRC	10th	While running, the A/T fluid temperature sensor signal voltage is exces- sively high or low.	<ul style="list-style-type: none"> • Harness or connectors (Sensor circuit is open or shorted.) • A/T fluid temperature sensors 1 and/or 2

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Drive vehicle and maintain the following conditions for at least 10 minutes (total). (It is not necessary to maintain continuously.)

VHCL/S SE-A/T : 10 km/h (6 MPH) or more

ACCELE POSI : More than 1.0/8

SLCT LVR POSI : "D" position

With GST

Follow the procedure "With CONSULT-III".

Is "P1710 ATF TEMP SEN/CIRC" detected?

YES >> Go to [TM-72, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130522

1. CHECK A/T FLUID TEMPERATURE SENSOR 1 SIGNAL

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Check "ATF TEMP SE 1" and "ATF TEMP SE 2" values.

Item name	Condition °C (°F)	Value (Approx.)
ATF TEMP SE 1	0 (32) – 20 (68) – 80 (176)	3.3 – 2.7 – 0.9 V
ATF TEMP SE 2	0 (32) – 20 (68) – 80 (176)	3.3 – 2.5 – 0.7 V

Which item is abnormal?

ATF TEMP SE 1 >> GO TO 2.

ATF TEMP SE 2 >> GO TO 5.

2. CHECK A/T FLUID TEMPERATURE SENSOR 1

P1710 A/T FLUID TEMPERATURE SENSOR

[5AT: RE5R05A]

< COMPONENT DIAGNOSIS >

1. Remove control valve with TCM. Refer to [TM-162. "Exploded View"](#).
2. Disconnect park/neutral position switch connector.
3. Check A/T fluid temperature sensor 1. Refer to [TM-74. "Component Inspection \(A/T fluid temperature sensor 1\)"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts. Refer to [TM-162. "Exploded View"](#).

3.CHECK SUB-HARNESS

1. Disconnect TCM connector.
2. Check continuity between park/neutral position switch connector terminals and TCM connector terminals.

Park/neutral position switch connector		TCM connector		Continuity
Connector	Terminal	Connector	Terminal	
F154	6	F152	19	Existed
	7		18	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4.DETECT MALFUNCTIONING ITEM

Check the following.

- Check terminals of park/neutral position switch connector and TCM connector, and harness cladding for damage.
- Check connector for loose connection.

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace damaged parts.

5.CHECK A/T FLUID TEMPERATURE SENSOR 2

1. Remove A/T fluid temperature sensor 2. Refer to [TM-168. "Exploded View"](#).
2. Check A/T fluid temperature sensor 2. Refer to [TM-74. "Component Inspection \(A/T fluid temperature sensor 2\)"](#).

Is the inspection result normal?

YES >> GO TO 6.

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

6.CHECK TERMINAL CORD ASSEMBLY

1. Remove control valve with TCM. Refer to [TM-162. "Exploded View"](#).
2. Disconnect TCM connector.
3. Check continuity between A/T fluid temperature sensor 2 connector terminals and TCM connector terminals.

A/T fluid temperature sensor 2 connector		TCM connector		Continuity
Connector	Terminal	Connector	Terminal	
F156	1	F151	3	Existed
	2		5	

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.

7.DETECT MALFUNCTIONING ITEM

Check the following.

- Check terminals of A/T fluid temperature sensor 2 connector and TCM connector, and harness cladding for damage.
- Check connector for loose connection.

P1710 A/T FLUID TEMPERATURE SENSOR

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

Is the inspection result normal?

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

8.CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace the control valve with TCM. Refer to [TM-162. "Exploded View"](#).
- NO >> Repair or replace damaged parts.

Component Inspection (A/T fluid temperature sensor 1)

INFOID:000000003130523

1.CHECK A/T FLUID TEMPERATURE SENSOR 1

Check resistance between park/neutral position switch connector terminals.

Park/neutral position switch connector			Temperature °C (°F)	Resistance (Approx.)
Connector	Terminal			
F154	6	7	0 (32)	15 kΩ
			20 (68)	6.5 kΩ
			80 (176)	0.9 kΩ

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace control valve with TCM. Refer to [TM-162. "Exploded View"](#).

Component Inspection (A/T fluid temperature sensor 2)

INFOID:000000003130524

1.CHECK A/T FLUID TEMPERATURE SENSOR 2

Check resistance between A/T fluid temperature sensor 2 connector terminals.

A/T fluid temperature sensor 2 connector			Temperature °C (°F)	Resistance (Approx.)
Connector	Terminal			
F156	1	2	0 (32)	10 kΩ
			20 (68)	4 kΩ
			80 (176)	0.5 kΩ

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace the A/T fluid temperature sensor 2. Refer to [TM-168. "Exploded View"](#).

P1721 VEHICLE SPEED SENSOR MTR

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P1721 VEHICLE SPEED SENSOR MTR

Description

INFOID:000000003130525

The vehicle speed sensor-MTR signal is transmitted from unified meter and A/C amp. to TCM by CAN communication line. The signal functions as an auxiliary device to the revolution sensor when it is malfunctioning. The TCM will then use the vehicle speed sensor-MTR signal.

DTC Logic

INFOID:000000003130526

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is detected when...	Possible cause
P1721	VEH SPD SE/CIR-MTR	—	<ul style="list-style-type: none">Signal (CAN communication) from vehicle speed sensor MTR not input due to cut line or the like.Unexpected signal input during running.	Harness or connectors (Sensor circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

- Start the engine.
- Select "Data Monitor" mode for "TRANSMISSION".
- Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.

VHCL/S SE-MTR : 30 km/h (19 MPH) or more

ACCELE POSI : 1.0/8 or less

Is "P1721 VEH SPD SE/CIR-MTR" detected?

YES >> Go to [TM-75, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130527

1. CHECK DTC OF UNIFIED METER AND A/C AMP.

With CONSULT-III

Select "Self Diagnostic Results" mode for "METER/M&A".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check DTC detected item. Refer to [MWI-40, "CONSULT-III Function \(METER/M&A\)"](#).

2. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#).

NO >> Repair or replace damaged parts.

P1730 A/T INTERLOCK

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P1730 A/T INTERLOCK

Description

INFOID:000000003130528

Fail-safe function to detect interlock conditions.

DTC Logic

INFOID:000000003130529

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is de- tected when...	Possible cause
P1730	A/T INTERLOCK	12th	Except during shift change, the gear posi- tion and ATF pressure switch states are moni- tored and comparative judgment made.	<ul style="list-style-type: none">• Harness or connectors (Solenoid and switch circuit is open or short- ed.)• Low coast brake sole- noid valve• ATF pressure switch 2

NOTE:

When the vehicle is driven fixed in 2nd gear, a turbine revolution sensor malfunction is displayed, but this is not a turbine revolution sensor malfunction.

DTC CONFIRMATION PROCEDURE

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

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

SLCT LVR POSI : "D" position

With GST

Follow the procedure "With CONSULT-III".

Is "P1730 A/T INTERLOCK" detected?

- YES >> Go to [TM-76, "Diagnosis Procedure"](#).
NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Judgment of A/T Interlock

INFOID:000000003130530

Refer to [TM-111, "Fail-Safe"](#).

Diagnosis Procedure

INFOID:000000003130531

1. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#).
NO >> Repair or replace damaged parts.

P1731 A/T 1ST ENGINE BRAKING

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P1731 A/T 1ST ENGINE BRAKING

Description

INFOID:000000003130532

Fail-safe function to prevent sudden decrease in speed by engine brake other than at M1 position.

DTC Logic

INFOID:000000003130533

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is detected when...	Possible cause
P1731	A/T 1ST E/BRAKING	13th	ATF pressure switch 2 and solenoid current is monitor and if a pattern is detected having engine braking 1st gear other than in the M1 position, a malfunction is detected.	<ul style="list-style-type: none"> • Harness or connectors (Sensor circuit is open or shorted.) • Low coast brake solenoid valve • ATF pressure switch 2

DTC CONFIRMATION PROCEDURE

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

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

ENGINE SPEED : 1,200 rpm
 GEAR : "1" position
 MANU MODE SW : ON

Is "P1731 A/T 1ST E/BRAKING" detected?

- YES >> Go to [TM-77, "Diagnosis Procedure"](#).
 NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130534

1. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#).
 NO >> Repair or replace damaged parts.

P1752 INPUT CLUTCH SOLENOID VALVE

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P1752 INPUT CLUTCH SOLENOID VALVE

Description

INFOID:000000003130535

- The Input clutch solenoid valve is controlled by the TCM in response to signals transmitted from the PNP switch, vehicle speed sensor and accelerator pedal position sensor (throttle position sensor). Gears will then be shifted to the optimum position.
- The Input clutch solenoid valve controls the input clutch control valve in response to a signal transmitted from the TCM.

DTC Logic

INFOID:000000003130536

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is detected when...	Possible cause
P1752	I/C SOLENOID/CIRC	5th	<ul style="list-style-type: none">• Normal voltage not applied to solenoid due to cut line, short, or the like.• TCM detects as irregular by comparing target value with monitor value.	<ul style="list-style-type: none">• Harness or connectors (Solenoid circuit is open or shorted.)• Input clutch solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.

ACCELE POSI : 1.5/8 – 2.0/8

GEAR : "3" → "4" (I/C ON/OFF)

SLCT LVR POSI : "D" position

Driving location : Driving the vehicle uphill (increased engine load) will help maintain the driving conditions required for this test.

With GST

Follow the procedure "With CONSULT-III".

Is "P1752 I/C SOLENOID/CIRC" detected?

YES >> Go to [TM-78, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130537

1. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#).

NO >> Repair or replace damaged parts.

P1757 FRONT BRAKE SOLENOID VALVE

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P1757 FRONT BRAKE SOLENOID VALVE

Description

INFOID:000000003130538

- The front brake solenoid valve is controlled by the TCM in response to signals transmitted from the PNP switch, vehicle speed sensor and accelerator pedal position sensor (throttle position sensor). Gears will then be shifted to the optimum position.
- The front brake solenoid valve controls the front brake control valve in response to a signal transmitted from the TCM.

DTC Logic

INFOID:000000003130539

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is detected when...	Possible cause
P1757	FR/B SOLENOID/CIRC	6th	<ul style="list-style-type: none"> • Normal voltage not applied to solenoid due to cut line, short, or the like. • TCM detects as irregular by comparing target value with monitor value. 	<ul style="list-style-type: none"> • Harness or connectors (Solenoid circuit is open or shorted.) • Front brake solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.

ACCELE POSI : 1.5/8 – 2.0/8

GEAR : "3"⇒"4" (FR/B ON/OFF)

SLCT LVR POSI : "D" position

Drive location : Driving the vehicle uphill (increased engine load) will help maintain the driving conditions required for this test.

With GST

Follow the procedure "With CONSULT-III".

Is "P1757 FR/B SOLENOID/CIRC" detected?

YES >> Go to [TM-79. "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38. "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130540

1. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the control valve with TCM. Refer to [TM-162. "Exploded View"](#).

NO >> Repair or replace damaged parts.

P1762 DIRECT CLUTCH SOLENOID VALVE

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P1762 DIRECT CLUTCH SOLENOID VALVE

Description

INFOID:000000003130541

- The direct clutch solenoid valve is controlled by the TCM in response to signals transmitted from the PNP switch, vehicle speed sensor and accelerator pedal position sensor (throttle position sensor). Gears will then be shifted to the optimum position.
- The direct clutch solenoid valve controls the direct clutch control valve in response to a signal transmitted from the TCM.

DTC Logic

INFOID:000000003130542

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is detected when...	Possible cause
P1762	D/C SOLENOID/CIRC	2nd	<ul style="list-style-type: none">• Normal voltage not applied to solenoid due to cut line, short, or the like.• TCM detects as irregular by comparing target value with monitor value.	<ul style="list-style-type: none">• Harness or connectors (Solenoid circuit is open or shorted.)• Direct clutch solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.

ACCELE POSI : 1.5/8 – 2.0/8

GEAR : "1" → "2" (D/C ON/OFF)

SLCT LVR POSI : "D" position

Driving location : Driving the vehicle uphill (increased engine load) will help maintain the driving conditions required for this test.

With GST

Follow the procedure "With CONSULT-III".

Is "P1762 D/C SOLENOID/CIRC" detected?

YES >> Go to [TM-80, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130543

1. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#).

NO >> Repair or replace damaged parts.

P1767 HIGH AND LOW REVERSE CLUTCH SOLENOID VALVE

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P1767 HIGH AND LOW REVERSE CLUTCH SOLENOID VALVE

Description

INFOID:000000003130544

- The high and low reverse clutch solenoid valve is controlled by the TCM in response to signals transmitted from the PNP switch, vehicle speed sensor and accelerator pedal position sensor (throttle position sensor). Gears will then be shifted to the optimum position.
- The high and low reverse clutch solenoid valve controls the high and low reverse clutch control valve in response to a signal transmitted from the TCM.

DTC Logic

INFOID:000000003130545

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is detected when...	Possible cause
P1767	HLR/C SOL/CIRC	8th	<ul style="list-style-type: none">• Normal voltage not applied to solenoid due to cut line, short, or the like.• TCM detects as irregular by comparing target value with monitor value.	<ul style="list-style-type: none">• Harness or connectors (Solenoid circuit is open or shorted.)• High and low reverse clutch solenoid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.

ACCELE POSI : 1.5/8 – 2.0/8

GEAR : "2" → "3" (HLR/C ON/OFF)

SLCT LVR POSI : "D" position

Driving location : Driving the vehicle uphill (increased engine load) will help maintain the driving conditions required for this test.

With GST

Follow the procedure "With CONSULT-III".

Is "P1767 HLR/C SOL/CIRC" detected?

YES >> Go to [TM-81, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130546

1. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#).

NO >> Repair or replace damaged parts.

P1772 LOW COAST BRAKE SOLENOID VALVE

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P1772 LOW COAST BRAKE SOLENOID VALVE

Description

INFOID:000000003130547

- The low coast brake solenoid valve is turned ON or OFF by the TCM in response to signals transmitted from the PNP switch, vehicle speed sensor and accelerator pedal position sensor (throttle position sensor). Gears will then be shifted to the optimum position.
- The low coast brake solenoid valve controls the low coast brake switching valve in response to a signal transmitted from the TCM.

DTC Logic

INFOID:000000003130548

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is de- tected when...	Possible cause
P1772	LC/B SOLENOID/CIRC	7th	Normal voltage not ap- plied to solenoid due to cut line, short, or the like.	<ul style="list-style-type: none">• Harness or connectors (Solenoid circuit is open or shorted.)• Low coast brake sole- noid valve

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Drive vehicle and maintain the following conditions for at least 5 consecutive seconds.

GEAR : "1" or "2" (LC/B ON/OFF)

MANU MODE SW : ON

With GST

Follow the procedure "With CONSULT-III".

Is "P1772 LC/B SOLENOID/CIRC" detected?

YES >> Go to [TM-82, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130549

1. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#).

NO >> Repair or replace damaged parts.

P1774 LOW COAST BRAKE SOLENOID VALVE FUNCTION

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P1774 LOW COAST BRAKE SOLENOID VALVE FUNCTION

Description

INFOID:000000003130550

- Low coast brake solenoid valve is turned ON or OFF by the TCM in response to signals transmitted from the PNP switch, vehicle speed sensor and accelerator pedal position sensor (throttle position sensor). Gears will then be shifted to the optimum position.
- This is not only caused by electrical malfunction (circuits open or shorted) but also by mechanical malfunction such as control valve sticking, improper solenoid valve operation.

DTC Logic

INFOID:000000003130551

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is de- tected when...	Possible cause
P1774	LC/B SOLENOID FNCT	7th	<ul style="list-style-type: none">• TCM detects an im- proper voltage drop when it tries to operate the solenoid valve.• Condition of ATF pres- sure switch 2 is differ- ent from monitor value, and relation be- tween gear position and actual gear ratio is irregular.	<ul style="list-style-type: none">• Harness or connectors (Solenoid and switch circuit is open or short- ed.)• Low coast brake sole- noid valve• ATF pressure switch 2

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

1. Start the engine.
2. Select "Data Monitor" mode for "TRANSMISSION".
3. Drive vehicle and maintain the following conditions.

GEAR : "1" or "2" (LC/B ON/OFF)

MANU MODE SW : ON

4. Stop vehicle and perform step 3 again.
5. Stop vehicle.
6. Turn ignition switch OFF, then perform step 1 to 4 again.

With GST

Follow the procedure "With CONSULT-III".

Is "P1774 LC/B SOLENOID FNCT" detected?

YES >> Go to [TM-83, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130552

1. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#).

P1774 LOW COAST BRAKE SOLENOID VALVE FUNCTION

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

NO >> Repair or replace damaged parts.

P1815 MANUAL MODE SWITCH

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

P1815 MANUAL MODE SWITCH

Description

INFOID:000000003130553

Manual mode switch is installed in control device assembly. It transmits manual mode switch, shift up and shift down switch signals to unified meter and A/C amp. Then unified meter and A/C amp. transmits signals to TCM with CAN communication.

TCM transmits the switch signals to unified meter and A/C amp. by CAN communication line. Then manual mode switch position is indicated on the A/T indicator. For inspection, refer to [TM-91](#).

DTC Logic

INFOID:000000003130554

DTC DETECTION LOGIC

DTC	Item (CONSULT-III screen terms)	A/T CHECK indicator lamp judgment flicker	Diagnostic item is detected when...	Possible cause
P1815	MANU MODE SW/CIRC	—	TCM monitors manual mode, non manual mode, up or down switch signal, and detects as irregular when impossible input pattern occurs 2 second or more.	<ul style="list-style-type: none">• Harness or connectors (These switches circuit is open or shorted.)• Manual mode select switch (Into control device)• Manual mode position select switch (Into control device)

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

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

1. CHECK DTC DETECTION

With CONSULT-III

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

MANU MODE SW : ON

Is "P1815 MANU MODE SW/CIRC" detected?

YES >> Go to [TM-85, "Diagnosis Procedure"](#).

NO >> Check intermittent incident. Refer to [GI-38, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000003130555

1. CHECK MANUAL MODE SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect control device connector.
3. Turn ignition switch ON.
4. Check voltage between control device vehicle side harness connector terminals.

P1815 MANUAL MODE SWITCH

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

Control device vehicle side harness connector			Voltage (Approx.)
Connector	Terminal		
M137	1	4	Battery voltage
	2		
	3		
	5		

Is the inspection result normal?

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

2.CHECK MANUAL MODE SWITCH

Check manual mode switch. Refer to [TM-87, "Component Inspection \(Manual Mode Switch\)"](#).

Is the inspection result normal?

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

3.CHECK MALFUNCTIONING ITEM

Check the following.

- Check terminals of control device harness connector and harness cladding for damage.
- Check connector for loose connection.

Is the inspection result normal?

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

4.CHECK GROUND CIRCUIT

Check continuity between control device vehicle side harness connector terminal and ground.

Control device vehicle side harness connector		Ground	Continuity
Connector	Terminal		
M137	4		Existed

Is the inspection result normal?

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

5.CHECK HARNESS BETWEEN CONTROL DEVICE AND UNIFIED METER AND A/C AMP. (STEP 1)

1. Turn ignition switch OFF.
2. Disconnect unified meter and A/C amp. connector.
3. Check continuity between control device vehicle side harness connector terminals and unified meter and A/C amp. vehicle side harness connector terminals.

Control device vehicle side harness connector		Unified meter and A/C amp. vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
M137	1	M66	10	Existed
	2		25	
	3		5	
	5		11	

Is the inspection result normal?

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

6.CHECK HARNESS BETWEEN CONTROL DEVICE AND UNIFIED METER AND A/C AMP. (STEP 2)

Check continuity between control device vehicle side harness connector terminals and ground.

P1815 MANUAL MODE SWITCH

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

Control device vehicle side harness connector		Ground	Continuity
Connector	Terminal		
M137	1		Not existed
	2		
	3		
	5		

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.

7.CHECK MALFUNCTIONING ITEM

Check the following.

- Check terminals of unified meter and A/C amp. connector for damage.
- Check connector for loose connection.

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace damaged parts.

8.CHECK UNIFIED METER AND A/C AMP.

1. Reconnect all the connectors.
2. Turn ignition switch ON.
3. Select "M RANGE SW", "NM RANGE SW", "AT SFT UP SW" and "AT SFT DWN SW" on "Data Monitor" mode for "METER/M&A", and check the On/Off operations of each monitor item. Refer to [MWI-85, "Reference Value"](#).

Is the inspection result normal?

YES >> GO TO 9.

NO >> Replace unified meter and A/C amp. Refer to [MWI-163, "Exploded View"](#).

9.CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to [TM-89, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the control valve with TCM. Refer to [TM-162, "Exploded View"](#).

NO >> Repair or replace damaged parts.

Component Inspection (Manual Mode Switch)

INFOID:000000003130556

1.CHECK MANUAL MODE SWITCH

Check continuity between terminals.

Control device harness connector			Condition	Continuity
Connector	Terminal			
M137	1	4	Selector lever: Manual (Neutral)	Existed
			Other than the above	Not existed
	2		Selector lever: DOWN (- side)	Existed
			Other than the above	Not existed
	3		Selector lever: UP (+ side)	Existed
			Other than the above	Not existed
	5		Selector lever: "D" position (Auto)	Existed
			Other than the above	Not existed

Is the inspection result normal?

YES >> INSPECTION END

P1815 MANUAL MODE SWITCH

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

NO >> Repair or replace damaged parts. Refer to [TM-155. "2WD : Exploded View"](#) (2WD), [TM-158. "AWD : Exploded View"](#) (AWD).

MAIN POWER SUPPLY AND GROUND CIRCUIT

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

MAIN POWER SUPPLY AND GROUND CIRCUIT

Description

INFOID:000000003130558

Supply power to TCM.

Diagnosis Procedure

INFOID:000000003130559

1. CHECK TCM POWER SOURCE CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect A/T assembly harness connector.
3. Check voltage between A/T assembly vehicle side harness connector terminals and ground.

A/T assembly vehicle side harness connector		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
F51	1	Ground	Turn ignition switch ON/OFF	Battery voltage
	2			
	6		Turn ignition switch ON	0 V
	Turn ignition switch OFF			

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check the following. If NG, repair or replace damaged parts.

- Harness for short or open between battery and A/T assembly vehicle side harness connector terminals 1, 2.
- Harness for short or open between ignition switch and A/T assembly vehicle side harness connector terminal 6.
- 10A fuse (No. 36, located in the fuse, fusible link and relay box)
- 10A fuse (No. 43, located in the IPDM E/R)
- Push-button ignition switch. Refer to [PG-51, "Wiring Diagram - IGNITION POWER SUPPLY -"](#).

2. CHECK TCM GROUND CIRCUIT

Check continuity between A/T assembly vehicle side harness connector terminals and ground.

A/T assembly vehicle side harness connector		Ground	Continuity
Connector	Terminal		
F51	5	Ground	Existed
	10		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3. DETECT MALFUNCTIONING ITEM (STEP 1)

Check the following.

- Check terminals of A/T assembly harness connector for damage.
- Check connector for loose connection.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK TERMINAL CORD ASSEMBLY

1. Remove control valve with TCM. Refer to [TM-162, "Exploded View"](#).
2. Disconnect TCM connector.
3. Check continuity between A/T assembly harness connector terminals and TCM connector terminals.

MAIN POWER SUPPLY AND GROUND CIRCUIT

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

A/T assembly harness connector		TCM connector		Continuity
Connector	Terminal	Connector	Terminal	
F51	1	F151	9	Existed
	2		10	
	6		4	
	5	21		
	10	F153	22	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5.DETECT MALFUNCTIONING ITEM (STEP 2)

Check the following.

- Check terminals of TCM connector and harness cladding for damage.
- Check connector for loose connection.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace damaged parts.

SHIFT POSITION INDICATOR CIRCUIT

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

SHIFT POSITION INDICATOR CIRCUIT

Description

INFOID:000000003130560

TCM transmit the switch signals to unified meter and A/C amp. by CAN communication line. Then manual mode switch position is indicated on the shift position indicator.

Component Function Check

INFOID:000000003130561

1. CHECK A/T INDICATOR

1. Start the engine.
2. Drive vehicle in the manual mode, and confirm that the actual gear position and the meter's indication of the position mutually coincide when the selector lever is shifted to the "UP (+ side)" or "DOWN (- side)" side (1st ⇔ 5th gear).

Is the inspection result normal?

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

Diagnosis Procedure

INFOID:000000003130562

1. CHECK INPUT SIGNALS

Ⓜ With CONSULT-III

1. Start the engine.
2. Select "GEAR" on "Data Monitor" mode for "TRANSMISSION" and read out the value.
3. Drive vehicle in the manual mode, and confirm that the actual gear position and the meter's indication of the position mutually coincide when the selector lever is shifted to the "UP (+ side)" or "DOWN (- side)" side (1st ⇔ 5th gear).

Is the inspection result normal?

- YES >> INSPECTION END
- NO-1 >> The actual gear position does not change, or shifting into the manual mode is not possible (no gear shifting in the manual mode possible). Or the shift position indicator is not indicated.
- Check manual mode switch. Refer to [TM-87, "Component Inspection \(Manual Mode Switch\)"](#).
 - Check A/T main system (Fail-safe function actuated).
 - Select "Self Diagnostic Results" mode for "TRANSMISSION". Refer to [TM-40, "CONSULT-III Function \(TRANSMISSION\)"](#).
- NO-2 >> The actual gear position changes, but the shift position indicator is not indicated.
- Select "Self Diagnostic Results" mode for "TRANSMISSION". Refer to [TM-40, "CONSULT-III Function \(TRANSMISSION\)"](#).
- NO-3 >> The actual gear position and the indication on the shift position indicator do not coincide.
- Select "Self Diagnostic Results" mode for "TRANSMISSION". Refer to [TM-40, "CONSULT-III Function \(TRANSMISSION\)"](#).
- NO-4 >> Only a specific position or positions is/are not indicated on the shift position indicator.
- Replace the unified meter and A/C amp. Refer to [MWI-163, "Exploded View"](#).

SHIFT LOCK SYSTEM

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

SHIFT LOCK SYSTEM

Description

INFOID:000000003130563

Shift lock system circuit consists of the following part.

Component	Function
Shift lock solenoid	Activated by the ignition switch and stop lamp signals, it holds the relative positions of sliders A and B.
Shift lock relay	Current flow to stop lamp switch allows shift lock solenoid contact ON, and then power is applied to shift lock solenoid.
Stop lamp switch	Depressing the brake pedal turns ON the stop lamp switch and energizes the shift lock relay.

SHIFT LOCK SYSTEM

< COMPONENT DIAGNOSIS >

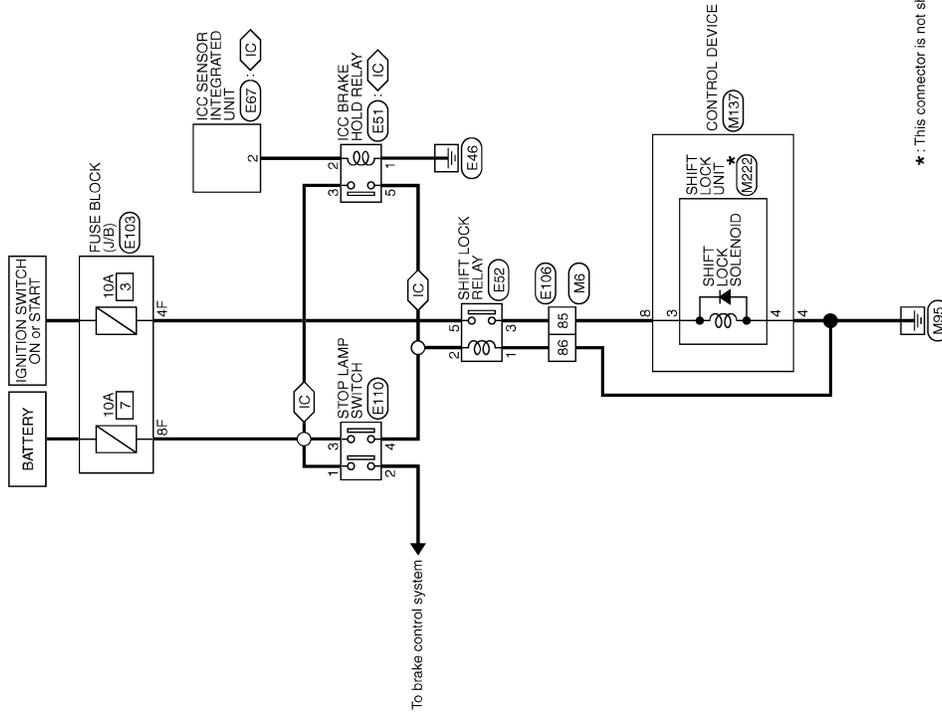
[5AT: RE5R05A]

Wiring Diagram - A/T SHIFT LOCK SYSTEM -

INFOID:000000003130564

A/T SHIFT LOCK SYSTEM

⬡ : With ICC



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

2007/10/26

JCDWM0201GI

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SHIFT LOCK SYSTEM

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

A/T SHIFT LOCK SYSTEM

Connector No.	E151
Connector Name	ICC BRAKE-HOLD RELAY
Connector Type	MS22FL-M2



Terminal No.	Color of Wire	Signal Name [Specification]
1	B	-
2	V	-
3	O	-
5	P	-

Connector No.	E152
Connector Name	SHIFT LOCK RELAY
Connector Type	MS22FL-M2



Terminal No.	Color of Wire	Signal Name [Specification]
1	GR	-
2	P	-
3	BR	-
5	Y	-

Connector No.	E167
Connector Name	ICC SENSOR INTEGRATED UNIT
Connector Type	RS20FB-PR



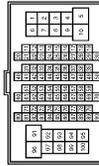
Terminal No.	Color of Wire	Signal Name [Specification]
2	V	BRK LMP RLY

Connector No.	E103
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS18FW-CS



Terminal No.	Color of Wire	Signal Name [Specification]
4F	G	-
8F	L	-

Connector No.	E106
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS (8-TM)



Terminal No.	Color of Wire	Signal Name [Specification]
85	BR	-
86	GR	-

Connector No.	E110
Connector Name	STOP LAMP SWITCH
Connector Type	MD4W-LC



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

Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS (8-TM)



Terminal No.	Color of Wire	Signal Name [Specification]
85	SB	-
86	B	-

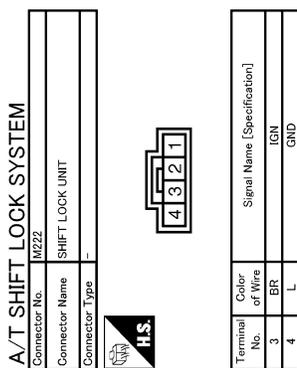
Connector No.	M137
Connector Name	CONTROL DEVICE
Connector Type	TH12FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
4	B	-
8	SB	-

JCDWM0202GI

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JCDWM0203GI

INFOID:000000003130565

Component Function Check

1. CHECK A/T SHIFT LOCK OPERATION (STEP 1)

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

Can the selector lever be shifted to any other position?

SHIFT LOCK SYSTEM

[5AT: RE5R05A]

< COMPONENT DIAGNOSIS >

- YES >> Go to [TM-96. "Diagnosis Procedure"](#).
NO >> GO TO 2.

2.CHECK A/T SHIFT LOCK OPERATION (STEP 2)

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

Can the selector lever be shifted to any other position?

- YES >> INSPECTION END
NO >> Go to [TM-96. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000003130566

1.CHECK A/T POSITION

Check A/T position. Refer to [TM-153. "2WD : Inspection and Adjustment"](#) (2WD), [TM-153. "AWD : Inspection and Adjustment"](#) (AWD).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Adjust A/T position. Refer to [TM-153. "2WD : Inspection and Adjustment"](#) (2WD), [TM-153. "AWD : Inspection and Adjustment"](#) (AWD).

2.CHECK POWER SOURCE

1. Turn ignition switch OFF.
2. Disconnect shift lock relay.
3. Check voltage between shift lock relay vehicle side harness connector terminal and ground.

Shift lock relay vehicle side harness connector		Ground	Condition	Voltage (Approx.)
Connector	Terminal		Depressed brake pedal.	Battery voltage
E52	2		Released brake pedal.	0 V

Is the inspection result normal?

- YES >> GO TO 7.
NO-1 >> When depressing the brake pedal, the voltage is 0 V: GO TO 3.
NO-2 >> When releasing the brake pedal, the voltage is battery voltage: GO TO 5.

3.CHECK POWER SOURCE

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

Stop lamp switch vehicle side harness connector		Ground	Voltage (Approx.)
Connector	Terminal		Battery voltage
E110	3		

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Check the following. If NG, repair or replace damaged parts.
- 10 A fuse [No. 7, located in the fuse block (J/B)]
 - Harness for short to ground or open between battery and stop lamp switch vehicle side harness connector terminal 3.
 - Harness for short to ground or open between battery and stop lamp switch vehicle side harness connector terminal 1.
 - Harness for short to ground between battery and ICC brake hold relay vehicle side harness connector terminal 3. (With ICC)

4.CHECK STOP LAMP SWITCH

Check stop lamp switch. Refer to [TM-99. "Component Inspection \(Stop lamp switch\)"](#).

Is the inspection result normal?

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

SHIFT LOCK SYSTEM

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

- Harness for short to ground or open between stop lamp switch vehicle side harness connector terminal 4 and shift lock relay vehicle side harness connector terminal 2.
- Harness for short to ground between stop lamp switch vehicle side harness connector terminal 4 and ICC brake hold relay vehicle side harness connector terminal 5. (With ICC)

NO >> Repair or replace damaged parts.

5.CHECK STOP LAMP SWITCH

Check stop lamp switch. Refer to [TM-99, "Component Inspection \(Stop lamp switch\)"](#).

Is the inspection result normal?

YES-1 >> Without ICC: Repair or replace harness between stop lamp switch and shift lock relay.

YES-2 >> With ICC: GO TO 6.

NO >> Repair or replace damaged parts.

6.CHECK DTC WITH ICC

With CONSULT-III

Select "Self Diagnostic Results" mode for "ICC". Refer to [CCS-24, "CONSULT-III Function \(ICC\)"](#).

Is any malfunction detected?

YES >> Check the DTC detected item. Refer to [CCS-24, "CONSULT-III Function \(ICC\)"](#).

NO >> Repair or replace harness between stop lamp switch and shift lock relay.

7.CHECK GROUND CIRCUIT

Check continuity between shift lock relay vehicle side harness connector terminal and ground.

Shift lock relay vehicle side harness connector		Ground	Continuity
Connector	Terminal		
E52	1		Existed

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace damaged parts.

8.CHECK SHIFT LOCK RELAY

Check shift lock relay. Refer to [TM-98, "Component Inspection \(Shift lock relay\)"](#).

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace damaged parts.

9.CHECK POWER SOURCE

1. Turn ignition switch ON.
2. Check voltage between shift lock relay vehicle side harness connector terminal and ground.

Shift lock relay vehicle side harness connector		Ground	Voltage (Approx.)
Connector	Terminal		
E52	5		Battery voltage

Is the inspection result normal?

YES >> GO TO 10.

NO >> Check the following. If NG, repair or replace damaged parts.

- 10 A fuse [No. 3, located in the fuse block (J/B)]
- Harness for short to ground or open between ignition switch and shift lock relay vehicle side harness connector terminal 5

10.CHECK GROUND CIRCUIT

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

SHIFT LOCK SYSTEM

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

Control device vehicle side harness connector		Ground	Continuity
Connector	Terminal		Existed
M137	4		

Is the inspection result normal?

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

11.CHECK SHIFT LOCK SOLENOID

Check shift lock solenoid. Refer to [TM-98. "Component Inspection \(Shift lock solenoid\)"](#).

Is the inspection result normal?

- YES >> Check the following. If NG, repair or replace damaged parts.
- Harness for short to ground, short to power or open between shift lock relay vehicle side harness connector terminal 3 and control device vehicle side harness connector terminal 8
 - Harness for short to ground, short to power or open between control device harness conductor terminal 8 and shift lock unit harness connector terminal 3
 - Harness for open between control device harness conductor terminal 4 and shift lock unit harness connector terminal 4
- NO >> Repair or replace damaged parts.

Component Inspection (Shift lock solenoid)

INFOID:000000003130567

1.CHECK SHIFT LOCK SOLENOID

1. Remove shift lock unit. Refer to [TM-155. "2WD : Exploded View"](#) (2WD), [TM-158. "AWD : Exploded View"](#) (AWD).
2. Apply voltage to terminals 3 and 4 of shift lock unit connector, and then check that shift lock solenoid is activated.

CAUTION:

Connect the fuse between the terminals when applying the voltage.

(+ (fuse))		(-)		Condition	Status
Shift lock unit connector					
Connector	Terminal	Connector	Terminal		
M222	3	M222	4	Apply 12 V direct current between terminals 3 and 4.	Shift lock solenoid operates

Can the lock plate be moved up and down?

- YES >> INSPECTION END
 NO >> Replace shift lock unit. Refer to [TM-155. "2WD : Exploded View"](#) (2WD), [TM-158. "AWD : Exploded View"](#) (AWD).

Component Inspection (Shift lock relay)

INFOID:000000003130568

1.CHECK SHIFT LOCK RELAY

Check continuity between shift lock relay terminal 3 and 5.

CAUTION:

Connect the fuse between the terminals when applying the voltage.

Shift lock relay connector			Condition	Continuity
Connector	Terminal			
E52	3	5	Apply 12 V direct current between terminals 1 and 2.	Existed
				OFF

Is the inspection result normal?

SHIFT LOCK SYSTEM

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

YES >> INSPECTION END
NO >> Replace shift lock relay.

A

Component Inspection (Stop lamp switch)

INFOID:000000003130569

1. CHECK STOP LAMP SWITCH

B

Check continuity between stop lamp switch connector terminal 3 and 4.

C

Stop lamp switch connector		Condition	Continuity	
Connector	Terminal			
E110	3	4	Brake pedal depressed	Existed
		4	Brake pedal released	Not existed

TM

Is the inspection result normal?

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

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SELECTOR LEVER POSITION INDICATOR

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

SELECTOR LEVER POSITION INDICATOR

Description

INFOID:000000003130570

Indicates selector lever position.

Component Function Check

INFOID:000000003130571

1.CHECK SELECTOR LEVER POSITION INDICATOR (STEP 1)

1. Turn ignition switch ON.
2. Check that each position indicator lamp of the selector lever position indicator turns on when shifting the selector lever from "P" to "M" position.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Go to [TM-100. "Diagnosis Procedure"](#).

2.CHECK SELECTOR LEVER POSITION INDICATOR (STEP 2)

Check that the night illumination of the selector lever position indicator turns on when setting the lighting switch in 1st position.

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Go to [TM-100. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000003130572

1.CHECK MALFUNCTIONING ITEM

Which item is abnormal?

- Position indicator lamp>>GO TO 2.
Illumination lamp>>GO TO 8.

2.CHECK POWER SOURCE

1. Turn ignition switch OFF.
2. Disconnect control device connector.
3. Turn ignition switch ON.
4. Check voltage between control device vehicle side harness connector terminals.

Control device vehicle side harness connector			Voltage (Approx.)
Connector	Terminal	Terminal	
M137	10	4	Battery voltage

Is the inspection result normal?

- YES >> GO TO 6.
NO >> GO TO 3.

3.CHECK GROUND CIRCUIT

Check continuity between control device vehicle side harness connector terminal and ground.

Control device vehicle side harness connector		Ground	Continuity
Connector	Terminal		
M137	4		Existed

Is the inspection result normal?

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

4.CHECK HARNESS BETWEEN CONTROL DEVICE AND BCM (STEP 1)

1. Disconnect BCM connector.

SELECTOR LEVER POSITION INDICATOR

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

2. Check continuity between control device vehicle side harness connector terminal and BCM vehicle side harness connector terminal.

Control device harness connector		BCM vehicle side harness connector		Continuity
Connector	Terminal	Connector	Terminal	
M137	10	M122	96	Existed

Is the inspection result normal?

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

5.CHECK HARNESS BETWEEN CONTROL DEVICE AND BCM (STEP 2)

Check continuity between control device vehicle side harness connector terminal and ground.

Control device harness connector		Ground	Continuity
Connector	Terminal		
M137	10		Not existed

Is the inspection result normal?

- YES >> Check the following.
- Check terminals of BCM connector and control device harness connector for damage.
 - Check connector for loose connection.
- NO >> Check BCM input/output signal. Refer to [BCS-46. "Reference Value"](#).

6.CHECK SHIFT POSITION SWITCH

Check continuity between control device harness connector terminals and selector lever position indicator connector terminals.

Control device harness connector		selector lever position indicator connector		Condition	Continuity
Connector	Terminal	Connector	Terminal		
M137	4	M221	7	Selector lever in "D" position.	Existed
			9	Selector lever in "M" position.	
	10		2	Selector lever in "N" position.	
			3	Selector lever in "D" position.	
			4	Selector lever in "R" position.	
			5	Selector lever in "P" position.	
			6	—	

Is the inspection result normal?

- YES >> GO TO 7.
 NO >> Repair or replace damaged parts. Refer to [TM-155. "2WD : Exploded View"](#) (2WD), [TM-158. "AWD : Exploded View"](#) (AWD).

7.CHECK SELECTOR LEVER POSITION INDICATOR

Check selector lever position indicator. Refer to [TM-102. "Component Inspection"](#).

Is the inspection result normal?

- YES >> Check the following.
- Check terminals of control device harness connector and selector lever position indicator connector for damage.
 - Check connector for loose connection.
- NO >> Repair or replace damaged parts. Refer to [TM-155. "2WD : Exploded View"](#) (2WD), [TM-158. "AWD : Exploded View"](#) (AWD).

SELECTOR LEVER POSITION INDICATOR

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

8. CHECK POWER SOURCE

1. Turn ignition switch OFF.
2. Disconnect control device connector.
3. Turn ignition switch ON.
4. Check voltage between control device vehicle side harness connector terminals.

Control device vehicle side harness connector			Condition	Voltage (Approx.)
Connector	Terminal	Terminal		
M137	7	9	Lighting switch 1ST	Battery voltage

Is the inspection result normal?

YES >> GO TO 9.

NO >> Check illumination circuit. Refer to [INL-37. "Wiring Diagram - ILLUMINATION -"](#).

9. CHECK SHIFT POSITION SWITCH

Check continuity between control device harness connector terminals and selector lever position indicator connector terminals.

Control device harness connector		selector lever position indicator connector		Continuity
Connector	Terminal	Connector	Terminal	
M137	7	M221	10	Existed
	9		11	

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts. Refer to [TM-155. "2WD : Exploded View"](#) (2WD), [TM-158. "AWD : Exploded View"](#) (AWD).

Component Inspection

INFOID:000000003130573

1. CHECK SELECTOR LEVER POSITION INDICATOR

Check that selector lever position indicator lamps turn on.

CAUTION:

Connect the fuse between the terminals when applying the voltage.

(+)(fuse)		(-)		Condition	Status
Selector lever position indicator connector					
Connector	Terminal	Connector	Terminal		
M221	2	M221	7	Apply 12 V direct current between terminals 2 and 7.	"N" position indicator lamp turns on.
	3			Apply 12 V direct current between terminals 3 and 7.	"D" position indicator lamp turns on.
	4			Apply 12 V direct current between terminals 4 and 7.	"R" position indicator lamp turns on.
	5			Apply 12 V direct current between terminals 5 and 7.	"P" position indicator lamp turns on.
	6		9	Apply 12 V direct current between terminals 6 and 9.	"M" mode indicator lamp turns on.
	10		11	Apply 12 V direct current between terminals 10 and 11.	Illumination lamp turns on.

SELECTOR LEVER POSITION INDICATOR

< COMPONENT DIAGNOSIS >

[5AT: RE5R05A]

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the selector lever position indicator. Refer to [TM-155. "2WD : Exploded View"](#) (2WD),
[TM-158. "AWD : Exploded View"](#) (AWD).

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ECU DIAGNOSIS

TCM

Reference Value

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VALUES ON DIAGNOSIS TOOL

NOTE:

- The CONSULT-III 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-III display. If the difference is noticeable, mechanical parts (except solenoids, sensors, etc.) may be malfunctioning. Check mechanical parts using applicable diagnostic procedures.
- Shift schedule (which implies gear position) displayed on CONSULT-III and that indicated in Service Manual may differ slightly. This occurs because of the following reasons:
 - Actual shift schedule has more or less tolerance or allowance
 - Shift schedule indicated in Service Manual refers to the point where shifts start
 - Gear position displayed on CONSULT-III indicates the point where shifts are completed
- Display of solenoid valves on CONSULT-III changes at the start of shifting, while gear position is displayed upon completion of shifting (which is computed by TCM).

CONSULT-III MONITOR ITEM

Item name	Condition	Value / Status (Approx.)
VHCL/S SE-A/T	During driving	Approximately matches the speedometer reading.
VHCL/S SE-MTR	During driving	Approximately matches the speedometer reading.
ACCELE POSI	Released accelerator pedal.	0.0/8
	Fully depressed accelerator pedal.	8.0/8
CLSD THL POS	Released accelerator pedal.	On
	Fully depressed accelerator pedal.	Off
W/O THL POS	Fully depressed accelerator pedal.	On
	Released accelerator pedal.	Off
BRAKE SW	Depressed brake pedal.	On
	Released brake pedal.	Off
GEAR	During driving	1, 2, 3, 4, 5
ENGINE SPEED	Engine running	Closely matches the tachometer reading.
TURBINE REV	During driving (lock-up ON)	Approximately matches the engine speed.
ATF TEMP SE 1	0°C (32° F) – 20°C (68°F) – 80°C (176°F)	3.3 – 2.7 – 0.9 V
ATF TEMP SE 2	0°C (32° F) – 20°C (68°F) – 80°C (176°F)	3.3 – 2.5 – 0.7 V
ATF TEMP 1	Ignition switch ON	Temperature of ATF in the oil pan is indicated.
ATF PRES SW 2	Low coast brake engaged. Refer to TM-21 .	On
	Low coast brake disengaged. Refer to TM-21 .	Off

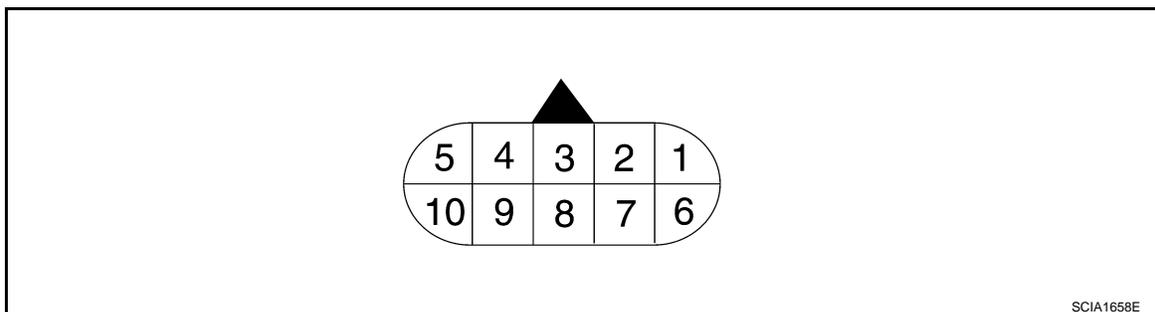
TCM

< ECU DIAGNOSIS >

[5AT: RE5R05A]

Item name	Condition	Value / Status (Approx.)
SLCT LVR POSI	Selector lever in "N" and "P" positions	N/P
	Selector lever in "R" position	R
	Selector lever in "D" position	D
	Selector lever in "M" position: 5th gear	D
	Selector lever in "M" position: 4th gear	4
	Selector lever in "M" position: 3rd gear	3
	Selector lever in "M" position: 2nd gear	2
	Selector lever in "M" position: 1st gear	1
MANU MODE SW	Manual shift gate position (neutral)	On
	Other than the above	Off
NON M-MODE SW	Manual shift gate position	Off
	Other than the above	On
UP SW LEVER	Selector lever: UP (+ side)	On
	Other than the above	Off
DOWN SW LEVER	Selector lever: DOWN (- side)	On
	Other than the above	Off
TCC SOLENOID	Slip lock-up is active	0.2 – 0.4 A
	Lock-up is active	0.4 – 0.6 A
	Other than the above	0 – 0.05 A
LINE PRES SOL	During driving	0.2 – 0.6 A
FR/B SOLENOID	Front brake engaged. Refer to TM-21 .	0.6 – 0.8 A
	Front brake disengaged. Refer to TM-21 .	0 – 0.05 A
I/C SOLENOID	Input clutch disengaged. Refer to TM-21 .	0.6 – 0.8 A
	Input clutch engaged. Refer to TM-21 .	0 – 0.05 A
D/C SOLENOID	Direct clutch disengaged. Refer to TM-21 .	0.6 – 0.8 A
	Direct clutch engaged. Refer to TM-21 .	0 – 0.05 A
HLR/C SOL	High and low reverse clutch disengaged. Refer to TM-21 .	0.6 – 0.8 A
	High and low reverse clutch engaged. Refer to TM-21 .	0 – 0.05 A
ON OFF SOL	Low coast brake engaged. Refer to TM-21 .	On
	Low coast brake disengaged. Refer to TM-21 .	Off
STARTER RELAY	Selector lever in "N" and "P" positions.	On
	Selector lever in "R" and "D" positions.	Off
VEHICLE SPEED	During driving	Approximately matches the speedometer reading.

TERMINAL LAYOUT



TCM

< ECU DIAGNOSIS >

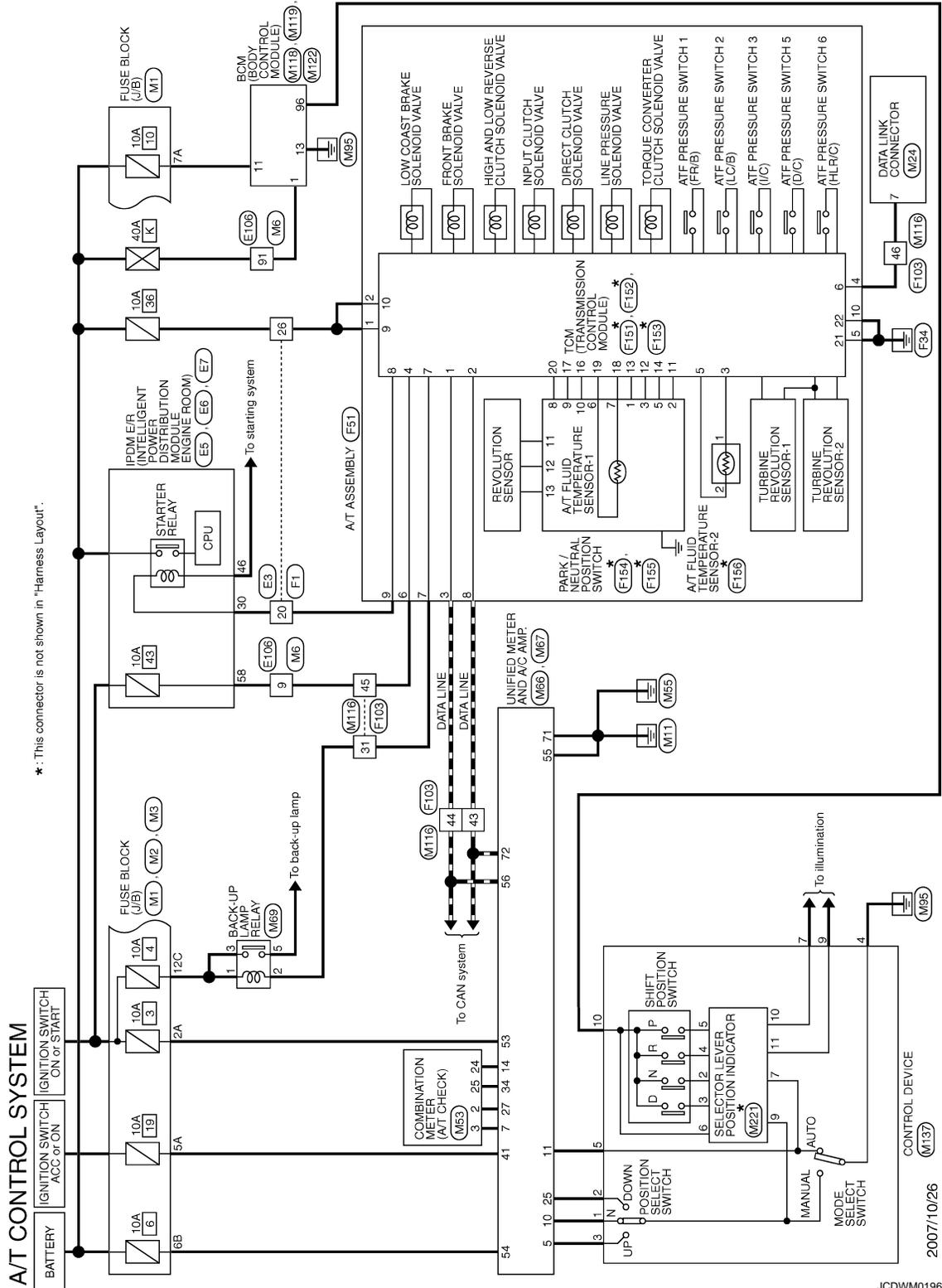
[5AT: RE5R05A]

PHYSICAL VALUES

Terminal (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
1 (BR)	Ground	Power supply (Memory back-up)	Input	Always	Battery voltage
2 (BR)	Ground	Power supply (Memory back-up)	Input	Always	Battery voltage
3 (L)	—	CAN-H	Input/ Output	—	—
4 (V)	—	K-line (CONSULT-III signal)	Input/ Output	—	—
5 (B)	Ground	Ground	Output	Always	0 V
6 (Y)	Ground	Power supply	Input	Ignition switch ON	Battery voltage
				Ignition switch OFF	0 V
7 (R)	Ground	Back-up lamp relay	Input	Ignition switch ON	Selector lever in "R" position.
					Selector lever in other positions.
8 (P)	—	CAN-L	Input/ Output	—	—
9 (GR)	Ground	Starter relay	Output	Ignition switch ON	Selector lever in "N" and "P" positions.
					Selector lever in other positions.
10 (B)	Ground	Ground	Output	Always	0 V

Wiring Diagram - A/T CONTROL SYSTEM -

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

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A/T CONTROL SYSTEM

Connector No.	E3
Connector Name	WIRE TO WIRE
Connector Type	SAA38MB-RS10-SJZZ



Terminal No.	20	26		
Color of Wire	GR	GR		R
Signal Name [Specification]				

Connector No.	E5
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH20FW-CS12-M4-TV



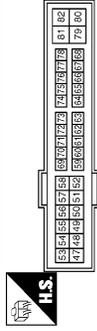
Terminal No.	30			
Color of Wire	GR			
Signal Name [Specification]				

Connector No.	E6
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH40FW-NH



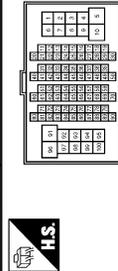
Terminal No.	46			
Color of Wire	R			
Signal Name [Specification]				

Connector No.	E7
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH20FW-CS12-M4



Terminal No.	58			
Color of Wire	P			
Signal Name [Specification]				

Connector No.	E106
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS10-TM4



Terminal No.	9			
Color of Wire	P			W
Signal Name [Specification]				

Connector No.	F1
Connector Name	WIRE TO WIRE
Connector Type	SAA38FF-RS10-SJZZ



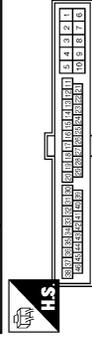
Terminal No.	20			
Color of Wire	GR			BR
Signal Name [Specification]				

Connector No.	F51
Connector Name	A/T ASSEMBLY
Connector Type	RK10FC-DGY



Terminal No.	1	2	3	4	5	6	7	8	9	10
Color of Wire	BR	L	V	B	Y	R	GR	B		
Signal Name [Specification]										

Connector No.	F103
Connector Name	WIRE TO WIRE
Connector Type	TK38FW-NS10



Terminal No.	31	43	44	45	46
Color of Wire	R	P	L	Y	V
Signal Name [Specification]					

A/T CONTROL SYSTEM

Connector No.	F151
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	SPI0FEGY



Terminal No.	Color of Wire	Signal Name [Specification]
1	BR	CAN-H
2	L/Y	CAN-L
3	W/L	ATF SENS2-
4	R	VGN
5	W/R	ATF SENS2+
6	L	K LINE
7	O	REV/LAMP RLY
8	G	START RLY
9	W	STANDBY SUPPLY-1
10	GR	STANDBY SUPPLY-2

Connector No.	F155
Connector Name	PARK/NEUTRAL POSITION SWITCH
Connector Type	A03FW



Terminal No.	Color of Wire	Signal Name [Specification]
11	L	GND
12	W	VOUT
13	R	VCC

Connector No.	F152
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	SPI0FAG



Terminal No.	Color of Wire	Signal Name [Specification]
11	W	INH-SW4
12	GR	INH-SW2
13	BR	INH-SW1
14	L	INH-SW3
16	B	REV SEN GND
17	R	REV SEN VOUT
18	O	ATF SNS1-
19	G	ATF SNS1+
20	Y	REV SEN VIN

Connector No.	F156
Connector Name	A/T FLUID TEMPERATURE SENSOR-2
Connector Type	SP02F



Terminal No.	Color of Wire	Signal Name [Specification]
1	W/L	-
2	W/R	-

Connector No.	F153
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	SP02F



Terminal No.	Color of Wire	Signal Name [Specification]
21	B	POWER GND-1
22	Y	POWER GND-2

Connector No.	M1
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS00FW-M2



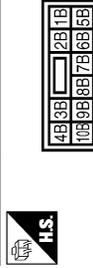
Terminal No.	Color of Wire	Signal Name [Specification]
2A	G	-
5A	V	-
7A	R	-

Connector No.	F154
Connector Name	PARK/NEUTRAL POSITION SWITCH
Connector Type	SPI0FBGY



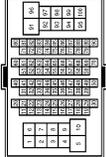
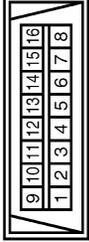
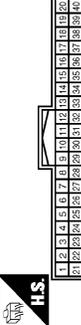
Terminal No.	Color of Wire	Signal Name [Specification]
1	BR	S1
2	W	S4
3	GR	S2
3	L	S3
9	G	-
7	O	-
8	Y	C1
9	R	C2
10	B	C3

Connector No.	M2
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS10FW-CS



Terminal No.	Color of Wire	Signal Name [Specification]
9B	Y	-

A/T CONTROL SYSTEM

<p>Connector No. M3 Connector Name FUSE BLOCK (J/B) Connector Type NS12EW-CS</p> 	<p>Terminal No. 12C Color of Wire O Signal Name [Specification] -</p>
<p>Connector No. M6 Connector Name WIRE TO WIRE Connector Type TH80MW-CS16-TM4</p> 	<p>Terminal No. 9 Color of Wire BR W Signal Name [Specification] -</p>
<p>Connector No. M24 Connector Name DATA LINK CONNECTOR Connector Type ED16FW</p> 	<p>Terminal No. 7 Color of Wire V Signal Name [Specification] -</p>
<p>Connector No. M53 Connector Name COMBINATION METER Connector Type TH40FW-NH</p> 	<p>Terminal No. 2 Color of Wire LG Signal Name [Specification] COMM (METER->AMP.)</p> <p>3 GR COMM (AMP->METER)</p> <p>24 BR COMM (LCD->AMP.)</p> <p>25 Y COMM (AMP->LCD)</p>
<p>Connector No. M66 Connector Name UNIFIED METER AND A/C AMP. Connector Type TH40FW-NH</p> 	<p>Terminal No. 5 Color of Wire L Signal Name [Specification] SHIFT UP SW</p> <p>7 GR COMM (AMP->METER)</p> <p>10 W MANUAL MODE SW</p> <p>11 G AUTO MODE SW</p> <p>14 BR COMM (LCD->AMP.)</p> <p>25 V SHIFT DOWN SW</p> <p>27 LG COMM (METER->AMP.)</p> <p>34 Y COMM (AMP->LCD)</p>
<p>Connector No. M67 Connector Name UNIFIED METER AND A/C AMP. Connector Type TH32FW-NH</p> 	<p>Terminal No. 41 Color of Wire V Signal Name [Specification] ACC</p> <p>53 G IGN</p> <p>54 Y BAT</p> <p>55 B GND</p> <p>56 L CAN-H</p> <p>71 B GND</p> <p>72 P CAN-L</p>
<p>Connector No. M68 Connector Name UNIFIED METER AND A/C AMP. Connector Type TH40FW-NH</p> 	<p>Terminal No. 1 Color of Wire R Signal Name [Specification] -</p> <p>2 W -</p> <p>3 LG -</p> <p>5 O -</p>
<p>Connector No. M69 Connector Name BACK-UP LAMP RELAY Connector Type MS02FL-M2</p> 	<p>Terminal No. 1 Color of Wire R Signal Name [Specification] -</p> <p>2 W -</p> <p>3 LG -</p> <p>5 O -</p>
<p>Connector No. M69 Connector Name BACK-UP LAMP RELAY Connector Type MS02FL-M2</p> 	<p>Terminal No. 1 Color of Wire R Signal Name [Specification] -</p> <p>2 W -</p> <p>3 LG -</p> <p>5 O -</p>
<p>Connector No. M116 Connector Name WIRE TO WIRE Connector Type TK38MW-NS10</p> 	<p>Terminal No. 31 Color of Wire W Signal Name [Specification] -</p> <p>43 P -</p> <p>44 L -</p> <p>45 BR -</p> <p>48 O -</p>

JCDWM0199GI

A/T CONTROL SYSTEM

Connector No.	M118
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	M03FB-LC



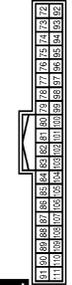
Terminal No.	Color of Wire	Signal Name [Specification]
1	W	BAT (F/L)

Connector No.	M119
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	M516FW-CS



Terminal No.	Color of Wire	Signal Name [Specification]
11	R	BAT (FLISE)
13	B	GND

Connector No.	M122
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	T140FB-NH



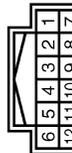
Terminal No.	Color of Wire	Signal Name [Specification]
96	GR	A/T DEVICE POWER SUPPLY

Connector No.	M137
Connector Name	CONTROL DEVICE
Connector Type	T112FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	W	-
2	V	-
3	L	-
4	B	-
5	G	-
7	R	-
9	B	-
10	GR	-

Connector No.	M221
Connector Name	SELECTOR LEVER POSITION INDICATOR
Connector Type	T112FW



Terminal No.	Color of Wire	Signal Name [Specification]
2	L	N
3	BR	D
4	G	R
5	P	P
6	V	M
7	O	AT
9	Y	MT
10	R	ILL
11	B	GND

Fail-Safe

The TCM has an electrical fail-safe mode. This mode makes it possible to operate even if there is an error in a main electronic control input/output signal circuit.

In fail-safe mode, even if the selector lever is in "D" or "M" mode, the A/T is fixed in 2nd, 4th and 5th (depending on the breakdown position), so the customer should feel "slipping" or "poor acceleration".

Even when the electronic circuits are normal, under special conditions (for example, when slamming on the brake with the wheels spinning markedly and stopping the tire rotation), the A/T can go into fail-safe mode. If

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this happens, switch OFF the ignition switch for 10 seconds. Then switch it ON again to return to the normal shift pattern. When the customer's vehicle has returned to normal, handle according to the "Work Flow" (Refer to [TM-5. "Work Flow"](#)).

FAIL-SAFE FUNCTION

If any malfunction occurs in a sensor or solenoid, this function controls the A/T to make driving possible.

Vehicle Speed Sensor

Signals are input from two systems - from vehicle speed sensor A/T (revolution sensor) installed on the A/T and from unified meter and A/C amp. so normal driving is possible even if there is a malfunction in one of the systems. If vehicle speed sensor A/T (revolution sensor) has unusual cases, 5th gear and manual mode are prohibited.

Accelerator Pedal Position Sensor

If there is a malfunction in one of the systems, the accelerator opening angle is controlled by ECM according to a pre-determined accelerator angle to make driving possible. If there are malfunctions in tow systems, the engine speed is fixed by ECM to a pre-determined engine speed to make driving possible.

Throttle Position Sensor

If there is a malfunction in one of the systems, the accelerator opening angle is controlled by ECM according to a pre-determined accelerator angle to make driving possible. If there are malfunctions in tow systems, the accelerator opening angle is controlled by the idle signal transmitted from the ECM which is based on input indicating either idle condition or off-idle condition (pre-determined accelerator opening) in order to make driving possible.

PNP Switch

In the unlikely event that a malfunction signal enters the TCM, the position indicator is switched OFF, the starter relay is switched OFF (starter is disabled), the back-up lamp relay switched OFF (back-up lamp is OFF) and the position is fixed to the "D" position to make driving possible.

Starter Relay

The starter relay is switched OFF. (Starter is disabled.)

A/T Interlock

- If there is an A/T interlock judgment malfunction, the A/T is fixed in 2nd gear to make driving possible.

NOTE:

When the vehicle is driven fixed in 2nd gear, a turbine revolution sensor malfunction is displayed, but this is not a turbine revolution sensor malfunction.

- When interlock is detected at the 3rd gear or more, it is locked at the 2nd gear.

A/T 1st Engine Braking

When there is an A/T first gear engine brake judgment malfunction, the low coast brake solenoid is switched OFF to avoid the engine brake operation.

Line Pressure Solenoid

The solenoid is switched OFF and the line pressure is set to the maximum hydraulic pressure to make driving possible.

Torque Converter Clutch Solenoid

The solenoid is switched OFF to release the lock-up.

Low Coast Brake Solenoid

When a malfunction (electrical or functional) occurs, in order to make driving possible. If the solenoid is ON, the A/T is held in 2nd gear. If the solenoid is OFF, the A/T is held in 4th gear. (Engine brake is not applied in 1st and 2nd gear.)

Input Clutch Solenoid

If a malfunction (electrical or functional) occurs with the solenoid either ON or OFF, the A/T is held in 4th gear to make driving possible.

Direct Clutch Solenoid

If a malfunction (electrical or functional) occurs with the solenoid either ON or OFF, the A/T is held in 4th gear to make driving possible.

Front Brake Solenoid

If a malfunction (electrical or functional) occurs with the solenoid ON, in order to make driving possible. The A/T is held in 5th gear. If the solenoid is OFF, the A/T is in 4th gear.

< ECU DIAGNOSIS >

High and Low Reverse Clutch Solenoid

If a (electrical or functional) malfunction occurs with the solenoid either ON or OFF, the A/T is held in 4th gear to make driving possible.

Turbine Revolution Sensor 1 or 2

The control is the same as if there were no turbine revolution sensors, 5th gear and manual mode are prohibited.

DTC Inspection Priority Chart

INFOID:000000003130577

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

NOTE:

If DTC “U1000 CAN COMM CIRCUIT” is displayed with other DTC, first perform the trouble diagnosis for “DTC U1000 CAN COMMUNICATION LINE”. Refer to [TM-46, "Description"](#).

Priority	Detected items (DTC)
1	U1000 CAN communication line
2	Except above

DTC Index

INFOID:000000003130578

NOTE:

If DTC “U1000” is displayed with other DTC, first perform the trouble diagnosis for “DTC U1000 CAN COMMUNICATION LINE”. Refer to [TM-46, "Description"](#).

DTC ^{*2}		Items (CONSULT-III screen terms)	Reference page
MIL ^{*1} , “ENGINE” with CONSULT-III or GST	CONSULT-III only “TRANSMISSION”		
—	P0615	STARTER RELAY/CIRC	TM-47
P0700	P0700	TCM	TM-49
P0705	P0705	PNP SW/CIRC	TM-50
P0710	P1710	ATF TEMP SEN/CIRC	TM-72
P0717	P0717	TURBINE REV S/CIRC	TM-52
P0720	P0720	VEH SPD SEN/CIR AT	TM-53
P0725	P0725	ENGINE SPEED SIG	TM-56
P0731	P0731	A/T 1ST GR FNCTN	TM-58
P0732	P0732	A/T 2ND GR FNCTN	TM-60
P0733	P0733	A/T 3RD GR FNCTN	TM-62
P0734	P0734	A/T 4TH GR FNCTN	TM-64
P0735	P0735	A/T 5TH GR FNCTN	TM-66
P0740	P0740	TCC SOLENOID/CIRC	TM-68
P0744	P0744	A/T TCC S/V FNCTN	TM-69
P0745	P0745	L/PRESS SOL/CIRC	TM-70
—	P1705	TP SEN/CIRC A/T	TM-71
—	P1721	VEH SPD SE/CIR-MTR	TM-75
P1730	P1730	A/T INTERLOCK	TM-76
—	P1731	A/T 1ST E/BRAKING	TM-77
P1752	P1752	I/C SOLENOID/CIRC	TM-78
P1757	P1757	FR/B SOLENOID/CIRC	TM-79
P1762	P1762	D/C SOLENOID/CIRC	TM-80
P1767	P1767	HLR/C SOL/CIRC	TM-81

TCM

< ECU DIAGNOSIS >

[5AT: RE5R05A]

DTC*2		Items (CONSULT-III screen terms)	Reference page
MIL*1, "ENGINE" with CONSULT-III or GST	CONSULT-III only "TRANSMIS- SION"		
P1772	P1772	LC/B SOLENOID/CIRC	TM-82
P1774	P1774	LC/B SOLENOID FNCT	TM-83
—	P1815	MANU MODE SW/CIRC	TM-85
U1000	U1000	CAN COMM CIRCUIT	TM-46

*1: Refer to [TM-36. "Diagnosis Description"](#).

*2: These numbers are prescribed by SAE J2012.

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[5AT: RE5R05A]

SYMPTOM DIAGNOSIS

SYSTEM SYMPTOM

Symptom Table

INFOID:000000003130579

- The diagnostics item numbers show the sequence for inspection. Inspect in order from item 1.
- Overhaul and inspection inside the A/T only if A/T fluid condition is NG. Refer to [TM-141, "Inspection"](#).

No.	Item	Symptom	Condition	Diagnostic item	Reference page
1	Shift Shock	Large shock. ("N"→ "D" position)	ON vehicle	1. Engine idle speed	EC-16
				2. Engine speed signal	TM-56
				3. Accelerator pedal position sensor	TM-71
				4. A/T position	TM-153 (2WD), TM-153 (AWD)
				5. A/T fluid temperature sensor	TM-72
				6. Front brake solenoid valve	TM-79
				7. CAN communication line	TM-46
				8. A/T fluid level and state	TM-141
				9. Line pressure test	TM-147
				10. Control valve with TCM	TM-162
			OFF vehicle	11. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19, "Cross-Sectional View").	TM-208
2		Shock is too large when changing D1→ D2 or M1 → M2.	ON vehicle	1. Accelerator pedal position sensor	TM-71
				2. A/T position	TM-153 (2WD), TM-153 (AWD)
				3. Direct clutch solenoid valve	TM-80
				4. CAN communication line	TM-46
				5. Engine speed signal	TM-56
				6. Turbine revolution sensor	TM-52
				7. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				8. A/T fluid level and state	TM-141
				9. Control valve with TCM	TM-162
			OFF vehicle	10. Direct clutch	TM-267

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
3		Shock is too large when changing D2→D3 or M2 → M3.	ON vehicle	1. Accelerator pedal position sensor	TM-71
				2. A/T position	TM-153 (2WD), TM-153 (AWD)
				3. High and low reverse clutch solenoid valve	TM-81
				4. CAN communication line	TM-46
				5. Engine speed signal	TM-56
				6. Turbine revolution sensor	TM-52
				7. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				8. A/T fluid level and state	TM-141
				9. Control valve with TCM	TM-162
			OFF vehicle	10. High and low reverse clutch	TM-265
4	Shift Shock	Shock is too large when changing D3→D4 or M3 → M4.	ON vehicle	1. Accelerator pedal position sensor	TM-71
				2. A/T position	TM-153 (2WD), TM-153 (AWD)
				3. Input clutch solenoid valve	TM-78
				4. CAN communication line	TM-46
				5. Engine speed signal	TM-56
				6. Turbine revolution sensor	TM-52
				7. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				8. A/T fluid level and state	TM-141
				9. Control valve with TCM	TM-162
			OFF vehicle	10. Input clutch	TM-255
5		Shock is too large when changing D4→D5 or M4 → M5.	ON vehicle	1. Accelerator pedal position sensor	TM-71
				2. A/T position	TM-153 (2WD), TM-153 (AWD)
				3. Front brake solenoid valve	TM-79
				4. CAN communication line	TM-46
				5. Engine speed signal	TM-56
				6. Turbine revolution sensor	TM-52
				7. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				8. A/T fluid level and state	TM-141
				9. Control valve with TCM	TM-162
			OFF vehicle	10. Front brake (brake band)	TM-198
			11. Input clutch	TM-255	

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
6		Shock is too large for downshift when accelerator pedal is depressed.	ON vehicle	1. Accelerator pedal position sensor	TM-71
				2. A/T position	TM-153 (2WD), TM-153 (AWD)
				3. CAN communication line	TM-46
				4. Engine speed signal	TM-56
				5. Turbine revolution sensor	TM-52
				6. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				7. A/T fluid level and state	TM-141
				8. Control valve with TCM	TM-162
			OFF vehicle	9. Front brake (brake band)	TM-198
				10. Input clutch	TM-255
				11. High and low reverse clutch	TM-265
				12. Direct clutch	TM-267
7	Shift Shock	Shock is too large for upshift when accelerator pedal is released.	ON vehicle	1. Accelerator pedal position sensor	TM-71
				2. A/T position	TM-153 (2WD), TM-153 (AWD)
				3. Engine speed signal	TM-56
				4. CAN communication line	TM-46
				5. Turbine revolution sensor	TM-52
				6. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				7. A/T fluid level and state	TM-141
				8. Control valve with TCM	TM-162
			OFF vehicle	9. Front brake (brake band)	TM-198
				10. Input clutch	TM-255
				11. High and low reverse clutch	TM-265
				12. Direct clutch	TM-267
8		Shock is too large for lock-up.	ON vehicle	1. Accelerator pedal position sensor	TM-71
				2. A/T position	TM-153 (2WD), TM-153 (AWD)
				3. Engine speed signal	TM-56
				4. CAN communication line	TM-46
				5. Turbine revolution sensor	TM-52
				6. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				7. Torque converter clutch solenoid valve	TM-68
				8. A/T fluid level and state	TM-141
				9. Control valve with TCM	TM-162
			OFF vehicle	10. Torque converter	TM-249

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
9	Shift Shock	Shock is too large during engine brake.	ON vehicle	1. Accelerator pedal position sensor	TM-71
				2. A/T position	TM-153 (2WD), TM-153 (AWD)
				3. CAN communication line	TM-46
				4. A/T fluid level and state	TM-141
				5. Control valve with TCM	TM-162
			OFF vehicle	6. Front brake (brake band)	TM-198
				7. Input clutch	TM-255
				8. High and low reverse clutch	TM-265
				9. Direct clutch	TM-267
10	No Up Shift	Gear does not change from D1 → D2 or from M1 → M2.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Direct clutch solenoid valve	TM-80
				4. Line pressure test	TM-147
				5. CAN communication line	TM-46
				6. Control valve with TCM	TM-162
		OFF vehicle	7. Direct clutch	TM-267	
11	No Up Shift	Gear does not change from D2 → D3 or from M2 → M3.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. High and low reverse clutch solenoid valve	TM-81
				4. Line pressure test	TM-147
				5. CAN communication line	TM-46
				6. Control valve with TCM	TM-162
		OFF vehicle	7. High and low reverse clutch	TM-265	
12	No Up Shift	Gear does not change from D3 → D4 or from M3 → M4.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Input clutch solenoid valve	TM-78
				4. Front brake solenoid valve	TM-79
				5. Line pressure test	TM-147
				6. CAN communication line	TM-46
				7. Control valve with TCM	TM-162
		OFF vehicle	8. Input clutch	TM-255	

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
13	No Up Shift	Gear does not change from D4 → D5 or from M4 → M5.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Front brake solenoid valve	TM-79
				4. Direct clutch solenoid valve	TM-80
				5. Turbine revolution sensor	TM-52
				6. Line pressure test	TM-147
				7. CAN communication line	TM-46
				8. Control valve with TCM	TM-162
			OFF vehicle	9. Front brake (brake band)	TM-198
				10. Input clutch	TM-255
14		In "D" or "M" position, does not downshift to 4th gear.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Front brake solenoid valve	TM-79
				4. Direct clutch solenoid valve	TM-80
				5. CAN communication line	TM-46
				6. Line pressure test	TM-147
				7. Control valve with TCM	TM-162
			OFF vehicle	8. Front brake (brake band)	TM-198
				9. Input clutch	TM-255
15	No Down Shift	In "D" or "M" position, does not downshift to 3rd gear.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Input clutch solenoid valve	TM-78
				4. Front brake solenoid valve	TM-79
				5. CAN communication line	TM-46
				6. Line pressure test	TM-147
				7. Control valve with TCM	TM-162
			OFF vehicle	8. Input clutch	TM-255
16		In "D" or "M" position, does not downshift to 2nd gear.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. High and low reverse clutch solenoid valve	TM-81
				4. CAN communication line	TM-46
				5. Line pressure test	TM-147
				6. Control valve with TCM	TM-162
			OFF vehicle	7. High and low reverse clutch	TM-265

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
17	No Down Shift	In "D" or "M" position, does not downshift to 1st gear.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Direct clutch solenoid valve	TM-80
				4. CAN communication line	TM-46
				5. Line pressure test	TM-147
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Direct clutch	TM-267
18	Slips/Will Not Engage	When "D" or "M" position, remains in 1st gear.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Direct clutch solenoid valve	TM-80
				4. Line pressure test	TM-147
				5. CAN communication line	TM-46
				6. Control valve with TCM	TM-162
			OFF vehicle	7. 3rd one-way clutch	TM-253
				8. 1st one-way clutch	TM-260
				9. Gear system	TM-198
				10. Reverse brake	TM-208
				11. Forward one-way clutch (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 . "Cross-Sectional View".)	TM-208
				12. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 . "Cross-Sectional View".)	TM-208
19		When "D" or "M" position, remains in 2nd gear.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Low coast brake solenoid valve	TM-82
				4. Line pressure test	TM-147
				5. CAN communication line	TM-46
				6. Control valve with TCM	TM-162
			OFF vehicle	7. 3rd one-way clutch	TM-253
				8. Gear system	TM-198
				9. Direct clutch	TM-267
				10. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 . "Cross-Sectional View".)	TM-208

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
20		When "D" or "M" position, remains in 3rd gear.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Line pressure test	TM-147
				4. CAN communication line	TM-46
				5. Control valve with TCM	TM-162
			OFF vehicle	6. 3rd one-way clutch	TM-253
				7. Gear system	TM-198
				8. High and low reverse clutch	TM-265
				9. Forward one-way clutch (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , "Cross-Sectional View".)	TM-208
				10. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , "Cross-Sectional View".)	TM-208
21	Slips/Will Not Engage	When "D" or "M" position, remains in 4th gear.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Input clutch solenoid valve	TM-78
				4. Direct clutch solenoid valve	TM-80
				5. High and low reverse clutch solenoid valve	TM-81
				6. Low coast brake solenoid valve	TM-82
				7. Front brake solenoid valve	TM-79
				8. Line pressure test	TM-147
				9. CAN communication line	TM-46
				10. Control valve with TCM	TM-162
			OFF vehicle	11. Input clutch	TM-255
				12. Gear system	TM-198
				13. High and low reverse clutch	TM-265
				14. Direct clutch	TM-267
22		When "D" or "M" position, remains in 5th gear.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Front brake solenoid valve	TM-79
				4. Line pressure test	TM-147
				5. CAN communication line	TM-46
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Front brake (brake band)	TM-198
				8. Input clutch	TM-255
				9. Gear system	TM-198
				10. High and low reverse clutch	TM-265

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No.	Item	Symptom	Condition	Diagnostic item	Reference page				
23		Vehicle cannot take off from D1.	ON vehicle	1. A/T fluid level and state	TM-141				
				2. Accelerator pedal position sensor	TM-71				
				3. Line pressure test	TM-147				
				4. CAN communication line	TM-46				
				5. Control valve with TCM	TM-162				
			OFF vehicle	6. Torque converter	TM-249				
				7. Oil pump assembly	TM-250				
				8. 3rd one-way clutch	TM-253				
				9. 1st one-way clutch	TM-260				
				10. Gear system	TM-198				
				11. Reverse brake	TM-208				
				12. Forward one-way clutch (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , " Cross-Sectional View ".)	TM-208				
				13. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , " Cross-Sectional View ".)	TM-208				
24	Slips/Will Not Engage	Does not lock-up.	ON vehicle	1. A/T fluid level and state	TM-141				
				2. Line pressure test	TM-147				
				3. Engine speed signal	TM-56				
				4. Turbine revolution sensor	TM-52				
				5. Torque converter clutch solenoid valve	TM-68				
				6. CAN communication line	TM-46				
				7. Control valve with TCM	TM-162				
			OFF vehicle	8. Torque converter	TM-249				
				9. Oil pump assembly	TM-250				
				25		Does not hold lock-up condition.	ON vehicle	1. A/T fluid level and state	TM-141
								2. Line pressure test	TM-147
								3. Engine speed signal	TM-56
								4. Turbine revolution sensor	TM-52
5. Torque converter clutch solenoid valve	TM-249								
6. CAN communication line	TM-46								
7. Control valve with TCM	TM-162								
OFF vehicle	8. Torque converter	TM-249							
	9. Oil pump assembly	TM-250							
	26		Lock-up is not released.				ON vehicle	1. A/T fluid level and state	TM-141
								2. Line pressure test	TM-147
								3. Engine speed signal	TM-56
								4. Turbine revolution sensor	TM-52
5. Torque converter clutch solenoid valve				TM-68					
6. CAN communication line				TM-46					
7. Control valve with TCM				TM-162					
OFF vehicle				8. Torque converter	TM-249				
				9. Oil pump assembly	TM-250				

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
27		No shock at all or the clutch slips when vehicle changes speed D1 → D2 or M1 → M2.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Direct clutch solenoid valve	TM-80
				4. CAN communication line	TM-46
				5. Line pressure test	TM-147
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Torque converter	TM-249
				8. Oil pump assembly	TM-250
				9. 3rd one-way clutch	TM-253
				10. Gear system	TM-198
				11. Direct clutch	TM-267
				12. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , " Cross-Sectional View ".)	TM-208
28	Slips/Will Not Engage	No shock at all or the clutch slips when vehicle changes speed D2 → D3 or M2 → M3.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. High and low reverse clutch solenoid valve	TM-81
				4. CAN communication line	TM-46
				5. Line pressure test	TM-147
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Torque converter	TM-249
				8. Oil pump assembly	TM-250
				9. 3rd one-way clutch	TM-253
				10. Gear system	TM-198
				11. High and low reverse clutch	TM-265
				12. Forward one-way clutch (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , " Cross-Sectional View ".)	TM-208
13. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , " Cross-Sectional View ".)	TM-208				
29		No shock at all or the clutch slips when vehicle changes speed D3 → D4 or M3 → M4.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Input clutch solenoid valve	TM-78
				4. Front brake solenoid valve	TM-79
				5. CAN communication line	TM-46
				6. Line pressure test	TM-147
				7. Control valve with TCM	TM-162
			OFF vehicle	8. Torque converter	TM-249
				9. Oil pump assembly	TM-250
				10. Input clutch	TM-255
				11. Gear system	TM-198
				12. High and low reverse clutch	TM-265
				13. Direct clutch	TM-267

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
30	Slips/Will Not Engage	No shock at all or the clutch slips when vehicle changes speed D4 → D5 or M4 → M5.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Front brake solenoid valve	TM-79
				4. Direct clutch solenoid valve	TM-80
				5. CAN communication line	TM-46
				6. Line pressure test	TM-147
				7. Control valve with TCM	TM-162
			OFF vehicle	8. Torque converter	TM-249
				9. Oil pump assembly	TM-250
				10. Front brake (brake band)	TM-198
				11. Input clutch	TM-255
				12. Gear system	TM-198
				13. High and low reverse clutch	TM-265
31	Slips/Will Not Engage	When accelerator pedal is depressed and speed is shifted to D5 → D4 or M5 → M4 the engine idles or the A/T slips.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Front brake solenoid valve	TM-79
				4. Direct clutch solenoid valve	TM-80
				5. CAN communication line	TM-46
				6. Line pressure test	TM-147
				7. Control valve with TCM	TM-162
			OFF vehicle	8. Torque converter	TM-249
				9. Oil pump assembly	TM-250
				10. Input clutch	TM-255
				11. Gear system	TM-198
				12. High and low reverse clutch	TM-265
				13. Direct clutch	TM-267

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
32	Slips/Will Not Engage	When accelerator pedal is depressed and speed is shifted to D4→ D3 or M4 → M3 the engine idles or the A/T slips.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Input clutch solenoid valve	TM-78
				4. Front brake solenoid valve	TM-79
				5. CAN communication line	TM-46
				6. Line pressure test	TM-147
				7. Control valve with TCM	TM-162
			OFF vehicle	8. Torque converter	TM-249
				9. Oil pump assembly	TM-250
				10. 3rd one-way clutch	TM-253
				11. Gear system	TM-198
				12. High and low reverse clutch	TM-265
				13. Forward one-way clutch (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , " Cross-Sectional View ".)	TM-208
				14. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , " Cross-Sectional View ".)	TM-208
33		When accelerator pedal is depressed and speed is shifted to D3→ D2 or M3 → M2 the engine idles or the A/T slips.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. High and low reverse clutch solenoid valve	TM-81
				4. Direct clutch solenoid valve	TM-80
				5. CAN communication line	TM-46
				6. Line pressure test	TM-147
				7. Control valve with TCM	TM-162
			OFF vehicle	8. Torque converter	TM-249
				9. Oil pump assembly	TM-250
				10. 3rd one-way clutch	TM-253
				11. Gear system	TM-198
				12. Direct clutch	TM-267
				13. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , " Cross-Sectional View ".)	TM-208

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
34		When accelerator pedal is depressed and speed is shifted to D2→ D1 or M2 → M1 the engine idles or the A/T slips.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				3. Direct clutch solenoid valve	TM-80
				4. CAN communication line	TM-46
				5. Line pressure test	TM-147
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Torque converter	TM-249
				8. Oil pump assembly	TM-250
				9. 3rd one-way clutch	TM-253
				10. 1st one-way clutch	TM-260
				11. Gear system	TM-198
				12. Reverse brake	TM-208
				13. Forward one-way clutch (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , " Cross-Sectional View ".)	TM-208
				14. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , " Cross-Sectional View ".)	TM-208
35	Slips/Will Not Engage	With selector lever in "D" position, acceleration is extremely poor.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Line pressure test	TM-147
				3. Accelerator pedal position sensor	TM-71
				4. CAN communication line	TM-46
				5. PNP switch	TM-50
				6. A/T position	TM-153 (2WD), TM-153 (AWD)
				7. Control valve with TCM	TM-162
			OFF vehicle	8. Torque converter	TM-249
				9. Oil pump assembly	TM-250
				10. 1st one-way clutch	TM-260
				11. Gear system	TM-198
				12. Reverse brake	TM-208
				13. Forward one-way clutch (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , " Cross-Sectional View ".)	TM-208
				14. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , " Cross-Sectional View ".)	TM-208

SYSTEM SYMPTOM

< SYMPTOM DIAGNOSIS >

[5AT: RE5R05A]

No.	Item	Symptom	Condition	Diagnostic item	Reference page
36		With selector lever in "R" position, acceleration is extremely poor.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Line pressure test	TM-147
				3. Accelerator pedal position sensor	TM-71
				4. High and low reverse clutch solenoid valve	TM-81
				5. CAN communication line	TM-46
				6. PNP switch	TM-50
				7. A/T position	TM-153 (2WD), TM-153 (AWD)
				8. Control valve with TCM	TM-162
			OFF vehicle	9. Gear system	TM-198
				10. Output shaft	TM-208
				11. Reverse brake	TM-208
37	Slips/Will Not Engage	While starting off by accelerating in 1st, engine races or slippage occurs.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Line pressure test	TM-147
				3. Accelerator pedal position sensor	TM-71
				4. CAN communication line	TM-46
				5. Control valve with TCM	TM-162
			OFF vehicle	6. Torque converter	TM-249
				7. Oil pump assembly	TM-250
				8. 3rd one-way clutch	TM-253
				9. 1st one-way clutch	TM-260
				10. Gear system	TM-198
				11. Reverse brake	TM-208
				12. Forward one-way clutch (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 . "Cross-Sectional View".)	TM-208
				13. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 . "Cross-Sectional View".)	TM-208
38		While accelerating in 2nd, engine races or slippage occurs.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Line pressure test	TM-147
				3. Accelerator pedal position sensor	TM-71
				4. CAN communication line	TM-46
				5. Direct clutch solenoid valve	TM-80
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Torque converter	TM-249
				8. Oil pump assembly	TM-250
				9. 3rd one-way clutch	TM-253
				10. Gear system	TM-198
				11. Direct clutch	TM-267
				12. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 . "Cross-Sectional View".)	TM-208

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
39		While accelerating in 3rd, engine races or slippage occurs.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Line pressure test	TM-147
				3. Accelerator pedal position sensor	TM-71
				4. CAN communication line	TM-46
				5. High and low reverse clutch solenoid valve	TM-81
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Torque converter	TM-249
				8. Oil pump assembly	TM-250
				9. 3rd one-way clutch	TM-253
				10. Gear system	TM-198
				11. High and low reverse clutch	TM-265
				12. Forward one-way clutch (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , "Cross-Sectional View".)	TM-208
				13. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , "Cross-Sectional View".)	TM-208
40	Slips/Will Not Engage	While accelerating in 4th, engine races or slippage occurs.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Line pressure test	TM-147
				3. Accelerator pedal position sensor	TM-71
				4. CAN communication line	TM-46
				5. Input clutch solenoid valve	TM-78
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Torque converter	TM-249
				8. Oil pump assembly	TM-250
				9. Input clutch	TM-255
				10. Gear system	TM-198
				11. High and low reverse clutch	TM-265
				12. Direct clutch	TM-267
41		While accelerating in 5th, engine races or slippage occurs.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Line pressure test	TM-147
				3. Accelerator pedal position sensor	TM-71
				4. CAN communication line	TM-46
				5. Front brake solenoid valve	TM-79
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Torque converter	TM-249
				8. Oil pump assembly	TM-250
				9. Front brake (brake band)	TM-198
				10. Input clutch	TM-255
				11. Gear system	TM-198
				12. High and low reverse clutch	TM-265

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[5AT: RE5R05A]

No.	Item	Symptom	Condition	Diagnostic item	Reference page
42		Slips at lock-up.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Line pressure test	TM-147
				3. Engine speed signal	TM-56
				4. Turbine revolution sensor	TM-52
				5. Torque converter clutch solenoid valve	TM-68
				6. CAN communication line	TM-46
				7. Control valve with TCM	TM-162
			OFF vehicle	8. Torque converter	TM-249
				9. Oil pump assembly	TM-250
43	Slips/Will Not Engage	No creep at all.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Line pressure test	TM-147
				3. Accelerator pedal position sensor	TM-71
				4. Direct clutch solenoid valve	TM-80
				5. PNP switch	TM-50
				6. CAN communication line	TM-46
				7. A/T position	TM-153 (2WD), TM-153 (AWD)
				8. Control valve with TCM	TM-162
			OFF vehicle	9. Torque converter	TM-249
				10. Oil pump assembly	TM-250
				11. 1st one-way clutch	TM-260
				12. Gear system	TM-198
				13. Reverse brake	TM-208
				14. Direct clutch	TM-267
				15. Forward one-way clutch (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , "Cross-Sectional View".)	TM-208
				16. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , "Cross-Sectional View".)	TM-208
44		Vehicle cannot run in all positions.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Line pressure test	TM-147
				3. PNP switch	TM-50
				4. A/T position	TM-153 (2WD), TM-153 (AWD)
				5. Control valve with TCM	TM-162
			OFF vehicle	6. Oil pump assembly	TM-250
				7. Gear system	TM-198
				8. Output shaft	TM-208

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
45	Slips/Will Not Engage	With selector lever in "D" position, driving is not possible.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Line pressure test	TM-147
				3. PNP switch	TM-50
				4. A/T position	TM-153 (2WD), TM-153 (AWD)
				5. Control valve with TCM	TM-162
			OFF vehicle	6. Torque converter	TM-249
				7. Oil pump assembly	TM-250
				8. 1st one-way clutch	TM-260
				9. Gear system	TM-198
				10. Reverse brake	TM-208
				11. Forward one-way clutch (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , "Cross-Sectional View".)	TM-208
				12. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , "Cross-Sectional View".)	TM-208
46		With selector lever in "R" position, driving is not possible.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Line pressure test	TM-147
				3. PNP switch	TM-50
				4. A/T position	TM-153 (2WD), TM-153 (AWD)
				5. Control valve with TCM	TM-162
			OFF vehicle	6. Gear system	TM-198
				7. Output shaft	TM-208
				8. Reverse brake	TM-208
47	Does Not Change	Does not change M5 → M4.	ON vehicle	1. PNP switch	TM-50
				2. A/T fluid level and state	TM-141
				3. A/T position	TM-153 (2WD), TM-153 (AWD)
				4. Manual mode switch	TM-85
				5. CAN communication line	TM-46
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Front brake (brake band)	TM-198

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
48		Does not change M4 → M3.	ON vehicle	1. PNP switch	TM-50
				2. A/T fluid level and state	TM-141
				3. A/T position	TM-153 (2WD), TM-153 (AWD)
				4. Manual mode switch	TM-85
				5. CAN communication line	TM-46
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Front brake (brake band)	TM-198
				8. Input clutch	TM-255
49	Does Not Change	Does not change M3 → M2.	ON vehicle	1. PNP switch	TM-50
				2. A/T fluid level and state	TM-141
				3. A/T position	TM-153 (2WD), TM-153 (AWD)
				4. Manual mode switch	TM-85
				5. CAN communication line	TM-46
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Front brake (brake band)	TM-198
				8. Input clutch	TM-255
				9. High and low reverse clutch	TM-265
50		Does not change M2 → M1.	ON vehicle	1. PNP switch	TM-50
				2. A/T fluid level and state	TM-141
				3. A/T position	TM-153 (2WD), TM-153 (AWD)
				4. Manual mode switch	TM-85
				5. CAN communication line	TM-46
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Input clutch	TM-255
				8. High and low reverse clutch	TM-265
				9. Direct clutch	TM-267
51		Cannot be changed to manual mode.	ON vehicle	1. Manual mode switch	TM-85
				2. Turbine revolution sensor	TM-52
				3. CAN communication line	TM-46

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
52		Shift point is high in "D" position.	ON vehicle	1. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				2. Accelerator pedal position sensor	TM-71
				3. CAN communication line	TM-46
				4. A/T fluid temperature sensor	TM-72
				5. Control valve with TCM	TM-162
53		Shift point is low in "D" position.	ON vehicle	1. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				2. Accelerator pedal position sensor	TM-71
				3. CAN communication line	TM-46
				4. Control valve with TCM	TM-162
54	Others	Judder occurs during lock-up.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Engine speed signal	TM-56
				3. Turbine revolution sensor	TM-52
				4. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				5. Accelerator pedal position sensor	TM-71
				6. CAN communication line	TM-46
				7. Torque converter clutch solenoid valve	TM-68
				8. Control valve with TCM	TM-162
			OFF vehicle	9. Torque converter	TM-249
			55		Strange noise in "R" position.
2. Engine speed signal	TM-56				
3. CAN communication line	TM-46				
4. Control valve with TCM	TM-162				
OFF vehicle	5. Torque converter	TM-249			
	6. Oil pump assembly	TM-250			
	7. Gear system	TM-198			
	8. High and low reverse clutch	TM-265			
	9. Reverse brake	TM-208			
56		Strange noise in "N" position.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Engine speed signal	TM-56
				3. CAN communication line	TM-46
				4. Control valve with TCM	TM-162
			OFF vehicle	5. Torque converter	TM-249
				6. Oil pump assembly	TM-250
				7. Gear system	TM-198

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
57		Strange noise in "D" position.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Engine speed signal	TM-56
				3. CAN communication line	TM-46
				4. Control valve with TCM	TM-162
			OFF vehicle	5. Torque converter	TM-249
				6. Oil pump assembly	TM-250
				7. Gear system	TM-198
				8. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , "Cross-Sectional View".)	TM-208
58	Others	Vehicle does not decelerate by engine brake.	ON vehicle	1. PNP switch	TM-50
				2. A/T fluid level and state	TM-141
				3. A/T position	TM-153 (2WD), TM-153 (AWD)
				4. Manual mode switch	TM-85
				5. CAN communication line	TM-46
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Input clutch	TM-255
				8. High and low reverse clutch	TM-265
				9. Direct clutch	TM-267
				59	
2. A/T fluid level and state	TM-141				
3. A/T position	TM-153 (2WD), TM-153 (AWD)				
4. Manual mode switch	TM-85				
5. CAN communication line	TM-46				
6. Control valve with TCM	TM-162				
OFF vehicle	7. Front brake (brake band)	TM-198			
60		Engine brake does not work M4 → M3.	ON vehicle	1. PNP switch	TM-50
				2. A/T fluid level and state	TM-141
				3. A/T position	TM-153 (2WD), TM-153 (AWD)
				4. Manual mode switch	TM-85
				5. CAN communication line	TM-46
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Front brake (brake band)	TM-198
				8. Input clutch	TM-255

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
61		Engine brake does not work M3 → M2.	ON vehicle	1. PNP switch	TM-50
				2. A/T fluid level and state	TM-141
				3. A/T position	TM-153 (2WD), TM-153 (AWD)
				4. Manual mode switch	TM-85
				5. CAN communication line	TM-46
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Front brake (brake band)	TM-198
				8. Input clutch	TM-255
				9. High and low reverse clutch	TM-265
62	Others	Engine brake does not work M2 → M1.	ON vehicle	1. PNP switch	TM-50
				2. A/T fluid level and state	TM-141
				3. A/T position	TM-153 (2WD), TM-153 (AWD)
				4. Manual mode switch	TM-85
				5. CAN communication line	TM-46
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Input clutch	TM-255
				8. High and low reverse clutch	TM-265
				9. Direct clutch	TM-267
63		Maximum speed low.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Line pressure test	TM-147
				3. Accelerator pedal position sensor	TM-71
				4. CAN communication line	TM-46
				5. Direct clutch solenoid valve	TM-80
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Torque converter	TM-249
				8. Oil pump assembly	TM-250
				9. Input clutch	TM-255
				10. Gear system	TM-198
				11. High and low reverse clutch	TM-265
				12. Direct clutch	TM-267
				13. Forward one-way clutch (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , " Cross-Sectional View ".)	TM-208
				14. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , " Cross-Sectional View ".)	TM-208
64		Extremely large creep.	ON vehicle	1. Engine idle speed	EC-16
			OFF vehicle	2. CAN communication line	TM-46
				3. Torque converter	TM-249

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[5AT: RE5R05A]

No.	Item	Symptom	Condition	Diagnostic item	Reference page
65		With selector lever in "P" position, vehicle does not enter parking condition or, with selector lever in another position, parking condition is not cancelled.	ON vehicle	1. PNP switch	TM-50
				2. A/T position	TM-153 (2WD), TM-153 (AWD)
			OFF vehicle	3. Parking components	TM-171 (2WD), TM-198 (AWD)
66		Vehicle runs with A/T in "P" position.	ON vehicle	1. PNP switch	TM-50
				2. A/T fluid level and state	TM-141
				3. A/T position	TM-153 (2WD), TM-153 (AWD)
				4. Control valve with TCM	TM-162
			OFF vehicle	5. Parking components	TM-171 (2WD), TM-198 (AWD)
				6. Gear system	TM-198
67	Others	Vehicle runs with A/T in "N" position.	ON vehicle	1. PNP switch	TM-50
				2. A/T fluid level and state	TM-141
				3. A/T position	TM-153 (2WD), TM-153 (AWD)
				4. Control valve with TCM	TM-162
			OFF vehicle	5. Input clutch	TM-255
				6. Gear system	TM-198
				7. Direct clutch	TM-267
				8. Reverse brake	TM-208
				9. Forward one-way clutch (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , "Cross-Sectional View".)	TM-208
				10. Forward brake (Parts behind drum support is impossible to perform inspection by disassembly. Refer to TM-19 , "Cross-Sectional View".)	TM-208
68		Engine does not start in "N" or "P" position.	ON vehicle	1. Push-button ignition switch and starter	PG-51 , STR-9
				2. A/T position	TM-153 (2WD), TM-153 (AWD)
				3. PNP switch	TM-50
69		Engine starts in positions other than "N" or "P".	ON vehicle	1. Push-button ignition switch and starter	PG-51 , STR-9
				2. A/T position	TM-153 (2WD), TM-153 (AWD)
				3. PNP switch	TM-50

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No.	Item	Symptom	Condition	Diagnostic item	Reference page
70		Engine stall.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Engine speed signal	TM-56
				3. Turbine revolution sensor	TM-52
				4. Torque converter clutch solenoid valve	TM-68
				5. CAN communication line	TM-46
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Torque converter	TM-249
71		Engine stalls when selector lever shifted "N" → "D" or "R".	ON vehicle	1. A/T fluid level and state	TM-141
				2. Engine speed signal	TM-56
				3. Turbine revolution sensor	TM-52
				4. Torque converter clutch solenoid valve	TM-68
				5. CAN communication line	TM-46
				6. Control valve with TCM	TM-162
			OFF vehicle	7. Torque converter	TM-249
72	Others	Engine speed does not return to idle.	ON vehicle	1. A/T fluid level and state	TM-141
				2. Direct clutch solenoid valve	TM-80
				3. Front brake solenoid valve	TM-79
				4. Accelerator pedal position sensor	TM-71
				5. Vehicle speed sensor A/T and vehicle speed sensor MTR	TM-53 , TM-75
				6. CAN communication line	TM-46
				7. Control valve with TCM	TM-162
			OFF vehicle	8. Front brake (brake band)	TM-198
			9. Direct clutch	TM-267	
73		A/T CHECK indicator lamp does not come on.	ON vehicle	1. CAN communication line	TM-46
				2. Combination meters	MWI-6
				3. Unified meter and A/C amp.	
				4. TCM power supply and ground	TM-89
74		Unable to perform self-diagnosis.	ON vehicle	1. CAN communication line	TM-46
				2. PNP switch	TM-50
				3. Manual mode switch	TM-85
				4. Closed throttle and wide open throttle position signal	EC-430
				5. Stop lamp switch signal	SEC-52
75		When brake pedal is depressed with ignition switch ON, selector lever cannot be shifted from "P" position to other position.	ON vehicle	1. Stop lamp switch	TM-92
				2. Shift lock relay	
				3. Shift lock solenoid	
76		When brake pedal is not depressed with ignition switch ON, selector lever can be shifted from "P" position to other position.	ON vehicle	1. Stop lamp switch	TM-92
				2. ICC brake hold relay (with ICC)	
				3. ICC sensor integrated unit (with ICC)	
				4. Shift lock relay	
				5. Shift lock solenoid	

PRECAUTION

PRECAUTIONS

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

INFOID:000000003760441

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

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the "SRS AIRBAG".
- 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.

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

INFOID:000000003130581

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.

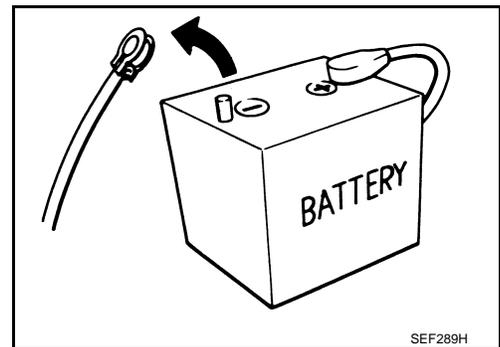
CAUTION:

- 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 EVAP system or fuel injection system, etc.
- Be sure to erase the unnecessary malfunction information (repairs completed) from the TCM and ECM before returning the vehicle to the customer.

General Precautions

INFOID:000000003130582

- Turn 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.

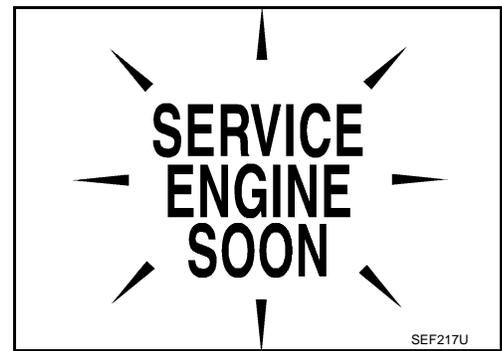


PRECAUTIONS

[5AT: RE5R05A]

< PRECAUTION >

- Perform “DTC (Diagnostic Trouble Code) CONFIRMATION PROCEDURE” after performing each TROUBLE DIAGNOSIS. 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-10, "Fluids and Lubricants"](#).
- Use lint-free paper not cloth rags during work.
- Dispose of the waste oil using the methods prescribed by law, ordinance, etc. after replacing the ATF.
- Before proceeding with disassembly, thoroughly clean the outside of the transmission. It is important to prevent the internal parts from becoming contaminated by dirt or other foreign matter.
- Disassembly should be done in a clean work area.
- Use lint-free paper or towels for wiping parts clean. Common shop rags can leave fibers that could interfere with the operation of the transmission.
- Place disassembled parts in order for easier and proper assembly.
- All parts should be carefully cleaned with a general purpose, non-flammable solvent before inspection or reassembly.
- Gaskets, seals and O-rings should be replaced any time the A/T is disassembled.
- It is very important to perform functional tests whenever they are indicated.
- The valve body contains precision parts and requires extreme care when parts are removed and serviced. Place disassembled valve body parts in order for easier and proper assembly. Care will also prevent springs and small parts from becoming scattered or lost.
- Properly installed valves, sleeves, plugs, etc. will slide along bores in valve body under their own weight.
- Before assembly, apply a coat of recommended ATF to all parts. Apply petroleum jelly to protect O-rings and seals, or hold bearings and washers in place during assembly. Do not use grease.
- Extreme care should be taken to avoid damage to O-rings, seals and gaskets when assembling.
- Clean or replace ATF cooler if excessive foreign material is found in oil pan or clogging strainer. Refer to [TM-138, "Service Notice or Precaution"](#).
- Refill the transmission with new ATF after overhaul.
- When the A/T drain plug is removed, only some of the ATF is drained. Old ATF will remain in torque converter and ATF cooling system.
Always follow the procedures under “Inspection” and “Changing” when changing ATF. Refer to [TM-141, "Inspection"](#), [TM-142, "Changing"](#).



Service Notice or Precaution

INFOID:000000003130583

ATF COOLER SERVICE

If ATF contains frictional material (clutches, bands, etc.), or if an A/T is repaired, overhauled, or replaced, inspect and clean the A/T fluid cooler mounted in the radiator or replace the radiator. Flush cooler lines using cleaning solvent and compressed air after repair. For A/T fluid cooler cleaning procedure, refer to [TM-143, "Cleaning"](#). For radiator replacement, refer to [CO-13, "Exploded View"](#).

OBD-II 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 lamp or the malfunction indicator lamp (MIL). Refer to the table on “SELF-DIAGNOSTIC RESULTS” for the indicator used to display each self-diagnostic result. Refer to [TM-40, "CONSULT-III Function \(TRANSMISSION\)"](#).
- The self-diagnostic results indicated by the MIL 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 MIL. Refer to [TM-39, "Diagnosis Description"](#).

For details of OBD-II, refer to [EC-100, "Diagnosis Description"](#).

- **Certain systems and components, especially those related to OBD, may use the new style slide-locking type harness connector. For description and how to disconnect, refer to [PG-93, "Description"](#).**

PREPARATION

< PREPARATION >

[5AT: RE5R05A]

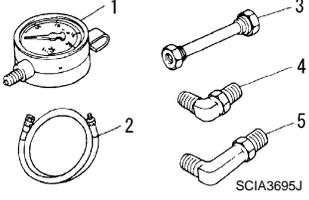
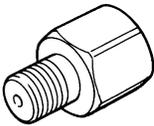
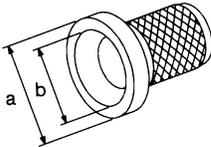
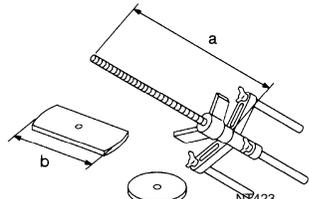
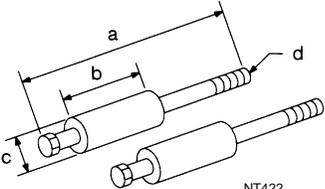
PREPARATION

PREPARATION

Special Service Tool

INFOID:000000003130584

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

Tool number (Kent-Moore No.) Tool name	Description
<p>ST2505S001 (J-34301-C) Oil pressure gauge set 1. ST25051001 (—) Oil pressure gauge 2. ST25052000 (—) Hose 3. ST25053000 (—) Joint pipe 4. ST25054000 (—) Adapter 5. ST25055000 (—) Adapter</p> 	<p>Measuring line pressure</p>
<p>KV31103600 (J-45674) Joint pipe adapter (With ST25054000)</p> 	<p>Measuring line pressure</p>
<p>ST33400001 (J-26082) Drift a: 60 mm (2.36 in) dia. b: 47 mm (1.85 in) dia.</p> 	<ul style="list-style-type: none"> • Installing rear oil seal (2WD) • Installing oil pump housing oil seal
<p>KV31102400 (J-34285 and J-34285-87) Clutch spring compressor a: 320 mm (12.60 in) b: 174 mm (6.85 in)</p> 	<p>Installing reverse brake return spring retainer</p>
<p>ST25850000 (J-25721-A) Sliding hammer a: 179 mm (7.05 in) b: 70 mm (2.76 in) c: 40 mm (1.57 in) d: M12X1.75P</p> 	<p>Remove oil pump assembly</p>

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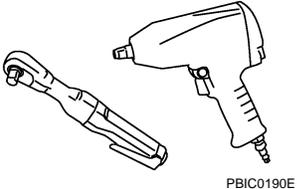
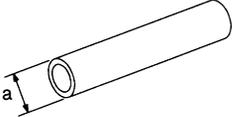
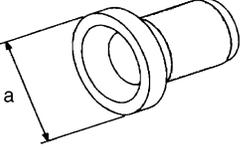
PREPARATION

< PREPARATION >

[5AT: RE5R05A]

Commercial Service Tool

INFOID:000000003130585

Tool name	Description
<p>Power tool</p>  <p>PBI0190E</p>	<p>Loosening bolts and nuts</p>
<p>Drift a: 22 mm (0.87 in) dia.</p>  <p>NT083</p>	<p>Installing manual shaft oil seals</p>
<p>Drift a: 64 mm (2.52 in) dia.</p>  <p>SCIA5338E</p>	<p>Installing rear oil seal (AWD)</p>
<p>Pin punch a: 4 mm (0.16 in) dia.</p>  <p>NT410</p>	<p>Remove retaining pin</p>

ON-VEHICLE MAINTENANCE

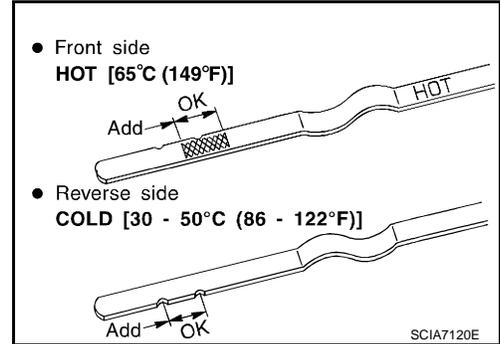
A/T FLUID

Inspection

INFOID:000000003130586

A/T FLUID LEAKAGE AND A/T FLUID LEVEL CHECK

1. Warm up engine.
2. Check for A/T fluid leakage.
3. Before driving, A/T fluid level can be checked at A/T fluid temperatures of 30 to 50°C (86 to 122°F) using "COLD" range on A/T fluid level gauge as follows.
 - a. Park vehicle on level surface and set parking brake.
 - b. Start the engine and shift the selector lever through each gear position. Leave selector lever in "P" position.
 - c. Check A/T fluid level with engine idling.



- d. Remove A/T fluid level gauge and wipe clean with lint-free paper.

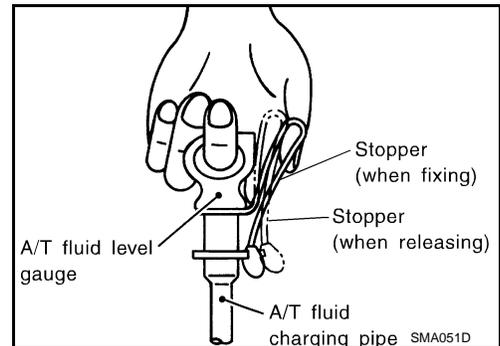
CAUTION:

When wiping away the A/T fluid level gauge, always use lint-free paper, not a cloth one.

- e. Re-insert A/T fluid level gauge into A/T fluid charging pipe as far as it will go.

CAUTION:

Firmly fix the A/T fluid level gauge to the A/T fluid charging pipe using a stopper attached.



- f. Remove A/T fluid level gauge and note reading. If reading is at low side of range, add ATF to the A/T fluid charging pipe.

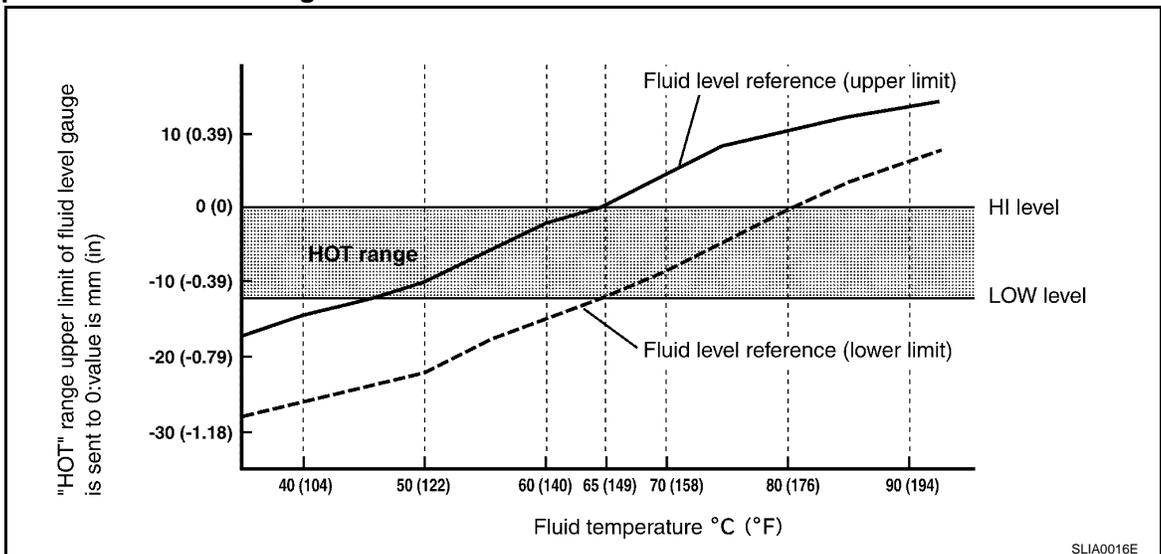
CAUTION:

Do not overfill.

4. Drive vehicle for approximately 5 minutes in urban areas.
5. Make the A/T fluid temperature approximately 65°C (149°F).

NOTE:

A/T fluid level will be greatly affected by temperature as shown in figure. Therefore, be certain to perform operation while checking data with CONSULT-III.



A/T FLUID

< ON-VEHICLE MAINTENANCE >

[5AT: RE5R05A]

- a. Select "Data Monitor" mode for "TRANSMISSION".
- b. Read out the value of "ATF TEMP 1".
6. Re-check A/T fluid level at A/T fluid temperatures of approximately 65°C (149°F) using "HOT" range on A/T fluid level gauge.

CAUTION:

- When wiping away the A/T fluid level gauge, always use lint-free paper, not a cloth one.
- Firmly fix the A/T fluid level gauge to the A/T fluid charging pipe using a stopper attached.

7. Install the removed A/T fluid level gauge in the A/T fluid charging pipe.

A/T FLUID CONDITION CHECK

Check the A/T fluid condition.

Fluid condition	Conceivable cause	Required operation
Varnished (viscous varnish state)	Clutch, brake scorched	Replace the ATF and check the A/T main unit and the vehicle for malfunctions (wire harnesses, cooler pipes, etc.)
Milky white or cloudy	Water in the fluid	Replace the ATF and check for places where water is getting in.
Large amount of metal powder mixed in	Unusual wear of sliding parts within A/T	Replace the ATF and check for improper operation of the A/T.



SAT638A

Changing

INFOID:000000003130587

1. Warm up ATF.
2. Stop engine.
3. Drain ATF from drain plug and refill with new ATF. Always refill same volume with drained ATF.
 - To replace the ATF, pour in new ATF at the A/T fluid charging pipe with the engine idling and at the same time drain the old ATF from the radiator cooler hose return side.
 - When the color of the ATF coming out is about the same as the color of the new ATF, the replacement is complete. The amount of new ATF to use should be 30 to 50% increase of the stipulated amount.

ATF : Refer to [TM-269, "General Specification"](#).

Fluid capacity : Refer to [TM-269, "General Specification"](#).

CAUTION:

- If Genuine NISSAN Matic S ATF is not available, Genuine NISSAN Matic J ATF may also be used.
- Using ATF other than Genuine NISSAN Matic S ATF or Matic J ATF will cause deterioration in driveability and A/T durability, and may damage the A/T, which is not covered by the INFINITI new vehicle limited warranty.
- When filling ATF, be careful not to scatter heat generating parts such as exhaust.
- Do not reuse drain plug gasket.

Drain plug - tightening torque : Refer to [TM-162, "Exploded View"](#).

4. Run engine at idle speed for 5 minutes.
5. Check A/T fluid level and condition. Refer to [TM-141, "Inspection"](#). If ATF is still dirty, repeat step 2. through 5.
6. Install the removed A/T fluid level gauge into A/T fluid charging pipe.

A/T FLUID COOLER

Cleaning

INFOID:000000003130588

Whenever an A/T is replaced, the A/T fluid cooler mounted in the radiator must be inspected and cleaned. Metal debris and friction material, if present, can become trapped in the A/T fluid cooler. This debris can contaminate the newly serviced A/T or, in severe cases, can block or restrict the flow of ATF. In either case, malfunction of the newly serviced A/T may result.

Debris, if present, may build up as ATF enters the cooler inlet. It will be necessary to back flush the cooler through the cooler outlet in order to flush out any built up debris.

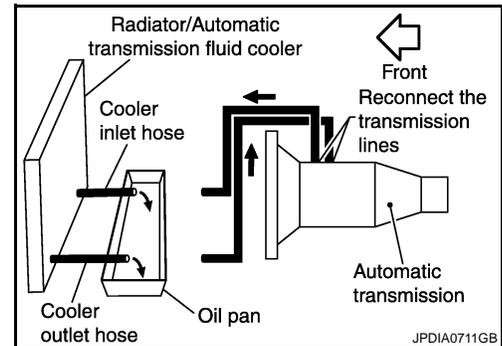
CLEANING PROCEDURE

1. Position an oil pan under the A/T inlet and outlet cooler hoses.
2. Identify the inlet and outlet fluid cooler hoses.
3. Disconnect the A/T fluid cooler inlet and outlet rubber hoses from the steel cooler tubes or by-pass valve.

NOTE:

Replace the cooler hoses if rubber material from the hose remains on the tube fitting.

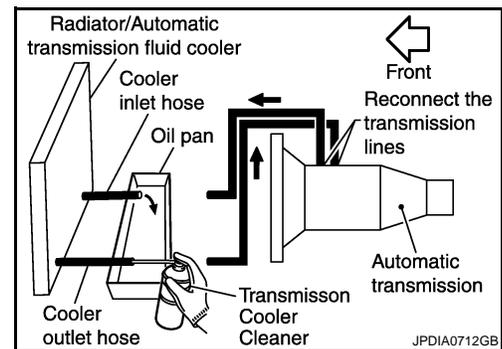
4. Allow any ATF that remains in the cooler hoses to drain into the oil pan.



5. Insert the extension adapter hose of a can of Transmission Cooler Cleaner (Nissan P/N 999MP-AM006) into the cooler outlet hose.

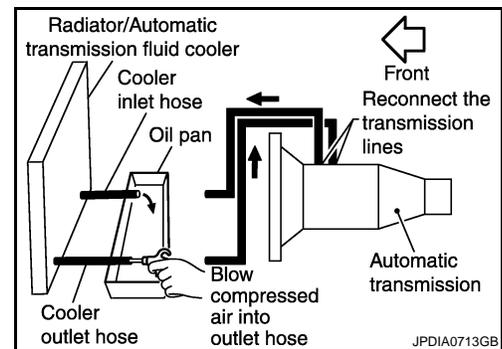
CAUTION:

- Wear safety glasses and rubber gloves when spraying the Transmission Cooler Cleaner.
- Spray Transmission Cooler Cleaner only with adequate ventilation.
- Avoid contact with eyes and skin.
- Do not breath vapors or spray mist.



6. Hold the hose and can as high as possible and spray Transmission Cooler Cleaner in a continuous stream into the cooler outlet hose until ATF flows out of the cooler inlet hose for 5 seconds.

7. Insert the tip of an air gun into the end of the cooler outlet hose.
8. Wrap a shop rag around the air gun tip and of the cooler outlet hose.



9. Blow compressed air regulated to 5 to 9 kg/cm² (71 to 128 psi) through the cooler outlet hose for 10 seconds to force out any remaining ATF.

10. Repeat steps 5 through 9 three additional times.
11. Position an oil pan under the banjo bolts that connect the A/T fluid cooler steel lines to the A/T.

12. Remove the banjo bolts.
13. Flush each steel line from the cooler side back toward the A/T by spraying Transmission Cooler Cleaner in a continuous stream for 5 seconds.

14. Blow compressed air regulated to 5 to 9 kg/cm² (71 to 128 psi) through each steel line from the cooler side back toward the A/T for 10 seconds to force out any remaining ATF.

15. Ensure all debris is removed from the steel cooler lines.
16. Ensure all debris is removed from the banjo bolts and fittings.
17. Perform "DIAGNOSIS PROCEDURE".

A/T FLUID COOLER

< ON-VEHICLE MAINTENANCE >

[5AT: RE5R05A]

DIAGNOSIS PROCEDURE

NOTE:

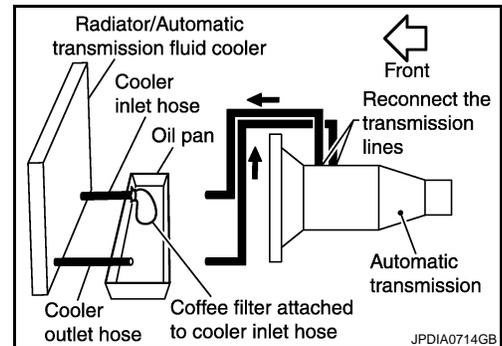
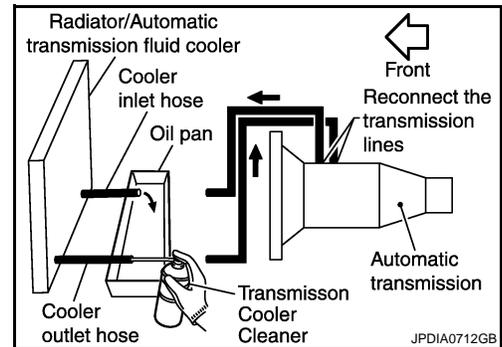
Insufficient cleaning of the cooler inlet hose exterior may lead to inaccurate debris identification.

1. Position an oil pan under the A/T inlet and outlet cooler hoses.
2. Clean the exterior and tip of the cooler inlet hose.
3. Insert the extension adapter hose of a can of Transmission Cooler Cleaner (Nissan P/N 999MP-AM006) into the cooler outlet hose.

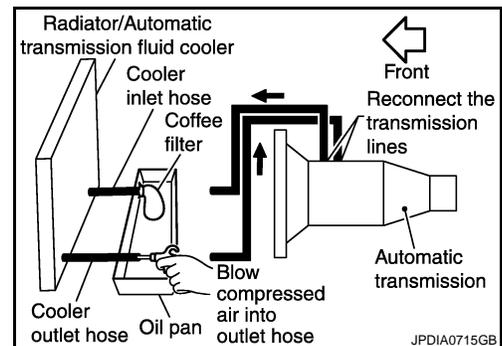
CAUTION:

- Wear safety glasses and rubber gloves when spraying the Transmission Cooler Cleaner.
- Spray Transmission Cooler Cleaner only with adequate ventilation.
- Avoid contact with eyes and skin.
- Do not breath vapors or spray mist.

4. Hold the hose and can as high as possible and spray Transmission Cooler Cleaner in a continuous stream into the cooler outlet hose until ATF flows out of the cooler inlet hose for 5 seconds.
5. Tie a common white, basket-type coffee filter to the end of the cooler inlet hose.

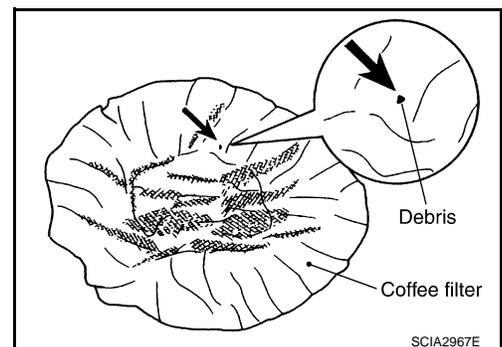


6. Insert the tip of an air gun into the end of the cooler outlet hose.
7. Wrap a shop rag around the air gun tip and end of cooler outlet hose.
8. Blow compressed air regulated to 5 to 9 kg/cm² (71 to 128 psi) through the cooler outlet hose to force any remaining ATF into the coffee filter.
9. Remove the coffee filter from the end of the cooler inlet hose.
10. Perform "INSPECTION PROCEDURE".



INSPECTION PROCEDURE

1. Inspect the coffee filter for debris.
 - a. If small metal debris less than 1 mm (0.040 in) in size or metal powder is found in the coffee filter, this is normal. If normal debris is found, the A/T fluid cooler/radiator can be re-used and the procedure is ended.

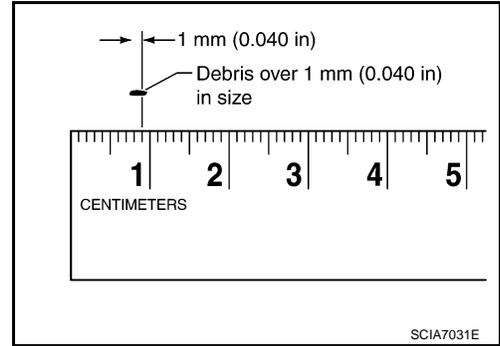


A/T FLUID COOLER

< ON-VEHICLE MAINTENANCE >

[5AT: RE5R05A]

- b. If one or more pieces of debris are found that are over 1 mm (0.040 in) in size and/or peeled clutch facing material is found in the coffee filter, the A/T fluid cooler is not serviceable. The A/T fluid cooler/radiator must be replaced and the inspection procedure is ended. Refer to [CO-13, "Exploded View"](#).



Inspection

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After performing all procedures, ensure that all remaining oil is cleaned from all components.

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STALL TEST

< ON-VEHICLE MAINTENANCE >

[5AT: RE5R05A]

STALL TEST

Inspection and Judgment

INFOID:000000003130590

INSPECTION

1. Inspect the amount of engine oil. Replenish the engine oil if necessary.
2. Drive for about 10 minutes to warm up the vehicle so that the A/T fluid temperature is 50 to 80°C (122 to 176°F). Inspect the amount of ATF. Replenish if necessary.
3. Securely engage the parking brake so that the tires do not turn.
4. Start the engine, apply foot brake, and place selector lever in "D" position.
5. Gradually press down the accelerator pedal while holding down the foot brake.
6. Quickly read off the stall speed, then quickly remove your foot from the accelerator pedal.

CAUTION:

Do not hold down the accelerator pedal for more than 5 seconds during this test.

Stall speed : Refer to [TM-269, "Stall Speed"](#).

7. Shift the selector lever to the "N" position.
 8. Cool down the ATF.
- CAUTION:**
Run the engine at idle for at least 1 minute.
9. Repeat steps 5 through 8 with selector lever in "R" position.

JUDGMENT OF STALL TEST

	Selector lever position		Possible location of malfunction
	"D" and "M"	"R"	
Stall speed	H	O	<ul style="list-style-type: none"> • Forward brake • Forward one-way clutch • 1st one-way clutch • 3rd one-way clutch
	O	H	<ul style="list-style-type: none"> • Reverse brake
	L	L	<ul style="list-style-type: none"> • Engine and torque converter one-way clutch
	H	H	<ul style="list-style-type: none"> • Line pressure low

O: Stall speed within standard value position

H: Stall speed higher than standard value

L: Stall speed lower than standard value

Stall test standard value position

Does not shift-up "D" or "M" position 1 → 2	Slipping in 2nd, 3rd or 4th gear	Direct clutch slippage
Does not shift-up "D" or "M" position 2 → 3	Slipping in 3rd, 4th or 5th gear	High and low reverse clutch slippage
Does not shift-up "D" or "M" position 3 → 4	Slipping in 4th or 5th gear	Input clutch slippage
Does not shift-up "D" or "M" position 4 → 5	Slipping in 5th gear	Front brake slippage

LINE PRESSURE TEST

< ON-VEHICLE MAINTENANCE >

[5AT: RE5R05A]

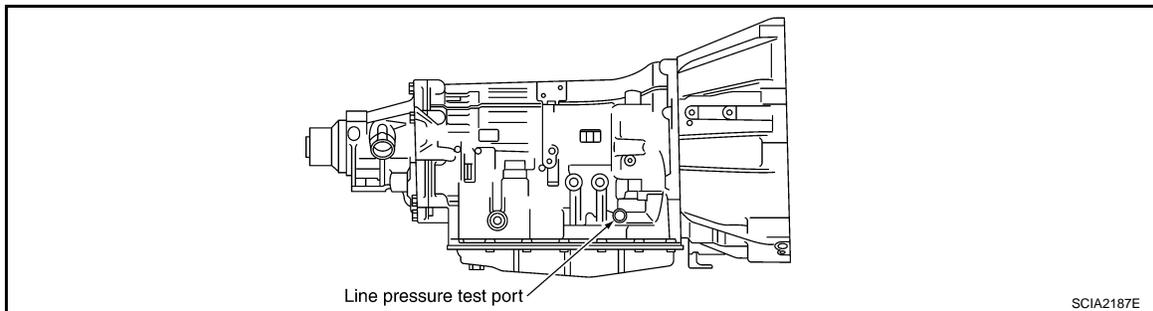
LINE PRESSURE TEST

Inspection and Judgment

INFOID:000000003130591

INSPECTION

Line Pressure Test Port



Line Pressure Test Procedure

1. Inspect the amount of engine oil and replenish if necessary.
2. Drive the car for about 10 minutes to warm it up so that the ATF reaches in range of 50 to 80°C (122 to 176°F). Then inspect the amount of ATF and replenish if necessary.

NOTE:

The A/T fluid temperature rises in range of 50 to 80°C (122 to 176°F) during 10 minutes of driving.

3. Remove the front propeller shaft from vehicle (with AWD models). Refer to [DLN-75](#).
4. After warming up remove the oil pressure detection plug and install the oil pressure gauge [SST: ST2505S001(J-34301-C)].

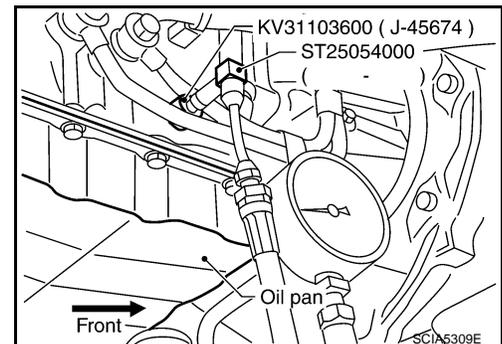
CAUTION:

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

5. Securely engage the parking brake so that the tires do not turn.
6. Start the engine, then measure the line pressure at both idle and the stall speed.

CAUTION:

- Keep the brake pedal pressed all the way down during measurement.
- When measuring the line pressure at the stall speed, refer to [TM-146, "Inspection and Judgment"](#).



LINE PRESSURE : Refer to [TM-270, "Line Pressure"](#).

7. Install the oil pressure detection plug and tighten to the specified torque after the measurements are complete. Refer to [TM-198, "Exploded View"](#).

CAUTION:

- Do not reuse O-ring.
- Apply ATF to O-ring.

JUDGMENT OF LINE PRESSURE TEST

LINE PRESSURE TEST

< ON-VEHICLE MAINTENANCE >

[5AT: RE5R05A]

	Judgment	Possible cause
Idle speed	Low for all positions ("P", "R", "N", "D", "M")	Possible causes include malfunctions in the pressure supply system and low oil pump output. For example <ul style="list-style-type: none"> • Oil pump wear • Pressure regulator valve or plug sticking or spring fatigue • Oil strainer ⇒ oil pump ⇒ pressure regulator valve passage oil leak • Engine idle speed too low
	Only low for a specific position	Possible causes include an oil pressure leak in a passage or device related to the position after the pressure is distributed by the manual valve.
	High	Possible causes include a sensor malfunction or malfunction in the line pressure adjustment function. For example <ul style="list-style-type: none"> • Accelerator pedal position signal malfunction • A/T fluid temperature sensor malfunction • Line pressure solenoid malfunction (sticking in OFF state, filter clog, cut line) • Pressure regulator valve or plug sticking
Stall speed	Oil pressure does not rise higher than the oil pressure for idle.	Possible causes include a sensor malfunction or malfunction in the pressure adjustment function. For example <ul style="list-style-type: none"> • Accelerator pedal position signal malfunction • TCM breakdown • Line pressure solenoid malfunction (shorting, sticking in ON state) • Pressure regulator valve or plug sticking • Pilot valve sticking or pilot filter clogged
	The pressure rises, but does not enter the standard position.	Possible causes include malfunctions in the pressure supply system and malfunction in the pressure adjustment function. For example <ul style="list-style-type: none"> • Accelerator pedal position signal malfunction • Line pressure solenoid malfunction (sticking, filter clog) • Pressure regulator valve or plug sticking • Pilot valve sticking or pilot filter clogged
	Only low for a specific position	Possible causes include an oil pressure leak in a passage or device related to the position after the pressure is distributed by the manual valve.

ROAD TEST

Description

INFOID:000000003130592

- The road test inspects overall performance of the A/T and analyzes possible malfunction causes.
- The road test is performed out in the following three stages.

1. [TM-149, "Check Before Engine Is Started"](#).
2. [TM-149, "Check at Idle"](#).
3. Cruise test
 - [TM-150, "Cruise Test - Part 1"](#)
 - [TM-151, "Cruise Test - Part 2"](#)
 - [TM-152, "Cruise Test - Part 3"](#)

CAUTION:**Always drive vehicle at a safe speed.**

- Check the test procedure and inspection items before beginning the road test.
- Test all inspection items until the symptom is uncovered. Diagnose NG items when all road tests are complete.

Check Before Engine Is Started

INFOID:000000003130593

1.CHECK A/T CHECK INDICATOR LAMP

1. Park vehicle on level surface.
2. Shift the selector lever to "P" position.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON. (Do not start engine.)

Does A/T CHECK indicator lamp light up for about 2 seconds?

- YES >> Go to [TM-149, "Check at Idle"](#).
 NO >> Stop the road test and go to [TM-115, "Symptom Table"](#).

Check at Idle

INFOID:000000003130594

1.CHECK STARTING THE ENGINE

1. Park vehicle on level surface.
2. Shift the selector lever to "P" or "N" position.
3. Turn ignition switch OFF.
4. Start the engine.

Does the engine start?

- YES >> GO TO 2.
 NO >> Stop the road test and go to [TM-115, "Symptom Table"](#).

2.CHECK STARTING THE ENGINE

1. Turn ignition switch ON. (Do not start engine.)
2. Shift the selector lever to "D", "M" or "R" position.
3. Start the engine.

Does the engine start in any positions?

- YES >> Stop the road test and go to [TM-115, "Symptom Table"](#).
 NO >> GO TO 3.

3.CHECK "P" POSITION FUNCTIONS

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

When you push the vehicle while disengaging the parking brake, does it move?

- YES >> Record the malfunction, GO TO 4.
 NO >> GO TO 4.

< ON-VEHICLE MAINTENANCE >

4.CHECK "N" POSITION FUNCTIONS

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

Does vehicle move forward or backward?

YES >> Record the malfunction, GO TO 5.

NO >> GO TO 5.

5.CHECK SHIFT SHOCK

1. Engage the brake.
2. Shift the selector lever to "D" position.

When the A/T is shifted from "N" to "D", is there an excessive shock?

YES >> Record the malfunction, GO TO 6.

NO >> GO TO 6.

6.CHECK "R" POSITION FUNCTIONS

1. Shift the selector lever to "R" position.
2. Release the brake for 4 to 5 seconds.

Does the vehicle creep backward?

YES >> GO TO 7.

NO >> Record the malfunction, GO TO 7.

7.CHECK "D" POSITION FUNCTIONS

Inspect whether the vehicle creeps forward when the A/T is put into the "D" position.

Does the vehicle creep forward in the "D" position?

YES >> Go to [TM-150, "Cruise Test - Part 1"](#).

NO >> Record the malfunction and go to [TM-150, "Cruise Test - Part 1"](#).

Cruise Test - Part 1

INFOID:000000003130595

1.CHECK STARTING OUT FROM D1

1. Drive the vehicle for about 10 minutes to warm up the engine oil and ATF.
Appropriate temperature for the ATF: 50 to 80°C (122 to 176°F)
2. Park the vehicle on a level surface.
3. Shift the selector lever to "D" position.
4. Press the accelerator pedal about half-way down to accelerate the vehicle.

 **With CONSULT-III**

Read the value of "GEAR" with "Data Monitor" mode for "TRANSMISSION".

Starts from D1?

YES >> GO TO 2.

NO >> Record the malfunction, GO TO 2.

2.CHECK SHIFT-UP

Depress the accelerator pedal about half-way and inspect if the vehicle shifts up (D1→ D2→ D3→ D4→ D5) at the appropriate speed. Refer to [TM-269, "Vehicle Speed at Which Gear Shifting Occurs"](#).

 **With CONSULT-III**

Read the value of "GEAR", "ACCELE POSI" and "VEHICLE SPEED" with "Data Monitor" mode for "TRANSMISSION".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Record the malfunction, GO TO 3.

3.CHECK LOCK-UP

When releasing accelerator pedal (closed throttle position signal OFF) from D5, check lock-up from D5 to L/U. Refer to [TM-269, "Vehicle Speed at Which Lock-up Occurs/Releases"](#).

 **With CONSULT-III**

ROAD TEST

< ON-VEHICLE MAINTENANCE >

[5AT: RE5R05A]

Select "TCC SOLENOID" with "Data Monitor" mode for "TRANSMISSION". Refer to [TM-104, "Reference Value"](#).

Does it lock-up?

- YES >> GO TO 4.
- NO >> Record the malfunction, GO TO 4.

4.CHECK LOCK-UP HOLD

Check hold lock-up.

With CONSULT-III

Select "TCC SOLENOID" with "Data Monitor" mode for "TRANSMISSION". Refer to [TM-104, "Reference Value"](#).

Does it maintain lock-up status?

- YES >> GO TO 5.
- NO >> Record the malfunction, GO TO 5.

5.CHECK LOCK-UP RELEASE

Check lock-up cancellation by depressing brake pedal lightly to decelerate.

With CONSULT-III

Select "TCC SOLENOID" with "Data Monitor" mode for "TRANSMISSION". Refer to [TM-104, "Reference Value"](#).

Does lock-up cancel?

- YES >> GO TO 6.
- NO >> Record the malfunction, GO TO 6.

6.CHECK SHIFT-DOWN D₅→ D₄

Decelerate by pressing lightly on the brake pedal.

With CONSULT-III

Read the value of "GEAR" and "ENGINE SPEED" with "Data Monitor" mode for "TRANSMISSION".

When the A/T shift-down D₅→ D₄, does the engine speed drop smoothly back to idle?

- YES >> 1. Stop the vehicle.
2. Go to [TM-151, "Cruise Test - Part 2"](#).
- NO >> Record the malfunction and go to [TM-151, "Cruise Test - Part 2"](#).

Cruise Test - Part 2

INFOID:000000003130596

1.CHECK SHIFT-UP

Depress the accelerator pedal down all the way and inspect whether or not the A/T shifts up (D₁→ D₂→ D₃) at the correct speed. Refer to [TM-269, "Vehicle Speed at Which Gear Shifting Occurs"](#).

With CONSULT-III

Read the value of "GEAR", "ACCELE POSI" and "VEHICLE SPEED" with "Data Monitor" mode for "TRANSMISSION".

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> Record the malfunction, GO TO 2.

2.CHECK SHIFT-UP D₃→ D₄ AND ENGINE BRAKE

When the A/T changes speed D₃→ D₄, release the accelerator pedal.

With CONSULT-III

Read the value of "GEAR" with "Data Monitor" mode for "TRANSMISSION".

Does the A/T shift-up D₃→ D₄ and apply the engine brake?

- YES >> 1. Stop the vehicle.
2. Go to [TM-152, "Cruise Test - Part 3"](#).
- NO >> Record the malfunction and go to [TM-152, "Cruise Test - Part 3"](#).

Cruise Test - Part 3**1. MANUAL MODE FUNCTION**

Shift the selector lever to manual mode from "D" position.

Does it switch to manual mode?

- YES >> GO TO 2.
- NO >> Record the malfunction, GO TO 2.

2. CHECK SHIFT-DOWN

During manual mode driving, is downshift from M5 → M4 → M3 → M2 → M1 performed?

④ **With CONSULT-III**

Read the value of "GEAR" and "ENGINE SPEED" with "Data Monitor" mode for "TRANSMISSION".

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Record the malfunction, GO TO 3.

3. CHECK ENGINE BRAKE

Check engine brake.

Does engine braking effectively reduce speed in M1 position?

- YES >> Check malfunction phenomena to repair or replace malfunctioning part. Refer to [TM-115, "Symptom Table"](#).
- NO >> 1. Record the malfunction.
2. Check malfunction phenomena to repair or replace malfunctioning part. Refer to [TM-115, "Symptom Table"](#).

A/T POSITION

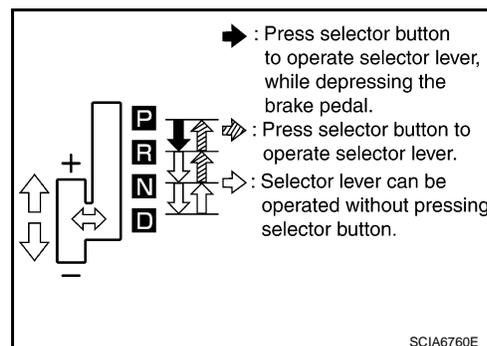
2WD

2WD : Inspection and Adjustment

INFOID:000000003130598

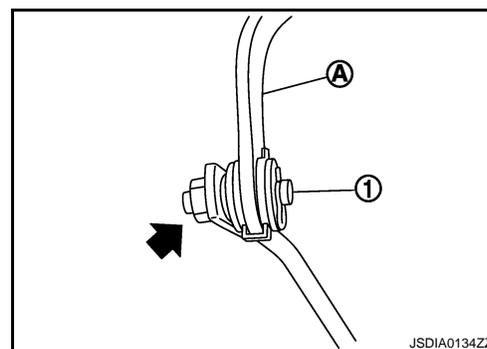
INSPECTION

1. Place selector lever in "P" position, and turn ignition switch ON (engine stop).
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. Confirm that the selector lever stops at each position by feeling the engagement when it is moved through all the positions. Check whether or not the actual position the selector lever matches the position shown by the shift position indicator and the A/T body.
5. The method of operating the lever to individual positions correctly is shown in the figure.
6. When selector button is pressed in "P", "R", or "N" position without applying forward/backward force to selector lever, check button operation for sticking.
7. Confirm that the back-up lamps illuminate only when lever is placed in the "R" position. Confirm that the back-up lamps does not illuminate when selector lever is pushed against "R" position in the "P" or "N" position.
8. Confirm that the engine can only be started with the selector lever in the "P" and "N" positions. (With selector lever in the "P" position, engine can be started even when selector lever is moved forward and backward.)
9. Make sure that A/T is locked completely in "P" position.
10. DS mode must be indicated on the combination meter when the selector lever is shifted to the manual shift gate. When the selector lever is shifted to the "+" or "-" side in the DS mode, manual mode should be indicated on the combination meter.
In addition, a set shift position must be changed when the selector lever is shifted to the "+" or "-" side in the manual mode. (Only while driving.)



ADJUSTMENT

1. Loosen nut (➡) of pivot pin (1).
2. Place PNP switch and selector lever in "P" position.
3. While pressing lower lever (A) toward rear of vehicle (in "P" position direction), tighten nut to specified torque. Refer to [TM-155](#), "2WD : Exploded View".



AWD

AWD : Inspection and Adjustment

INFOID:000000003130599

INSPECTION

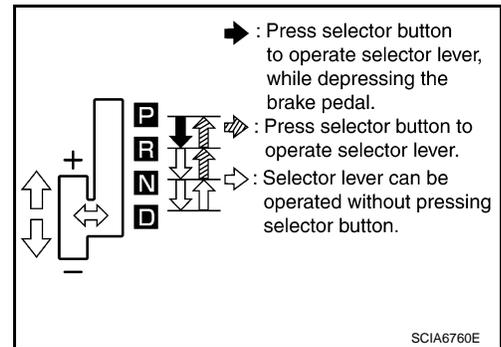
1. Place selector lever in "P" position, and turn ignition switch ON (engine stop).
2. Check that selector lever can be shifted to other than "P" position when brake pedal is depressed. Also check that selector lever can be shifted from "P" position only when brake pedal is depressed.
3. Shift the selector lever and check for excessive effort, sticking, noise or rattle.

A/T POSITION

< ON-VEHICLE MAINTENANCE >

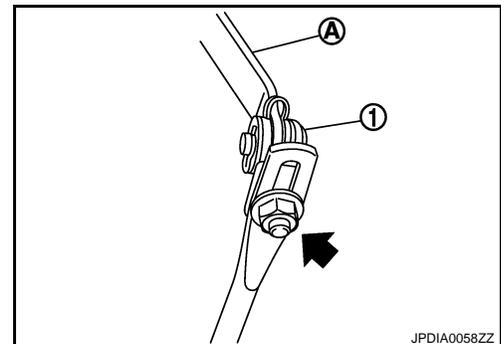
[5AT: RE5R05A]

- Confirm that the selector lever stops at each position by feeling the engagement when it is moved through all the positions. Check whether or not the actual position the selector lever matches the position shown by the shift position indicator and the A/T body.
- The method of operating the lever to individual positions correctly is shown in the figure.
- When selector button is pressed in "P", "R", or "N" position without applying forward/backward force to selector lever, check button operation for sticking.
- Confirm that the back-up lamps illuminate only when lever is placed in the "R" position. Confirm that the back-up lamps do not illuminate when selector lever is pushed against "R" position in the "P" or "N" position.
- Confirm that the engine can only be started with the selector lever in the "P" and "N" positions. (With selector lever in the "P" position, engine can be started even when selector lever is moved forward and backward.)
- Make sure that A/T is locked completely in "P" position.
- DS mode must be indicated on the combination meter when the selector lever is shifted to the manual shift gate. When the selector lever is shifted to the "+" or "-" side in the DS mode, manual mode should be indicated on the combination meter.
In addition, a set shift position must be changed when the selector lever is shifted to the "+" or "-" side in the manual mode. (Only while driving.)



ADJUSTMENT

- Loosen nut (↔) of pivot pin (1).
- Place PNP switch and selector lever in "P" position.
- While pressing lower lever (A) toward rear of vehicle (in "P" position direction), tighten nut to specified torque. Refer to [TM-158](#), "[AWD : Exploded View](#)".



CONTROL DEVICE

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

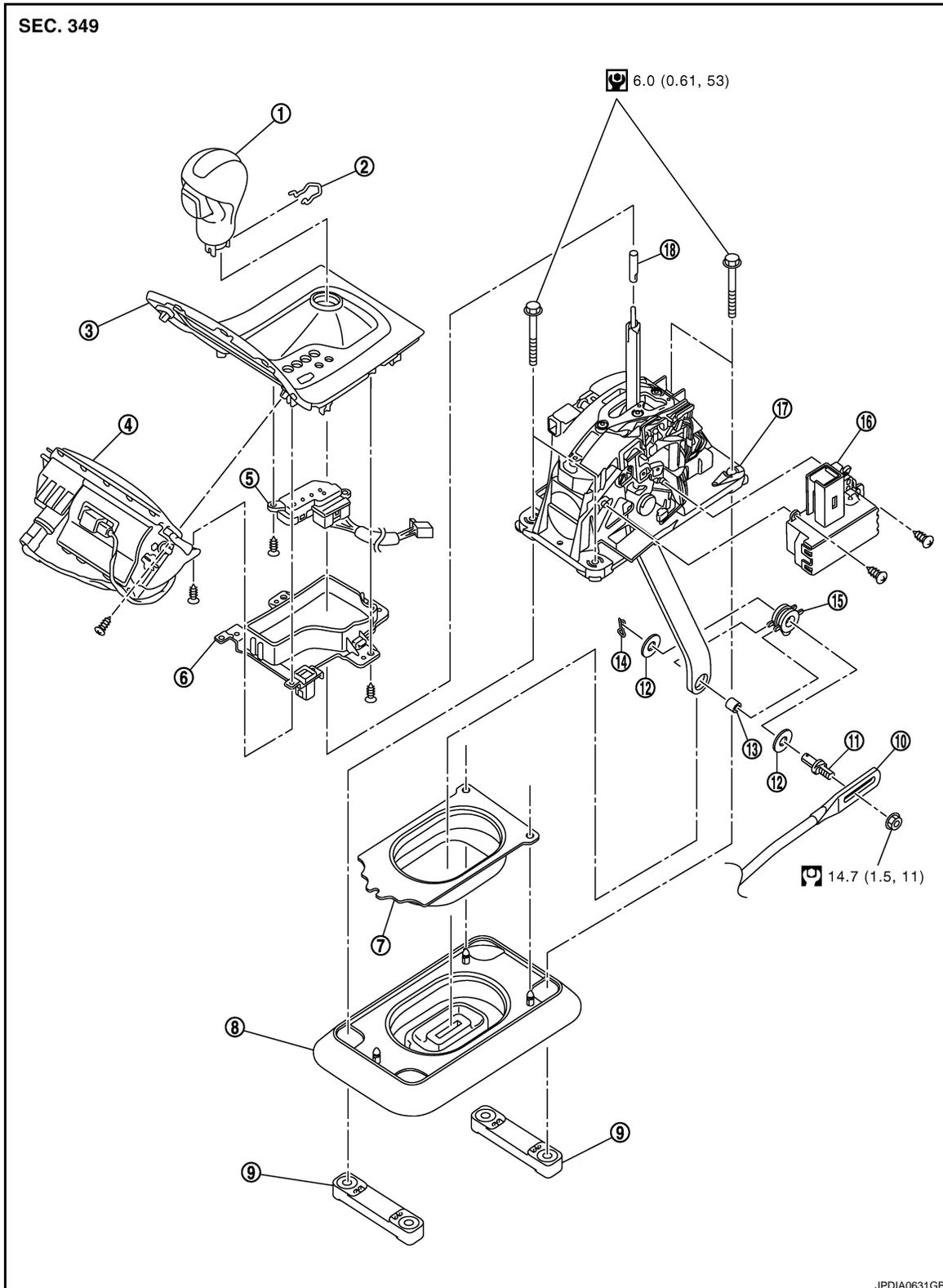
ON-VEHICLE REPAIR

CONTROL DEVICE

2WD

2WD : Exploded View

INFOID:000000003130600



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CONTROL DEVICE

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

- | | | |
|------------------------|--------------------------------------|---------------------|
| 1. Selector lever knob | 2. Lock pin | 3. Console finisher |
| 4. Ashtray (front) | 5. Selector lever position indicator | 6. Insert finisher |
| 7. Dust cover plate | 8. Dust cover | 9. Bracket |
| 10. Control rod | 11. Pivot pin | 12. Plain washer |
| 13. Collar | 14. Snap pin | 15. Insulator |
| 16. Shift lock unit | 17. Control device assembly | 18. Adapter |

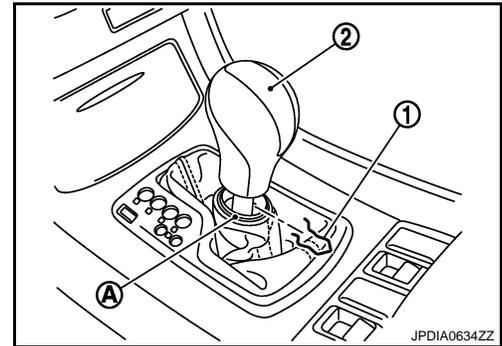
Refer to [GI-4, "Components"](#) for symbols in the figure.

2WD : Removal and Installation

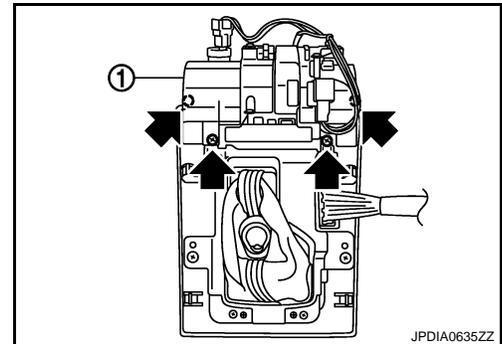
INFOID:000000003130601

REMOVAL

1. Remove control rod from control device assembly.
2. Shift the selector lever to "N" position.
3. Remove knob cover (A) below selector lever downward.
4. Pull lock pin (1) out of selector lever knob (2).
5. Remove selector lever knob.
6. Remove console finisher assembly and center console assembly. Refer to [JP-22, "Exploded View"](#).
- CAUTION:**
when disconnecting selector lever position indicator connector from shift position switch, never twist or apply an excessive load to the connector.
7. Remove the rear ventilator duct 1 (with rear ventilation). Refer to [VTL-58, "REAR VENTILATOR DUCT 2 : Exploded View"](#).
8. Disconnect control device harness connector.
9. Remove harness clips from control device assembly.
10. Remove control device assembly mounting bolts.
11. Remove control device assembly.
12. Remove selector lever position indicator from console finisher assembly.
 - a. Remove ashtray (front) (1) from console finisher assembly.



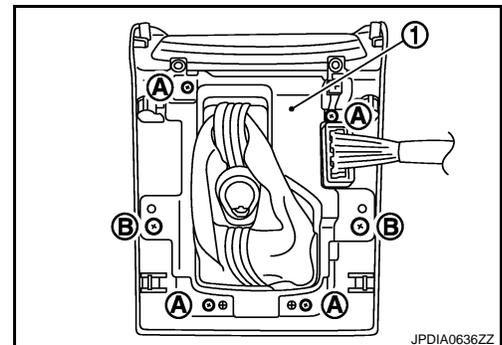
← : Screw



- b. Remove insert finisher (1) from console finisher assembly.

A : Screw (small)

B : Screw (large)



CONTROL DEVICE

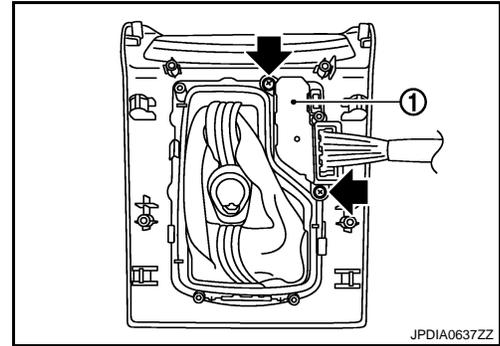
< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

- c. Remove the selector lever position indicator (1).

← : Screw

13. Remove adapter from control device assembly.
14. Remove dust cover and dust cover plate from control device assembly.
15. Remove dust cover plate from dust cover.
16. Remove shift lock unit from control device assembly.
17. Remove bracket from vehicle floor panel.



INSTALLATION

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

- When installing control rod to control device assembly, refer to "ADJUSTMENT". Refer to [TM-153, "2WD : Inspection and Adjustment"](#).

2WD : Inspection and Adjustment

INFOID:000000003130602

INSPECTION AFTER INSTALLATION

Check the A/T positions. Refer to [TM-153, "2WD : Inspection and Adjustment"](#).

AWD

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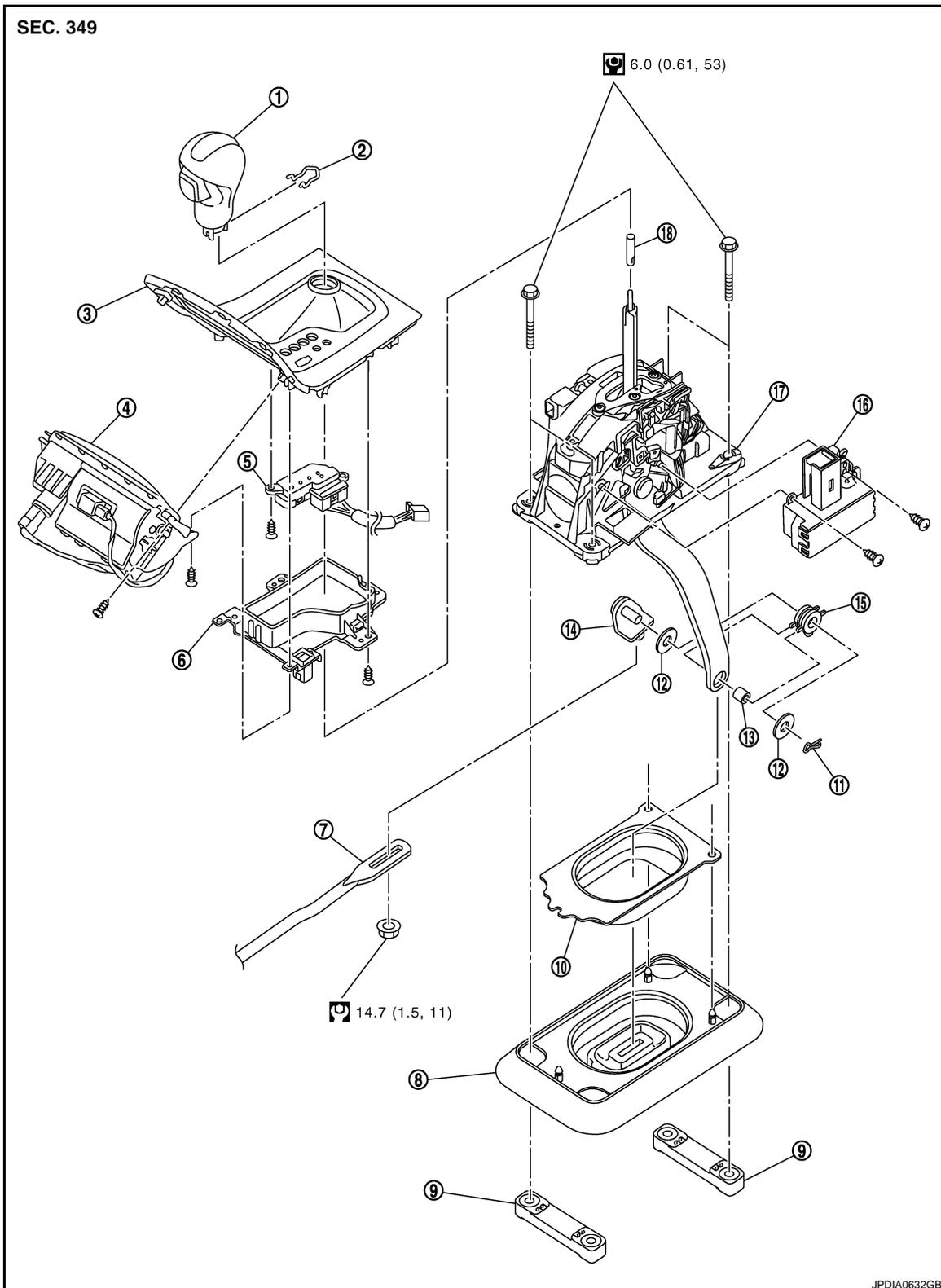
CONTROL DEVICE

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

AWD : Exploded View

INFOID:000000003130603



- | | | |
|------------------------|--------------------------------------|---------------------|
| 1. Selector lever knob | 2. Lock pin | 3. Console finisher |
| 4. Ashtray (front) | 5. Selector lever position indicator | 6. Insert finisher |
| 7. Control rod | 8. Dust cover | 9. Bracket |
| 10. Dust cover plate | 11. Snap pin | 12. Plain washer |

CONTROL DEVICE

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

- | | | |
|---------------------|-----------------------------|---------------|
| 13. Collar | 14. Pivot pin | 15. Insulator |
| 16. Shift lock unit | 17. Control device assembly | 18. Adapter |

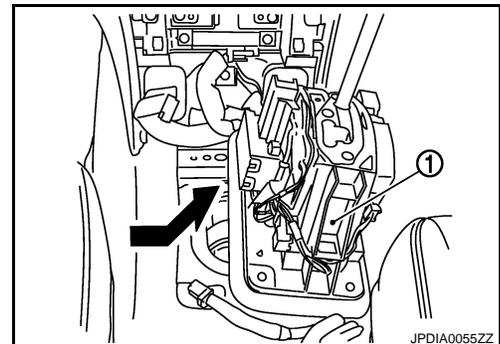
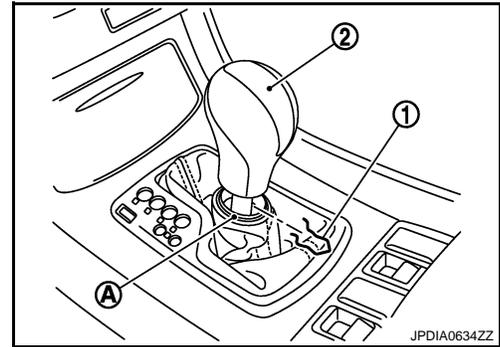
Refer to [GI-4, "Components"](#) for symbols in the figure.

AWD : Removal and Installation

INFOID:000000003130604

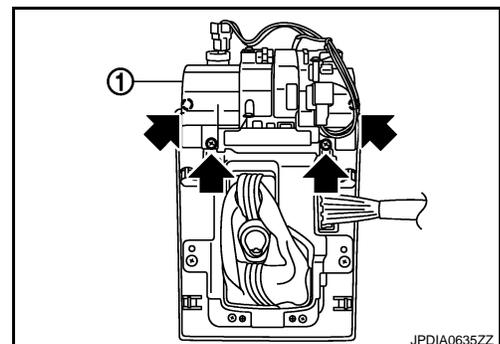
REMOVAL

1. Remove control rod from control device assembly.
2. Shift the selector lever to "N" position.
3. Remove knob cover (A) below selector lever downward.
4. Pull lock pin (1) out of selector lever knob (2).
5. Remove selector lever knob.
6. Remove console finisher assembly and center console assembly. Refer to [IP-22, "Exploded View"](#).
CAUTION:
When disconnecting selector lever position indicator connector from shift position switch, never twist or apply an excessive load to the connector.
7. Remove the rear ventilator duct 1 (with rear ventilation). Refer to [VTL-58, "REAR VENTILATOR DUCT 2 : Exploded View"](#).
8. Disconnect control device harness connector.
9. Remove harness clips from control device assembly.
10. Shift the selector lever to "P" position.
11. Move passenger's seat to the end.
12. Remove control device assembly mounting bolts.
13. Slightly lift the control device assembly (1) and slide it rightward. Then pull it out in the diagonally right direction.



14. Remove selector lever position indicator from console finisher assembly.
 - a. Remove ashtray (front) (1) from console finisher assembly.

← : Screw



CONTROL DEVICE

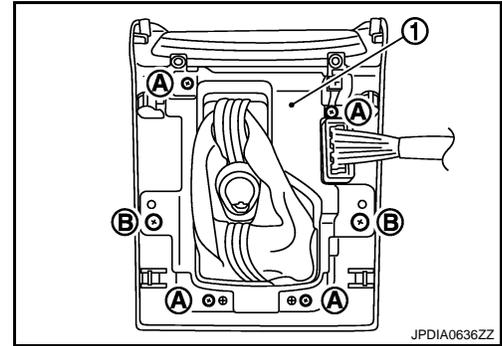
< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

b. Remove insert finisher (1) from console finisher assembly.

A : Screw (small)

B : Screw (large)



c. Remove the selector lever position indicator (1).

← : Screw

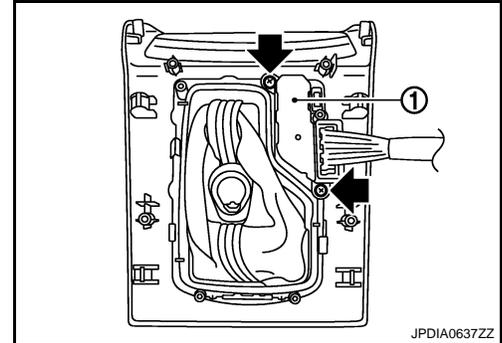
15. Remove adapter from control device assembly.

16. Remove dust cover and dust cover plate from control device assembly.

17. Remove dust cover plate from dust cover.

18. Remove shift lock unit from control device assembly.

19. Remove bracket from vehicle floor panel.



INSTALLATION

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

- When installing control rod to control device assembly, refer to "ADJUSTMENT". Refer to [TM-153. "AWD : Inspection and Adjustment"](#).

AWD : Inspection and Adjustment

INFOID:000000003130605

INSPECTION AFTER INSTALLATION

Check the A/T positions. Refer to [TM-153. "AWD : Inspection and Adjustment"](#).

CONTROL ROD

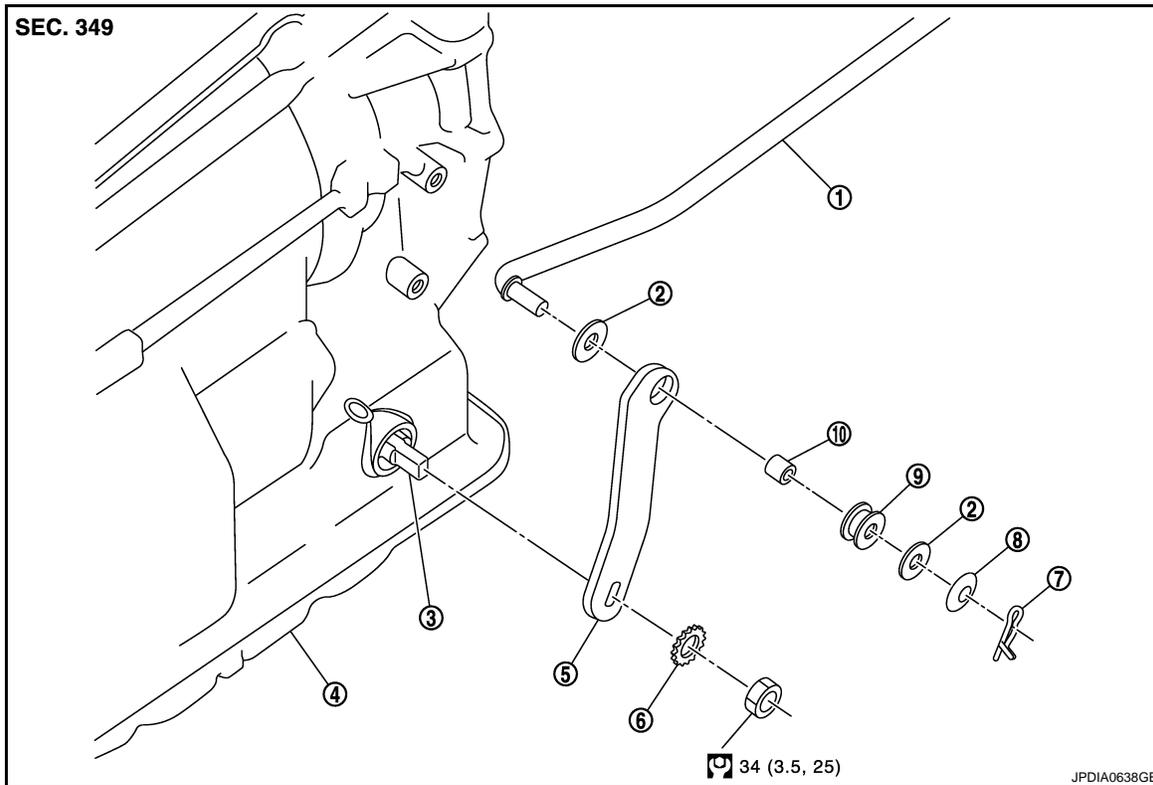
< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

CONTROL ROD

Exploded View

INFOID:000000003130606



- | | | |
|-----------------|-------------------|-----------------|
| 1. Control rod | 2. Plain washer | 3. Manual shaft |
| 4. A/T assembly | 5. Manual lever | 6. Washer |
| 7. Snap pin | 8. Conical washer | 9. Insulator |
| 10. Collar | | |

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

Removal and Installation

INFOID:000000003130607

REMOVAL

1. Disconnect control device and control rod. Refer to [TM-155, "2WD : Exploded View"](#) (2WD models), [TM-158, "AWD : Exploded View"](#) (AWD models).
2. Remove manual lever from A/T assembly.
3. Remove control rod from manual lever.

INSTALLATION

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

- When installing control rod to control device assembly, refer to "ADJUSTMENT". Refer to [TM-153, "2WD : Inspection and Adjustment"](#) (2WD models), [TM-153, "AWD : Inspection and Adjustment"](#) (AWD models).

Inspection and Adjustment

INFOID:000000003130608

INSPECTION AFTER INSTALLATION

Check A/T positions. Refer to [TM-153, "2WD : Inspection and Adjustment"](#) (2WD models), [TM-153, "AWD : Inspection and Adjustment"](#) (AWD models).

CONTROL VALVE WITH TCM

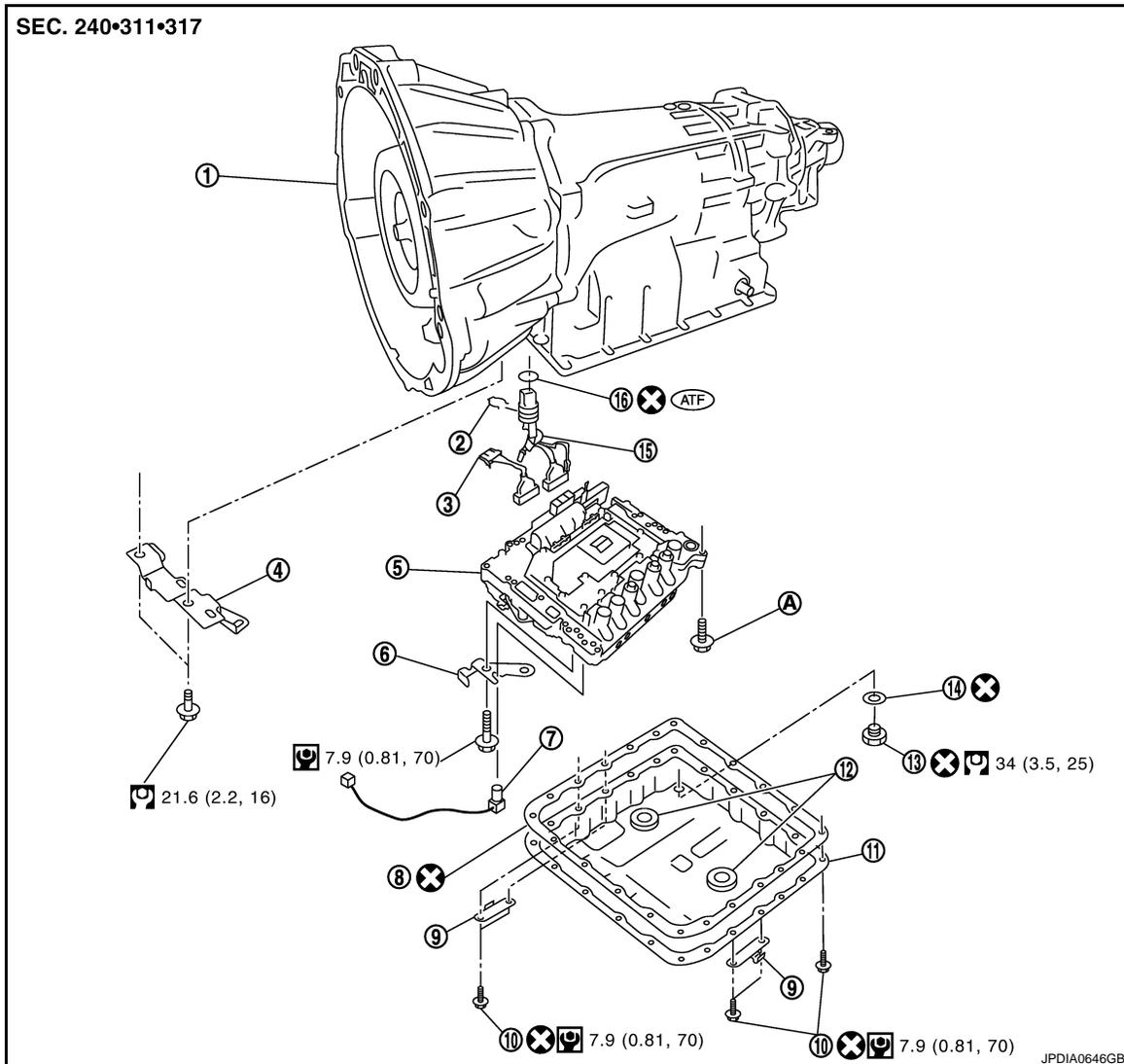
< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

CONTROL VALVE WITH TCM

Exploded View

INFOID:000000003130611



- | | | |
|-----------------------------------|---------------------------|----------------------------|
| 1. A/T | 2. Snap ring | 3. Sub-harness |
| 4. Bracket | 5. Control valve with TCM | 6. Bracket |
| 7. A/T fluid temperature sensor 2 | 8. Oil pan gasket | 9. Clip |
| 10. Oil pan mounting bolt | 11. Oil pan | 12. Magnet |
| 13. Drain plug | 14. Drain plug gasket | 15. Terminal cord assembly |
| 16. O-ring | | |

A. For tightening torque, refer to "Installation".

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

Removal and Installation

INFOID:000000003130612

REMOVAL

1. Disconnect the battery cable from the negative terminal.
2. Drain ATF through drain plug.
3. Remove exhaust mounting bracket. Refer to [EX-5. "Exploded View"](#).

CONTROL VALVE WITH TCM

[5AT: RE5R05A]

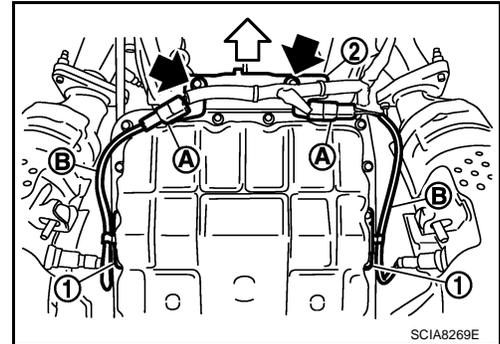
< ON-VEHICLE REPAIR >

- Disconnect heated oxygen sensor 2 harness connectors (A).

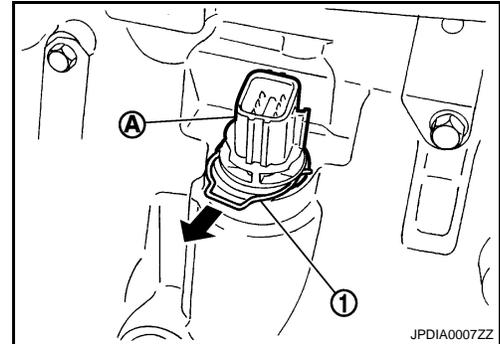
↔ : Vehicle front

◀ : Bolt

- Remove heated oxygen sensor 2 harness (B) from clips (1).
- Remove bracket (2) from transmission assembly.
- Disconnect A/T assembly harness connector.



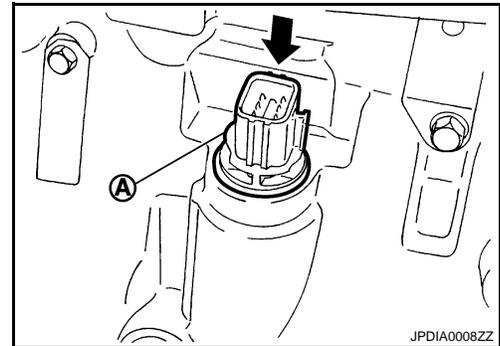
- Remove snap ring (1) from A/T assembly harness connector (A).



- Push A/T assembly harness connector (A).

CAUTION:

Be careful not to damage connector.



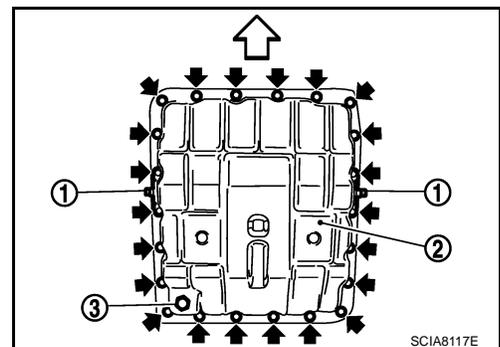
- Remove clips (1).

3 : Drain plug

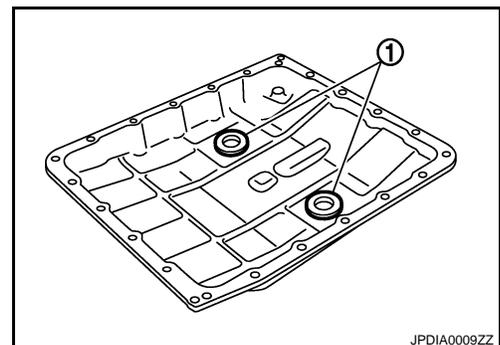
↔ : Vehicle front

◀ : Oil pan mounting bolt

- Remove oil pan (2) and oil pan gasket.



- Remove magnets (1) from oil pan.



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CONTROL VALVE WITH TCM

[5AT: RE5R05A]

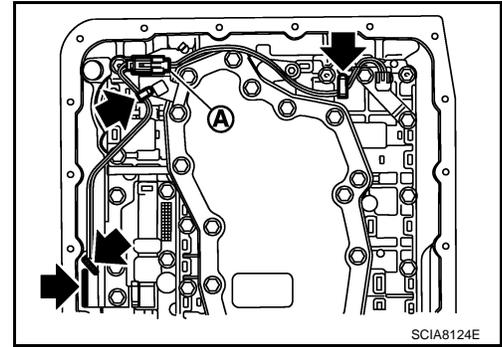
< ON-VEHICLE REPAIR >

13. Disconnect A/T fluid temperature sensor 2 connector (A).

CAUTION:

Be careful not to damage connector.

14. Disengage terminal clips (←).

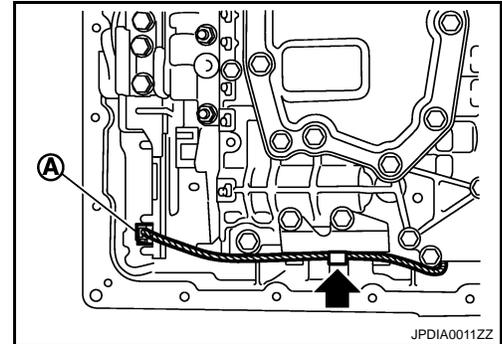


15. Disconnect revolution sensor connector (A).

CAUTION:

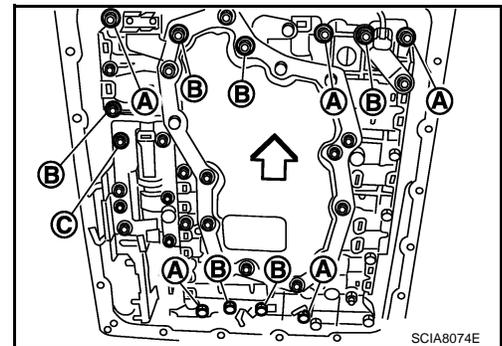
Be careful not to damage connector.

16. Disengage terminal clip (←).



17. Remove bolts (A), (B) and (C) from control valve with TCM.

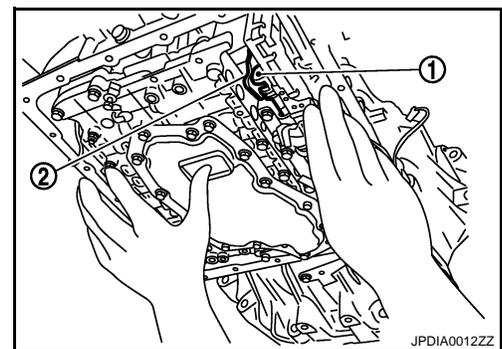
← : Vehicle front



18. Remove control valve with TCM from transmission case.

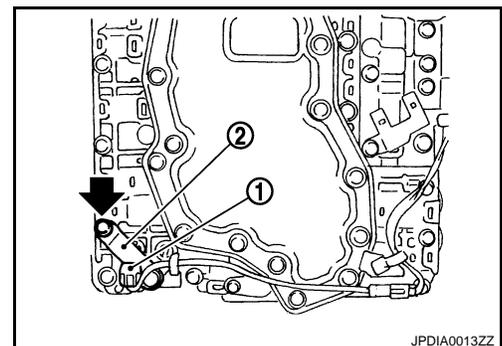
CAUTION:

When removing, be careful with the manual valve (1) notch and manual plate (2) height. Remove it vertically.



19. Remove A/T fluid temperature sensor 2 (1) with bracket (2) from control valve with TCM.

← : Bolt

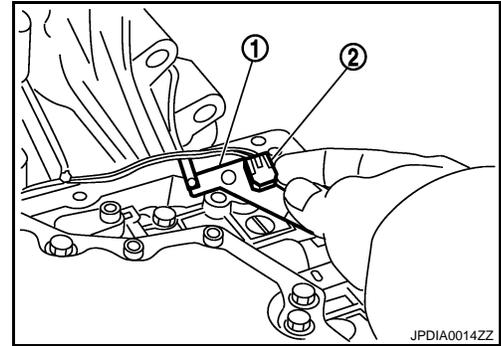


CONTROL VALVE WITH TCM

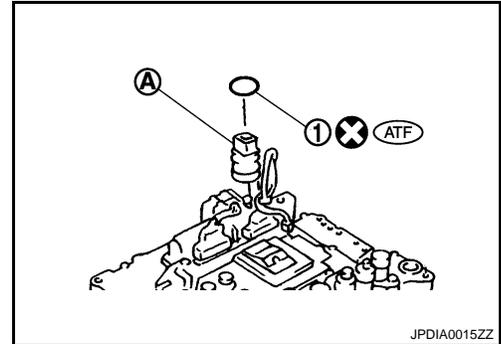
< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

20. Remove bracket (1) from A/T fluid temperature sensor 2 (2).



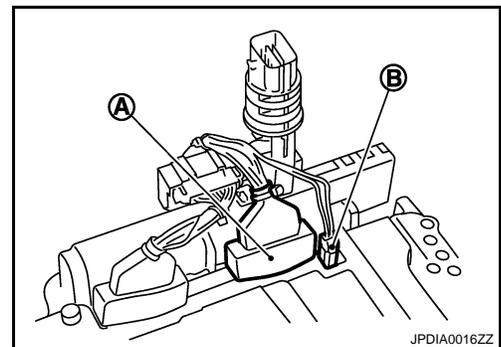
21. Remove O-ring (1) from A/T assembly harness connector (A).



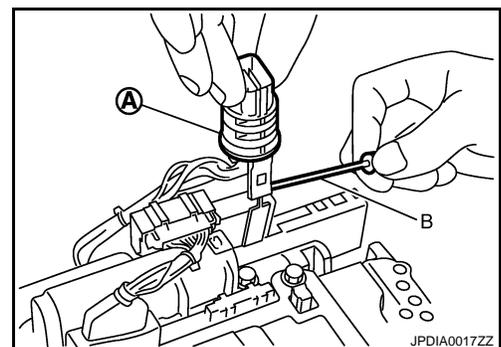
22. Disconnect TCM connectors (A) and (B).

CAUTION:

Be careful not to damage connectors.



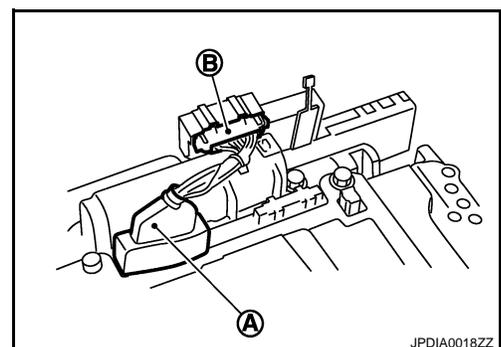
23. Remove A/T assembly harness connector (A) from control valve with TCM using flat-blade screwdriver (B).



24. Disconnect TCM connector (A) and park/neutral position switch connector (B).

CAUTION:

Be careful not to damage connectors.



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CONTROL VALVE WITH TCM

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

INSTALLATION

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

CAUTION:

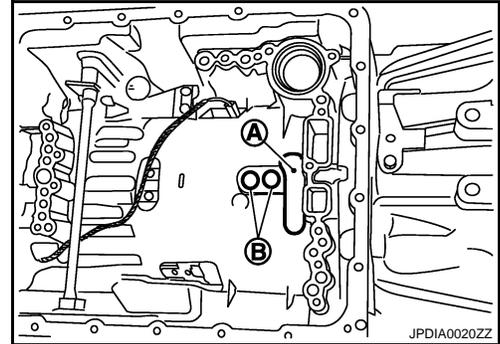
- Be careful not to damage connector when installing any connector.
- Do not reuse drain plug gasket.
- Do not reuse O-ring.
- Apply ATF to O-ring.
- Adjust bolt hole of bracket to bolt hole of control valve with TCM when installing A/T fluid temperature sensor 2 (with bracket).
- Refer to the followings when installing control valve with TCM in transmission case.

CAUTION:

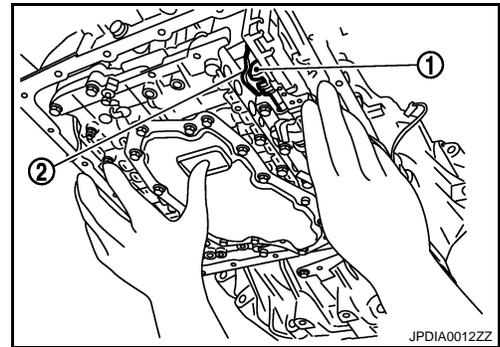
- Make sure that turbine revolution sensor securely installs turbine revolution sensor hole (B).

A : Brake band

- Hang down revolution sensor harness toward outside so as not to disturb installation of control valve with TCM.
- Adjust A/T assembly harness connector of control valve with TCM to terminal hole of transmission case.

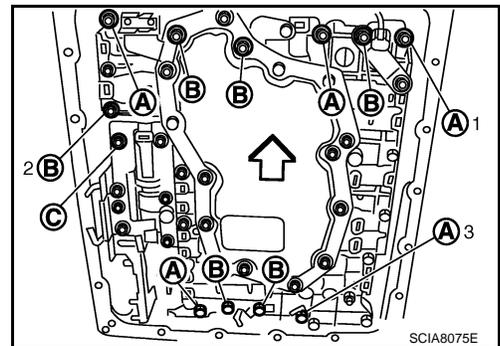


- Assemble it so that manual valve (1) cutout is engaged with manual plate (2) projection.



- Install bolts (A), (B) and (C) in control valve with TCM. Tighten bolt 1, 2 and 3 temporarily to prevent dislocation. After that tighten them in order (1 → 2 → 3), and then tighten other bolts. Tighten control valve with TCM bolts to the specified torque.

⇐ : Vehicle front



Bolt symbol	A	B	C
Number of bolts	5	6	1
Length mm (in)	42 (1.65)	55 (2.17)	40 (1.57)
Tightening torque N·m (km-g, in-lb)	7.9 (0.81, 70)		With ATF applied 7.9 (0.81, 70)

CONTROL VALVE WITH TCM

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

- Refer to the followings when installing oil pan (2) (with oil pan gasket) and clips (1) to transmission case.

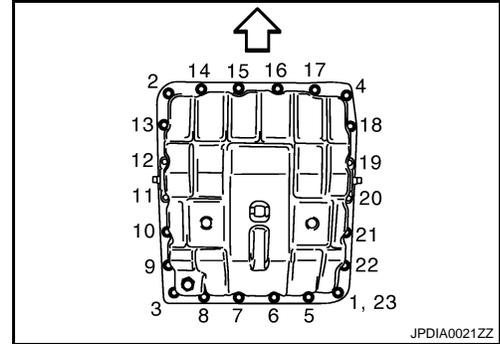
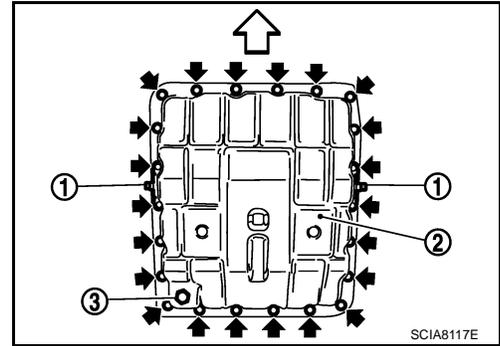
↔ : Vehicle front

➡ : Oil pan mounting bolt

CAUTION:

- Do not reuse oil pan gasket and oil pan mounting bolts.
 - Install oil pan gasket in the direction to align hole position.
 - Install it so that drain plug (3) comes to the position as shown in the figure.
 - Be careful not to pinch harnesses.
 - Completely remove all moisture, oil and old gasket, etc. from oil pan mounting surface.
- Tighten oil pan mounting bolts to the specified torque in numerical order shown in the figure after temporarily tightening them. Tighten oil pan mounting bolts to the specified torque.

↔ : Vehicle front



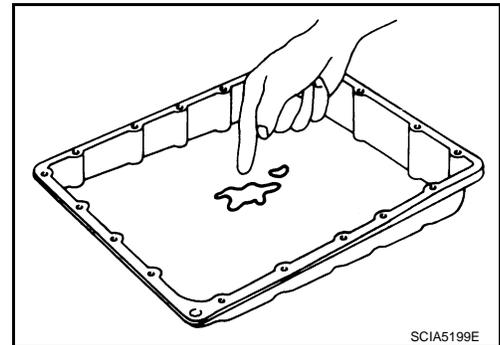
INFOID:000000003130613

Inspection

INSPECTION AFTER REMOVAL

Check foreign materials in oil pan to help determine causes of malfunction. If the ATF is very dark, smells burned, or contains foreign particles, the frictional material (clutches, band) may need replacement. A tacky film that will not wipe clean indicates varnish build up. Varnish can cause valves, servo, and clutches to stick and can inhibit pump pressure.

- If frictional material is detected, perform A/T fluid cooler cleaning. Refer to [TM-143, "Cleaning"](#).



INSPECTION AFTER INSTALLATION

Check for A/T fluid leakage and A/T fluid level after completing installation. Refer to [TM-141, "Inspection"](#).

A/T FLUID TEMPERATURE SENSOR 2

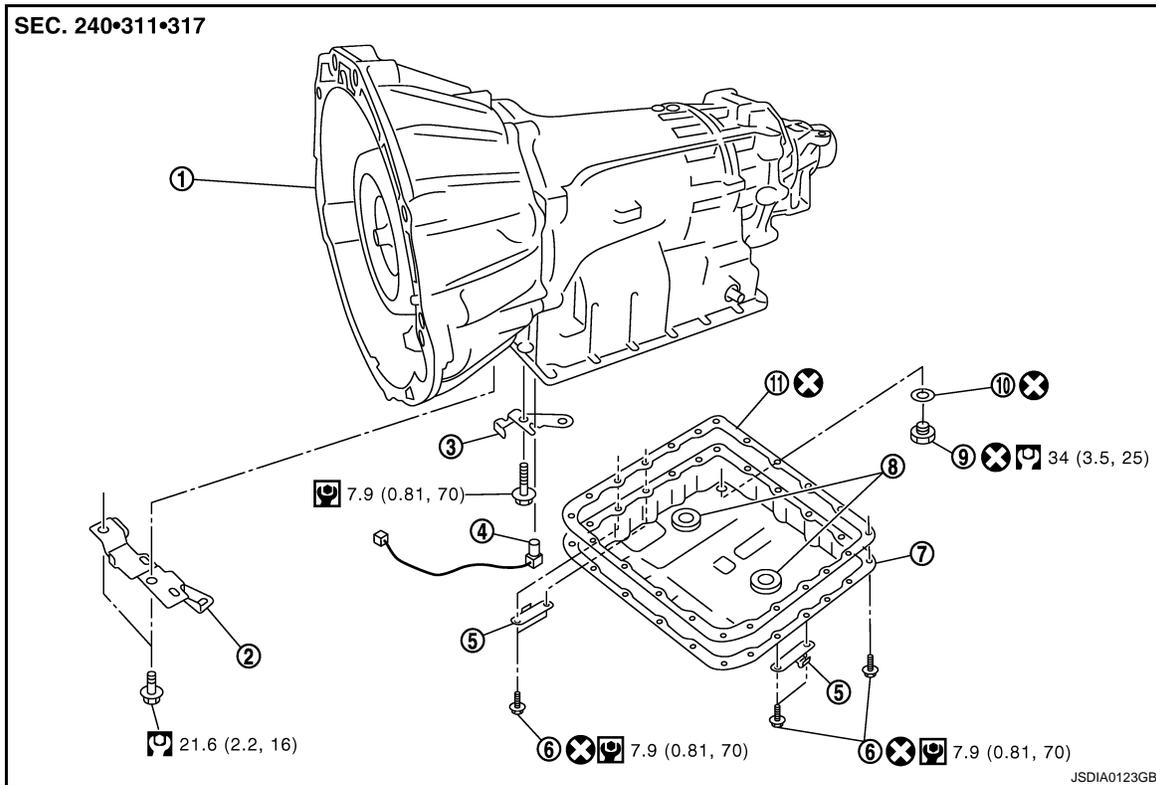
< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

A/T FLUID TEMPERATURE SENSOR 2

Exploded View

INFOID:000000003130614



- | | | |
|-----------------------------------|--------------------|--------------------------|
| 1. A/T | 2. Bracket | 3. Bracket |
| 4. A/T fluid temperature sensor 2 | 5. Clip | 6. Oil pan mounting bolt |
| 7. Oil pan | 8. Magnet | 9. Drain plug |
| 10. Drain plug gasket | 11. Oil pan gasket | |

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

Removal and Installation

INFOID:000000003130615

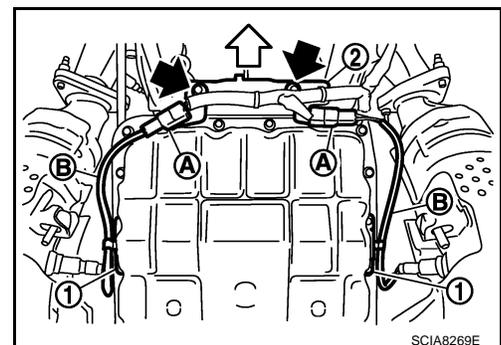
REMOVAL

1. Disconnect the battery cable from the negative terminal.
2. Drain ATF through drain plug.
3. Remove exhaust mounting bracket. Refer to [EX-5. "Exploded View"](#).
4. Disconnect heated oxygen sensor 2 harness connectors (A).

⇐ : Vehicle front

← : Bolt

5. Remove heated oxygen sensor 2 harness (B) from clips (1).
6. Remove bracket (2) from transmission assembly.



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A/T FLUID TEMPERATURE SENSOR 2

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

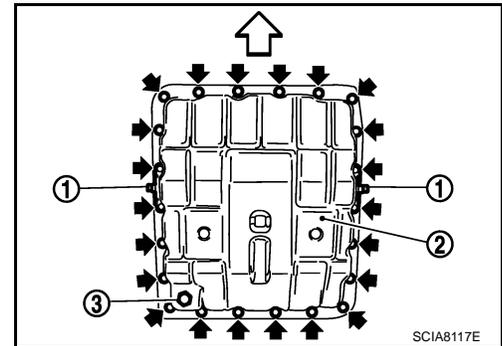
7. Remove clips (1).

3 : Drain plug

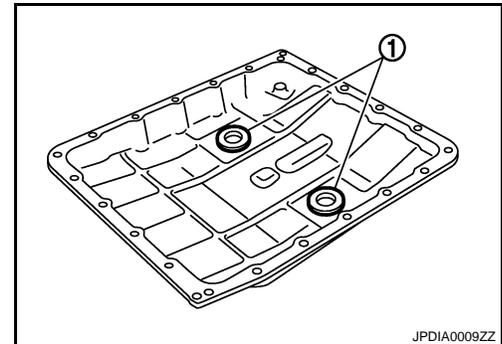
↔ : Vehicle front

⬛ : Oil pan mounting bolt

8. Remove oil pan (2) and oil pan gasket.



9. Remove magnets (1) from oil pan.

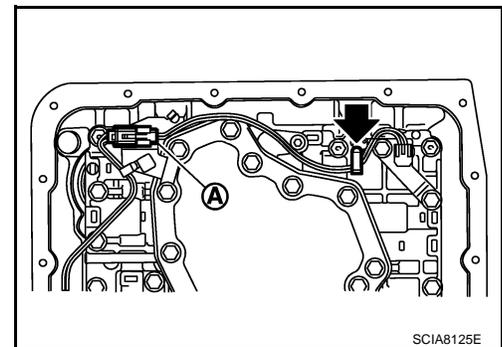


10. Disconnect A/T fluid temperature sensor 2 connector (A).

CAUTION:

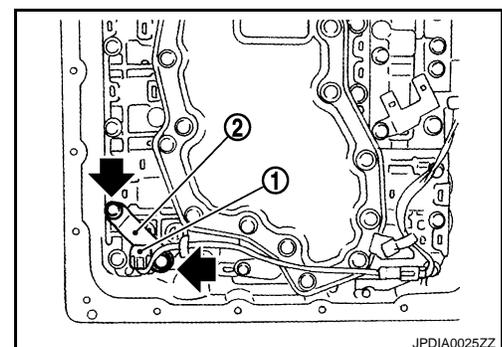
Be careful not to damage connector.

11. Disengage terminal clip (⬛).

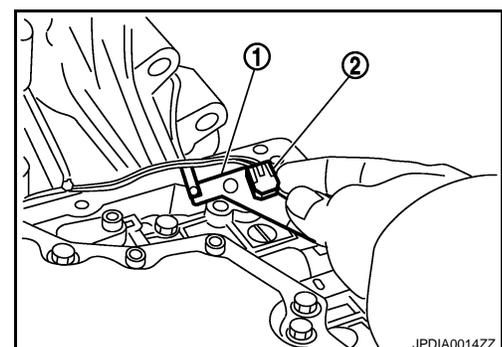


12. Remove A/T fluid temperature sensor 2 (1) with bracket (2) from control valve with TCM.

⬛ : Bolt



13. Remove bracket (1) from A/T fluid temperature sensor 2 (2).



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A/T FLUID TEMPERATURE SENSOR 2

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

INSTALLATION

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

CAUTION:

- Be careful not to damage connector.
- Do not reuse drain plug gasket.
- Adjust bolt hole of bracket to bolt hole of control valve with TCM when installing A/T fluid temperature sensor 2 (with bracket).
- Refer to the following when installing oil pan (2) (with oil pan gasket) and clips (1) to transmission case.

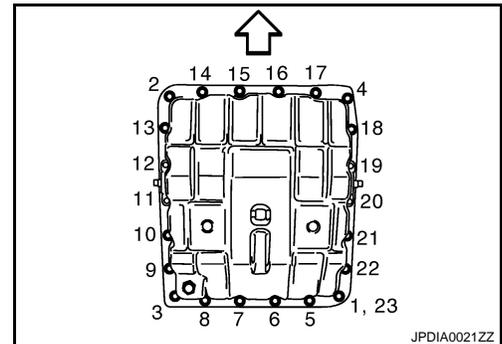
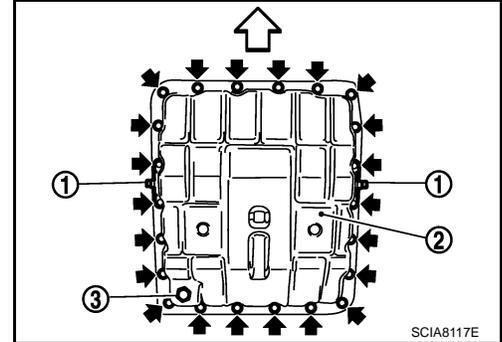
⇐ : Vehicle front

◀ : Oil pan mounting bolt

CAUTION:

- Do not reuse oil pan gasket and oil pan mounting bolts.
 - Install oil pan gasket in the direction to align hole position.
 - Install it so that drain plug (3) comes to the position as shown in the figure.
 - Be careful not to pinch harnesses.
 - Completely remove all moisture, oil and old gasket, etc. from oil pan mounting surface.
- Tighten oil pan mounting bolts to the specified torque in numerical order shown in the figure after temporarily tightening them. Tighten oil pan mounting bolts to the specified torque.

⇐ : Vehicle front



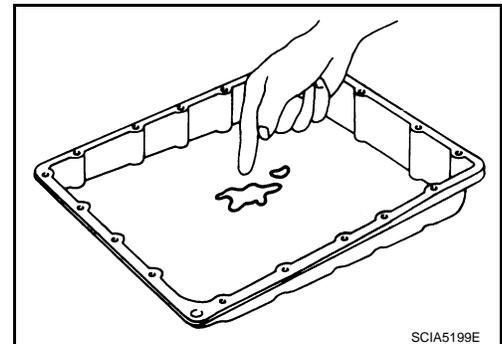
INFOID:000000003130616

Inspection

INSPECTION AFTER REMOVAL

Check foreign materials in oil pan to help determine causes of malfunction. If the ATF is very dark, smells burned, or contains foreign particles, the frictional material (clutches, band) may need replacement. A tacky film that will not wipe clean indicates varnish build up. Varnish can cause valves, servo, and clutches to stick and can inhibit pump pressure.

- If frictional material is detected, perform A/T fluid cooler cleaning. Refer to [TM-143, "Cleaning"](#).



INSPECTION AFTER INSTALLATION

Check for A/T fluid leakage and A/T fluid level after completing installation. Refer to [TM-141, "Inspection"](#).

PARKING COMPONENTS

< ON-VEHICLE REPAIR >

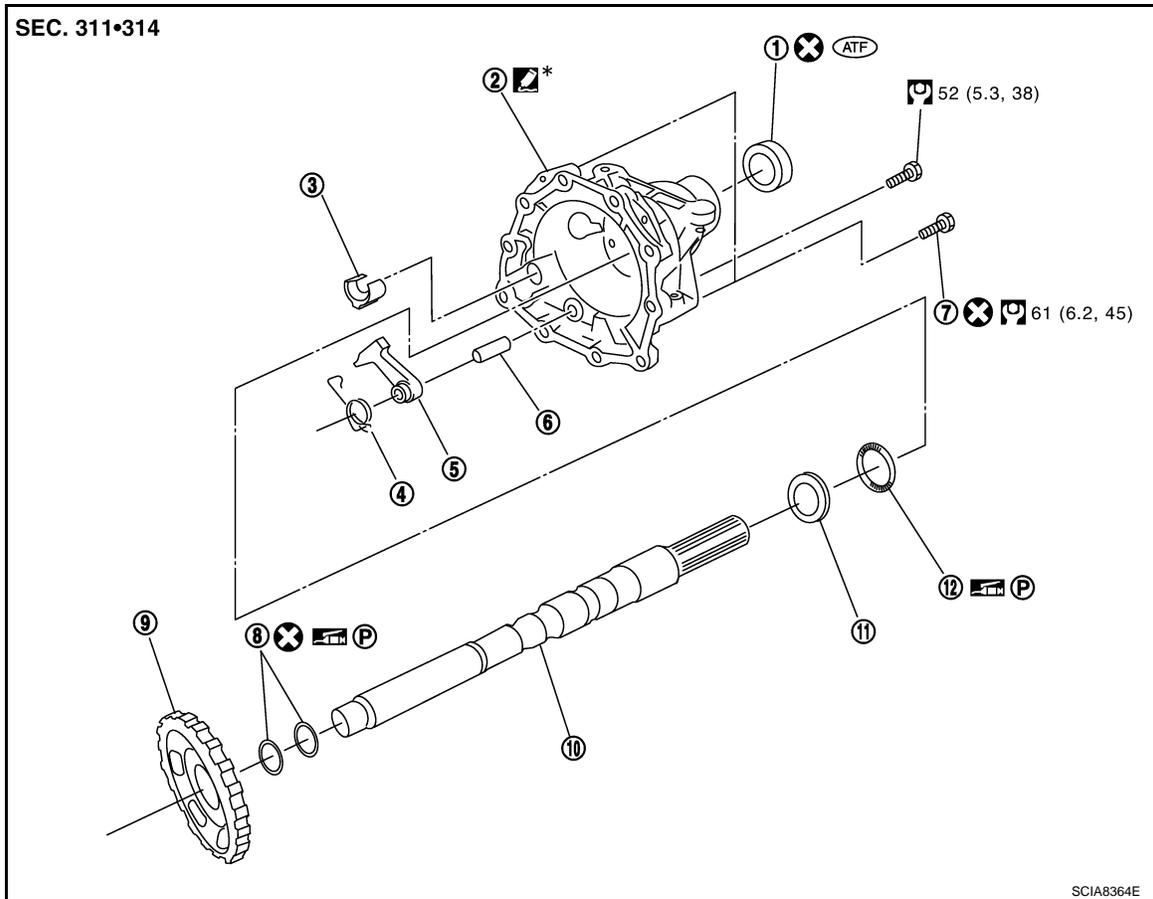
[5AT: RE5R05A]

PARKING COMPONENTS

2WD

2WD : Exploded View

INFOID:000000003130617



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|----------------------|-------------------|-----------------------------|
| 1. Rear oil seal | 2. Rear extension | 3. Parking actuator support |
| 4. Return spring | 5. Parking pawl | 6. Pawl shaft |
| 7. Self-sealing bolt | 8. Seal ring | 9. Parking gear |
| 10. Output shaft | 11. Bearing race | 12. Needle bearing |

: Apply Genuine Anaerobic Liquid Gasket or equivalent. Refer to [GI-15, "Recommended Chemical Products and Sealants"](#).
Refer to [GI-4, "Components"](#) for symbols not described on the above.

2WD : Removal and Installation

INFOID:000000003130618

REMOVAL

1. Drain ATF through drain plug.
2. Remove exhaust front tube and center muffler with power tool. Refer to [EX-5, "Exploded View"](#).
3. Remove rear propeller shaft. Refer to [DLN-81, "Exploded View"](#).
4. Remove control rod. Refer to [TM-161, "Exploded View"](#).
5. Support A/T assembly with a transmission jack.
CAUTION:
When setting transmission jack, be careful not to allow it to collide against the drain plug.
6. Remove rear engine mounting member with power tool. Refer to [EM-79, "2WD : Exploded View"](#).
7. Remove engine mounting insulator (rear). Refer to [EM-79, "2WD : Exploded View"](#).

PARKING COMPONENTS

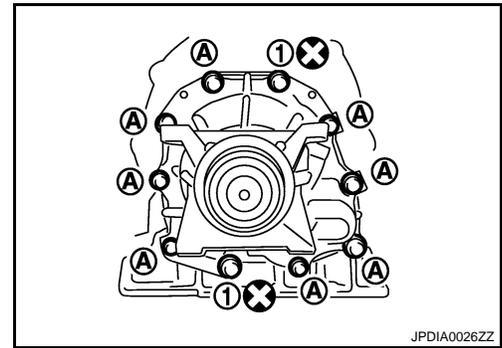
< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

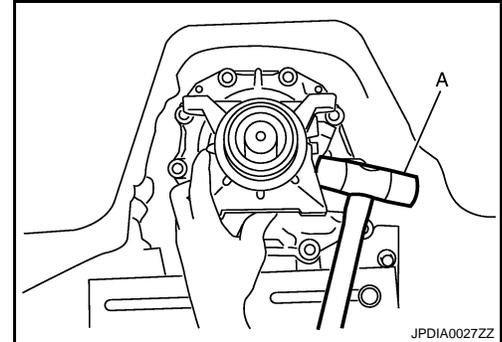
8. Remove tightening bolts for rear extension assembly and transmission case.

1 : Self-sealing bolt

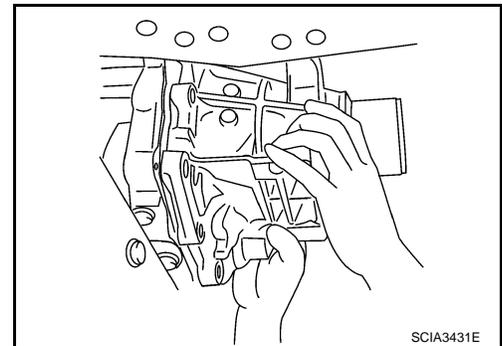
A : Bolt



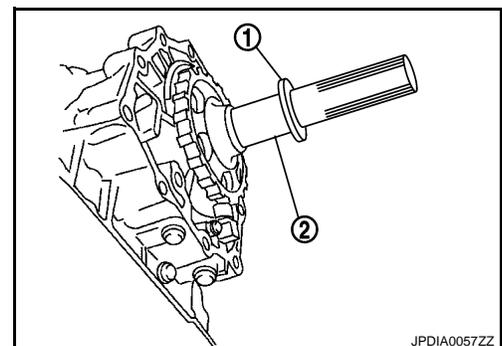
9. Tap rear extension assembly with a soft hammer (A).



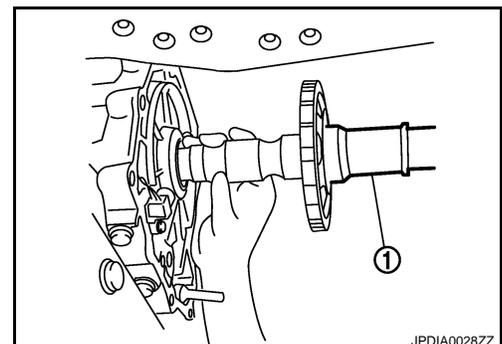
10. Remove rear extension assembly (with needle bearing) from transmission case.



11. Remove bearing race (1) from output shaft (2).



12. Remove output shaft (1) from transmission case by rotating left/right.

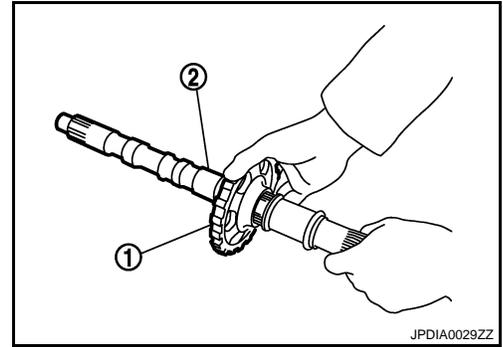


PARKING COMPONENTS

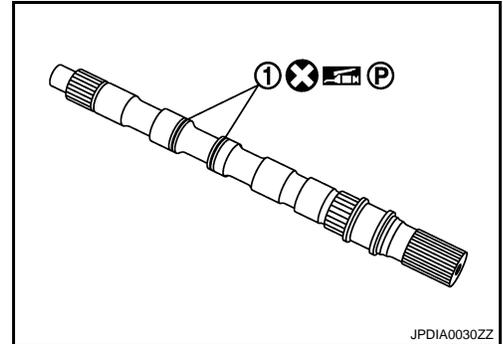
< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

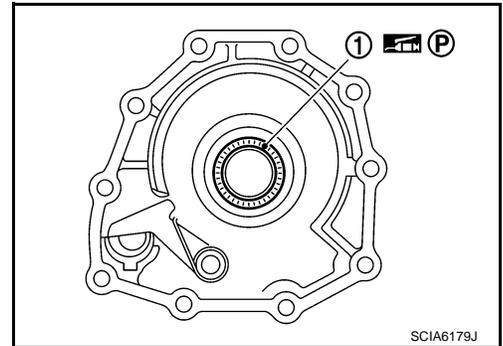
13. Remove parking gear (1) from output shaft (2).



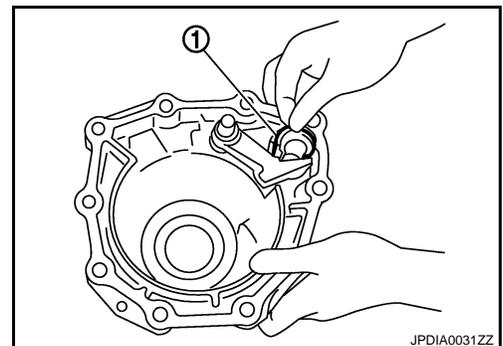
14. Remove seal rings (1) from output shaft.



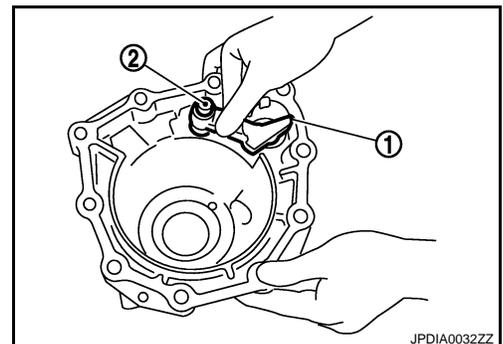
15. Remove needle bearing (1) from rear extension.



16. Remove parking actuator support (1) from rear extension.



17. Remove parking pawl (with return spring) (1) and pawl shaft (2) from rear extension.



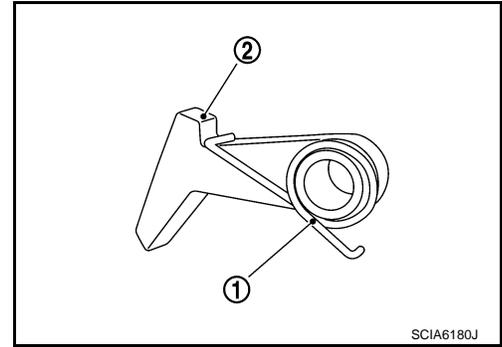
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PARKING COMPONENTS

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

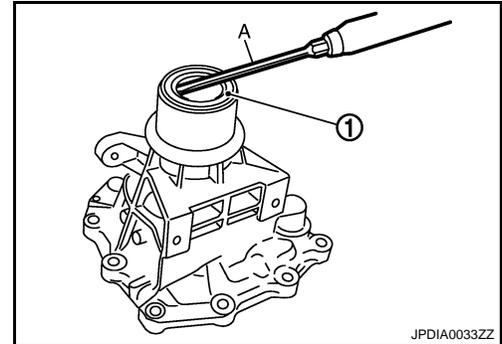
18. Remove return spring (1) from parking pawl (2).



19. Remove rear oil seal (1) from rear extension using flat-blade screwdriver (A).

CAUTION:

Be careful not to scratch rear extension.



INSTALLATION

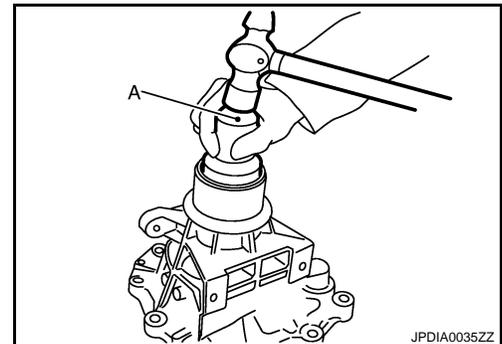
Note the following, and install in the reverse order of removal.

CAUTION:

- Do not reuse seal rings and drain plug gasket.
- Apply petroleum jelly to needle bearing and seal rings.
- Insert the tip of parking rod between the parking pawl and the parking actuator support when assembling the rear extension assembly.
- As shown in the figure, use a drift [SST: ST33400001 (J-26082)] (A) to drive rear oil seal into the rear extension until it is flush.

CAUTION:

- Do not reuse rear oil seal.
- Apply ATF to rear oil seal.



- Refer to the followings installing rear extension assembly.

PARKING COMPONENTS

< ON-VEHICLE REPAIR >

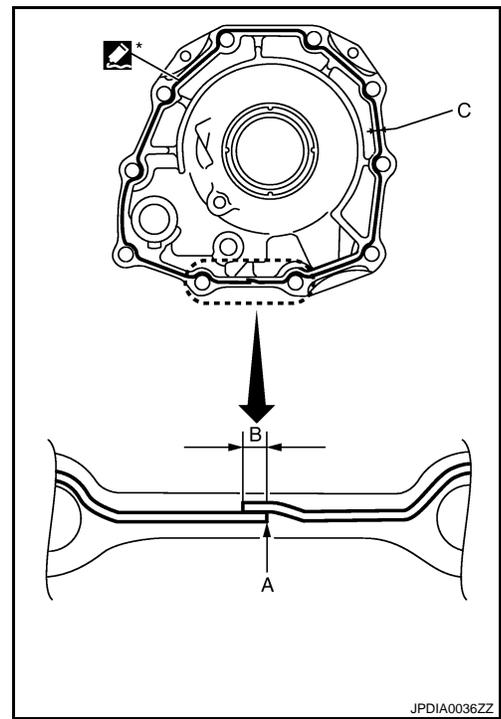
[5AT: RE5R05A]

- Apply recommended sealant (Genuine Anaerobic Liquid Gasket or equivalent. Refer to [GI-15, "Recommended Chemical Products and Sealants"](#).) to rear extension assembly as shown in the figure.

- A** : Start and finish point shall be in the center of two bolts.
- B** : 3 – 5 mm (0.12 – 0.20 in)
- Sealant width (C)** : 1.0 – 2.0 mm (0.04 – 0.08 in)
- Sealant height (C)** : 0.4 – 1.0 mm (0.016 – 0.04 in)

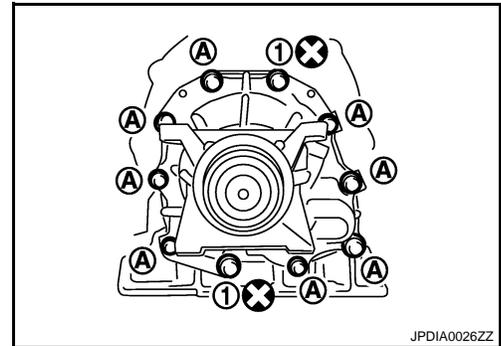
CAUTION:

Completely remove all moisture, oil and old sealant, etc. from the transmission case and rear extension assembly mounting surfaces.



- Tighten rear extension assembly bolts to the specified torque.

- 1 : Self-sealing bolt
- A : Bolt



2WD : Inspection

INFOID:000000003130619

INSPECTION AFTER REMOVAL

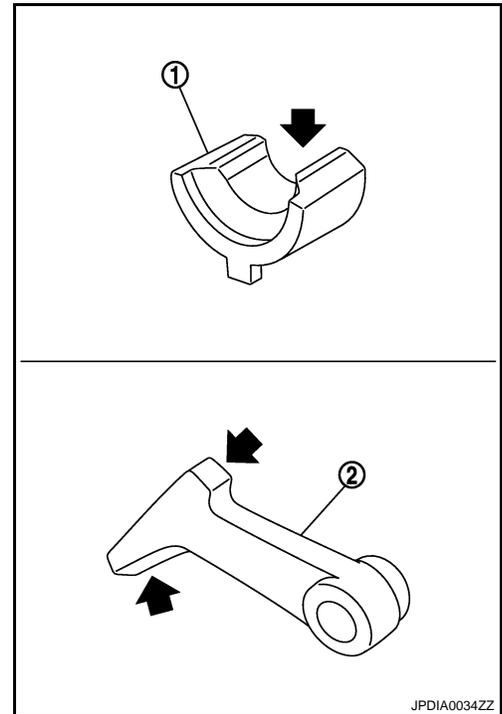
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PARKING COMPONENTS

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

If the contact surface on parking actuator support (1), parking pawl (2) and etc. has excessive wear, abrasion, bend, or any other damage, replace the components.



INSPECTION AFTER INSTALLATION

Check the following item after completing installation.

- A/T fluid leakage and A/T fluid level. Refer to [TM-141, "Inspection"](#).
- A/T position. Refer to [TM-153, "2WD : Inspection and Adjustment"](#).

REAR OIL SEAL

< ON-VEHICLE REPAIR >

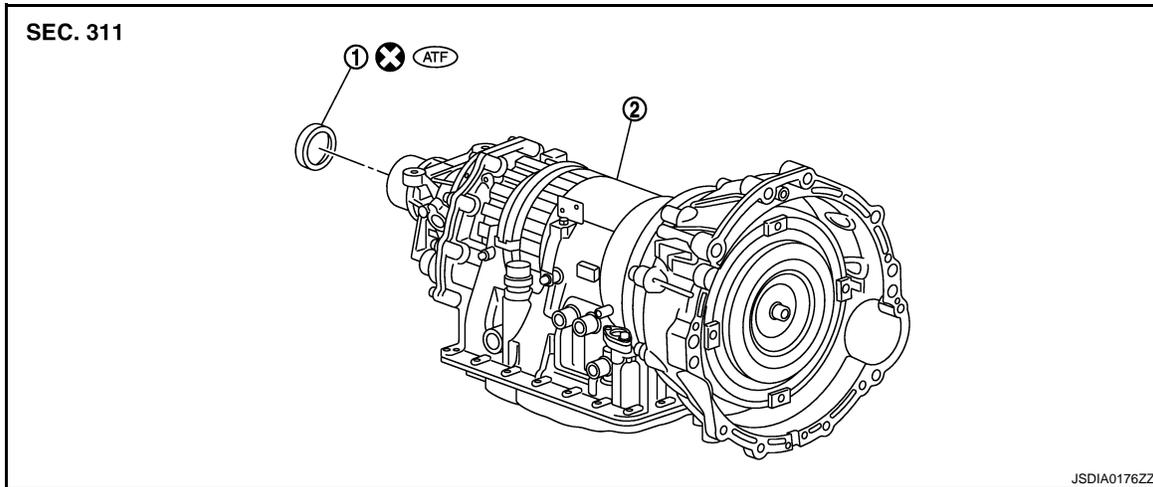
[5AT: RE5R05A]

REAR OIL SEAL

2WD

2WD : Exploded View

INFOID:000000003130620



1. Rear oil seal
 2. A/T
- Refer to [GI-4. "Components"](#) for symbols in the figure.

2WD : Removal and Installation

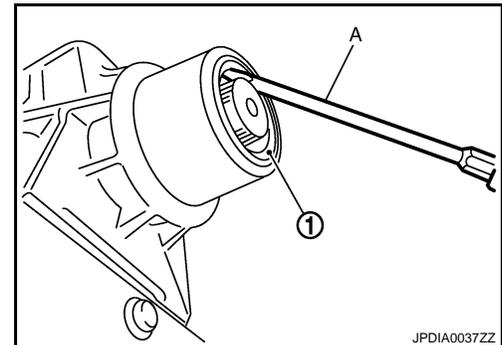
INFOID:000000003130621

REMOVAL

1. Remove exhaust front tube and center muffler with power tool. Refer to [EX-5. "Exploded View"](#).
2. Remove rear propeller shaft. Refer to [DLN-81. "Exploded View"](#).
3. Remove rear oil seal (1) using a flat-bladed screwdriver (A).

CAUTION:

Be careful not to scratch rear extension assembly.



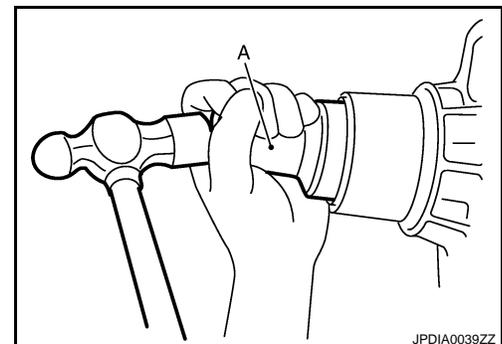
INSTALLATION

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

- As shown in the figure, use the drift [SST: ST33400001 (J-26082)] (A) to drive rear oil seal into rear extension assembly until it is flush.

CAUTION:

- Do not reuse rear oil seal.
- Apply ATF to rear oil seal.



REAR OIL SEAL

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

2WD : Inspection

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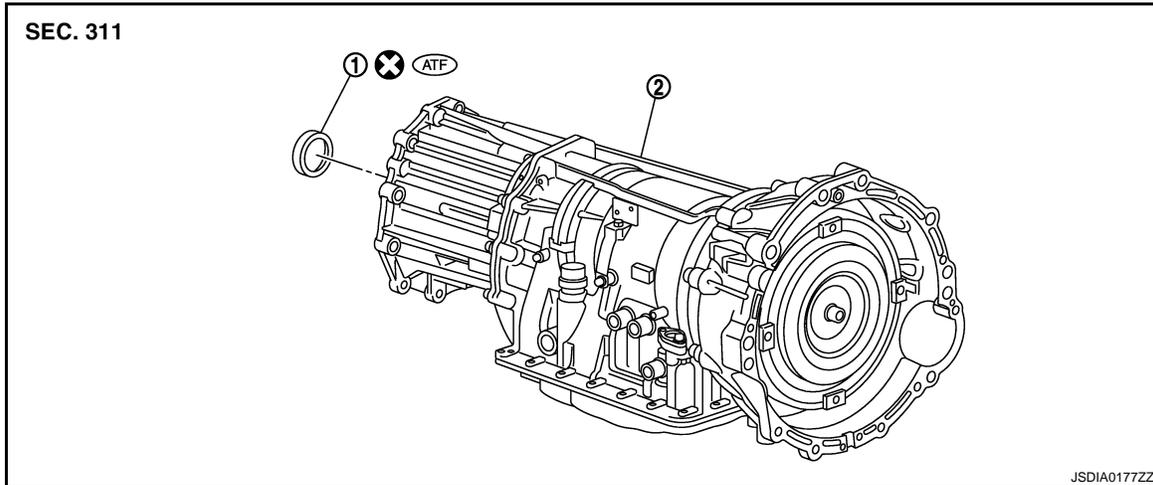
INSPECTION AFTER INSTALLATION

Check A/T fluid leakage and A/T fluid level after completing installation. Refer to [TM-141, "Inspection"](#).

AWD

AWD : Exploded View

INFOID:000000003130623



1. Rear oil seal
2. A/T

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

AWD : Removal and Installation

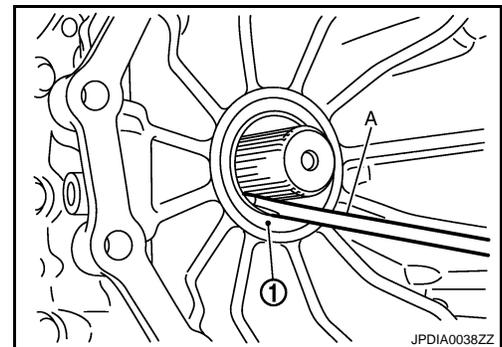
INFOID:000000003130624

REMOVAL

1. Remove exhaust front tube and center muffler with power tool. Refer to [EX-5, "Exploded View"](#).
2. Remove rear propeller shaft. Refer to [DLN-89, "Exploded View"](#).
3. Remove exhaust mounting bracket. Refer to [EX-5, "Exploded View"](#).
4. Remove three way catalyst (right bank). Refer to [EX-5, "Exploded View"](#).
5. Remove front propeller shaft. Refer to [DLN-75, "Exploded View"](#).
6. Remove transfer assembly from A/T assembly. Refer to [DLN-50, "Exploded View"](#).
7. Remove rear oil seal (1) using a flat-bladed screwdriver (A).

CAUTION:

Be careful not to scratch adapter case assembly.



INSTALLATION

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

REAR OIL SEAL

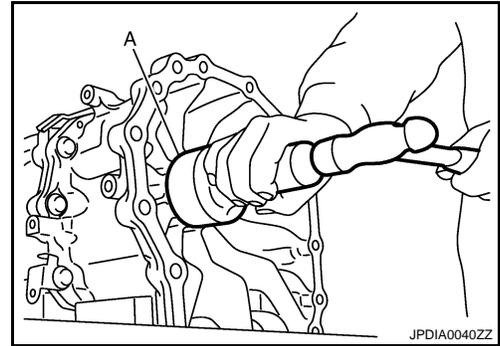
< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

- As shown in the figure, use the drift [64 mm (2.52 in) dia. commercial service tool] (A) to drive rear oil seal into adapter case assembly until it is flush.

CAUTION:

- Do not reuse rear oil seal.
- Apply ATF to rear oil seal.



AWD : Inspection

INSPECTION AFTER INSTALLATION

Check for A/T fluid leakage and A/T fluid level after completing installation. Refer to [TM-141. "Inspection"](#).

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REVOLUTION SENSOR

< ON-VEHICLE REPAIR >

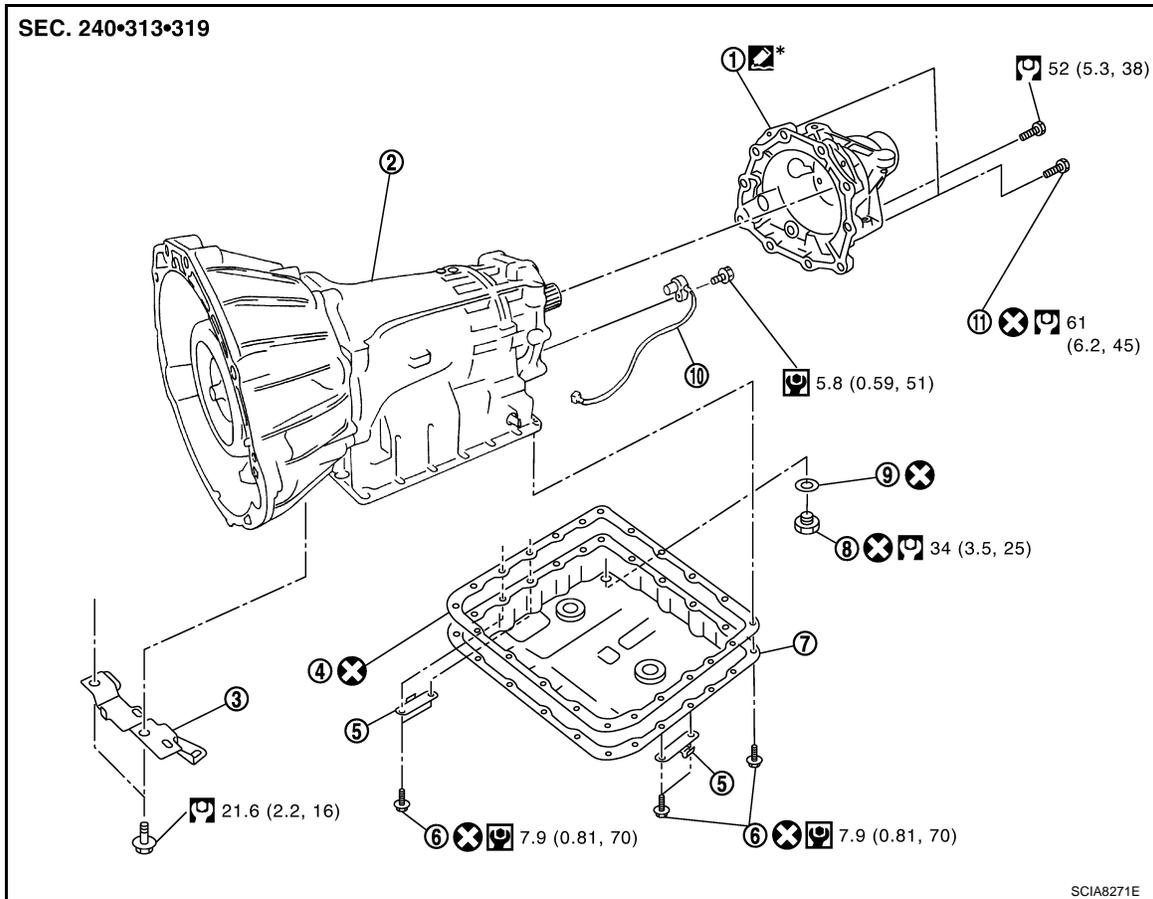
[5AT: RE5R05A]

REVOLUTION SENSOR

2WD

2WD : Exploded View

INFOID:000000003130626



- | | | |
|-----------------------|-----------------------|--------------------------|
| 1. Rear extension | 2. A/T | 3. Bracket |
| 4. Oil pan gasket | 5. Clip | 6. Oil pan mounting bolt |
| 7. Oil pan | 8. Drain plug | 9. Drain plug gasket |
| 10. Revolution sensor | 11. Self-sealing bolt | |

: Apply Genuine Anaerobic Liquid Gasket or equivalent. Refer to [GI-15, "Recommended Chemical Products and Sealants"](#).

Refer to [GI-4, "Components"](#) for symbols not described on the above.

2WD : Removal and Installation

INFOID:000000003130627

REMOVAL

1. Disconnect the battery cable from the negative terminal.
2. Drain ATF through drain plug.
3. Remove exhaust front tube and center muffler with power tool. Refer to [EX-5, "Exploded View"](#).
4. Remove rear propeller shaft. Refer to [DLN-81, "Exploded View"](#).
5. Remove control rod. Refer to [TM-161, "Exploded View"](#).
6. Remove exhaust mounting bracket. Refer to [EX-5, "Exploded View"](#).

REVOLUTION SENSOR

< ON-VEHICLE REPAIR >

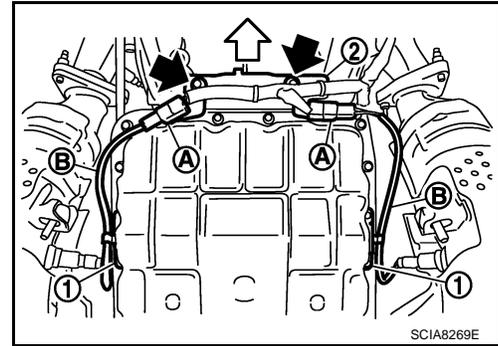
[5AT: RE5R05A]

7. Disconnect heated oxygen sensor 2 harness connectors (A).

↔ : Vehicle front

← : Bolt

8. Remove heated oxygen sensor 2 harness (B) from clips (1).
9. Remove bracket (2) from transmission assembly.



10. Remove clips (1).

3 : Drain plug

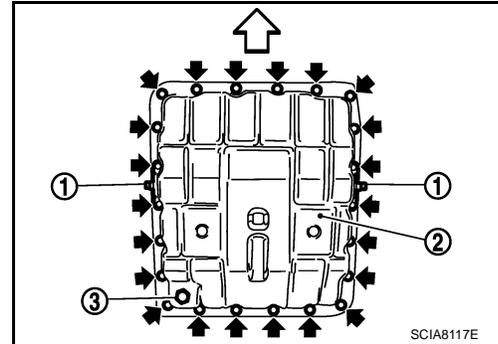
↔ : Vehicle front

← : Oil pan mounting bolt

11. Remove oil pan (2) and oil pan gasket.
12. Support A/T assembly with a transmission jack.

CAUTION:

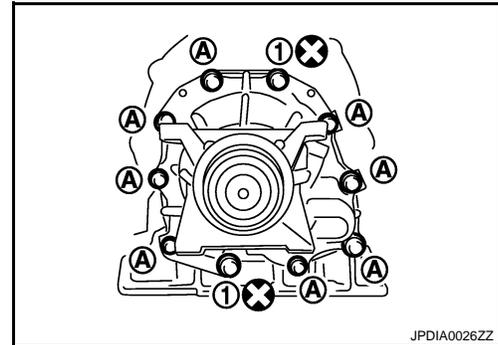
When setting transmission jack, place wooden blocks to prevent from damaging control valve with TCM and transmission case.



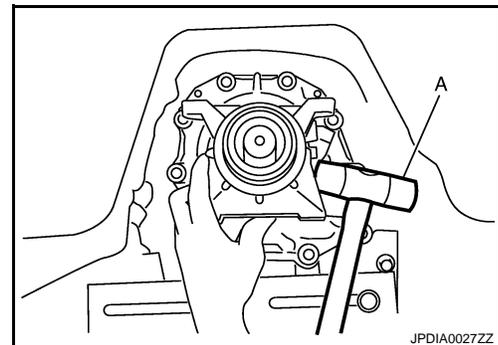
13. Remove rear engine mounting member with power tool. Refer to [EM-79. "2WD : Exploded View"](#).
14. Remove engine mounting insulator (rear). Refer to [EM-79. "2WD : Exploded View"](#).
15. Remove tightening bolts for rear extension assembly and transmission case.

1 : Self-sealing bolt

A : Bolt



16. Tap rear extension assembly with a soft hammer (A).



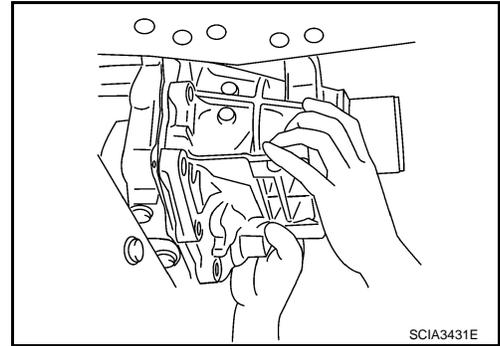
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REVOLUTION SENSOR

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

17. Remove rear extension assembly (with needle bearing) from transmission case.

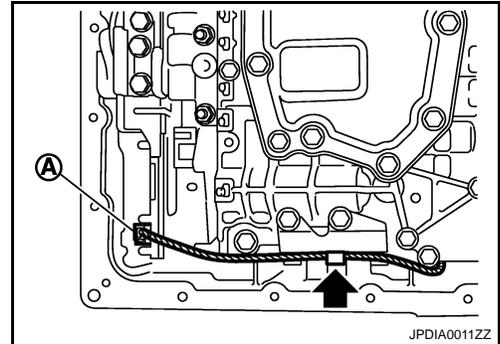


18. Disconnect revolution sensor connector (A).

CAUTION:

Be careful not to damage connector

19. Disengage terminal clip (←).

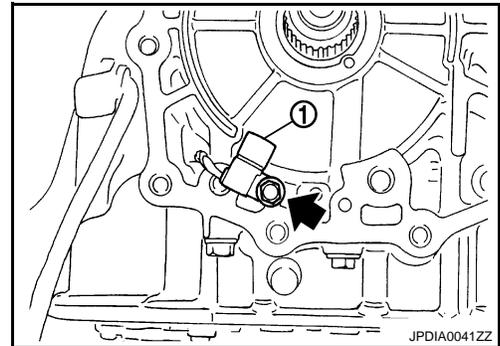


20. Remove revolution sensor (1) from transmission case.

← : Bolt

CAUTION:

- Do not subject it to impact by dropping or hitting it.
- Do not disassemble.
- Do not allow metal filings, etc. to get on the sensor's front edge magnetic area.
- Do not place in an area affected by magnetism.



INSTALLATION

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

CAUTION:

- Insert the tip of parking rod between the parking pole and the parking actuator support when assembling the rear extension assembly.
- Do not reuse drain plug gasket.
- Refer to the followings when revolution sensor.

CAUTION:

- Do not subject it to impact by dropping or hitting it.
 - Do not disassemble.
 - Do not allow metal filings, etc. to get on the sensor's front edge magnetic area.
 - Do not place in an area affected by magnetism.
- Refer to the followings when installing rear extension assembly.

REVOLUTION SENSOR

< ON-VEHICLE REPAIR >

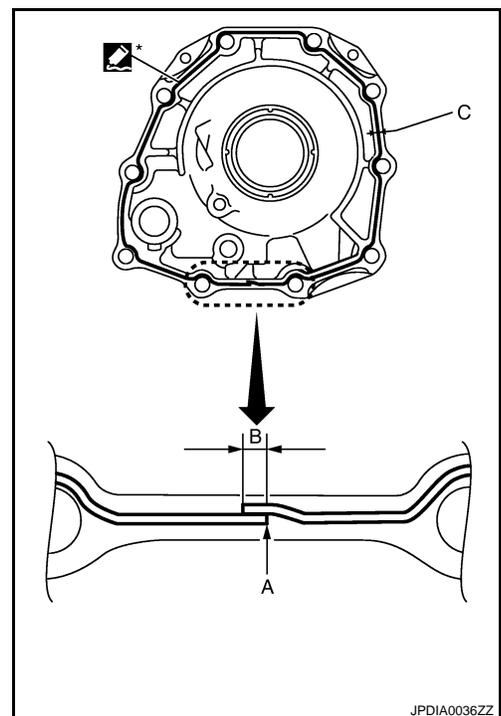
[5AT: RE5R05A]

- Apply recommended sealant (Genuine Anaerobic Liquid Gasket or equivalent. Refer to [GI-15, "Recommended Chemical Products and Sealants"](#).) to rear extension assembly as shown in the figure.

- A** : Start and finish point shall be in the center of two bolts.
- B** : 3 – 5 mm (0.12 – 0.20 in)
- Sealant width (C)** : 1.0 – 2.0 mm (0.04 – 0.08 in)
- Sealant height (C)** : 0.4 – 1.0 mm (0.016 – 0.04 in)

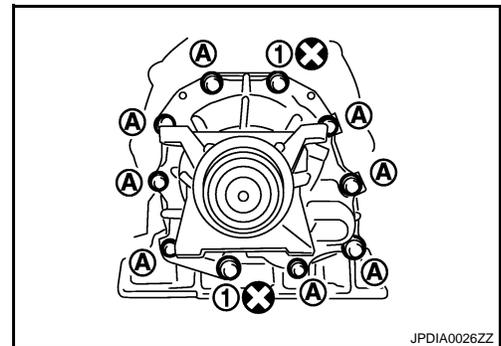
CAUTION:

Completely remove all moisture, oil and old sealant, etc. from transmission case and rear extension assembly mounting surfaces.



- Tighten rear extension assembly bolts to the specified torque.

- 1 : Self-searing bolt
- A : Bolt

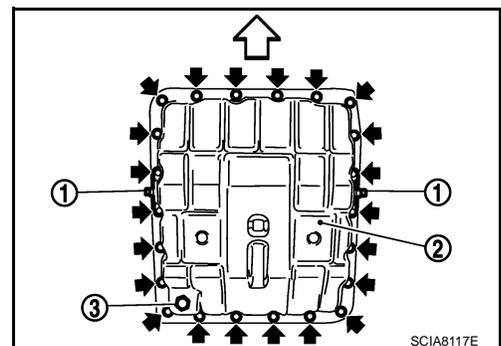


- Refer to the followings when installing oil pan (2) (with oil pan gasket) and clips (1) to transmission case.

- ⇐ : Vehicle front
- ⇐ : Oil pan mounting bolt

CAUTION:

- Do not reuse oil pan gasket and oil pan mounting gasket.
- Install oil pan gasket in the direction to align hole position.
- Install it so that drain plug (3) comes to the position as shown in the figure.
- Be careful not to pinch harnesses.
- Completely remove all moisture, oil and old gasket, etc. from oil pan mounting surface.



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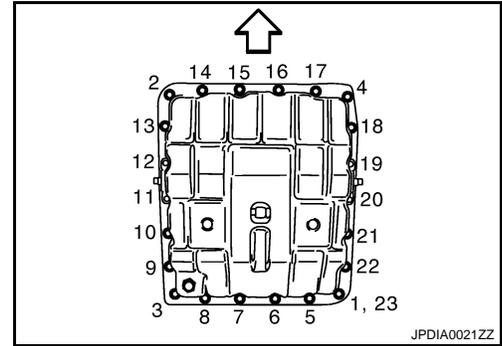
REVOLUTION SENSOR

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

- Tighten oil pan mounting bolts to the specified torque in numerical order shown in the figure after temporarily tightening them. Tighten necessary oil pan mounting bolts with specified torque.

← : Vehicle front



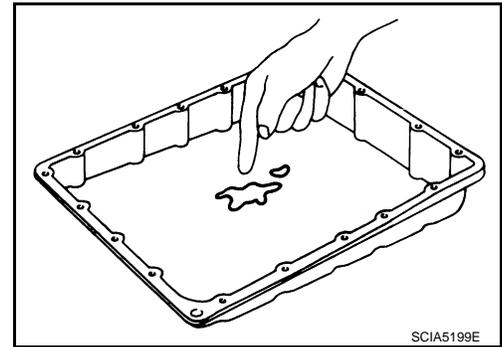
2WD : Inspection

INFOID:000000003130628

INSPECTION AFTER REMOVAL

Check foreign materials in oil pan to help determine causes of malfunction. If the ATF is very dark, smells burned, or contains foreign particles, the frictional material (clutches, band) may need replacement. A tacky film that will not wipe clean indicates varnish build up. Varnish can cause valves, servo, and clutches to stick and can inhibit pump pressure.

- If frictional material is detected, perform A/T fluid cooler cleaning. Refer to [TM-143, "Cleaning"](#).



INSPECTION AFTER INSTALLATION

Check the following item after completing installation.

- A/T fluid leakage and A/T fluid level. Refer to [TM-141, "Inspection"](#).
- A/T position. Refer to [TM-153, "2WD : Inspection and Adjustment"](#).

AIR BREATHER HOSE

< ON-VEHICLE REPAIR >

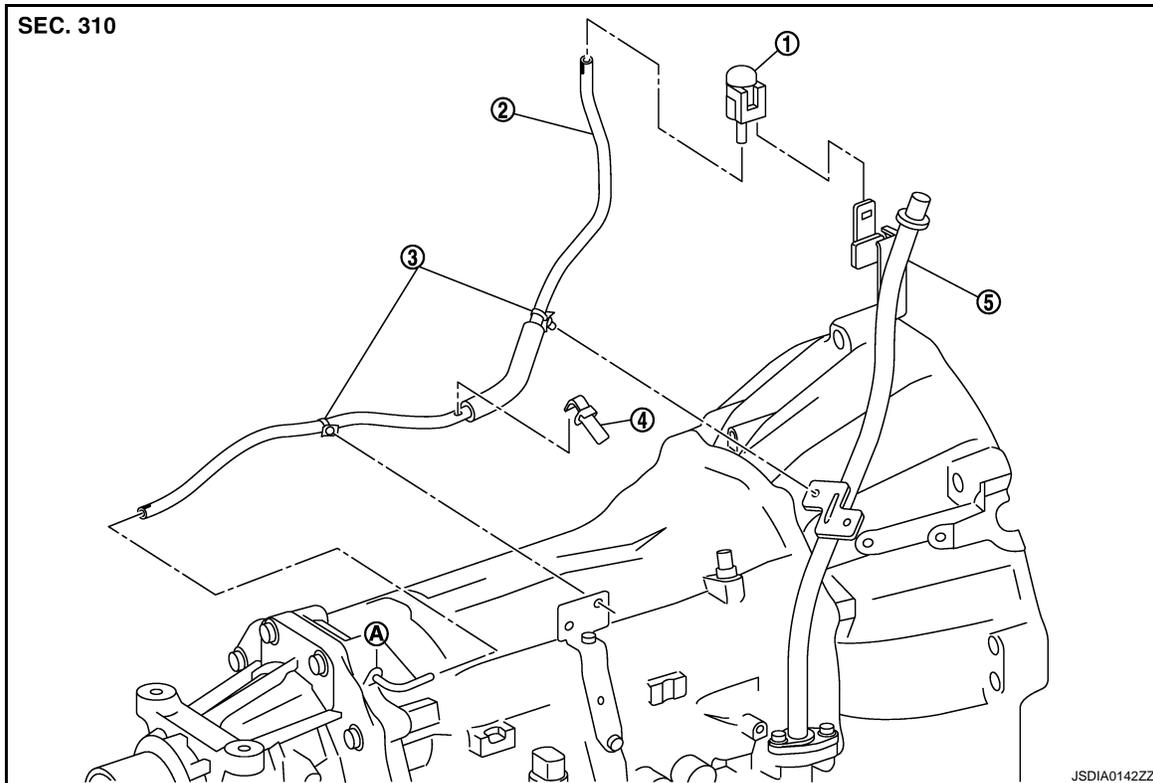
[5AT: RE5R05A]

AIR BREATHER HOSE

2WD

2WD : Exploded View

INFOID:000000003130629



- | | | |
|----------------------|----------------------------|---------|
| 1. Air breather box | 2. Air breather hose | 3. Clip |
| 4. Clip | 5. A/T fluid charging pipe | |
| A. Air breather tube | | |

2WD : Removal and Installation

INFOID:000000003130630

REMOVAL

1. Remove air cleaner case (RH). Refer to [EM-27, "Exploded View"](#).
2. Remove exhaust front tube and center muffler with power tool. Refer to [EX-5, "Exploded View"](#).
3. Remove exhaust mounting bracket. Refer to [EX-5, "Exploded View"](#).
4. Remove three way catalyst (right bank). Refer to [EX-5, "Exploded View"](#).
5. Remove air breather hose.

INSTALLATION

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

CAUTION:

- When installing an air breather hose, do not to crush or block by folding or bending the hose.
- When inserting an air breather hose to the air breather tube, be sure to insert it fully until its end reaches the tube bend "R" portion.
- Install air breather hose to air breather tube so that the paint mark is facing upward.
- Ensure clips are securely installed to brackets when installing air breather hose to brackets.
- When inserting air breather hose to air breather box, be sure to insert it fully until its end reaches the stop.
- Install air breather hose to air breather box so that the paint mark is facing backward.

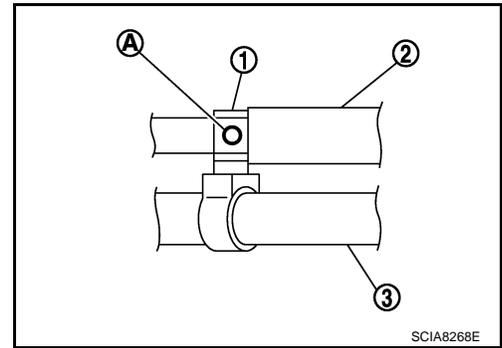
AIR BREATHER HOSE

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

- Install clip (1) at the paint mark (A).

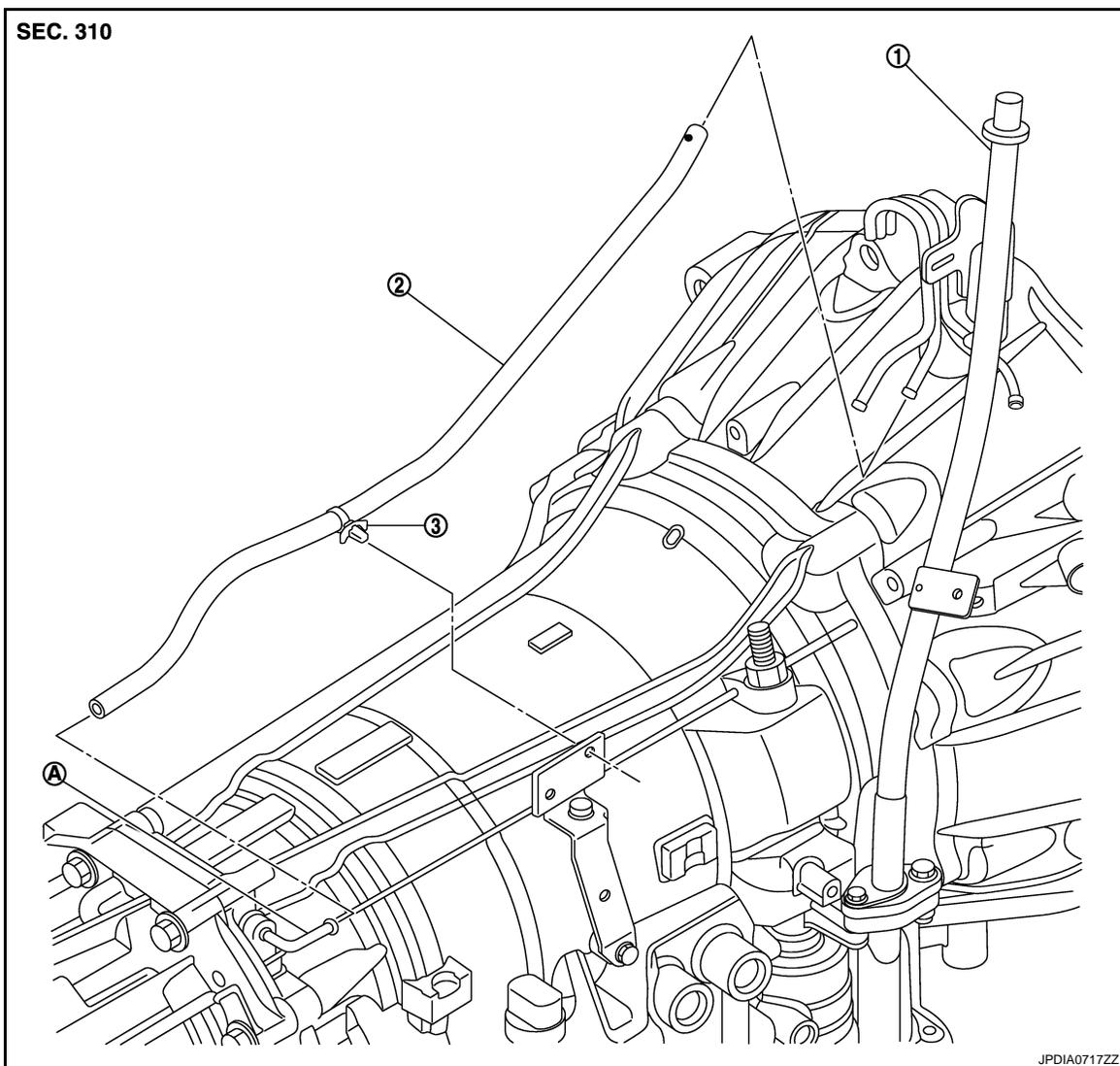
- 2 : Air breather hose
- 3 : Harness



AWD

AWD : Exploded View

INFOID:000000003130631



- 1. A/T fluid charging pipe
- 2. Air breather hose
- 3. Clip
- A. Air breather tube

AWD : Removal and Installation

INFOID:000000003130632

REMOVAL

1. Remove air cleaner case (RH). Refer to [EM-27, "Exploded View"](#).

AIR BREATHER HOSE

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

2. Remove exhaust front tube and center muffler with power tool. Refer to [EX-5. "Exploded View"](#).
3. Remove exhaust mounting bracket. Refer to [EX-5. "Exploded View"](#).
4. Remove three way catalyst (right bank). Refer to [EX-5. "Exploded View"](#).
5. Remove air breather hose.

A
B

INSTALLATION

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

CAUTION:

- When installing an air breather hose, be careful not to be crushed or blocked by folding or bending the hose.
- When inserting an air breather hose to the air breather tube, be sure to insert it fully until its end reaches the tube bend "R" portion.
- Install air breather hose to air breather tube so that the paint mark is facing upward.

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A/T FLUID COOLER TUBE

< ON-VEHICLE REPAIR >

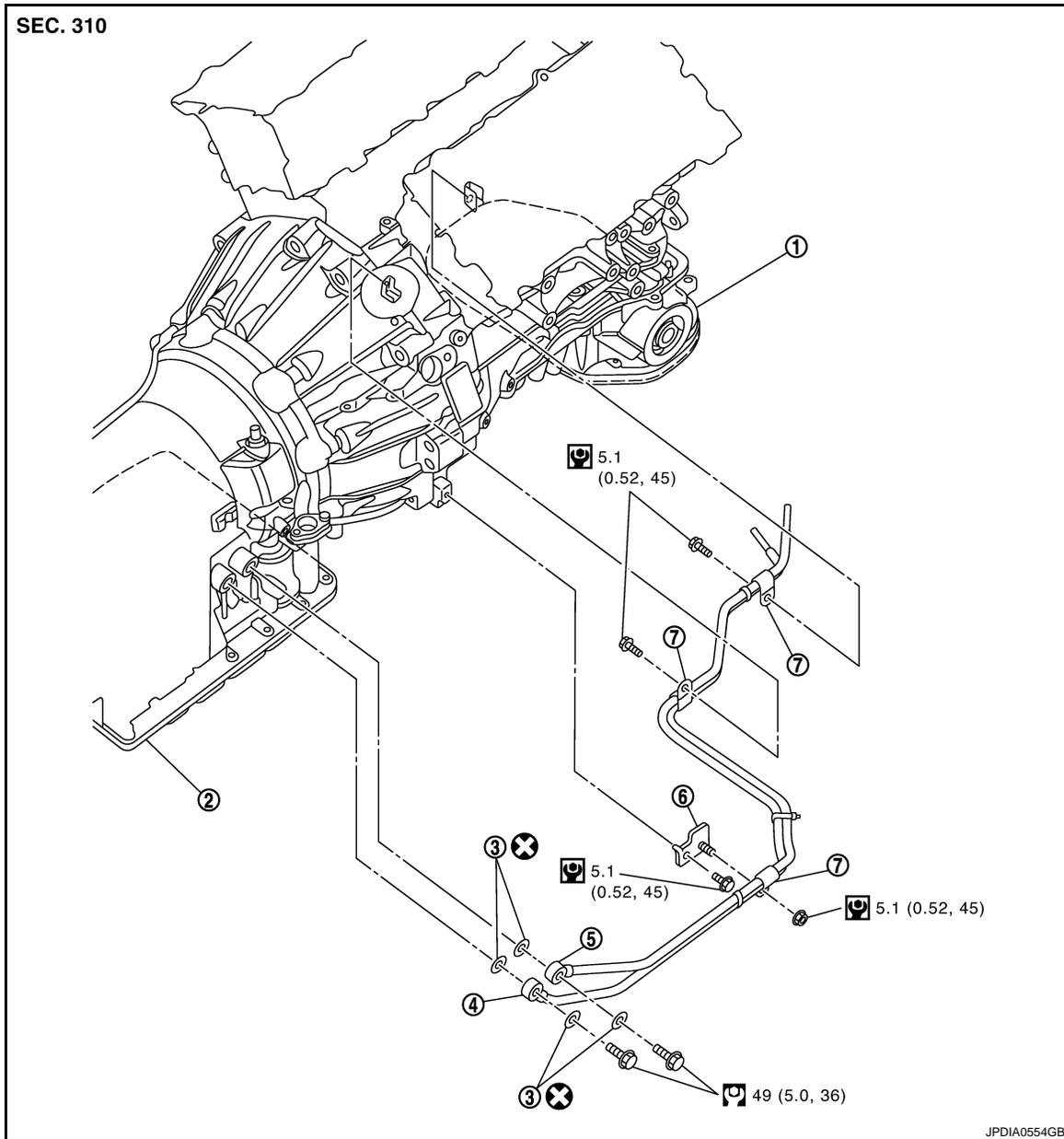
[5AT: RE5R05A]

A/T FLUID COOLER TUBE

2WD

2WD : Exploded View

INFOID:000000003130633



- | | | |
|--------------------------|--------------------------|------------------|
| 1. Engine assembly | 2. A/T assembly | 3. Copper washer |
| 4. A/T fluid cooler tube | 5. A/T fluid cooler tube | 6. Bracket |
| 7. Clip | | |

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

2WD : Removal and Installation

INFOID:000000003130634

REMOVAL

1. Remove the engine lower cover with power tool. Refer to [EXT-31, "Exploded View"](#).
2. Remove the exhaust mounting bracket. Refer to [EX-5, "Exploded View"](#).
3. Remove the suspension member stay. Refer to [FSU-18, "Exploded View"](#).

A/T FLUID COOLER TUBE

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

4. Pull out the A/T fluid cooler hose from the A/T fluid cooler tube. Refer to [CO-13. "Exploded View"](#)
5. Remove the A/T fluid cooler tube from the A/T assembly and engine assembly.
6. Remove the stabilizer bar. Refer to [FSU-17. "Exploded View"](#).
7. Loosen the lower mounting nuts for the engine mounting insulators (RH and LH). Refer to [EM-79. "2WD : Exploded View"](#).
8. Set a jack to the engine assembly and slightly lift the engine assembly.
CAUTION:
Do not pull the harnesses, hoses, etc. excessively.
9. Remove the A/T fluid cooler tube from the vehicle.
CAUTION:
Be careful not to bend A/T fluid cooler tube.

INSTALLATION

Install in the reverse order of removal.

2WD : Inspection

INFOID:000000003130635

INSPECTION AFTER INSTALLATION

Check for A/T fluid leakage and A/T fluid level after completing installation. Refer to [TM-141. "Inspection"](#).

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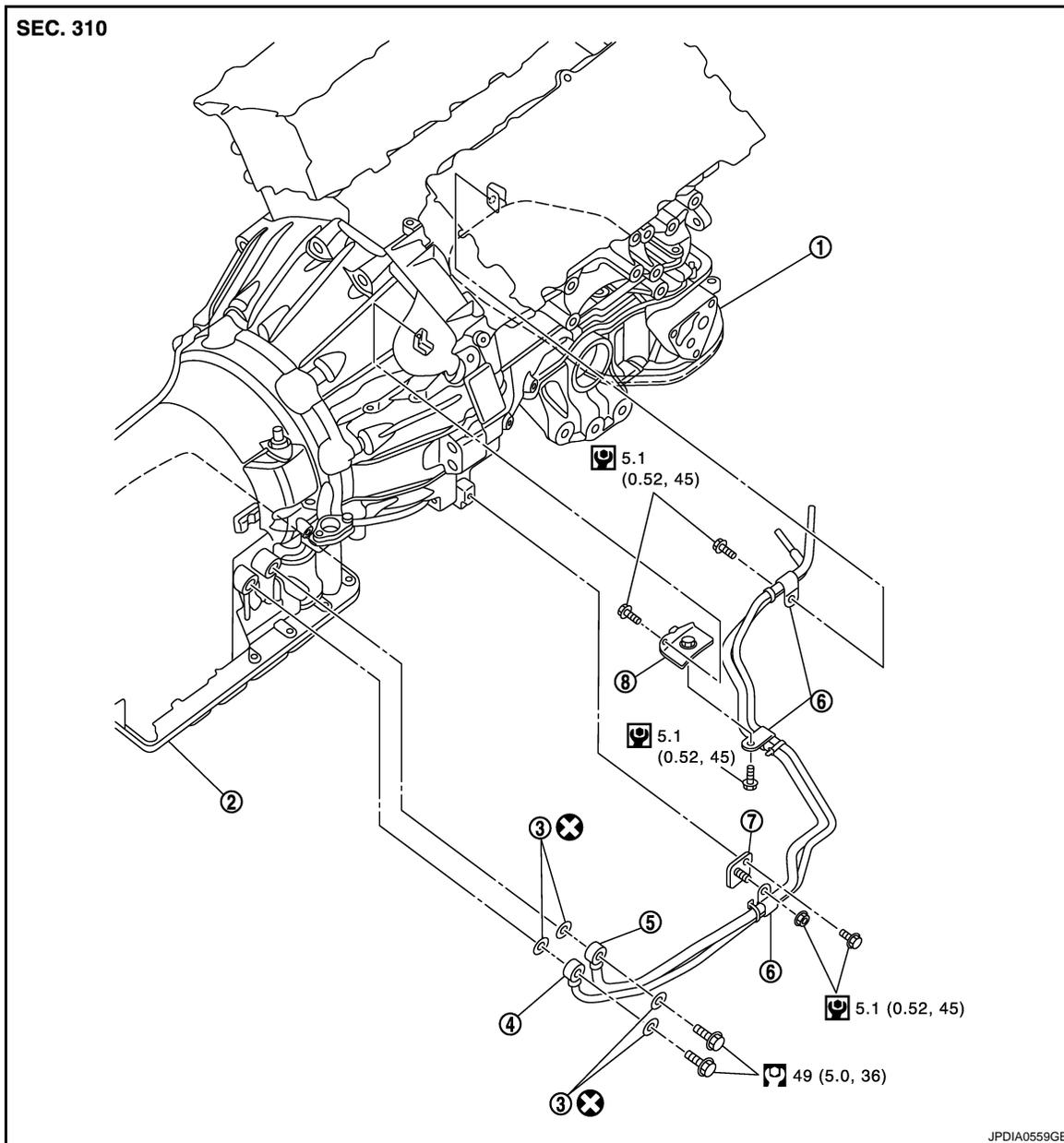
A/T FLUID COOLER TUBE

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

AWD : Exploded View

INFOID:000000003130636



- | | | |
|--------------------------|--------------------------|------------------|
| 1. Engine assembly | 2. A/T assembly | 3. Copper washer |
| 4. A/T fluid cooler tube | 5. A/T fluid cooler tube | 6. Clip |
| 7. Bracket | 8. Bracket | |

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

AWD : Removal and Installation

INFOID:000000003130637

REMOVAL

1. Remove the engine lower cover and front under cover with power tool. Refer to [EXT-31, "Exploded View"](#).
2. Remove the front suspension member. Refer to [FSU-37, "Exploded View"](#).
3. Remove exhaust front tube and center muffler with power tool. Refer to [EX-5, "Exploded View"](#).
4. Remove exhaust mounting bracket. Refer to [EX-5, "Exploded View"](#).
5. Remove the three way catalyst (right bank). Refer to [EX-5, "Exploded View"](#).
6. Remove front propeller shaft. Refer to [DLN-75, "Exploded View"](#).

A/T FLUID COOLER TUBE

< ON-VEHICLE REPAIR >

[5AT: RE5R05A]

7. Pull out the A/T fluid cooler hose from the A/T fluid cooler tube. Refer to [CO-13. "Exploded View"](#).
8. Remove the A/T fluid cooler tube from the A/T assembly and engine assembly.

CAUTION:

Be careful not to bend A/T fluid cooler tube.

INSTALLATION

Install in the reverse order of removal.

AWD : Inspection

INFOID:000000003130638

INSPECTION AFTER INSTALLATION

Check for A/T fluid leakage and A/T fluid level after completing installation. Refer to [TM-141. "Inspection"](#).

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TRANSMISSION ASSEMBLY

< REMOVAL AND INSTALLATION >

[5AT: RE5R05A]

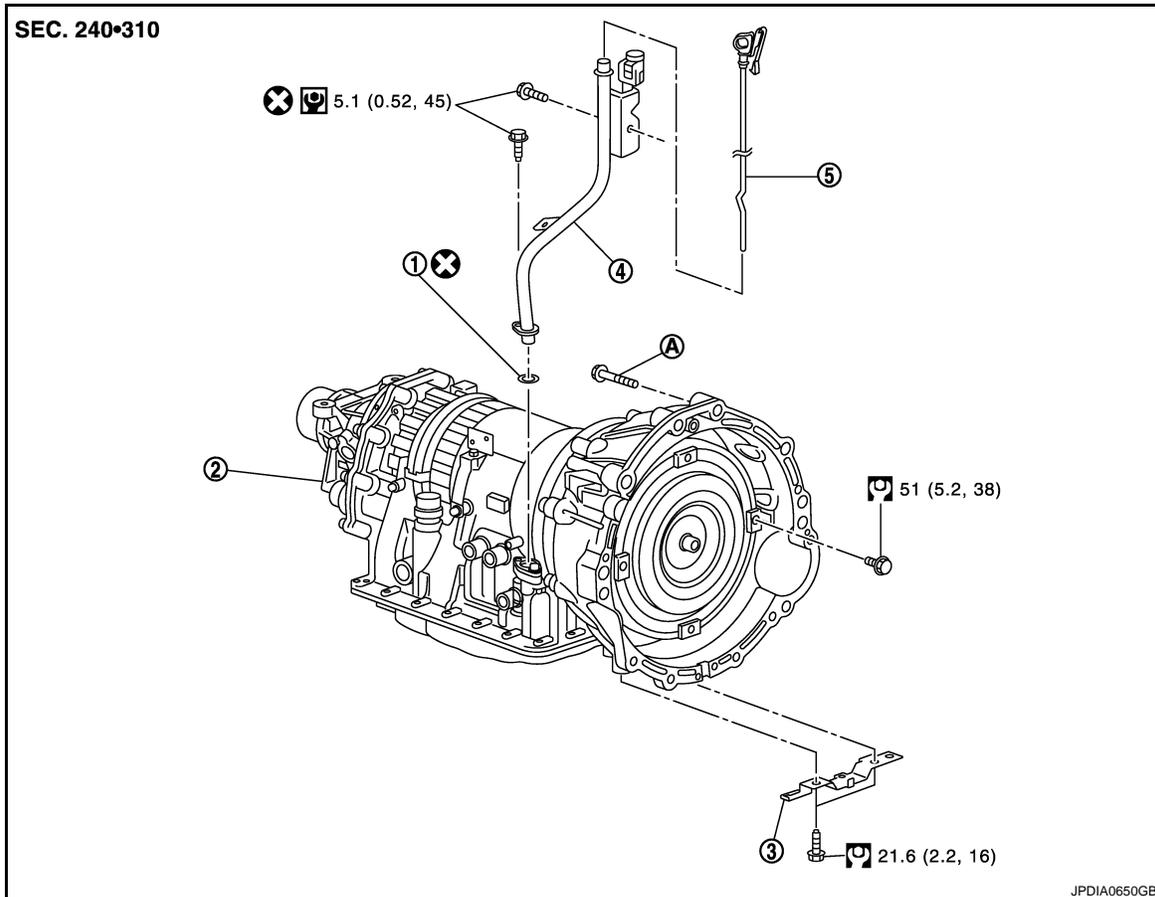
REMOVAL AND INSTALLATION

TRANSMISSION ASSEMBLY

2WD

2WD : Exploded View

INFOID:000000003130639



- | | | |
|----------------------------|--------------------------|------------|
| 1. O-ring | 2. A/T assembly | 3. Bracket |
| 4. A/T fluid charging pipe | 5. A/T fluid level gauge | |

A. For tightening torque, refer to [TM-192, "2WD : Removal and Installation"](#).

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

2WD : Removal and Installation

INFOID:000000003130640

REMOVAL

CAUTION:

- When removing the A/T assembly from engine, first remove the crankshaft position sensor (POS) from the A/T assembly.
- Be careful not to damage sensor edge.

1. Disconnect the battery cable from the negative terminal.
2. Remove A/T fluid level gauge.
3. Remove air cleaner case (RH). Refer to [EM-27, "Exploded View"](#).
4. Remove engine lower cover with power tool. Refer to [EXT-31, "Exploded View"](#).
5. Remove exhaust front tube and center muffler with power tool. Refer to [EX-5, "Exploded View"](#).
6. Remove rear propeller shaft. Refer to [DLN-81, "Exploded View"](#).

TRANSMISSION ASSEMBLY

< REMOVAL AND INSTALLATION >

[5AT: RE5R05A]

- Remove suspension member stay. Refer to [FSU-18, "Exploded View"](#).
- Remove exhaust mounting bracket. Refer to [EX-5, "Exploded View"](#).
- Disconnect heated oxygen sensor 2 harness connectors (A).

↔ : Vehicle front

← : Bolt

- Remove heated oxygen sensor 2 harness (B) from clips (1).
- Remove bracket (2) from transmission assembly.
- Remove control rod. Refer to [TM-161, "Exploded View"](#).
- Remove crankshaft position sensor (POS) from A/T assembly. Refer to [EM-114, "Exploded View"](#).

CAUTION:

- Do not subject it to impact by dropping or hitting it.
- Do not disassemble.
- Do not allow metal filings, etc. to get on the sensor's front edge magnetic area.
- Do not place in an area affected by magnetism.

- Remove starter motor. Refer to [STR-15, "Exploded View"](#).
- Remove rear plate cover. Refer to [EM-43, "Exploded View \(2WD\)"](#).
- Turn crankshaft, and remove the four tightening bolts for drive plate and torque converter.

CAUTION:

When turning the crankshaft, turn it clockwise as viewed from the front of the engine.

- Support A/T assembly with a transmission jack.

CAUTION:

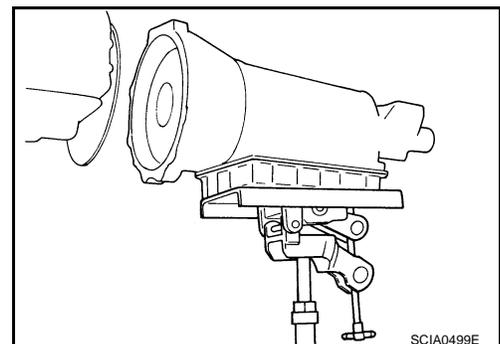
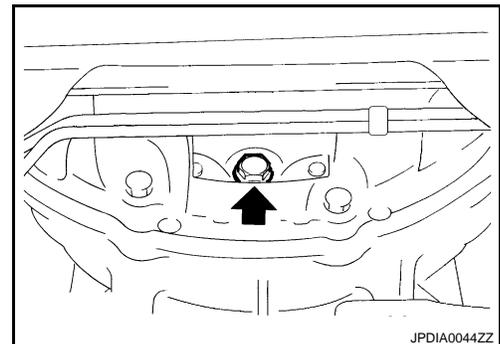
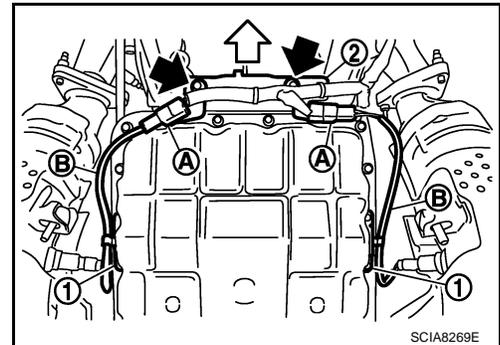
When setting the transmission jack, be careful not to allow it to collide against the drain plug.

- Remove rear engine mounting member with power tool. Refer to [EM-79, "2WD : Exploded View"](#).
- Remove engine mounting insulator (rear). Refer to [EM-79, "2WD : Exploded View"](#).
- Disconnect A/T assembly harness connector and harness clips.
- Remove air breather hose. Refer to [TM-185, "2WD : Exploded View"](#).
- Remove A/T fluid charging pipe from A/T assembly.
- Remove O-ring from A/T fluid charging pipe.
- Disconnect fluid cooler tube from A/T assembly. Refer to [TM-188, "2WD : Exploded View"](#).
- Plug up openings such as the A/T fluid charging pipe hole, etc.
- Remove bolts fixing A/T assembly to engine assembly with power tool.
- Remove A/T assembly from vehicle.

CAUTION:

- Secure torque converter to prevent it from dropping.
- Secure A/T assembly to a transmission jack.

- Remove dynamic damper. Refer to [EM-79, "2WD : Exploded View"](#).



INSTALLATION

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

TRANSMISSION ASSEMBLY

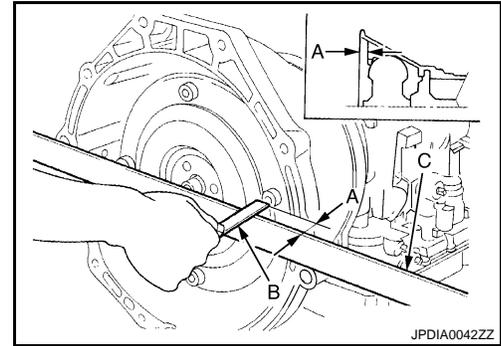
< REMOVAL AND INSTALLATION >

[5AT: RE5R05A]

- When installing A/T assembly to the engine assembly, be sure to check distance (A) to ensure it is within the reference value limit.

B : Scale
C : Straightedge

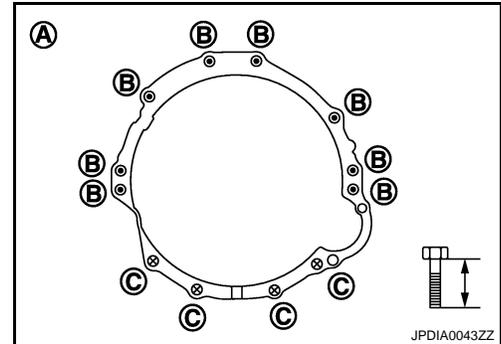
Distance (A) : Refer to [TM-270, "Torque Converter"](#)



JPDIA0042ZZ

- When installing A/T assembly to the engine assembly, attach the fixing bolts in accordance with the following standard.

A : View from vehicle front
 ● : Transmission to engine
 ⊗ : Engine to transmission



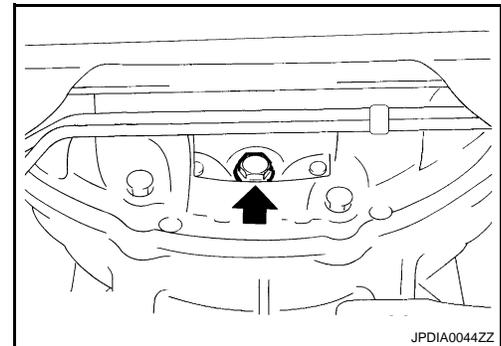
JPDIA0043ZZ

Bolt symbol	B	C
Number of bolts	8	4
Bolt length mm (in)	65 (2.56)	35 (1.38)
Tightening torque N·m (kg·m, ft·lb)	75 (7.7, 55)	46.6 (4.8, 34)

- Align the positions of tightening bolts for drive plate with those of the torque converter, and temporarily tighten the bolts. Then, tighten the bolts with the specified torque.

CAUTION:

- When turning crankshaft, turn it clockwise as viewed from the front of the engine.
- When tightening the tightening bolts for the torque converter after fixing the crankshaft pulley bolts, be sure to confirm the tightening torque of the crankshaft pulley mounting bolts. Refer to [EM-50, "Exploded View"](#).
- Rotate crankshaft several turns and check to be sure that A/T rotates freely without binding after converter is installed to drive plate.
- Install crankshaft position sensor (POS). Refer to [EM-114, "Exploded View"](#).



JPDIA0044ZZ

2WD : Inspection

INFOID:000000003130641

INSPECTION AFTER INSTALLATION

Check the following item after completing installation.

- A/T fluid leakage and A/T fluid level. Refer to [TM-141, "Inspection"](#).
- A/T position. Refer to [TM-153, "2WD : Inspection and Adjustment"](#).

AWD

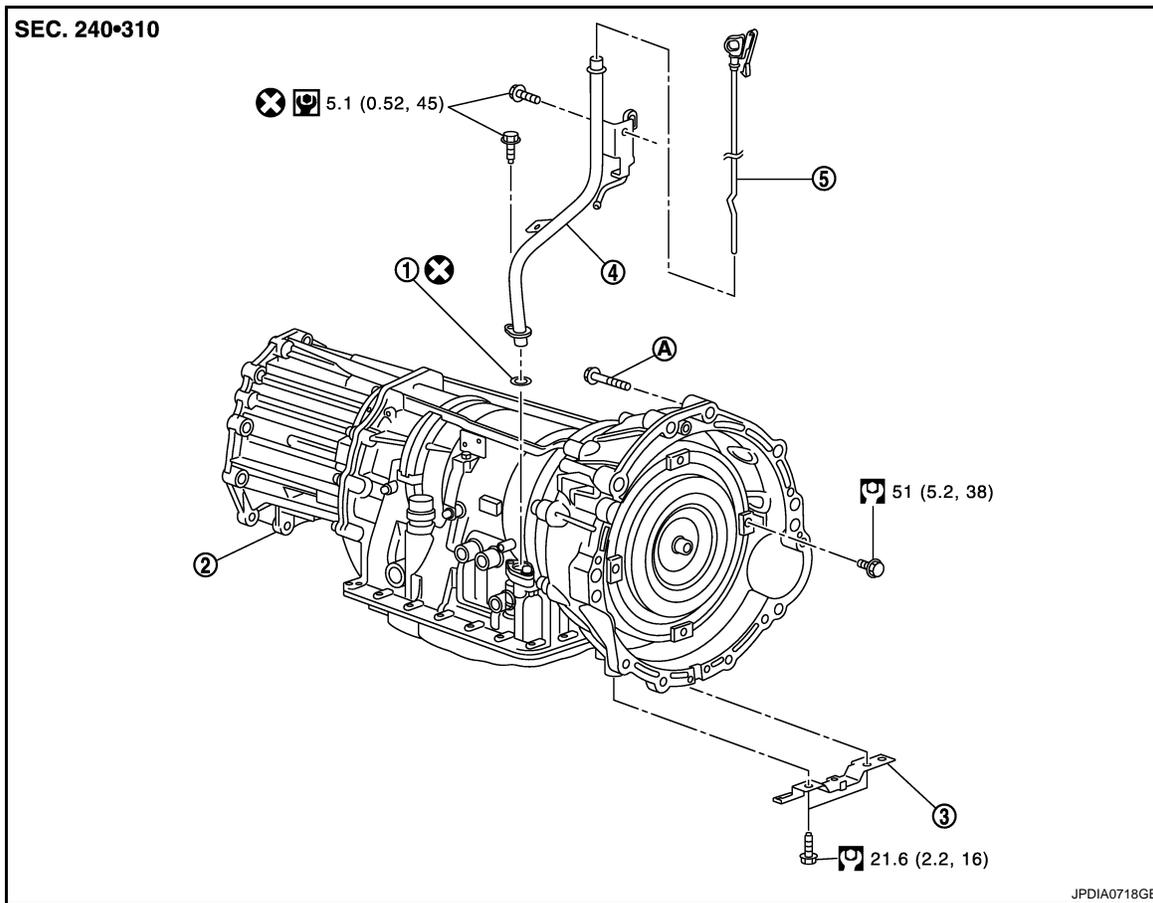
TRANSMISSION ASSEMBLY

< REMOVAL AND INSTALLATION >

[5AT: RE5R05A]

AWD : Exploded View

INFOID:000000003130642



- | | | |
|---|--------------------------|------------|
| 1. O-ring | 2. A/T assembly | 3. Bracket |
| 4. A/T fluid charging pipe | 5. A/T fluid level gauge | |
| A. For tightening torque, Refer to TM-192 , "2WD : Removal and Installation". | | |

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

AWD : Removal and Installation

INFOID:000000003130643

REMOVAL

CAUTION:

- When removing the A/T assembly from engine, first remove the crankshaft position sensor (POS) from the A/T assembly.
- Be careful not to damage sensor edge.

1. Disconnect the battery cable from the negative terminal.
2. Remove A/T fluid level gauge.
3. Remove air cleaner case (RH). Refer to [EM-27](#), "Exploded View".
4. Remove engine lower cover and front under cover with power tool. Refer to [EXT-31](#), "Exploded View".
5. Remove exhaust front tube and center muffler and with power tool. Refer to [EX-5](#), "Exploded View".
6. Remove rear propeller shaft. Refer to [DLN-89](#), "Exploded View".
7. Remove front cross bar with power tool. Refer to [FSU-37](#), "Exploded View".
8. Remove exhaust mounting bracket. Refer to [EX-5](#), "Exploded View".

TRANSMISSION ASSEMBLY

< REMOVAL AND INSTALLATION >

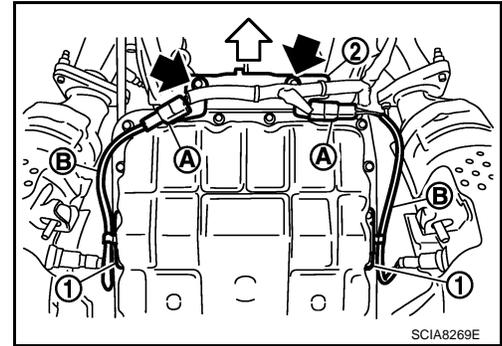
[5AT: RE5R05A]

9. Disconnect heated oxygen sensor 2 harness connectors (A).

⇐ : Vehicle front

← : Bolt

10. Remove heated oxygen sensor 2 harness (B) from clips (1).
11. Remove bracket (2) from transmission assembly.
12. Remove three way catalyst (right bank). Refer to [EX-5. "Exploded View"](#).
13. Remove front propeller shaft. Refer to [DLN-75. "Exploded View"](#).
14. Remove control rod. Refer to [TM-161. "Exploded View"](#).
15. Remove crankshaft position sensor (POS) from A/T assembly. Refer to [EM-114. "Exploded View"](#).

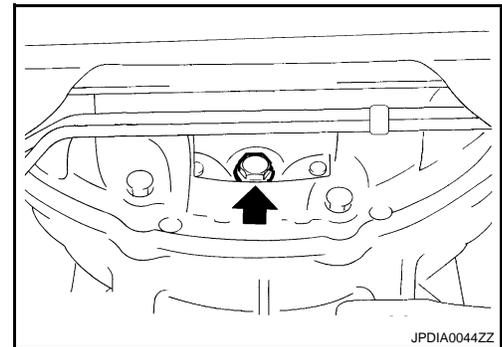


16. Remove starter motor. Refer to [STR-15. "Exploded View"](#).
17. Remove rear plate cover. Refer to [EM-44. "Exploded View \(AWD\)"](#).
18. Turn crankshaft, and remove the four tightening bolts for drive plate and torque converter.

CAUTION:

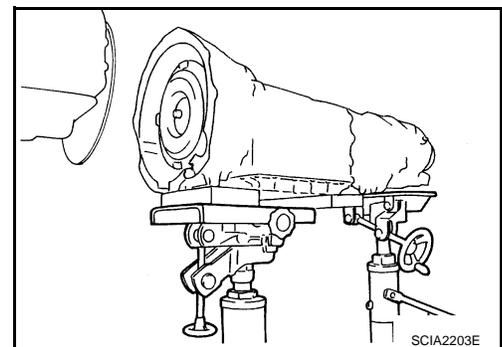
• Do not subject it to impact by dropping or hitting it.
• Do not disassemble.
• Do not allow metal filings, etc. to get on the sensor's front edge magnetic area.
• Do not place in an area affected by magnetism.

19. Support A/T assembly with a transmission jack.
20. Remove rear engine mounting member with power tool. Refer to [EM-83. "AWD : Exploded View"](#).



21. Remove engine mounting insulator (rear). Refer to [EM-83. "AWD : Exploded View"](#).
22. Remove dynamic damper. Refer to [EM-83. "AWD : Exploded View"](#).
23. Disconnect A/T assembly harness connector and harness clips.
24. Remove air breather hose. Refer to [TM-186. "AWD : Exploded View"](#).
25. Remove A/T fluid charging pipe from A/T assembly.
26. Remove O-ring from A/T fluid charging pipe.
27. Disconnect fluid cooler tube from the A/T assembly. Refer to [TM-190. "AWD : Exploded View"](#).
28. Plug up openings such as the A/T fluid charging pipe hole, etc.
29. Remove bolts fixing A/T assembly to engine assembly with power tool.

30. Remove A/T assembly with transfer assembly from vehicle.
CAUTION:
• Secure torque converter to prevent it from dropping.
• Secure A/T assembly to a transmission jack.
31. Remove transfer assembly from A/T assembly with power tool. Refer to [DLN-50. "Exploded View"](#).



INSTALLATION

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

TRANSMISSION ASSEMBLY

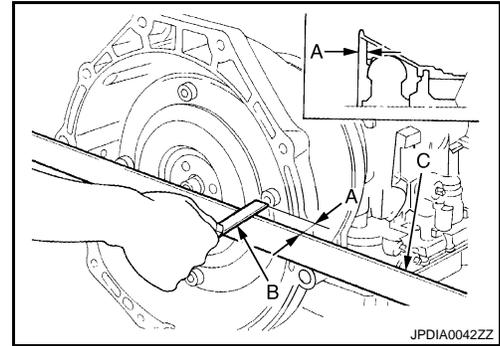
< REMOVAL AND INSTALLATION >

[5AT: RE5R05A]

- When installing A/T assembly to the engine assembly, be sure to check distance (A) to ensure it is within the reference value limit.

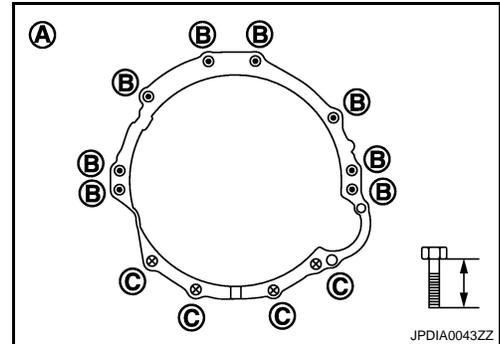
B : Scale
C : Straightedge

Distance (A) : Refer to [TM-270, "Torque Converter"](#)



- When installing A/T assembly to the engine assembly, attach the fixing bolts in accordance with the following standard.

A : View from vehicle front
 : Transmission to engine
 : Engine to transmission

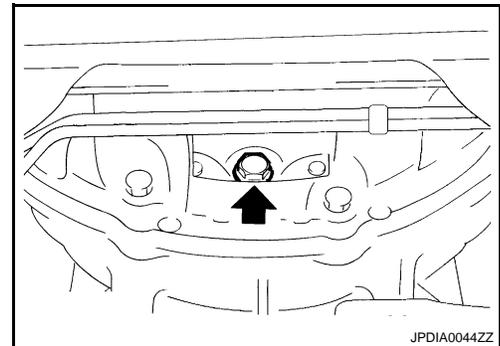


Bolt symbol	B	C
Number of bolts	8	4
Bolt length mm (in)	65 (2.56)	35 (1.38)
Tightening torque N·m (kg·m, ft·lb)	75 (7.7, 55)	46.6 (4.8, 34)

- Align the positions of tightening bolts for drive plate with those of the torque converter, and temporarily tighten the bolts. Then, tighten the bolts with the specified torque.

CAUTION:

- When turning crankshaft, turn it clockwise as viewed from the front of the engine.
- When tightening the tightening bolts for the torque converter after fixing the crankshaft pulley bolts, be sure to confirm the tightening torque of the crankshaft pulley mounting bolts. Refer to [EM-50, "Exploded View"](#).
- Rotate crankshaft several turns and check to be sure that A/T rotates freely without binding after converter is installed to drive plate.
- Install crankshaft position sensor (POS). Refer to [EM-114, "Exploded View"](#).



AWD : Inspection

INFOID:000000003130644

INSPECTION AFTER INSTALLATION

Check the following item after completing installation.

- A/T fluid leakage and A/T fluid level. Refer to [TM-141, "Inspection"](#).
- A/T position. Refer to [TM-153, "AWD : Inspection and Adjustment"](#).

TRANSMISSION ASSEMBLY

< DISASSEMBLY AND ASSEMBLY >

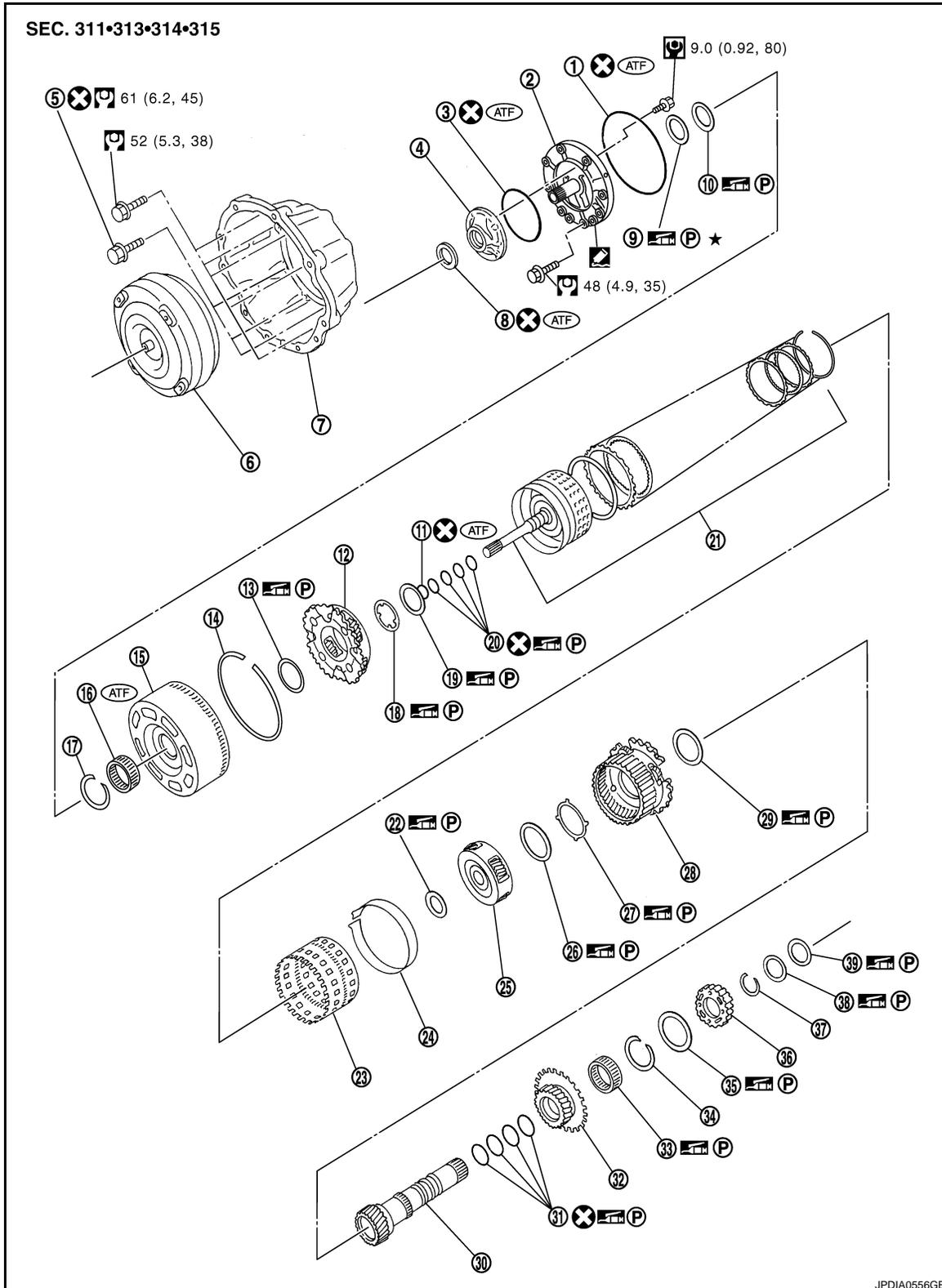
[5AT: RE5R05A]

DISASSEMBLY AND ASSEMBLY

TRANSMISSION ASSEMBLY

Exploded View

INFOID:000000003130645



TRANSMISSION ASSEMBLY

< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

1. O-ring	2. Oil pump cover	3. O-ring	A
4. Oil pump housing	5. Self-sealing bolt	6. Torque converter	
7. Converter housing	8. Oil pump housing oil seal	9. Bearing race	
10. Needle bearing	11. O-ring	12. Front carrier assembly	B
13. Needle bearing	14. Snap ring	15. Front sun gear	
16. 3rd one-way clutch	17. Snap ring	18. Bearing race	
19. Needle bearing	20. Seal ring	21. Input clutch assembly	C
22. Needle bearing	23. Rear internal gear	24. Brake band	
25. Mid carrier assembly	26. Needle bearing	27. Bearing race	
28. Rear carrier assembly	29. Needle bearing	30. Mid sun gear	TM
31. Seal ring	32. Rear sun gear	33. 1st one-way clutch	
34. Snap ring	35. Needle bearing	36. High and low reverse clutch hub	
37. Snap ring	38. Bearing race	39. Needle bearing	E

 Apply Genuine RTV silicone sealant or equivalent. Refer to [GI-15, "Recommended Chemical Products and Sealants"](#).

Refer to [GI-4, "Components"](#) for symbols not described on the above.

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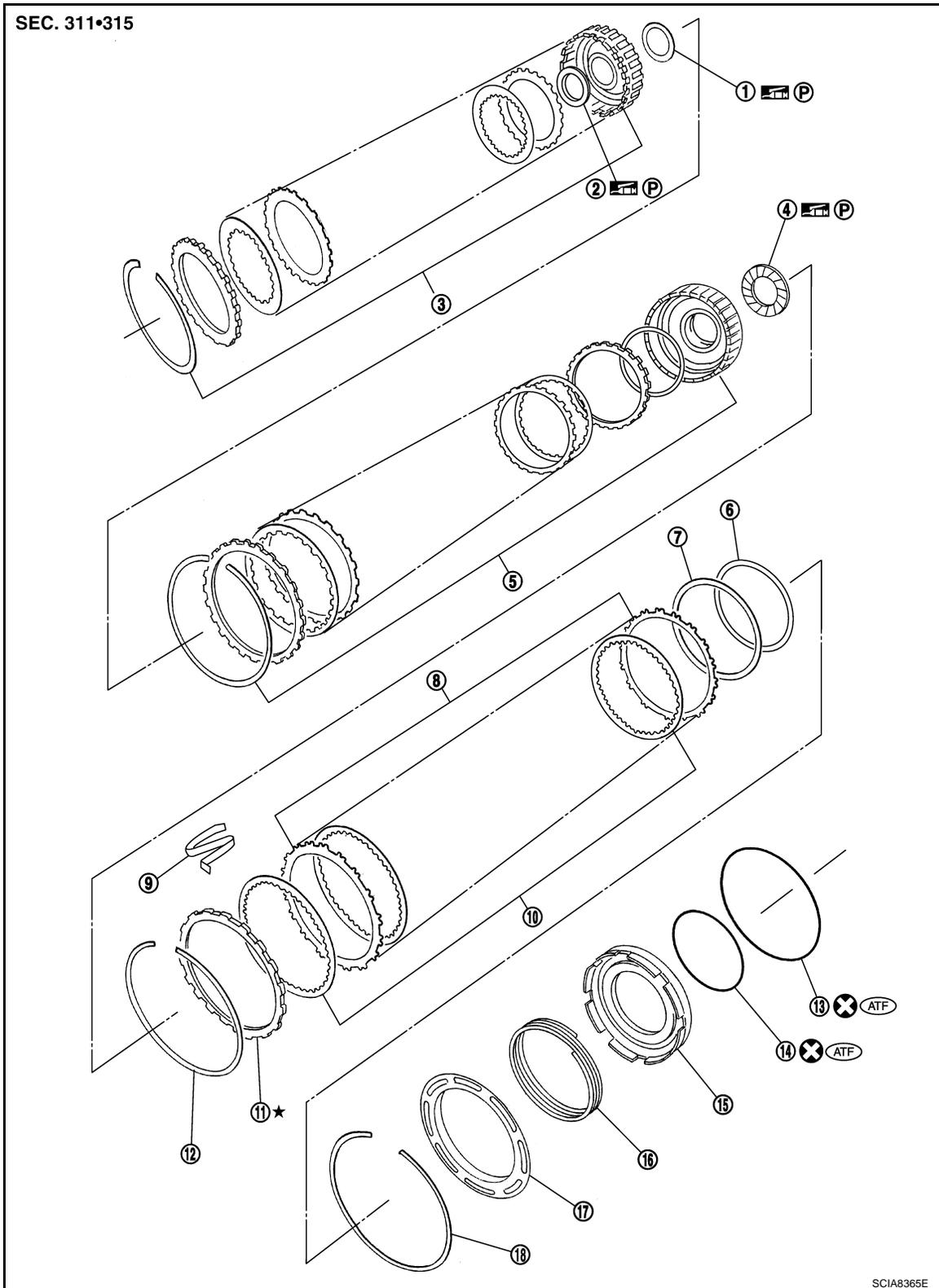
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TRANSMISSION ASSEMBLY

< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]



- | | | |
|-------------------------------|-----------------------------------|---|
| 1. Needle bearing | 2. Bearing race | 3. High and low reverse clutch assembly |
| 4. Needle bearing | 5. Direct clutch assembly | 6. Reverse brake dish plate |
| 7. Reverse brake dish plate | 8. Reverse brake driven plate | 9. N-spring |
| 10. Reverse brake drive plate | 11. Reverse brake retaining plate | 12. Snap ring |
| 13. D-ring | 14. D-ring | 15. Reverse brake piston |

TRANSMISSION ASSEMBLY

< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

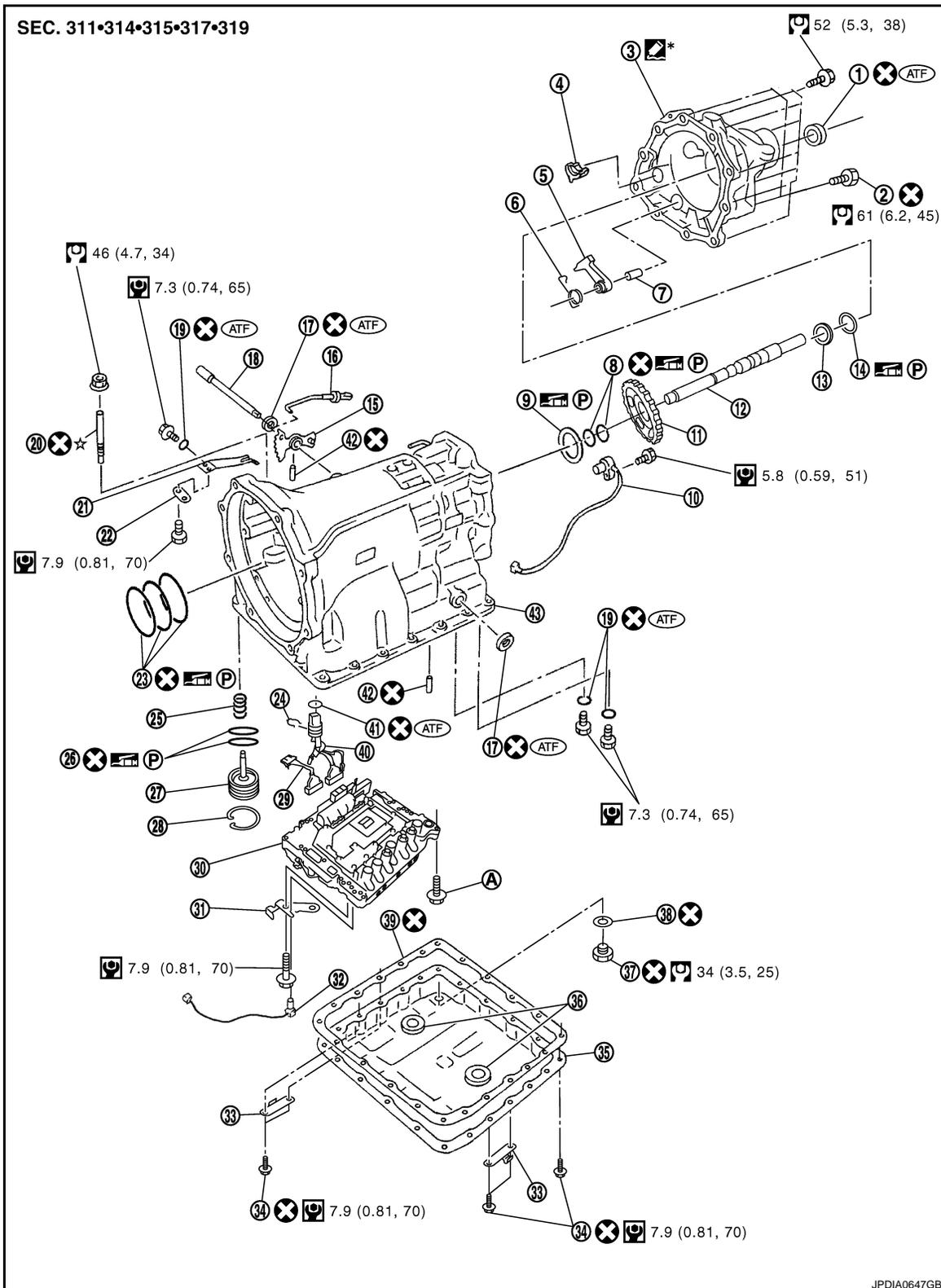
16. Return spring

17. Spring retainer

18. Snap ring

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

2WD



1. Rear oil seal

2. Self-sealing bolt

3. Rear extension

4. Parking actuator support

5. Parking pawl

6. Return spring

7. Pawl shaft

8. Seal ring

9. Needle bearing

10. Revolution sensor

11. Parking gear

12. Output shaft

TRANSMISSION ASSEMBLY

< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

- | | | |
|----------------------------|------------------------------------|----------------------------|
| 13. Bearing race | 14. Needle bearing | 15. Manual plate |
| 16. Parking rod | 17. Manual shaft oil seal | 18. Manual shaft |
| 19. O-ring | 20. Band servo anchor end pin | 21. Detent spring |
| 22. Spacer | 23. Seal ring | 24. Snap ring |
| 25. Return spring | 26. O-ring | 27. Servo assembly |
| 28. Snap ring | 29. Sub-harness | 30. Control valve with TCM |
| 31. Bracket | 32. A/T fluid temperature sensor 2 | 33. Clip |
| 34. Oil pan mounting bolt | 35. Oil pan | 36. Magnet |
| 37. Drain plug | 38. Drain plug gasket | 39. Oil pan gasket |
| 40. Terminal cord assembly | 41. O-ring | 42. Retaining pin |
| 43. Transmission case | | |
- A. For tightening torque, refer to [TM-226, "Assembly"](#).

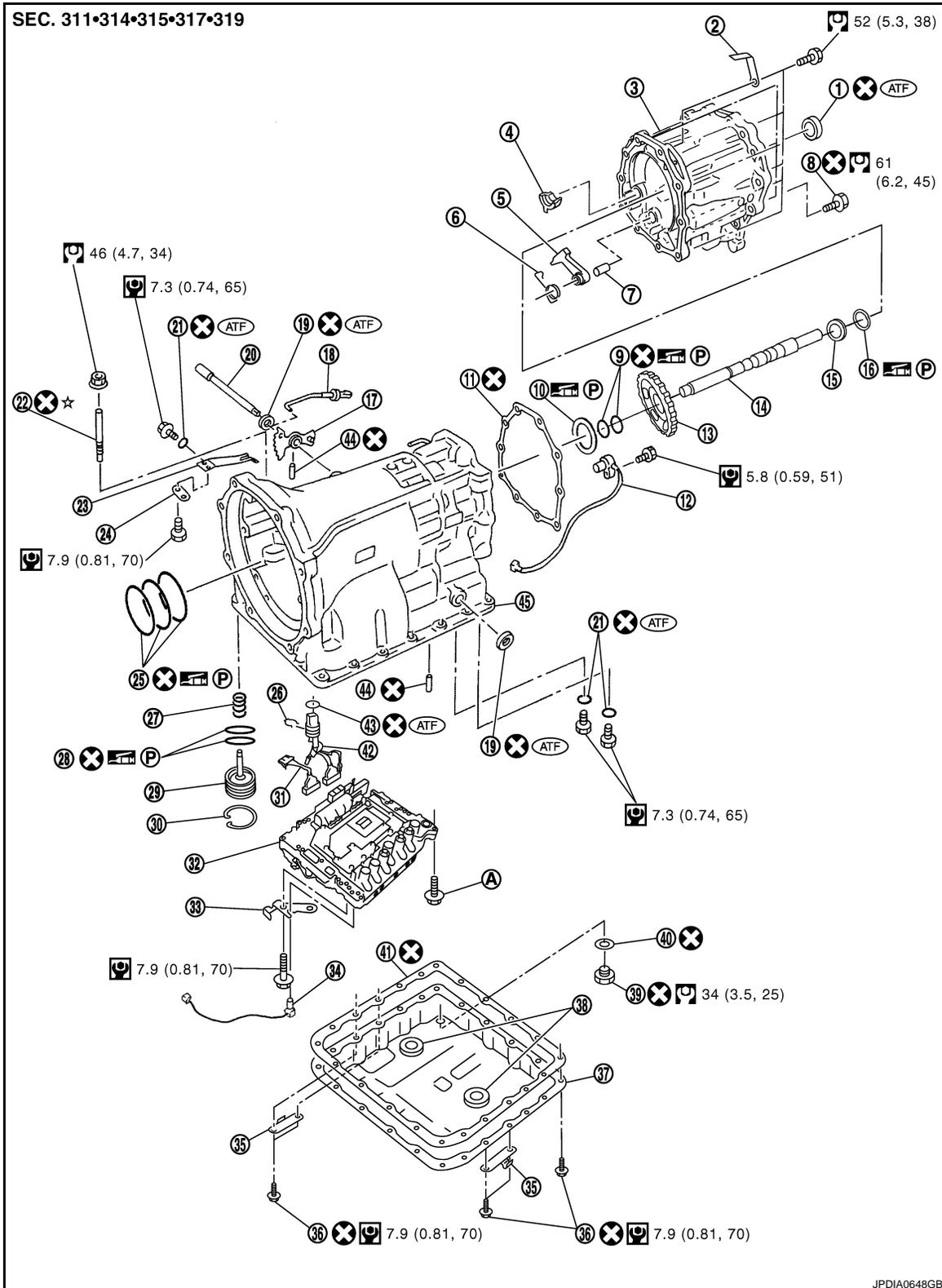
: Apply Genuine Anaerobic Liquid Gasket or equivalent. Refer to [GI-15, "Recommended Chemical Products and Sealants"](#).
Refer to [GI-4, "Components"](#) for symbols not described on the above.

TRANSMISSION ASSEMBLY

< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

AWD



- | | | |
|-----------------------------|----------------------|-----------------------|
| 1. Rear oil seal | 2. Bracket | 3. Adapter case |
| 4. Parking actuator support | 5. Parking pawl | 6. Return spring |
| 7. Pawl shaft | 8. Self-sealing bolt | 9. Seal ring |
| 10. Needle bearing | 11. Gasket | 12. Revolution sensor |
| 13. Parking gear | 14. Output shaft | 15. Bearing race |
| 16. Needle bearing | 17. Manual plate | 18. Parking rod |

TRANSMISSION ASSEMBLY

< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

-
- | | | |
|------------------------------------|----------------------------|----------------------------|
| 19. Manual shaft oil seal | 20. Manual shaft | 21. O-ring |
| 22. Band servo anchor end pin | 23. Detent spring | 24. Spacer |
| 25. Seal ring | 26. Snap ring | 27. Return spring |
| 28. O-ring | 29. Servo assembly | 30. Snap ring |
| 31. Sub-harness | 32. Control valve with TCM | 33. Bracket |
| 34. A/T fluid temperature sensor 2 | 35. Clip | 36. Oil pan mounting bolt |
| 37. Oil pan | 38. Magnet | 39. Drain plug |
| 40. Drain plug gasket | 41. Oil pan gasket | 42. Terminal cord assembly |
| 43. O-ring | 44. Retaining pin | 45. Transmission case |

A. For tightening torque, refer to [TM-226, "Assembly"](#).

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

TRANSMISSION ASSEMBLY

< DISASSEMBLY AND ASSEMBLY >

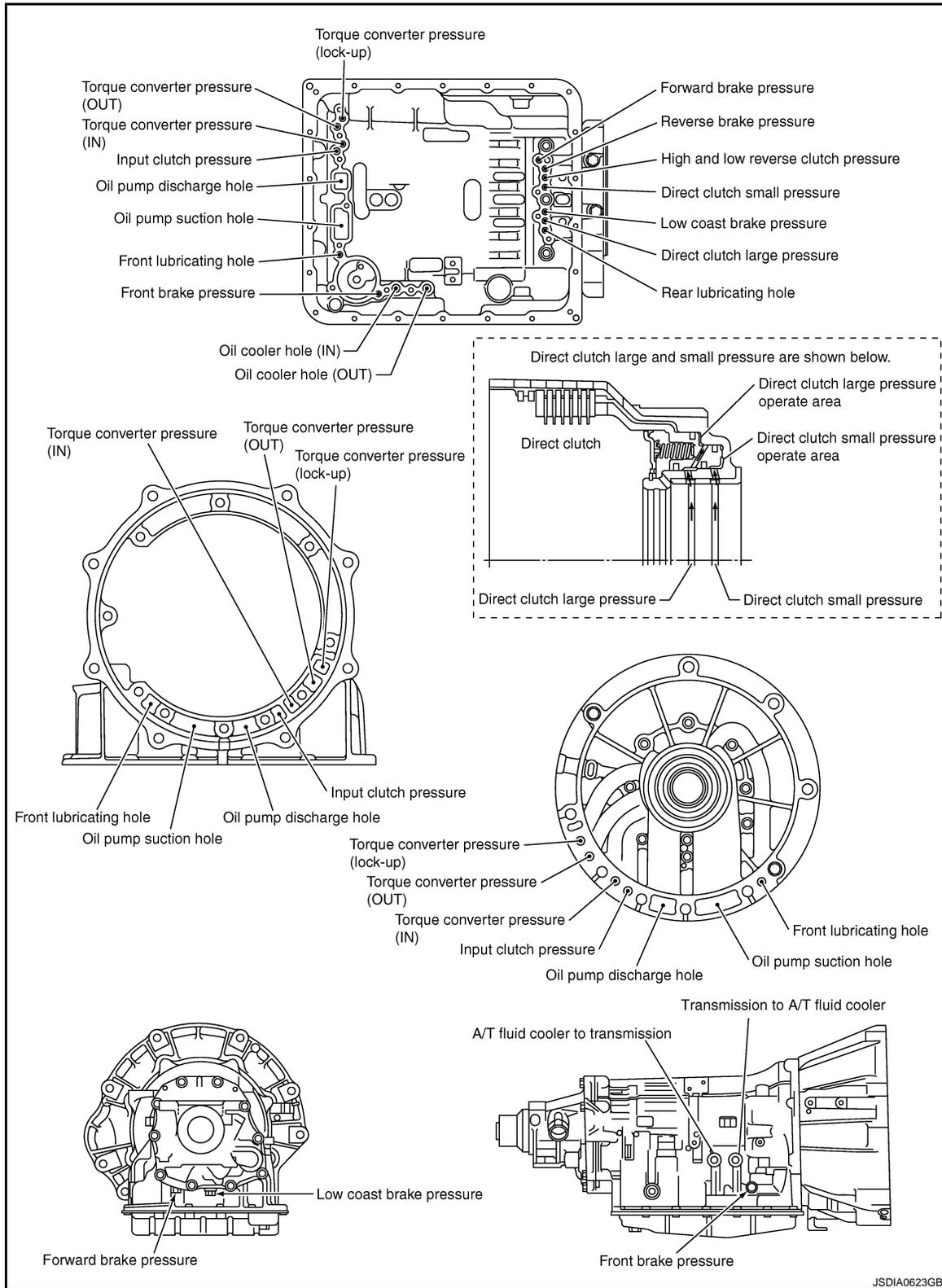
[5AT: RE5R05A]

Oil Channel

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2WD

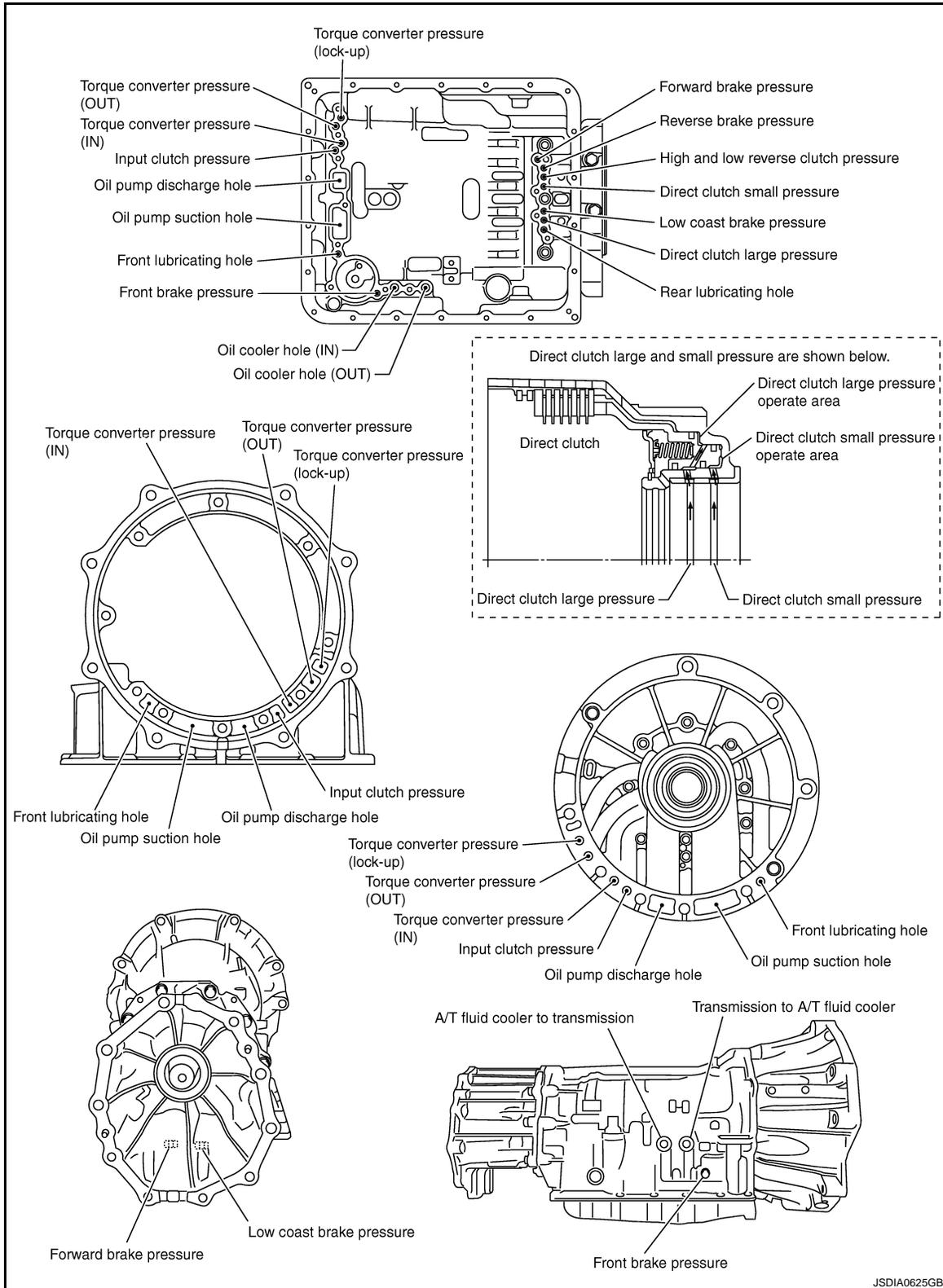


TRANSMISSION ASSEMBLY

< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

AWD



TRANSMISSION ASSEMBLY

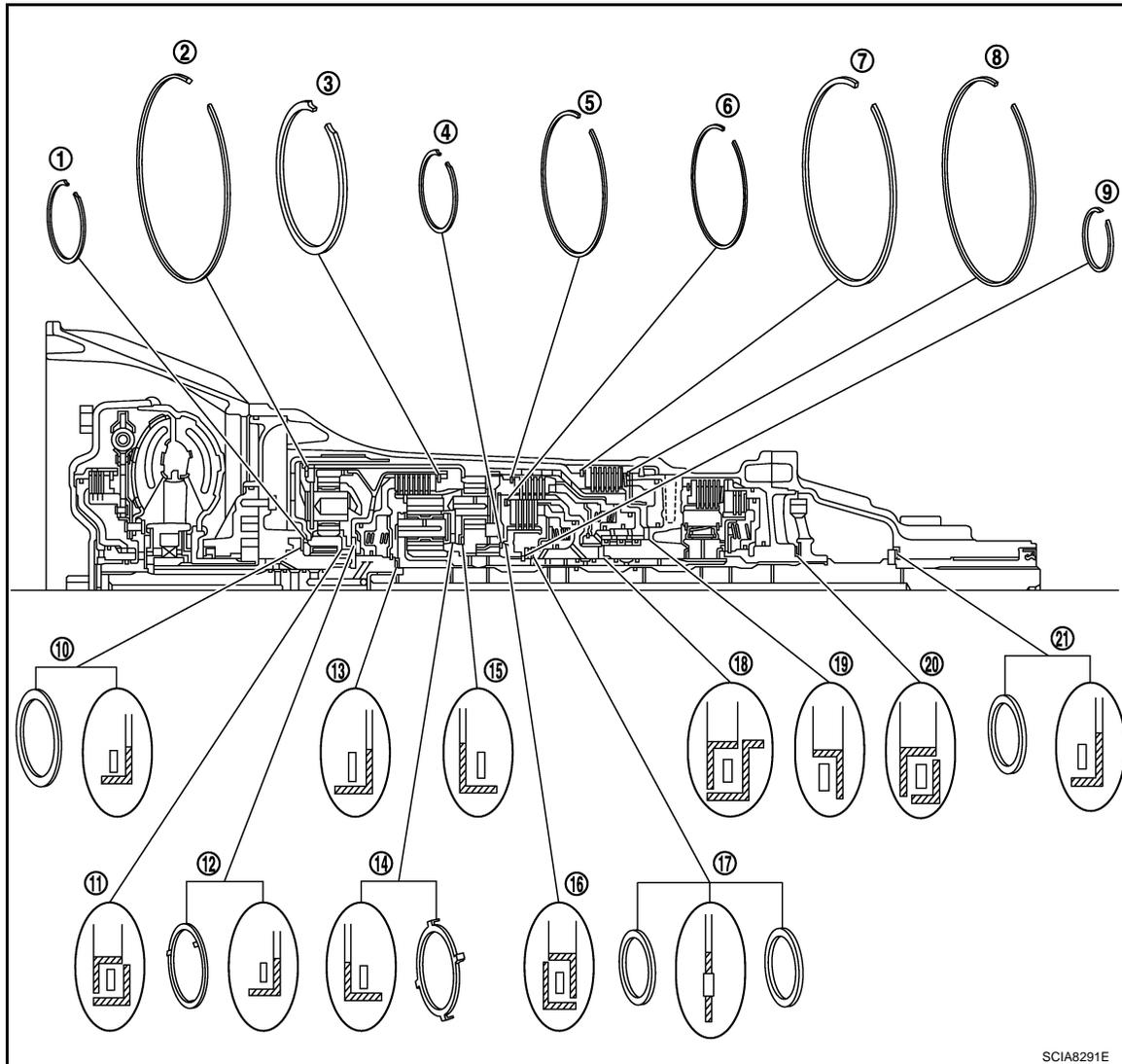
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

Location of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings

INFOID:000000003130647

2WD



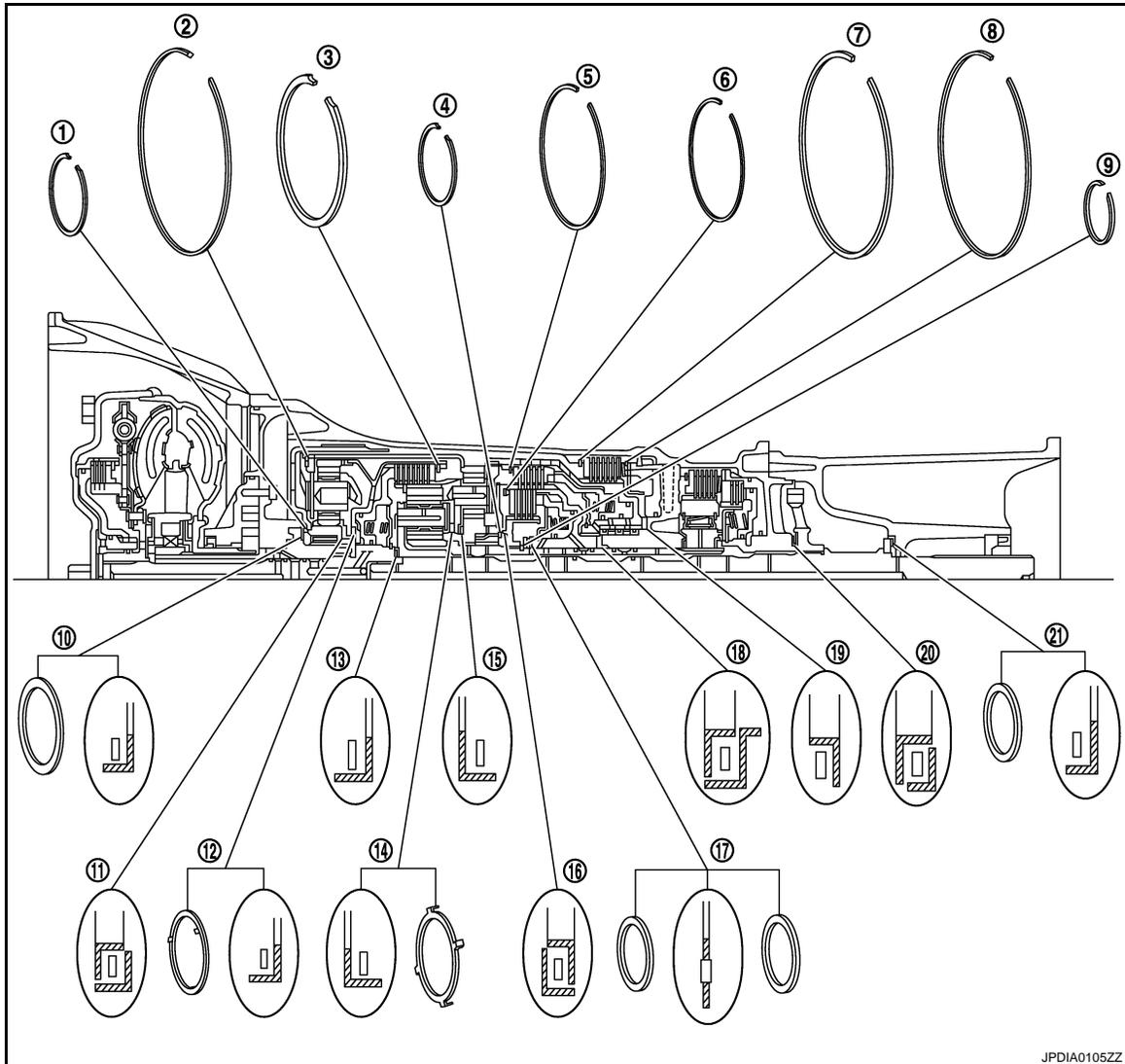
Snap ring		Needle bearing	
Item number	Outer diameter mm (in)	Item number	Outer diameter mm (in)
1	67.5 (2.657)	10	80 (3.149)
2	182.4 (7.181)	11	77 (3.031)
3	171.5 (6.751)	12	77 (3.031)
4	70.5 (2.776)	13	47 (1.850)
5	169 (6.653)	14	84 (3.307)
6	134.3 (5.287)	15	84 (3.307)
7	180.5 (7.106)	16	92 (3.622)
8	181 (7.125)	17	60 (2.362)
9	48.4 (1.906)	18	63 (2.480)
—	—	19	92 (3.622)
—	—	20	65 (2.559)
—	—	21	60 (2.362)

TRANSMISSION ASSEMBLY

< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

AWD



Snap ring		Needle bearing	
Item number	Outer diameter mm (in)	Item number	Outer diameter mm (in)
1	67.5 (2.657)	10	80 (3.149)
2	182.4 (7.181)	11	77 (3.031)
3	171.5 (6.751)	12	77 (3.031)
4	70.5 (2.776)	13	47 (1.850)
5	169 (6.653)	14	84 (3.307)
6	134.3 (5.287)	15	84 (3.307)
7	180.5 (7.106)	16	92 (3.622)
8	181 (7.125)	17	60 (2.362)
9	48.4 (1.906)	18	63 (2.480)
—	—	19	92 (3.622)
—	—	20	65 (2.559)
—	—	21	60 (2.362)

Disassembly

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CAUTION:

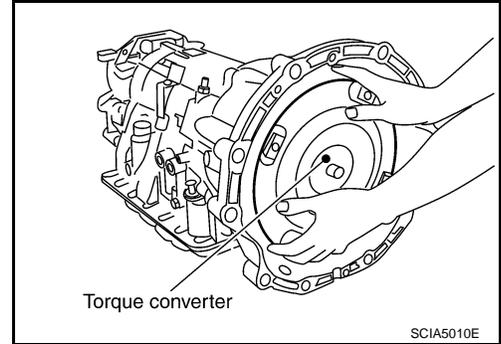
Do not disassemble parts behind Drum Support. Refer to [TM-19, "Cross-Sectional View"](#).

TRANSMISSION ASSEMBLY

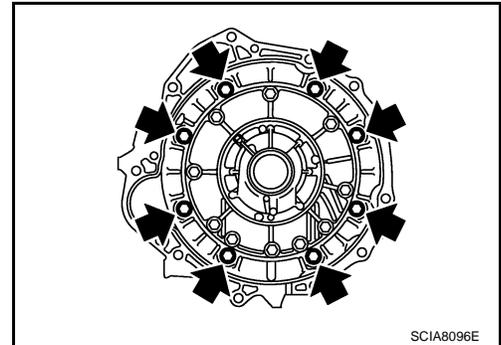
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

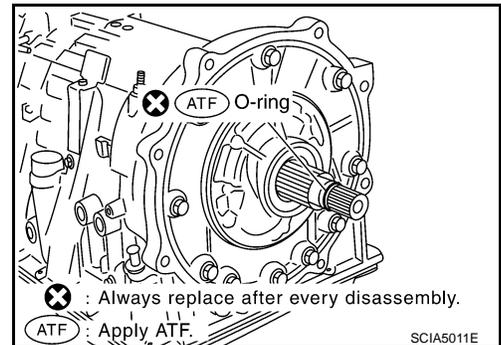
1. Drain ATF through drain plug.
2. Remove torque converter by holding it firmly and turning while pulling straight out.



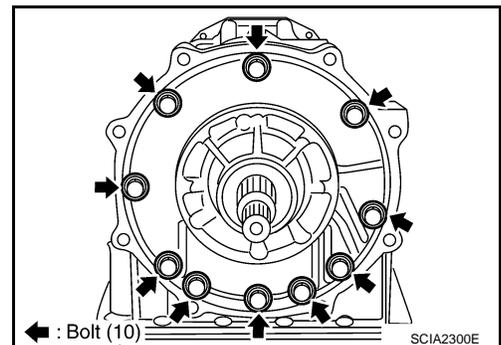
3. Remove tightening bolts (←) for converter housing and transmission case.
4. Remove converter housing from transmission case.
CAUTION:
Be careful not to scratch converter housing.



5. Remove O-ring from input clutch assembly.



6. Remove tightening bolts for oil pump assembly and transmission case.



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TRANSMISSION ASSEMBLY

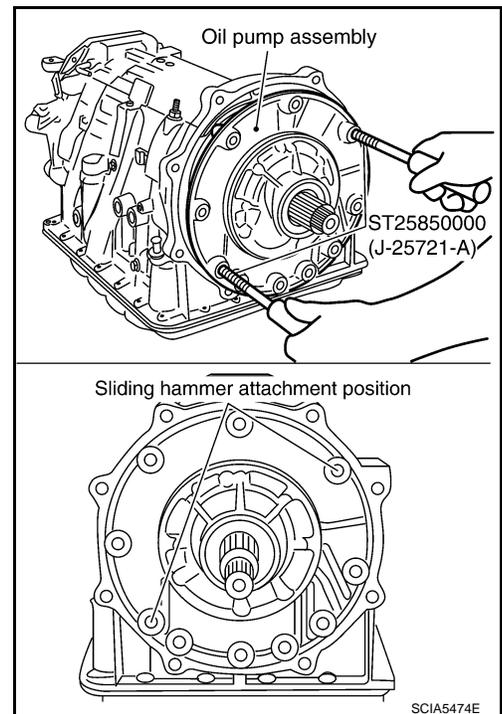
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

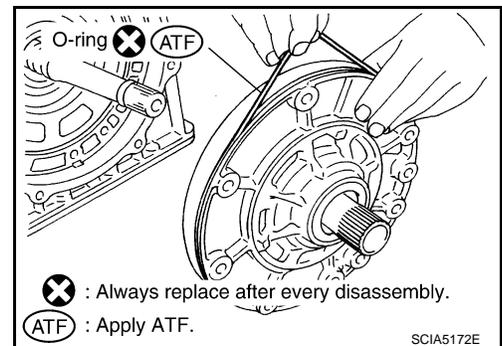
7. Attach the sliding hammers to oil pump assembly and extract it evenly from transmission case.

CAUTION:

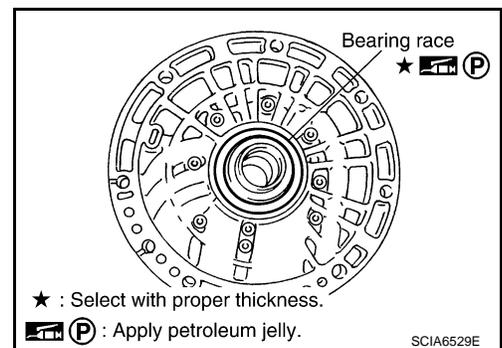
- Fully tighten the sliding hammer screws.
- Make sure that bearing race is installed to the oil pump assembly edge surface.



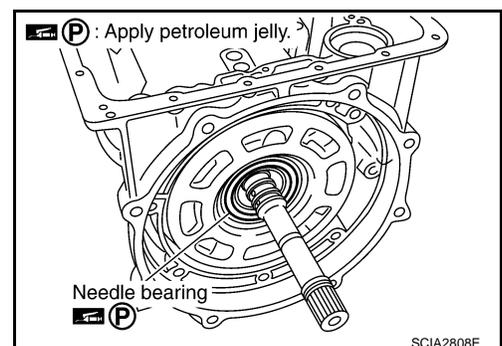
8. Remove O-ring from oil pump assembly.



9. Remove bearing race from oil pump assembly.



10. Remove needle bearing from front sun gear.



TRANSMISSION ASSEMBLY

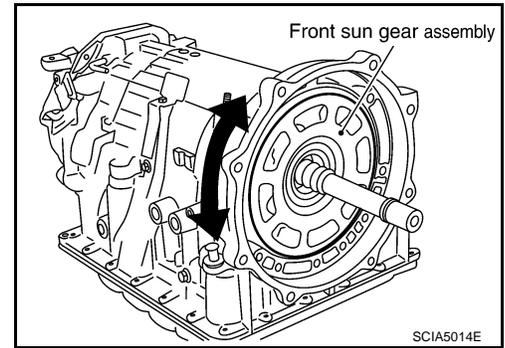
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

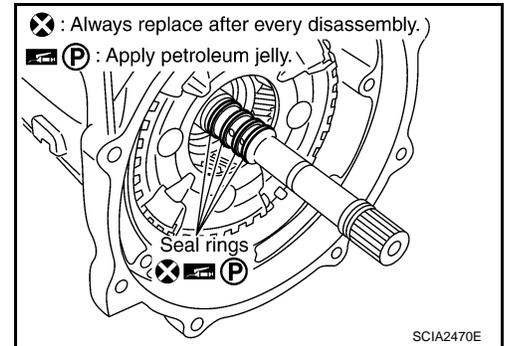
11. Remove front sun gear assembly from front carrier assembly.

NOTE:

Remove front sun gear by rotating left/right.



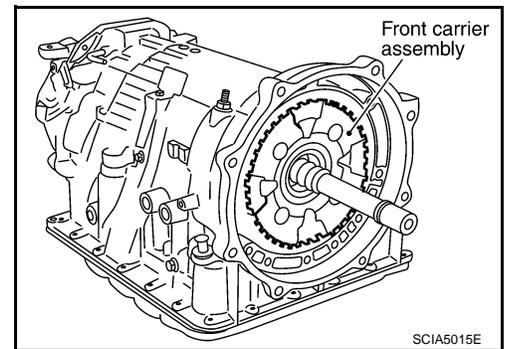
12. Remove seal rings from input clutch assembly.



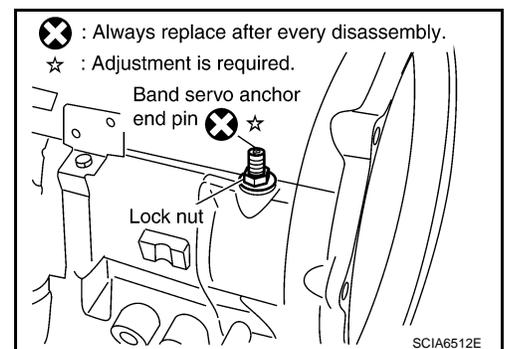
13. Remove front carrier assembly from rear carrier assembly. (With input clutch assembly and rear internal gear.)

CAUTION:

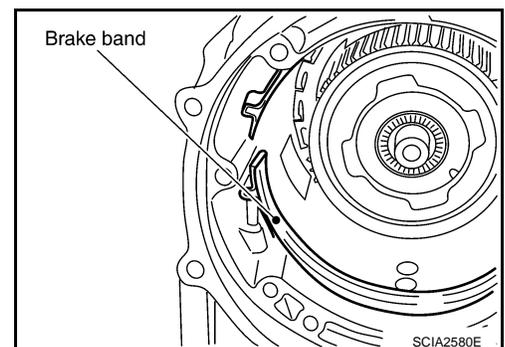
Be careful to remove it with needle bearing.



14. Loosen lock nut and remove band servo anchor end pin from transmission case.



15. Remove brake band from transmission case.



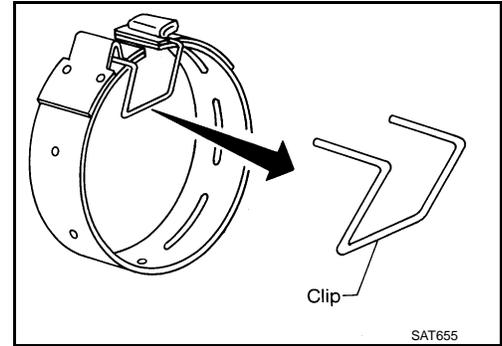
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TRANSMISSION ASSEMBLY

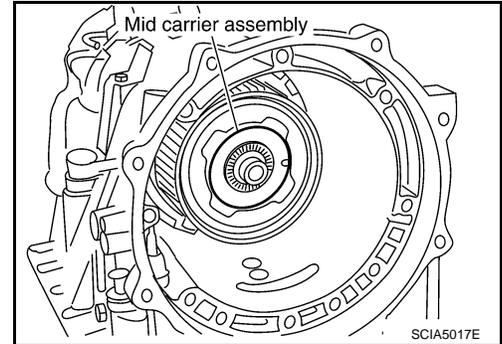
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

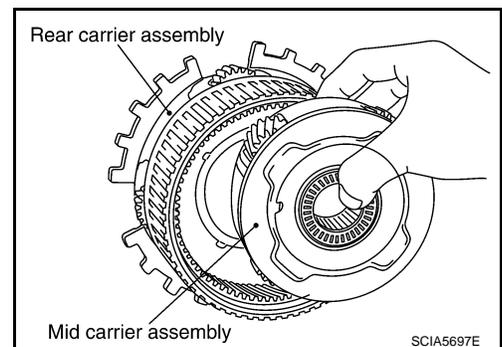
- To prevent brake linings from cracking or peeling, do not stretch the flexible band unnecessarily. When removing the brake band, always secure it with a clip as shown in the figure at right. Leave the clip in position after removing the brake band.
- Check brake band facing for damage, cracks, wear or burns.



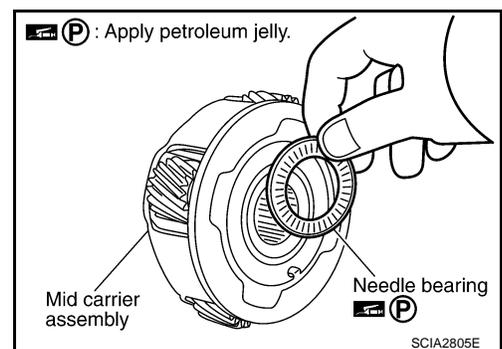
16. Remove mid carrier assembly and rear carrier assembly as a unit.



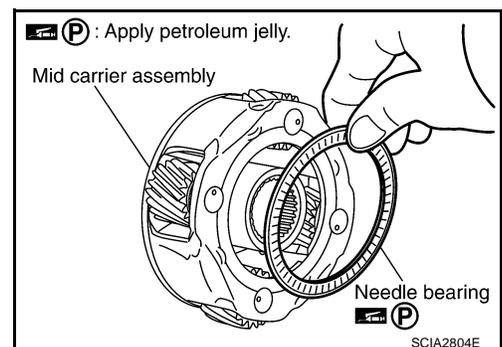
17. Remove mid carrier assembly from rear carrier assembly.



18. Remove needle bearing (front side) from mid carrier assembly.



19. Remove needle bearing (rear side) from mid carrier assembly.

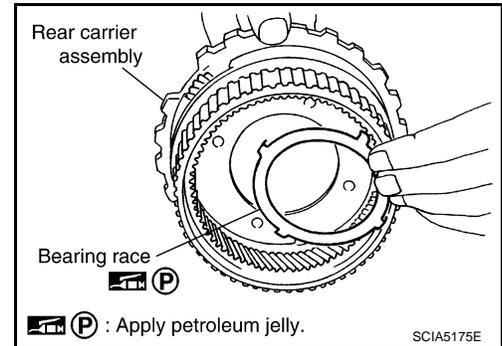


TRANSMISSION ASSEMBLY

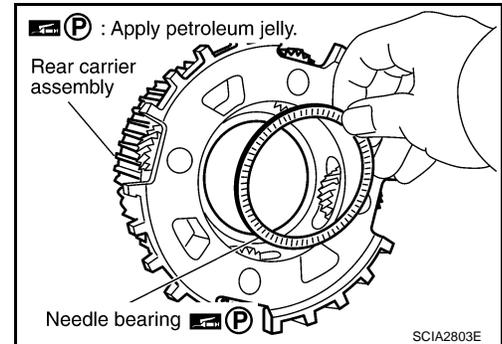
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

20. Remove bearing race from rear carrier assembly.



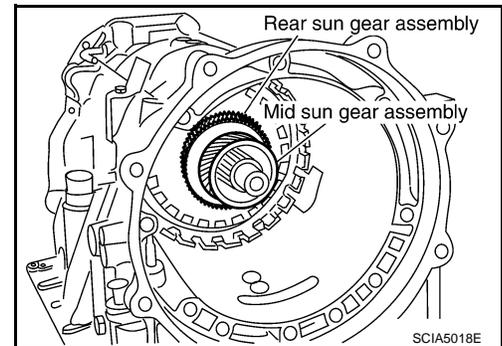
21. Remove needle bearing from rear carrier assembly.



22. Remove mid sun gear assembly, rear sun gear assembly and high and low reverse clutch hub as a unit.

CAUTION:

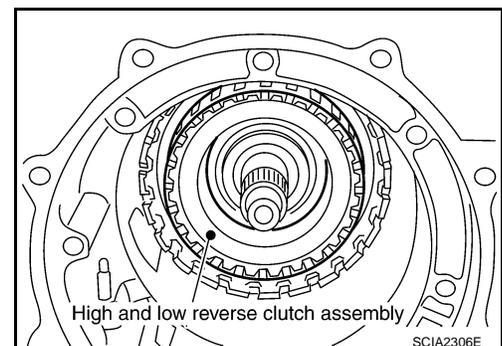
Be careful to remove them with bearing race and needle bearing.



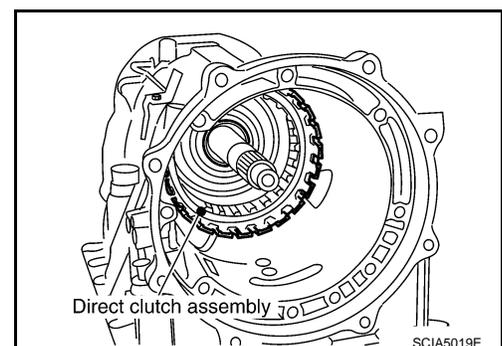
23. Remove high and low reverse clutch assembly from direct clutch assembly.

CAUTION:

Make sure that needle bearing is installed to the high and low reverse clutch assembly edge surface.



24. Remove direct clutch assembly from reverse brake.



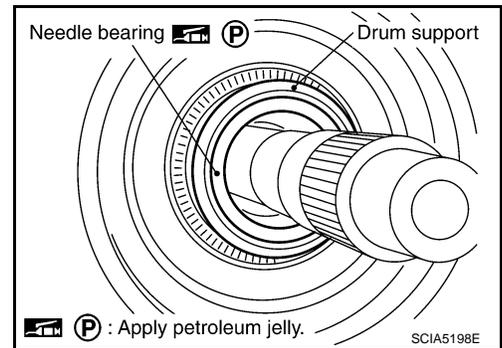
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TRANSMISSION ASSEMBLY

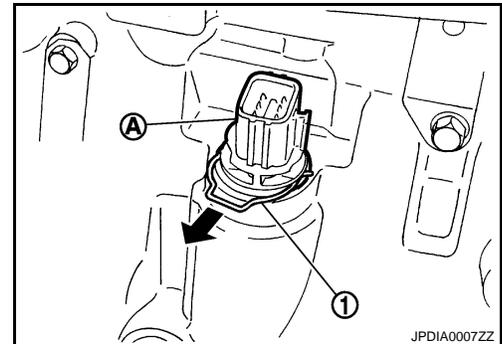
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

25. Remove needle bearing from drum support.

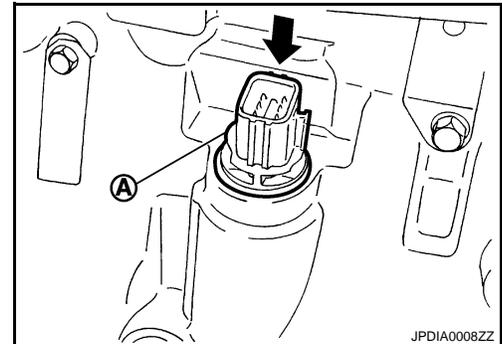


26. Remove snap ring (1) from A/T assembly harness connector (A).



27. Push A/T assembly harness connector (A).

CAUTION:
Be careful not to damage connector.



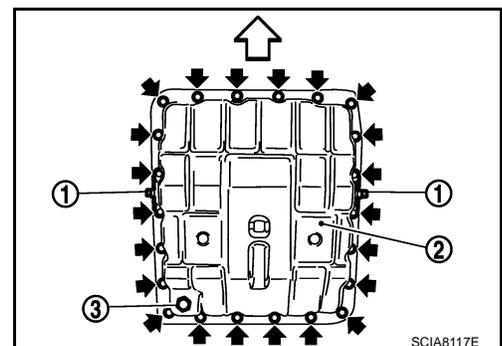
28. Remove clips (1).

3 : Drain plug

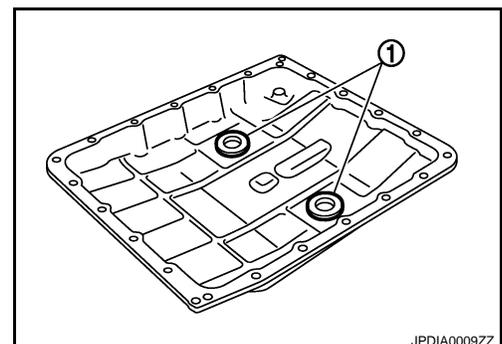
⇐ : Front

← : Oil pan mounting bolt

29. Remove oil pan (2) and oil pan gasket.



30. Remove magnets (1) from oil pan.



TRANSMISSION ASSEMBLY

< DISASSEMBLY AND ASSEMBLY >

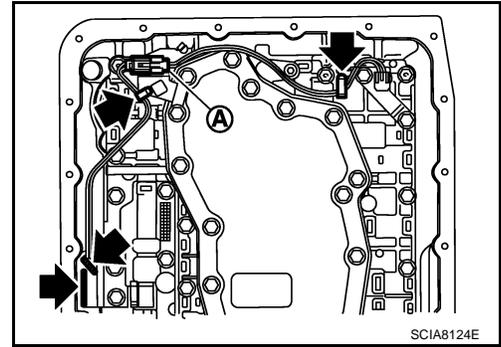
[5AT: RE5R05A]

31. Disconnect A/T fluid temperature sensor 2 connector (A).

CAUTION:

Be careful not to damage connector.

32. Disengage terminal clips (←).

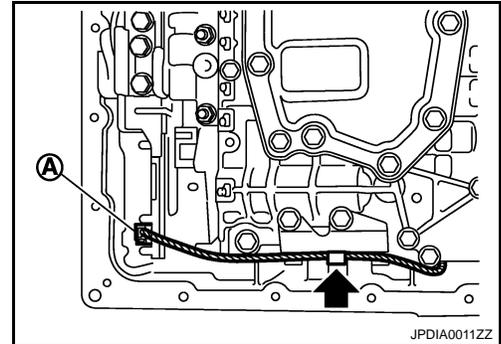


33. Disconnect revolution sensor connector (A).

CAUTION:

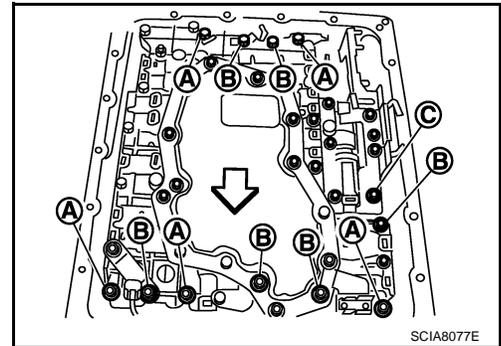
Be careful not to damage connector.

34. Disengage terminal clip (←).



35. Remove bolts (A), (B) and (C) from control valve with TCM.

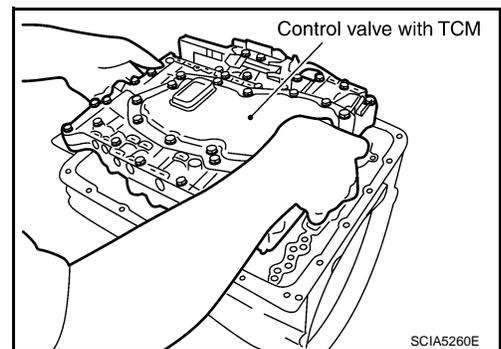
← : Front



36. Remove control valve with TCM from transmission case.

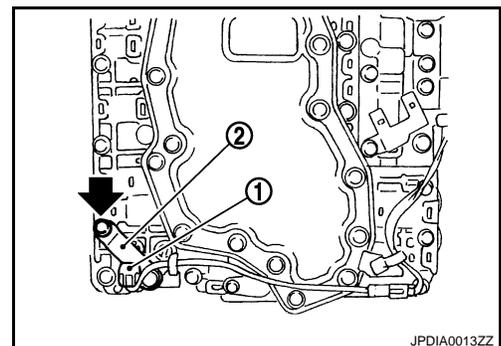
CAUTION:

When removing, be careful with the manual valve notch and manual plate height. Remove it vertically.



37. Remove A/T fluid temperature sensor 2 (1) with bracket (2) from control valve with TCM.

← : Bolt



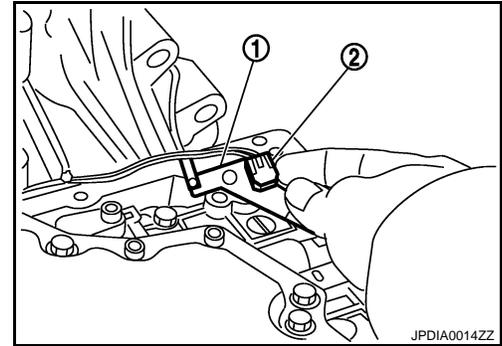
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TRANSMISSION ASSEMBLY

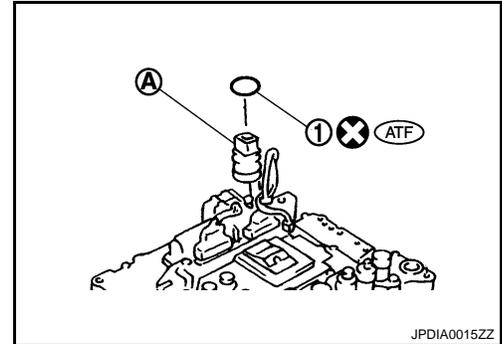
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

38. Remove bracket (1) from A/T fluid temperature sensor 2 (2).



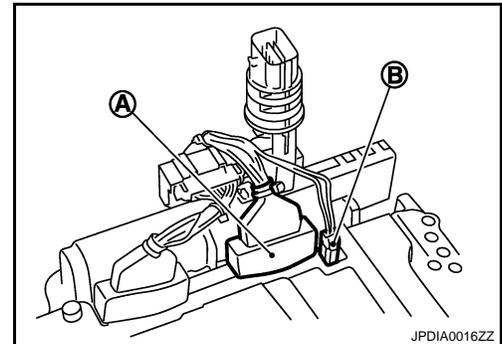
39. Remove O-ring (1) from A/T assembly harness connector (A).



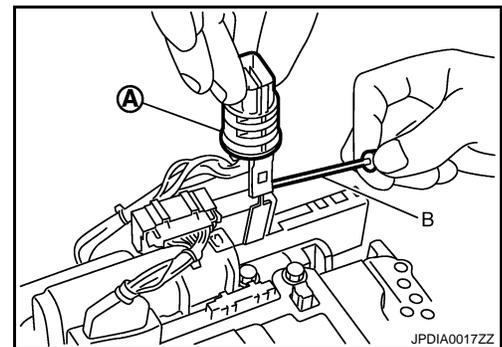
40. Disconnect TCM connectors (A) and (B).

CAUTION:

Be careful not to damage connectors.



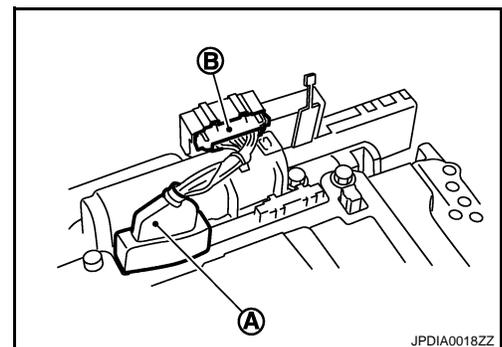
41. Remove A/T assembly harness connector (A) from control valve with TCM using a flat-bladed screwdriver (B).



42. Disconnect TCM connector (A) and park/neutral position switch connector (B).

CAUTION:

Be careful not to damage connectors.



TRANSMISSION ASSEMBLY

< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

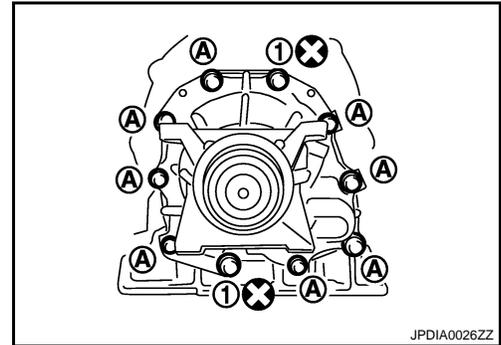
43. Remove rear extension assembly (2WD) or adapter case assembly (AWD) according to the following procedures.

a. **2WD**

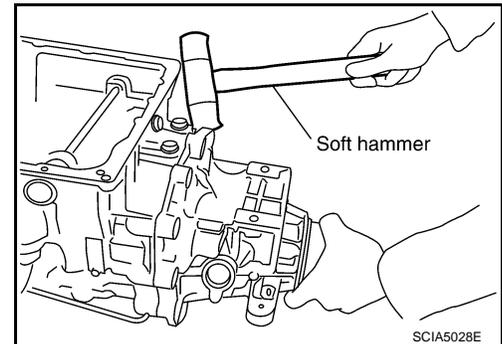
i. Remove tightening bolts for rear extension assembly and transmission case.

1 : Self-sealing bolt

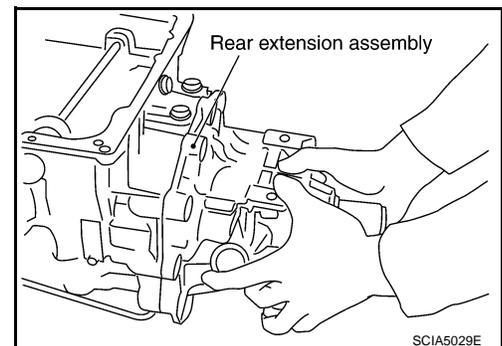
A : Bolt



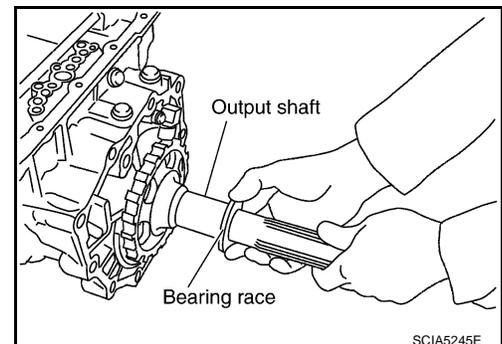
ii. Tap rear extension assembly with a soft hammer.



iii. Remove rear extension assembly from transmission case. (With needle bearing).



iv. Remove bearing race from output shaft.



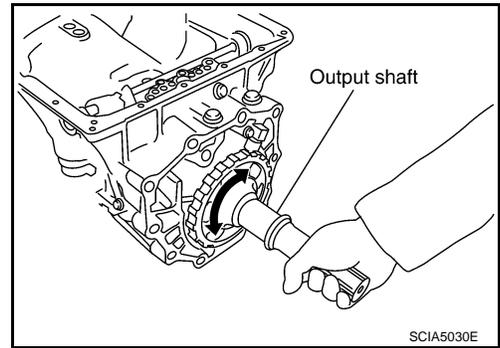
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TRANSMISSION ASSEMBLY

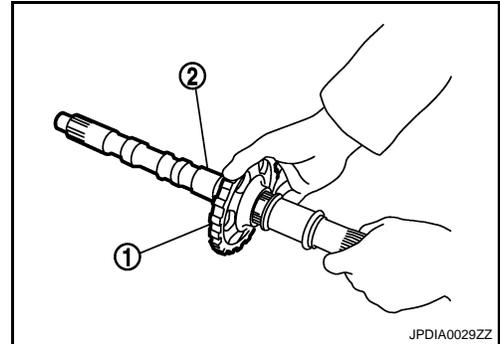
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[5AT: RE5R05A]

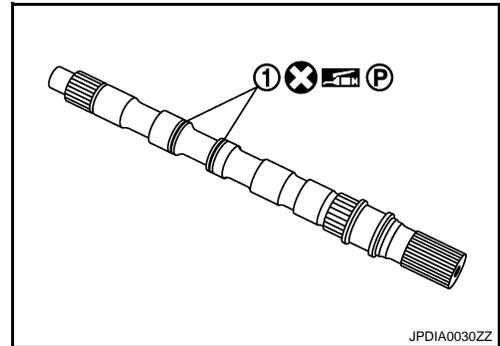
- v. Remove output shaft from transmission case by rotating left/right.



- vi. Remove parking gear (1) from output shaft (2).



- vii. Remove seal rings (1) from output shaft.



- b. **AWD**

TRANSMISSION ASSEMBLY

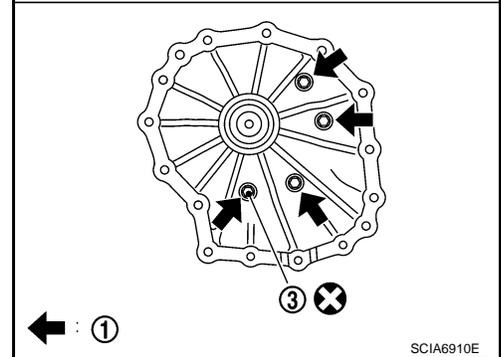
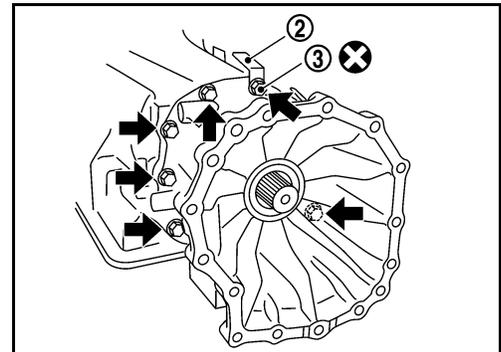
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[5AT: RE5R05A]

- i. Remove tightening bolts (1) for adapter case assembly and transmission case. [With bracket (2).]

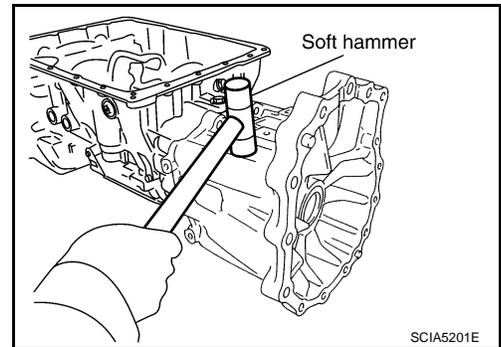
3 : Self-sealing bolt

← : Bolt



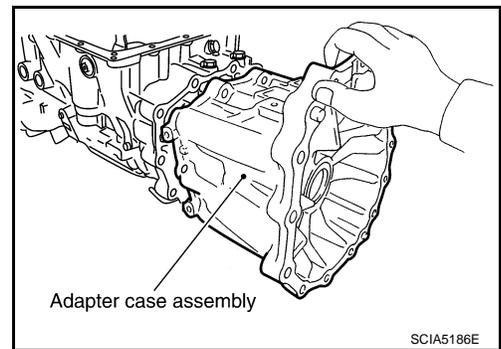
SCIA6910E

- ii. Tap adapter case assembly with a soft hammer.



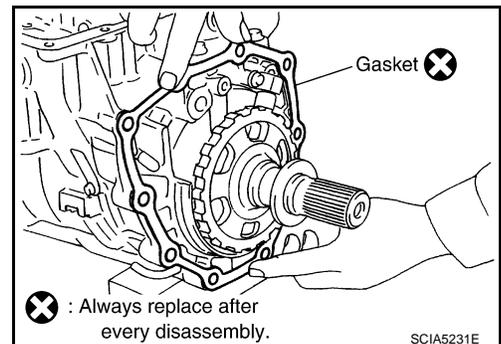
SCIA5201E

- iii. Remove adapter case assembly from transmission case. (With needle bearing)



SCIA5186E

- iv. Remove gasket from transmission case.



SCIA5231E

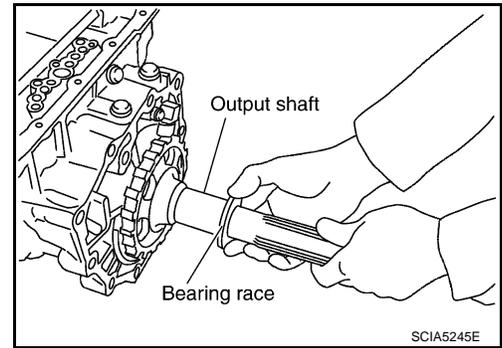
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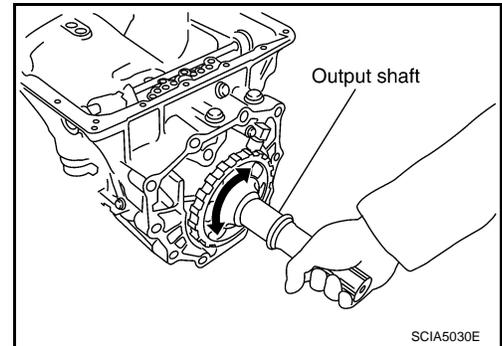
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[5AT: RE5R05A]

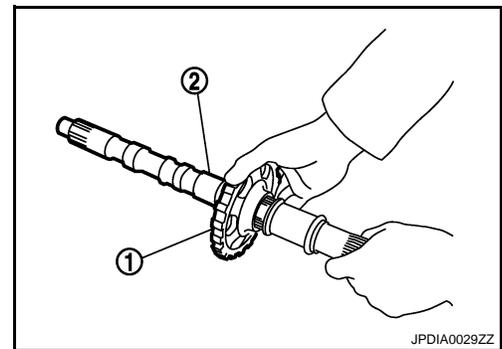
v. Remove bearing race from output shaft.



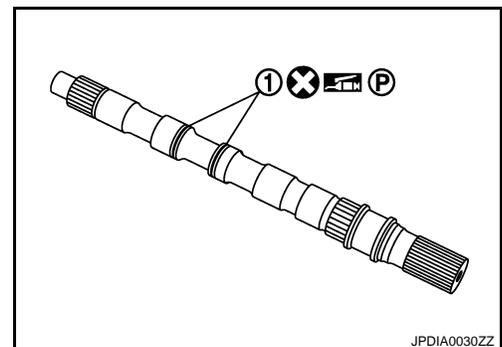
vi. Remove output shaft from transmission case by rotating left/right.



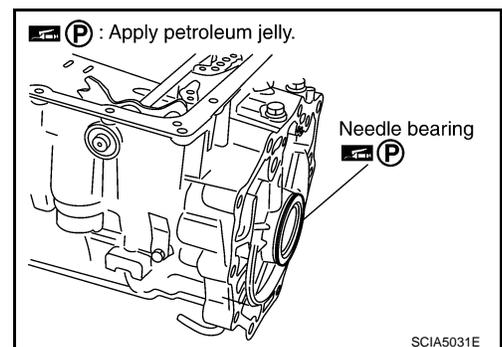
vii. Remove parking gear (1) from output shaft (2).



viii. Remove seal rings (1) from output shaft.



44. Remove needle bearing from transmission case.



TRANSMISSION ASSEMBLY

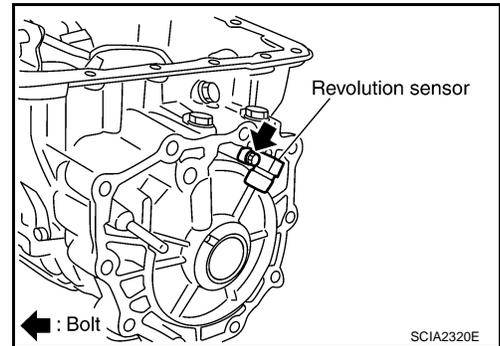
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

45. Remove revolution sensor from transmission case.

CAUTION:

- Do not subject it to impact by dropping or hitting it.
- Do not disassemble.
- Do not allow metal filings, etc. to get on the sensor's front edge magnetic area.
- Do not place in an area affected by magnetism.



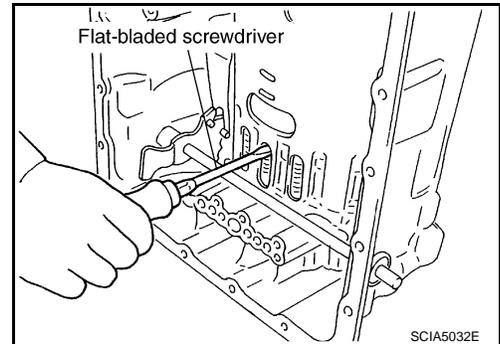
46. Remove reverse brake snap ring (fixing plate) using 2 flat-bladed screwdrivers.

NOTE:

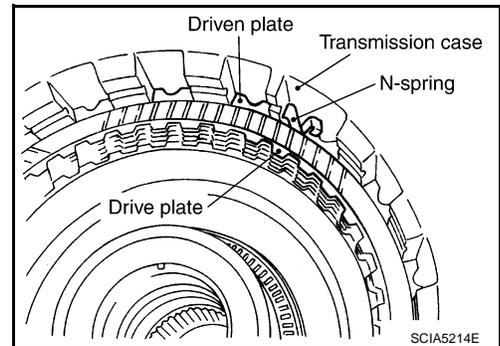
Press out snap ring from the transmission case oil pan side gap using a flat-bladed screwdriver, and remove it using a another screwdriver.

47. Remove reverse brake retaining plate from transmission case.

- Check facing for burns, cracks or damage. If necessary, replace the plate.

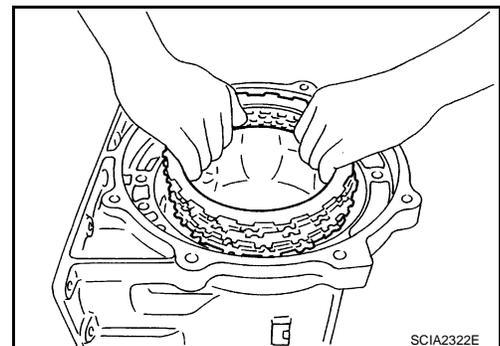


48. Remove N-spring from transmission case.

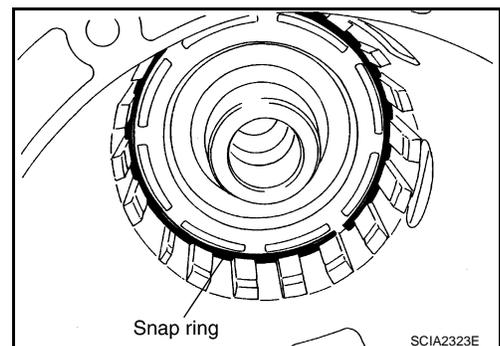


49. Remove reverse brake drive plates, driven plates, dish plates and retaining plate transmission case.

- Check facing for burns, cracks or damage. If necessary, replace the plate.



50. Remove snap ring (fixing spring retainer) using a flat-bladed screwdriver.



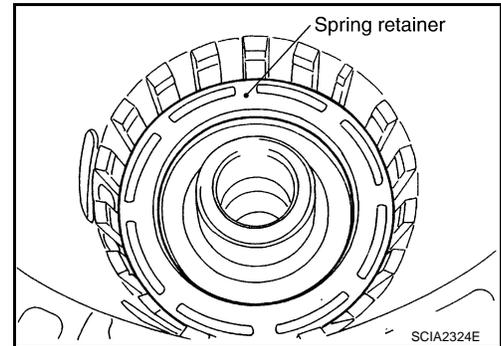
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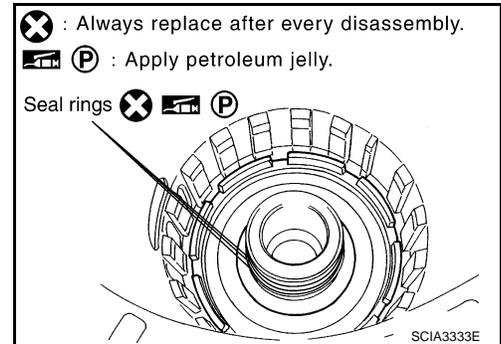
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[5AT: RE5R05A]

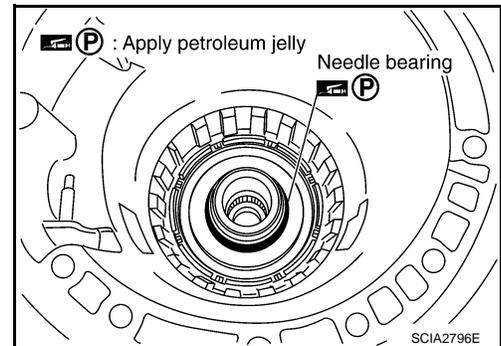
51. Remove spring retainer and return spring from transmission case.



52. Remove seal rings from drum support.



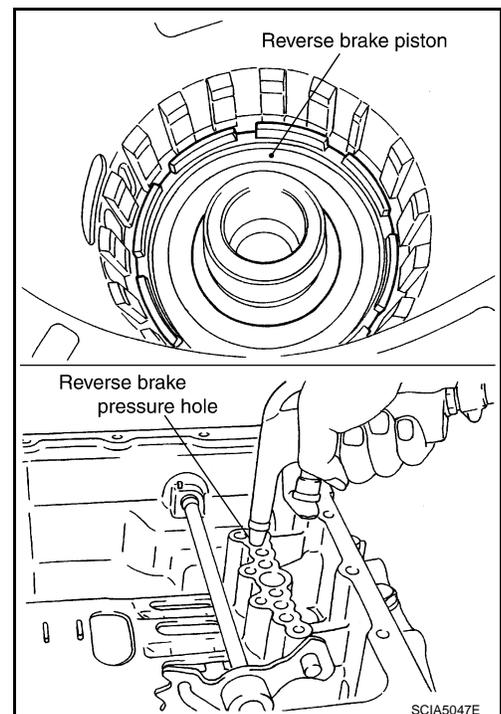
53. Remove needle bearing from drum support edge surface.



54. Remove reverse brake piston from transmission case with compressed air. Refer to [TM-205, "Oil Channel"](#).

CAUTION:

Care should be taken not to abruptly blow air. It makes pistons incline, as the result, it becomes hard to disassemble the pistons.

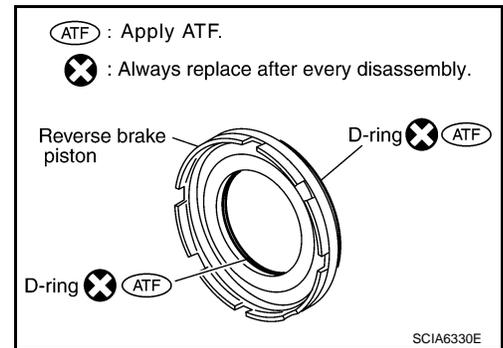


TRANSMISSION ASSEMBLY

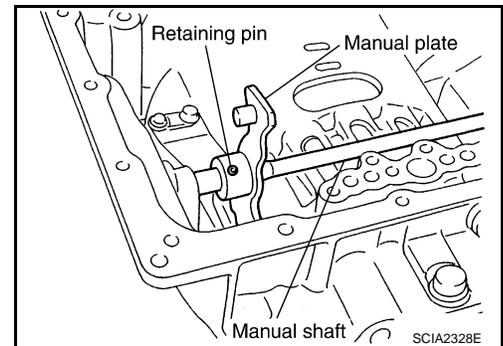
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[5AT: RE5R05A]

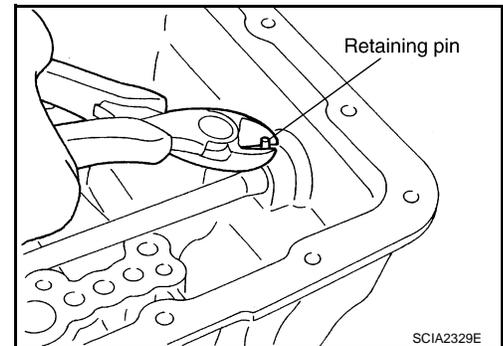
55. Remove D-rings from reverse brake piston.



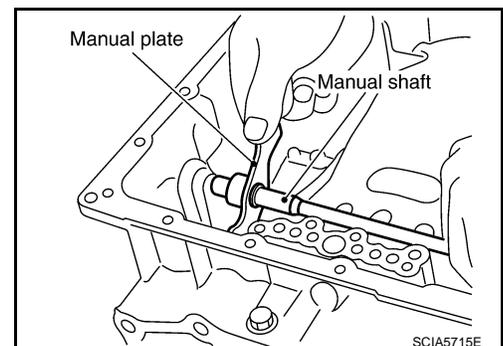
56. Use a pin punch [4 mm (0.16 in) dia. commercial service tool] to knock out retaining pin.



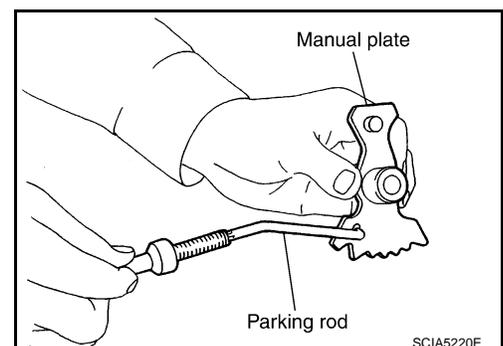
57. Remove manual shaft retaining pin with pair of nippers.



58. Remove manual plate (with parking rod) from manual shaft.



59. Remove parking rod from manual plate.



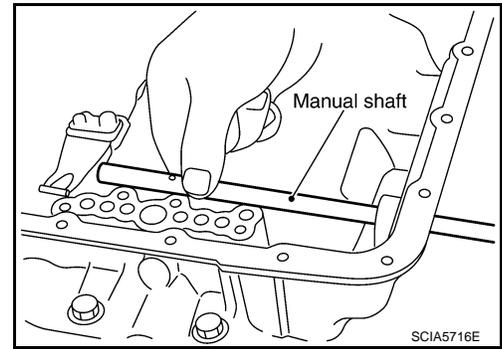
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TRANSMISSION ASSEMBLY

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[5AT: RE5R05A]

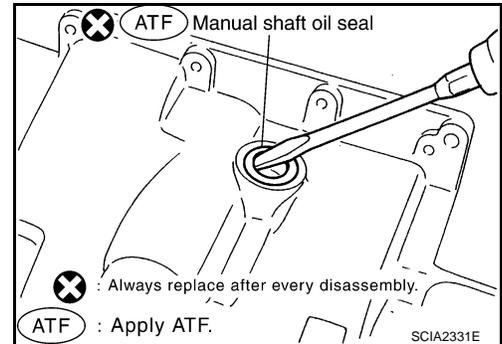
60. Remove manual shaft from transmission case.



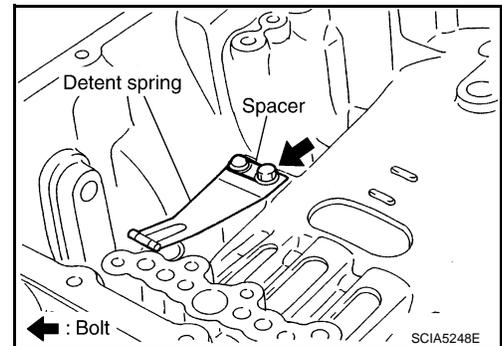
61. Remove manual shaft oil seals using a flat-bladed screwdriver.

CAUTION:

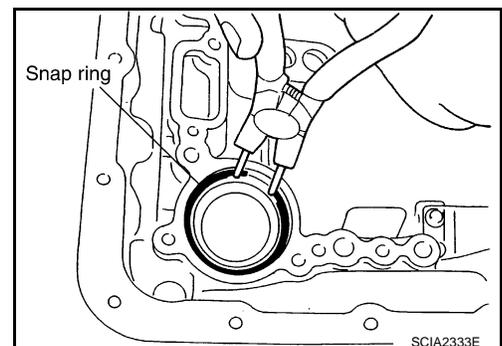
Be careful not to scratch transmission case.



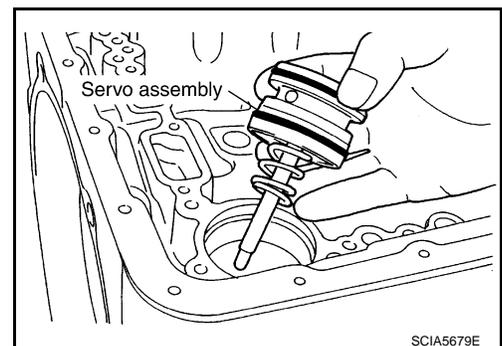
62. Remove detent spring and spacer from transmission case.



63. Using pair of snap ring pliers, remove snap ring from transmission case.



64. Remove servo assembly (with return spring) from transmission case.

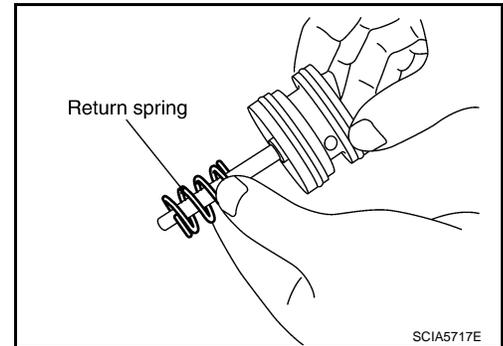


TRANSMISSION ASSEMBLY

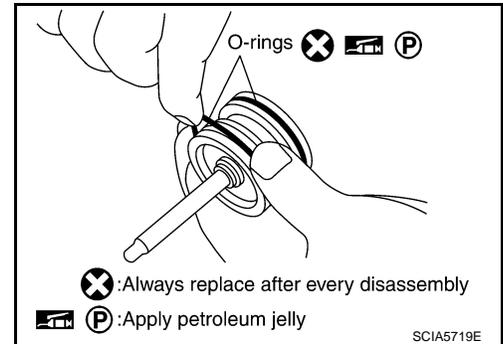
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[5AT: RE5R05A]

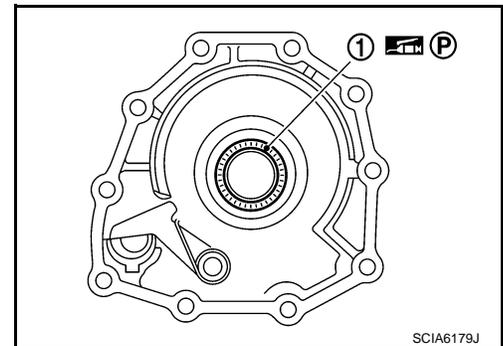
65. Remove return spring from servo assembly.



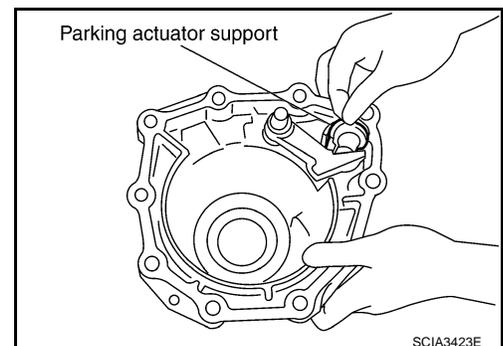
66. Remove O-rings from servo assembly.



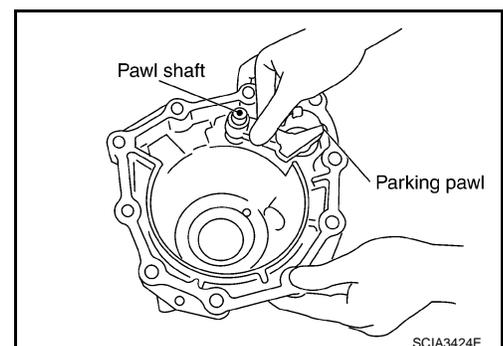
67. Remove needle bearing (1) from rear extension (2WD) or adapter case (AWD).



68. Remove parking actuator support from rear extension (2WD) or adapter case (AWD).



69. Remove parking pawl (with return spring) and pawl shaft from rear extension (2WD) or adapter case (AWD).



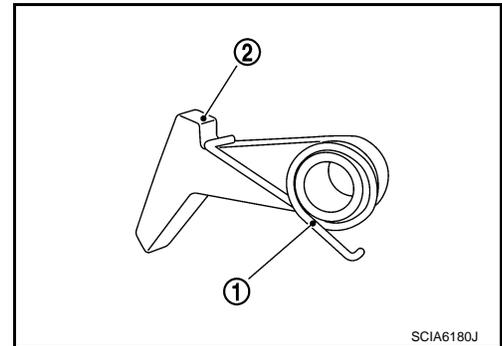
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TRANSMISSION ASSEMBLY

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[5AT: RE5R05A]

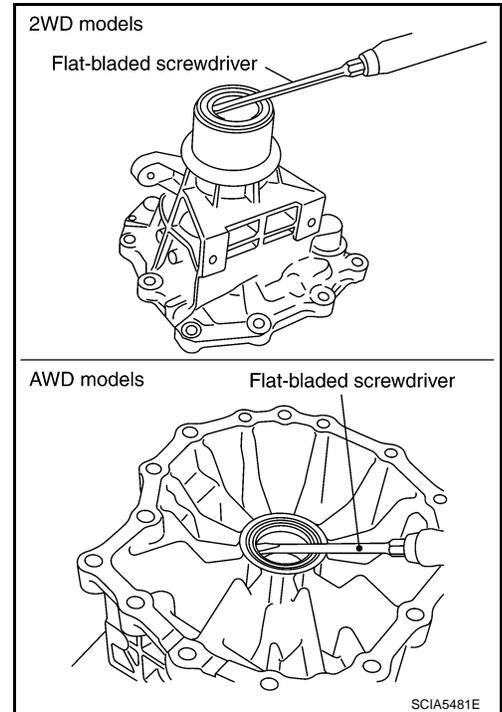
70. Remove return spring (1) from parking pawl (2).



71. Remove rear oil seal from rear extension (2WD) or adapter case (AWD).

CAUTION:

Be careful not to scratch rear extension (2WD) or adapter case (AWD).



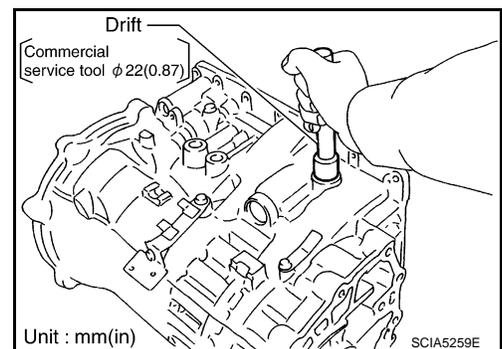
Assembly

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1. As shown in the figure, use a drift [22 mm (0.87 in) dia. commercial service tool] to drive manual shaft oil seals into the transmission case until it is flush.

CAUTION:

- Do not reuse manual shaft oil seals.
- Apply ATF to manual shaft oil seals.

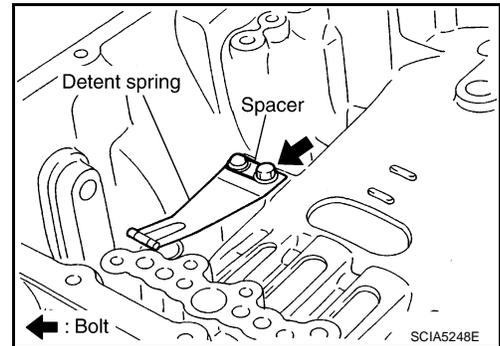


TRANSMISSION ASSEMBLY

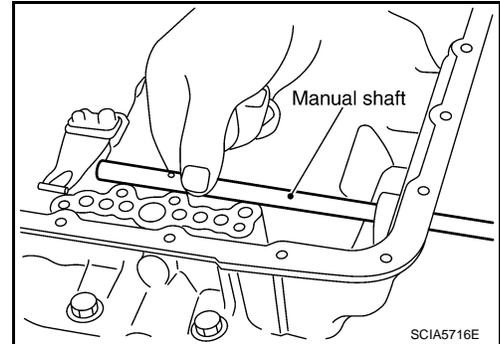
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[5AT: RE5R05A]

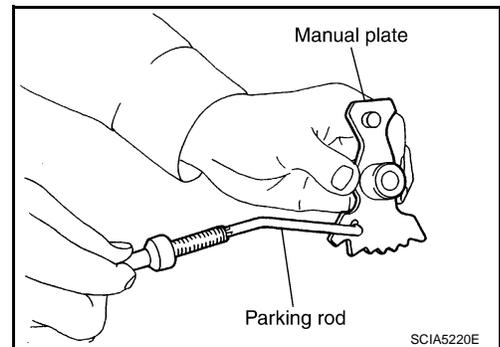
2. Install detent spring and spacer in transmission case. Tighten detent spring and spacer bolt to the specified torque.



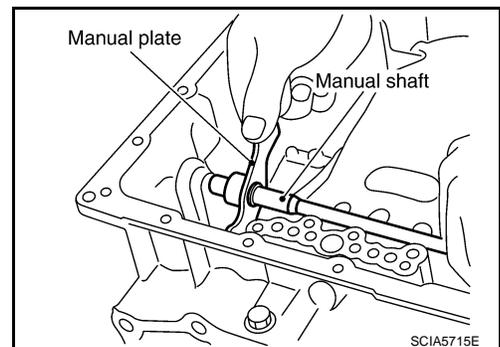
3. Install manual shaft to transmission case.



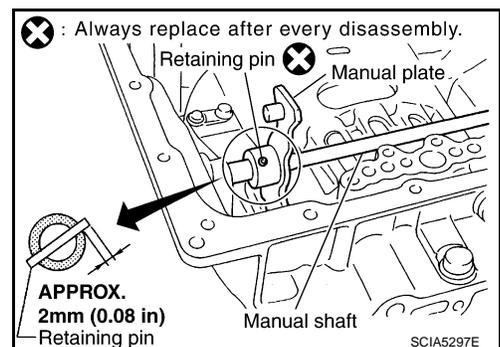
4. Install parking rod to manual plate.



5. Install manual plate (with parking rod) to manual shaft.



6. Install retaining pin into the manual plate and manual shaft.
 - a. Fit pinhole of the manual plate to pinhole of the manual shaft with a pin punch.
 - b. Use a hammer to tap the retaining pin into the manual plate.
CAUTION:
Drive retaining pin to 2 ± 0.5 mm (0.08 ± 0.020 in) over the manual plate.



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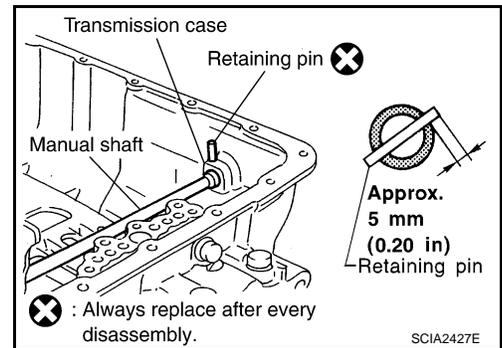
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[5AT: RE5R05A]

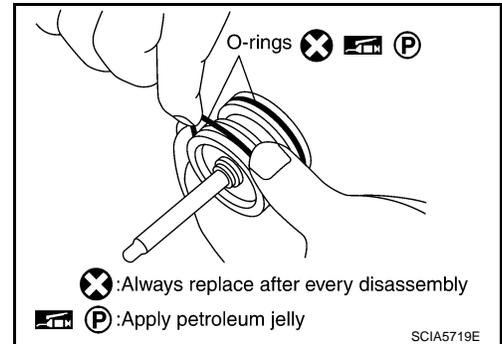
7. Install retaining pin into the transmission case and manual shaft.
 - a. Fit pinhole of the transmission case to pinhole of the manual shaft with a pin punch.
 - b. Use a hammer to tap the retaining pin into the transmission case.

CAUTION:

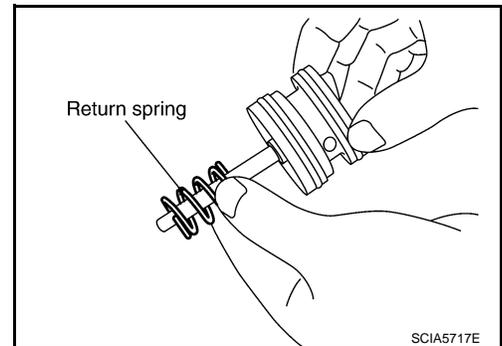
Drive retaining pin to 5 ± 1 mm (0.20 ± 0.04 in) over the transmission case.



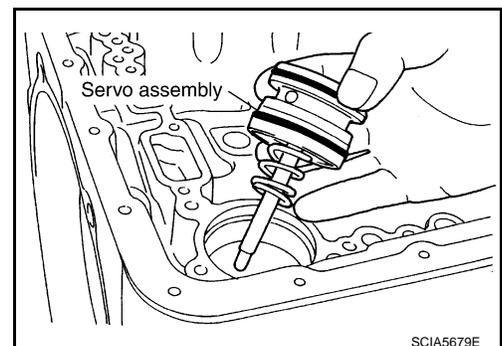
8. Install O-rings to servo assembly.



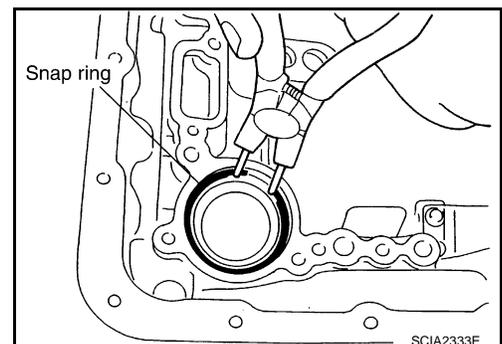
9. Install return spring to servo assembly.



10. Install servo assembly in transmission case.



11. Using a pair of snap ring pliers, install snap ring to transmission case.

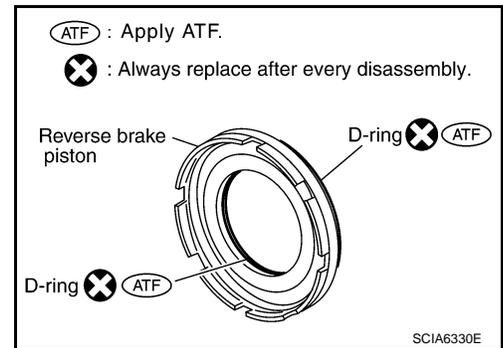


TRANSMISSION ASSEMBLY

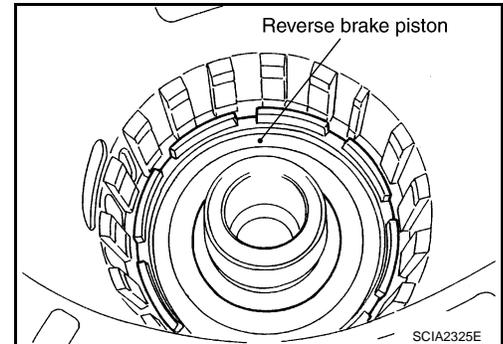
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[5AT: RE5R05A]

12. Install D-rings in reverse brake piston.



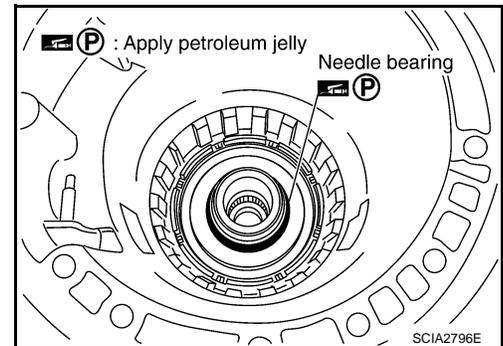
13. Install reverse brake piston in transmission case.



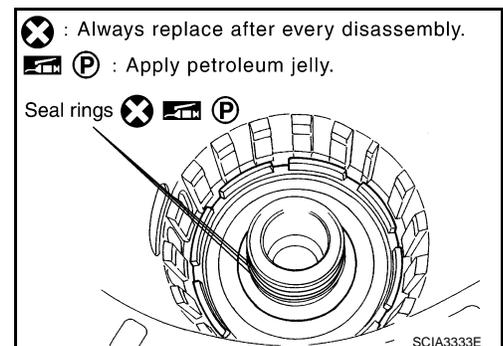
14. Install needle bearing to drum support edge surface.

CAUTION:

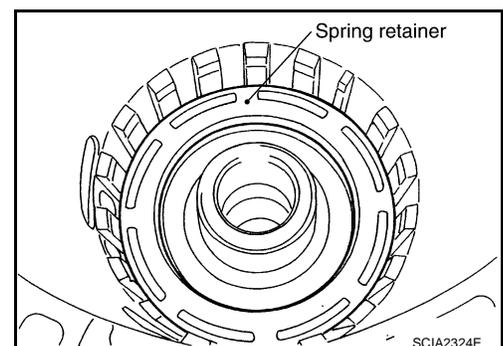
Check the direction of needle bearing. Refer to [TM-207](#), "[Location of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings](#)".



15. Install seal rings to drum support.



16. Install spring retainer and return spring in transmission case.



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TRANSMISSION ASSEMBLY

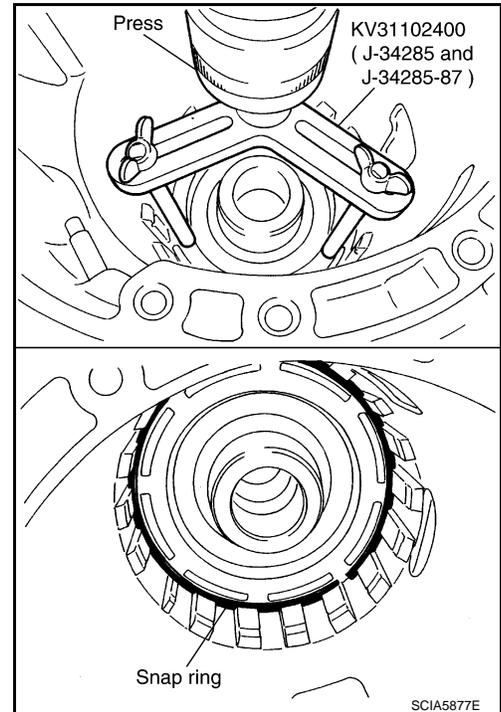
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

17. Set the SST on spring retainer and install snap ring (fixing spring retainer) in transmission case while compressing return spring.

CAUTION:

Securely assemble them using a flat-bladed screwdriver so that snap ring tension is slightly weak.

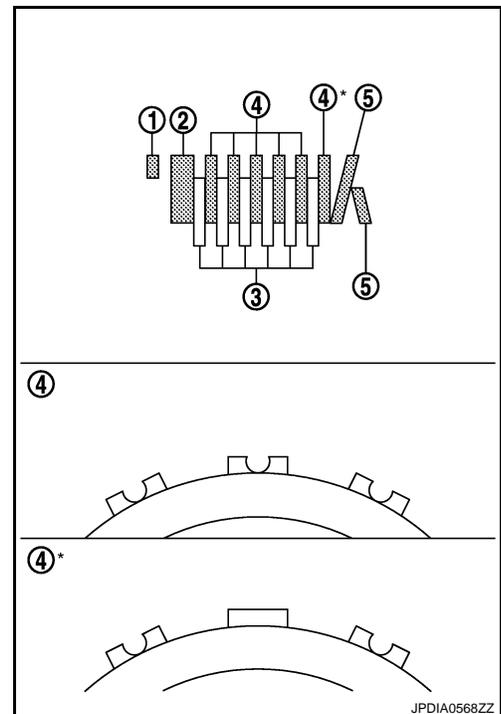


18. Install reverse brake drive plates, driven plates, dish plates and retaining plate in transmission case.

- 1 : Snap ring
- 2 : Retaining plate
- 3 : Drive plate
- 4 : Driven plate
- 5 : Dish plate
- 6/6 : Drive plate / Driven plate

CAUTION:

Check order of plates.

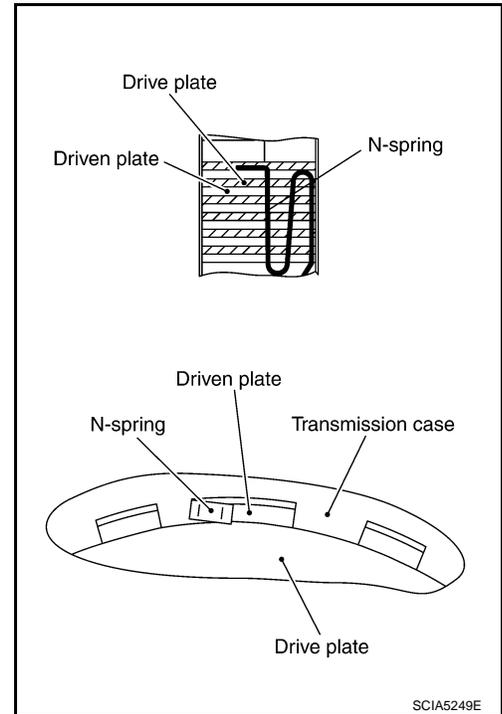


TRANSMISSION ASSEMBLY

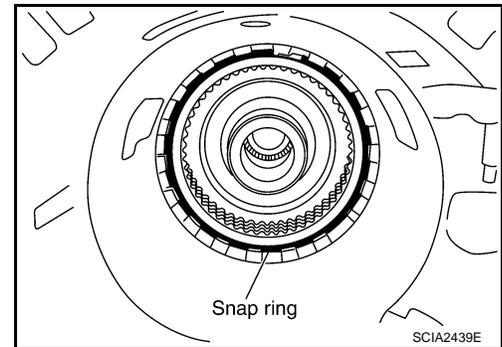
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

19. Assemble N-spring.
20. Install reverse brake retaining plate in transmission case.



21. Install snap ring in transmission case.

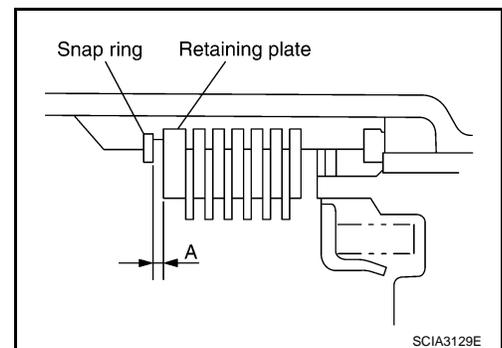


22. Measure clearance between retaining plate and snap ring. If not within specified clearance, select proper retaining plate.

Specified clearance "A"

Standard: [TM-270, "Reverse Brake"](#).

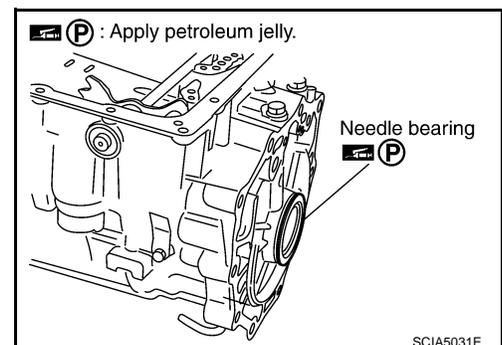
Retaining plate: Refer to [TM-270, "Reverse Brake"](#)



23. Install needle bearing to transmission case.

CAUTION:

Check the direction of needle bearing. Refer to [TM-207, "Location of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings"](#).



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TRANSMISSION ASSEMBLY

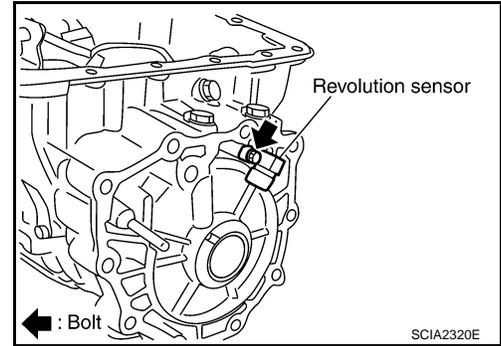
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

24. Install revolution sensor to transmission case. Tighten revolution sensor bolt to the specified torque.

CAUTION:

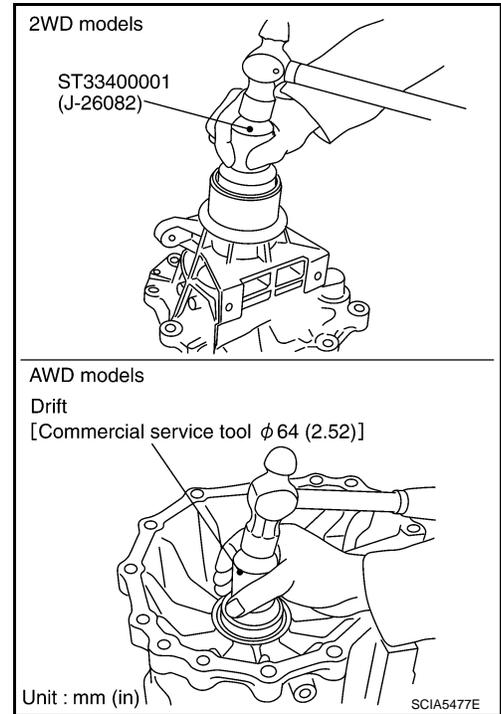
- Do not subject it to impact by dropping or hitting it.
- Do not disassemble.
- Do not allow metal filings, etc. to get on the sensor's front edge magnetic area.
- Do not place in an area affected by magnetism.



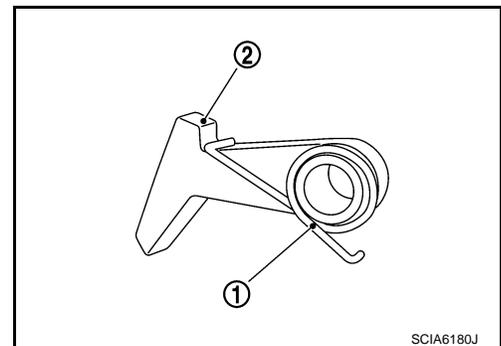
25. As shown in the figure, use the drift to drive rear oil seal into the rear extension (2WD) or adapter case (AWD) until it is flush.

CAUTION:

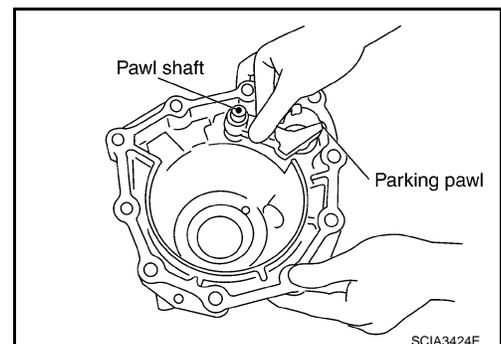
- Do not reuse rear oil seal.
- Apply ATF to rear oil seal.



26. Install return spring (1) to parking pawl (2).



27. Install parking pawl (with return spring) and pawl shaft to rear extension (2WD) or adapter case (AWD).

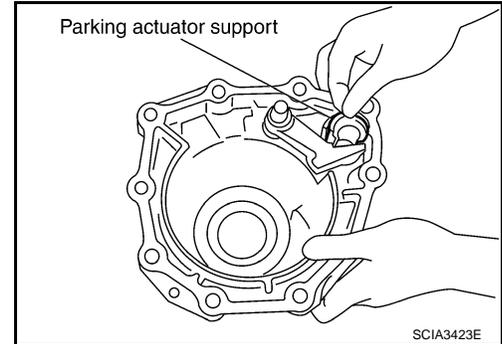


TRANSMISSION ASSEMBLY

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[5AT: RE5R05A]

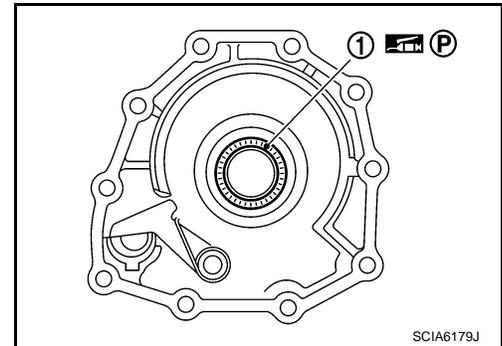
28. Install parking actuator support from rear extension (2WD) or adapter case (AWD).



29. Install needle bearing (1) to rear extension (2WD) or adapter case (AWD).

CAUTION:

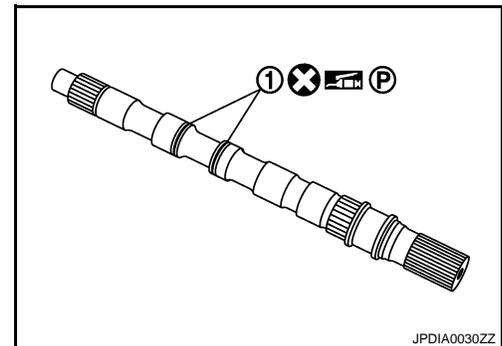
Check the direction of needle bearing. Refer to [TM-207](#), "[Location of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings](#)".



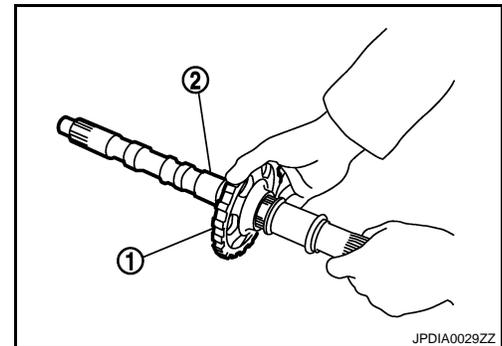
30. Install rear extension assembly (2WD) or adapter case assembly (AWD) according to the following procedures.

a. **2WD**

- i. Install seal rings (1) to output shaft.



- ii. Install parking gear (1) to output shaft (2).



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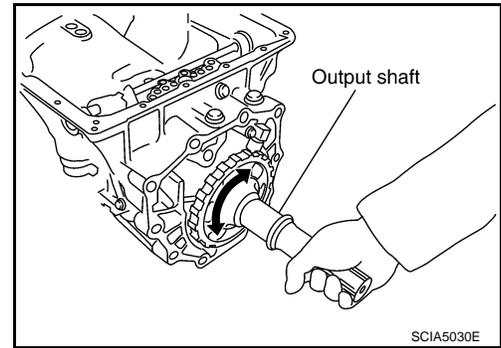
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

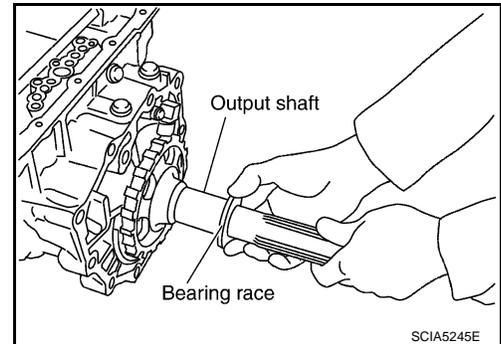
- iii. Install output shaft in transmission case.

CAUTION:

Be careful not to mistake front for rear because both sides looks similar. (Thinner end is front side.)



- iv. Install bearing race to output shaft.



- v. Apply recommended sealant (Genuine Anaerobic Liquid Gasket or equivalent. Refer to [GI-15. "Recommended Chemical Products and Sealants"](#).) to rear extension assembly as shown in the figure.

A : Start and finish point shall be in the center of two bolts.

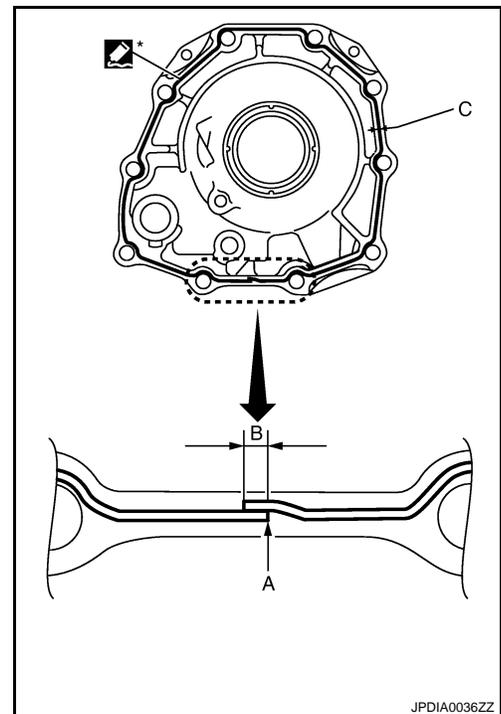
B : 3 – 5 mm (0.12 – 0.20 in)

Sealant width (C) : 1.0 – 2.0 mm (0.04 – 0.08 in)

Sealant height (C) : 0.4 – 1.0 mm (0.016 – 0.04 in)

CAUTION:

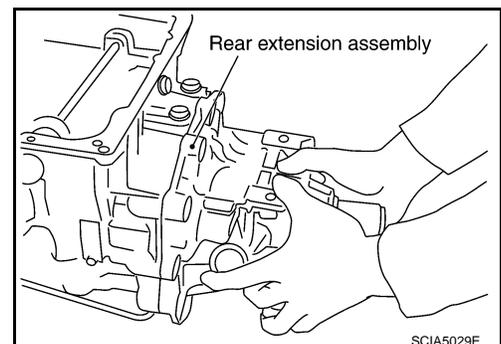
Completely remove all moisture, oil and old sealant, etc. from the transmission case and rear extension assembly mounting surfaces.



- vi. Install rear extension assembly to transmission case.

CAUTION:

Insert the tip of parking rod between the parking pawl and the parking actuator support when assembling the rear extension assembly.



TRANSMISSION ASSEMBLY

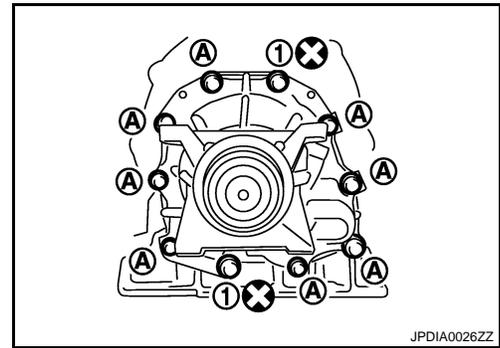
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

vii. Tighten rear extension assembly bolts to the specified torque.

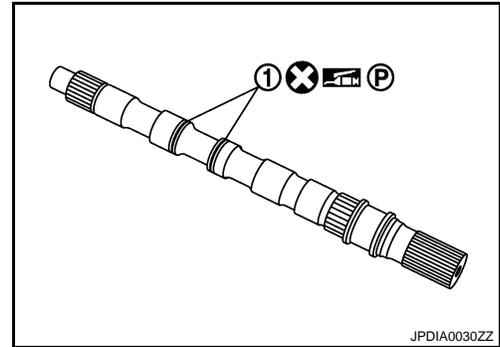
1 : Self-sealing bolt

A : Bolt

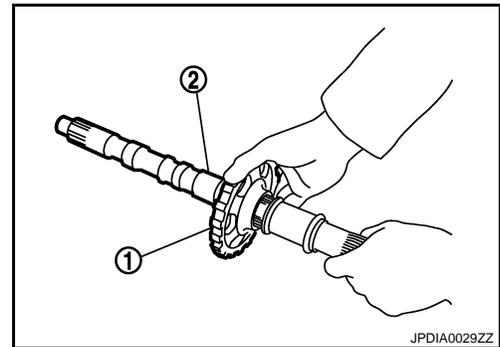


b. **AWD**

i. Install seal rings (1) to output shaft.



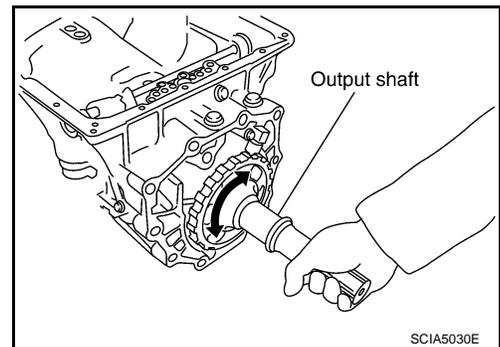
ii. Install parking gear (1) to output shaft (2).



iii. Install output shaft in transmission case.

CAUTION:

Be careful not to mistake front for rear because both sides looks similar. (Thinner end is front side.)



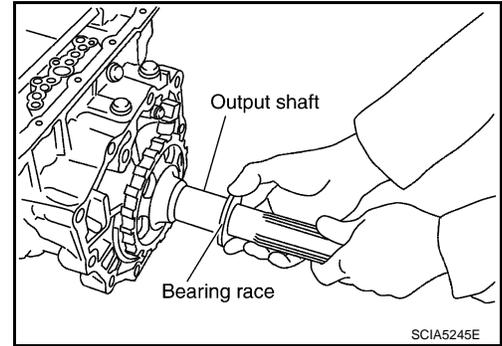
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TRANSMISSION ASSEMBLY

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[5AT: RE5R05A]

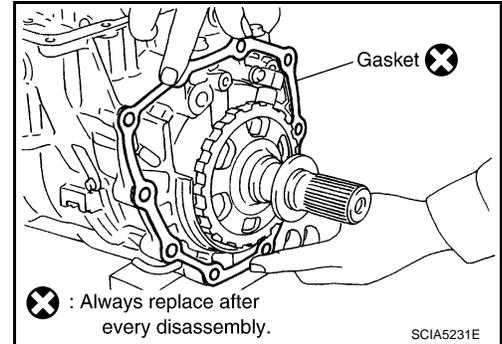
iv. Install bearing race to output shaft.



v. Install gasket onto transmission case.

CAUTION:

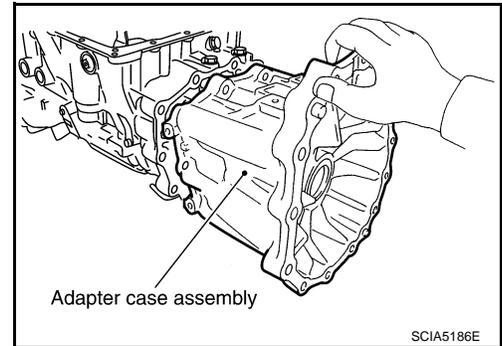
- Completely remove all moisture, oil and old gasket, etc. from the transmission case and adapter case assembly mounting surfaces.
- Do not reuse gasket.



vi. Install adapter case assembly to transmission case.

CAUTION:

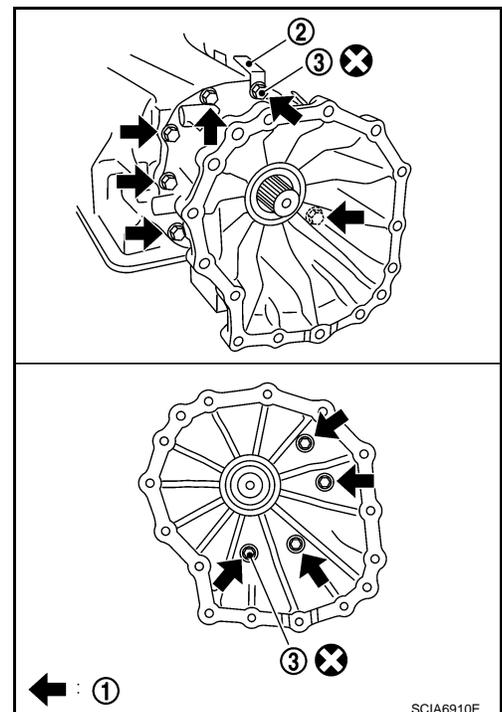
Insert the tip of parking rod between the parking pawl and the parking actuator support when assembling the adapter case assembly.



vii. Tighten adapter case assembly bolts (1) to the specified torque. [With bracket (2).]

3 : Self-sealing bolt

← : Bolt



TRANSMISSION ASSEMBLY

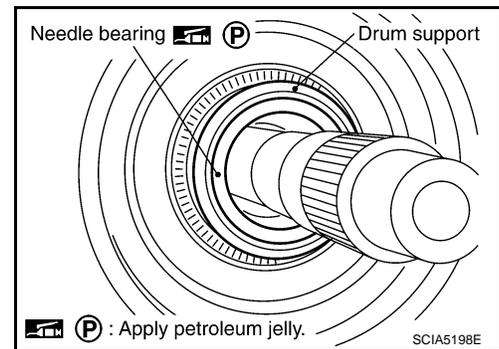
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[5AT: RE5R05A]

31. Install needle bearing in drum support.

CAUTION:

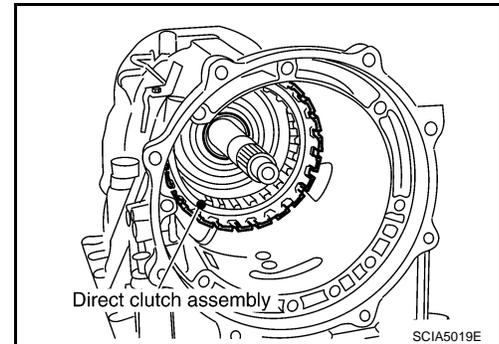
Check the direction of needle bearing. Refer to [TM-207](#), "[Location of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings](#)".



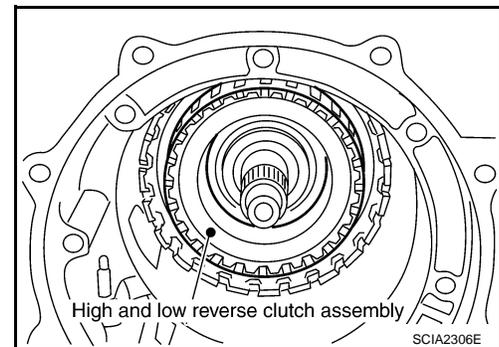
32. Install direct clutch assembly in reverse brake.

CAUTION:

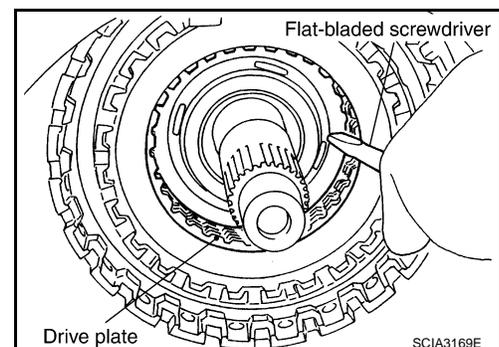
Make sure that drum support edge surface and direct clutch inner boss edge surface come to almost same place.



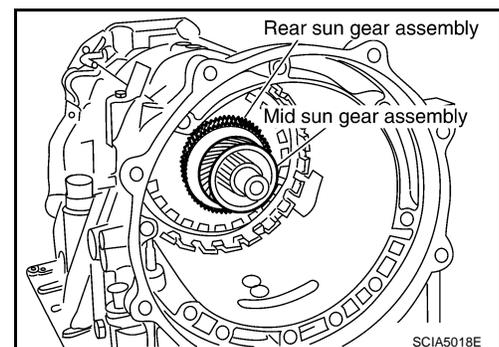
33. Install high and low reverse clutch assembly in direct clutch.



34. Using a flat-bladed screwdriver, align the drive plate.



35. Install high and low reverse clutch hub, mid sun gear assembly and rear sun gear assembly as a unit.



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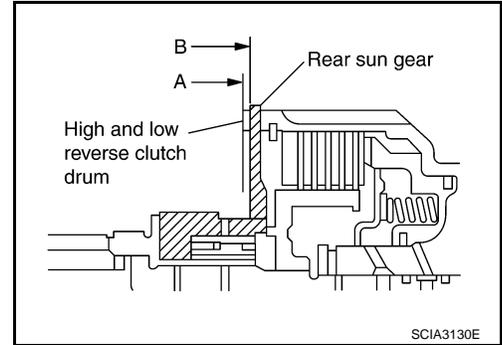
TRANSMISSION ASSEMBLY

< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

CAUTION:

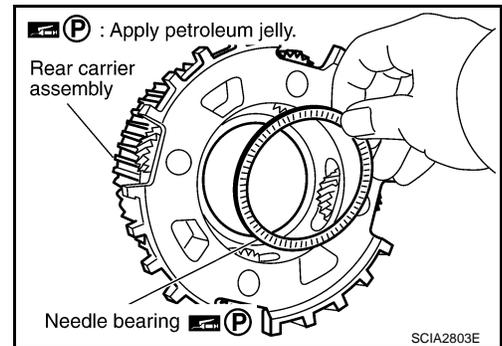
Make sure that portion "A" of high and low reverse clutch drum protrudes approximately 2 mm (0.08 in) beyond portion "B" of rear sun gear.



36. Install needle bearing in rear carrier assembly.

CAUTION:

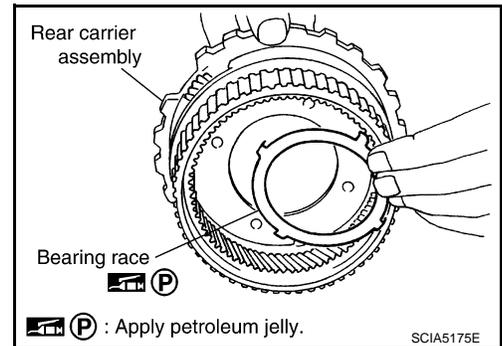
Check the direction of needle bearing. Refer to [TM-207, "Location of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings"](#).



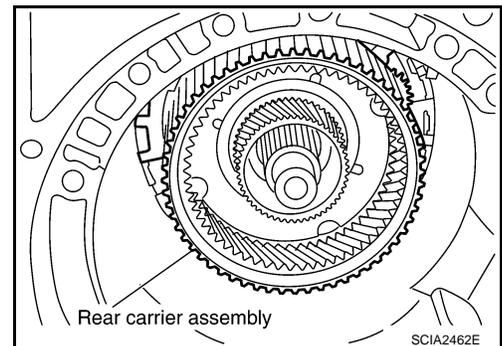
37. Install bearing race in rear carrier assembly.

CAUTION:

Check the direction of needle bearing. Refer to [TM-207, "Location of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings"](#).



38. Install rear carrier assembly in direct clutch drum.



TRANSMISSION ASSEMBLY

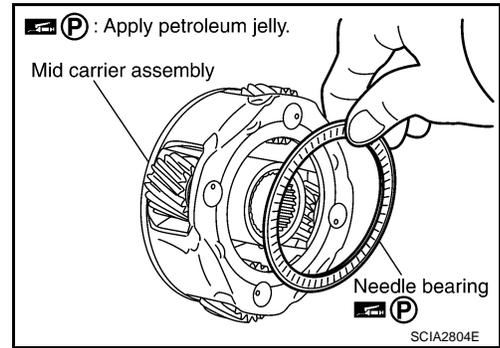
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[5AT: RE5R05A]

39. Install needle bearing (rear side) to mid carrier assembly.

CAUTION:

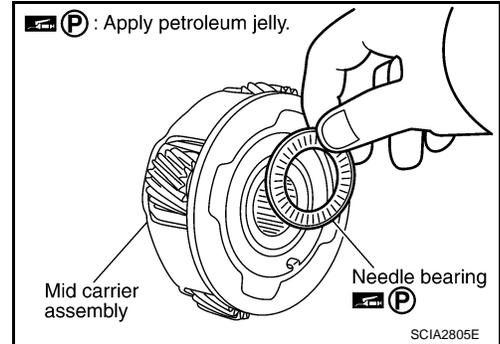
Check the direction of needle bearing. Refer to [TM-207](#), "[Location of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings](#)".



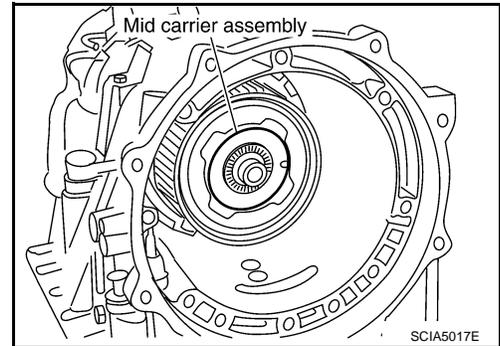
40. Install needle bearing (front side) to mid carrier assembly.

CAUTION:

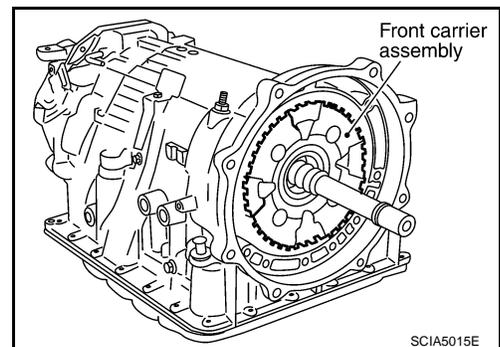
Check the direction of needle bearing. Refer to [TM-207](#), "[Location of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings](#)".



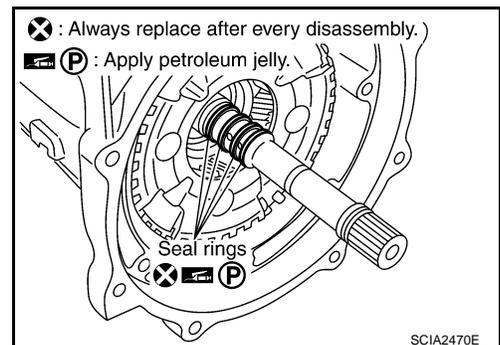
41. Install mid carrier assembly in rear carrier assembly.



42. Install front carrier assembly, input clutch assembly and rear internal gear as a unit.



43. Install seal rings in input clutch assembly.



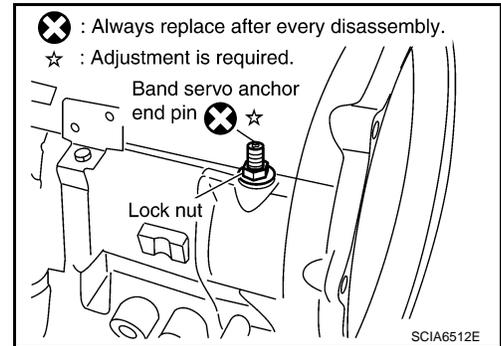
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TRANSMISSION ASSEMBLY

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[5AT: RE5R05A]

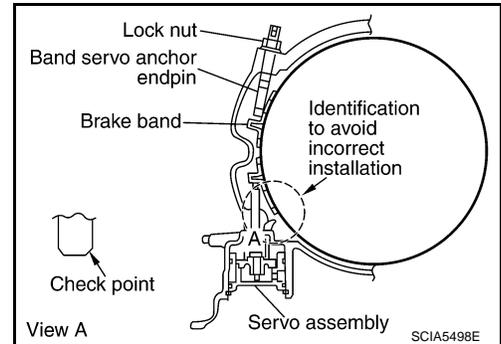
44. Install band servo anchor end pin and lock nut in transmission case.



45. Install brake band in transmission case.

CAUTION:

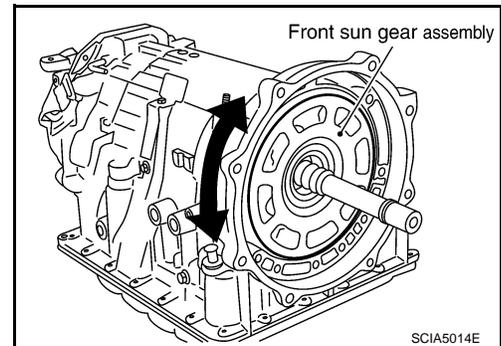
Assemble it so that identification to avoid incorrect installation faces servo side.



46. Install front sun gear to front carrier assembly.

CAUTION:

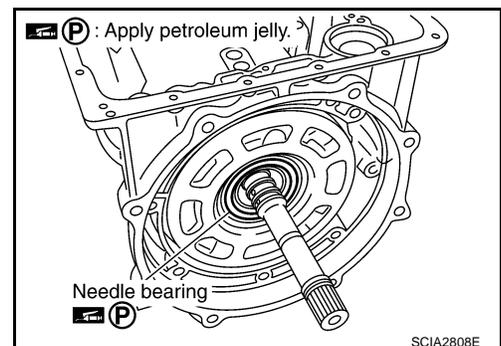
Apply ATF to front sun gear bearing and 3rd one-way clutch end bearing.



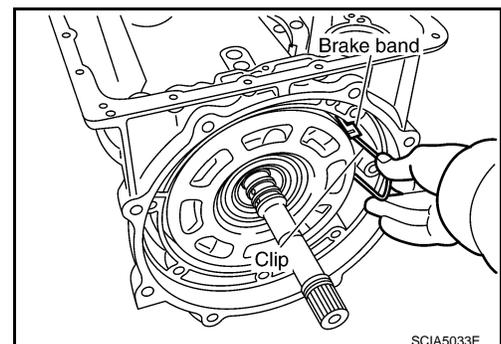
47. Install needle bearing to front sun gear.

CAUTION:

Check the direction of needle bearing. Refer to [TM-207, "Location of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings"](#).



48. Adjust brake band tilting using a clip so that brake band contacts front sun gear drum evenly.



TRANSMISSION ASSEMBLY

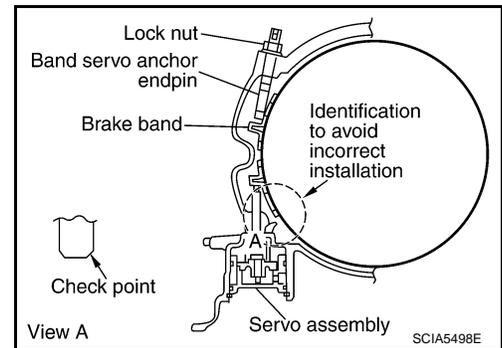
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[5AT: RE5R05A]

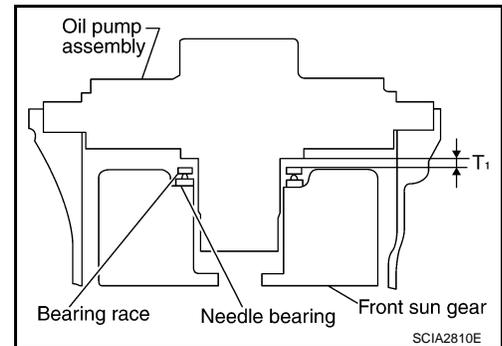
49. Adjust brake band.
 - a. Loosen lock nut.
 - b. Tighten band servo anchor end pin to specified torque.

 : 5.0 N·m (0.51 kg·m, 44 in·lb)

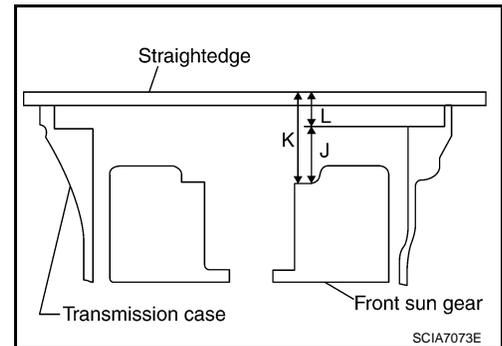
- c. Back of band servo anchor end pin three turns.
 - d. Holding band servo anchor end pin, tighten lock nut to the specified torque.



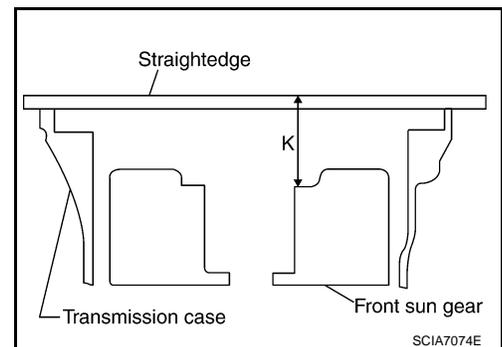
50. Adjustment of total end play.
 - Measure clearance between front sun gear and bearing race for oil pump cover.
 - Select proper thickness of bearing race so that end play is within specifications.



- a. Measure dimensions "K" and "L" and then calculate dimension "J".



- i. Measure dimension "K".



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TRANSMISSION ASSEMBLY

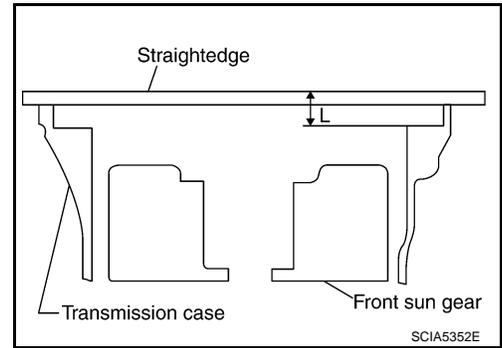
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[5AT: RE5R05A]

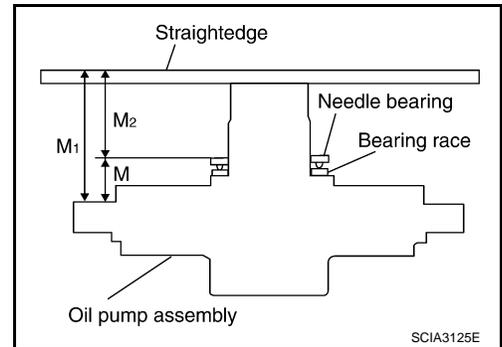
- ii. Measure dimension "L".
- iii. Calculate dimension "J".

"J" : Distance between oil pump fitting surface of transmission case and needle bearing mating surface of front sun gear.

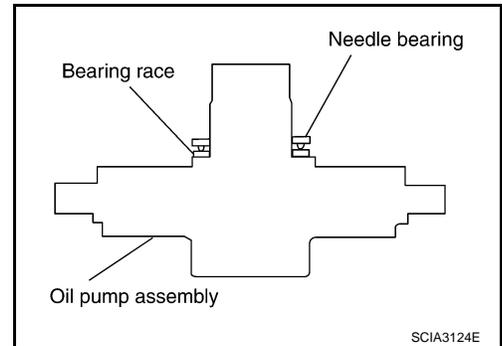
$$J = K - L$$



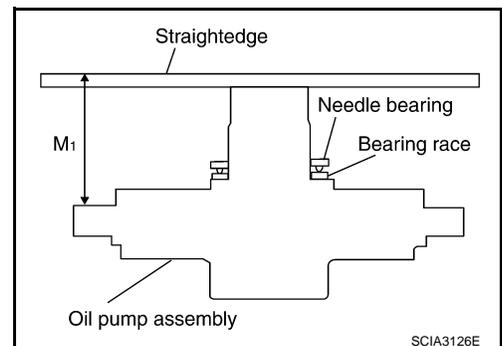
- b. Measure dimensions "M1" and "M2" and then calculate dimension "M".



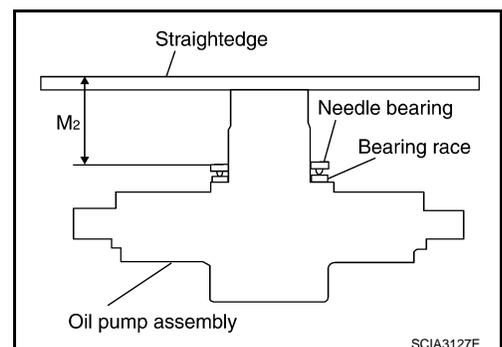
- i. Place bearing race and needle bearing on oil pump assembly.



- ii. Measure dimension "M1".



- iii. Measure dimension "M2".



TRANSMISSION ASSEMBLY

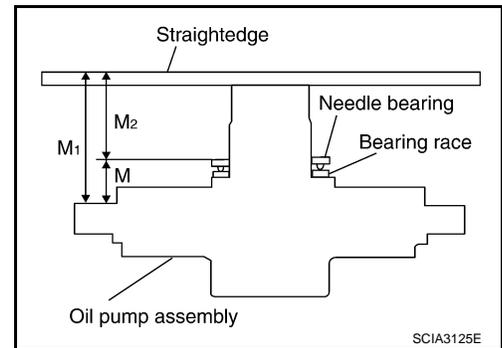
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

iv. Calculate dimension "M".

"M" : Distance between transmission case fitting surface of oil pump and needle bearing on oil pump.

$$M = M_1 - M_2$$



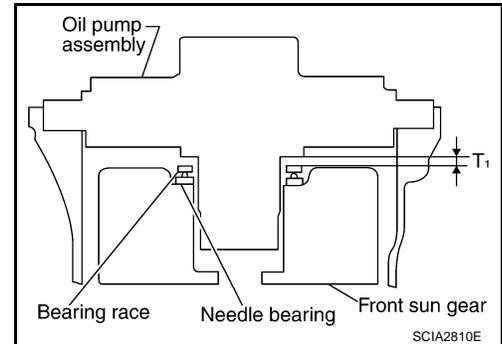
c. Adjust total end play "T1".

$$T_1 = J - M$$

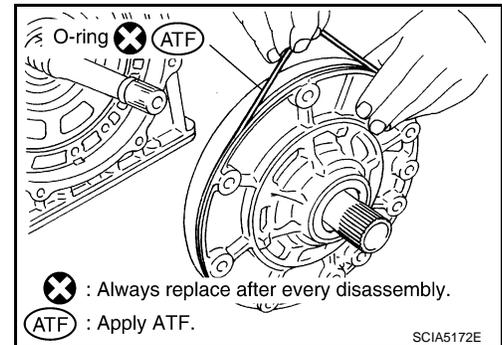
Total end play "T1" : Refer to [TM-270, "Total End Play"](#).

- Select proper thickness of bearing race so that total end play is within specifications.

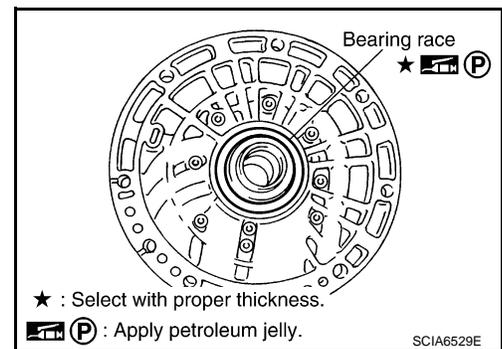
Bearing races : Refer to [TM-270, "Total End Play"](#).



51. Install O-ring to oil pump assembly.

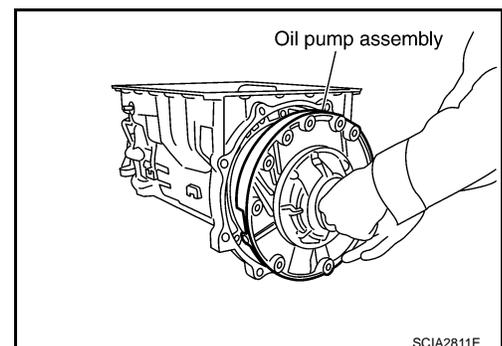


52. Install bearing race to oil pump assembly.



53. Install oil pump assembly in transmission case.

CAUTION:
Apply ATF to oil pump bearing.



TRANSMISSION ASSEMBLY

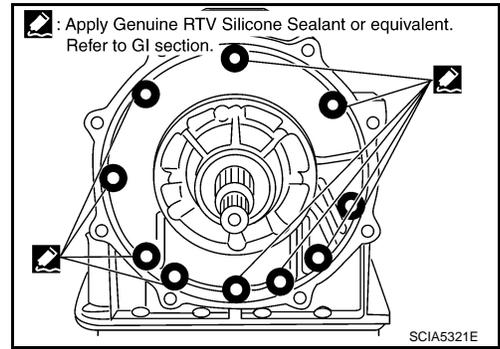
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

54. Apply recommended sealant (Genuine RTV Silicone Sealant or equivalent. Refer to [GI-15, "Recommended Chemical Products and Sealants."](#)) to oil pump assembly as shown in the figure.

CAUTION:

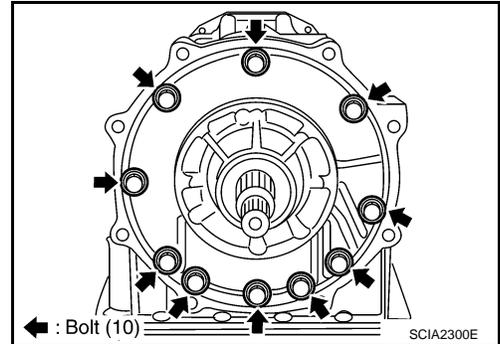
Completely remove all moisture, oil and old sealant, etc. from the oil pump mounting bolts and oil pump mounting bolt mounting surfaces.



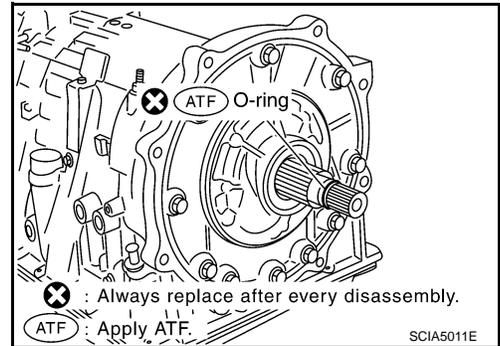
55. Tighten oil pump bolts to the specified torque.

CAUTION:

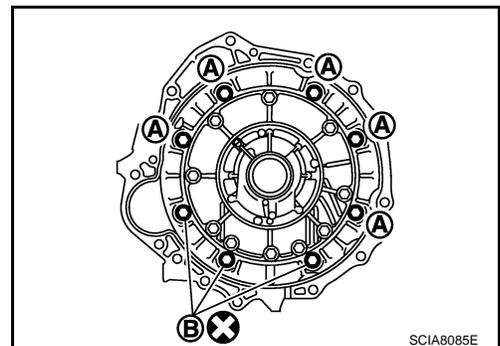
Apply ATF to oil pump bushing.



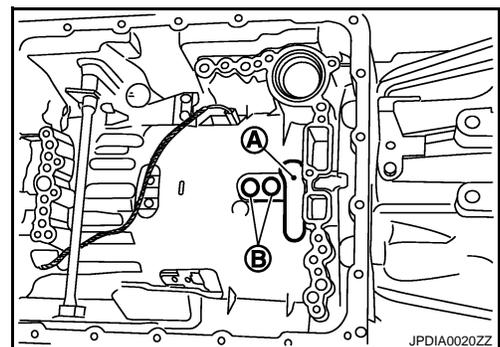
56. Install O-ring to input clutch assembly.



57. Install converter housing to transmission case, and then tighten converter housing bolts (A) and self-sealing bolt (B) to the specified torque.



58. Make sure that brake band (A) does not close turbine revolution sensor hole (B).

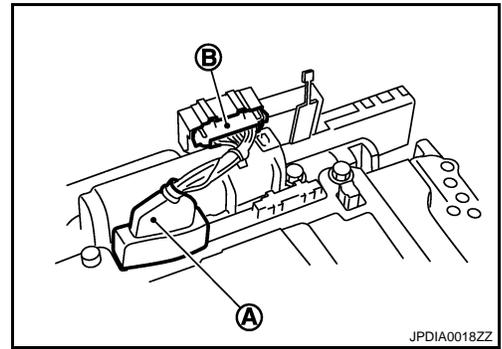


TRANSMISSION ASSEMBLY

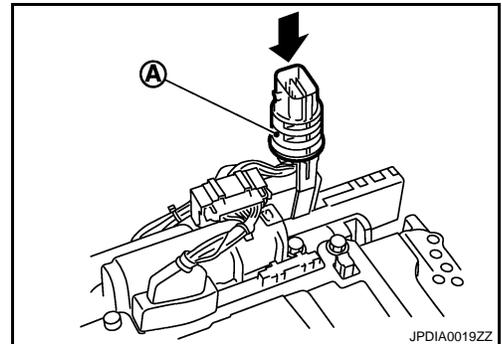
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

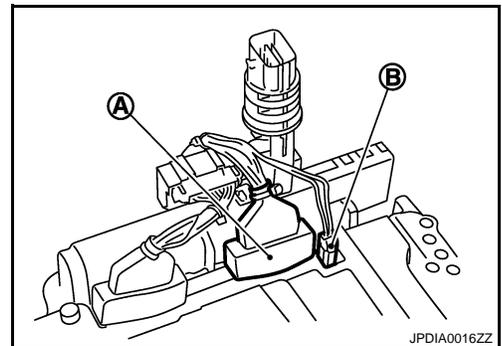
59. Connect TCM connector (A) and park/neutral position switch connector (B).



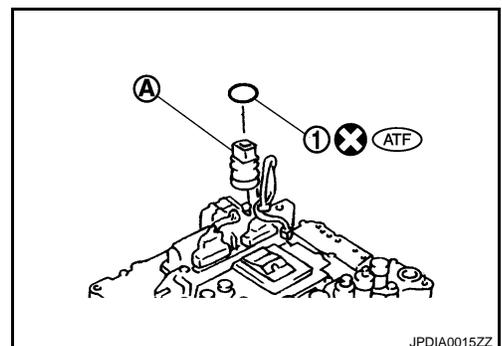
60. Install A/T assembly harness connector (A) to control valve with TCM.



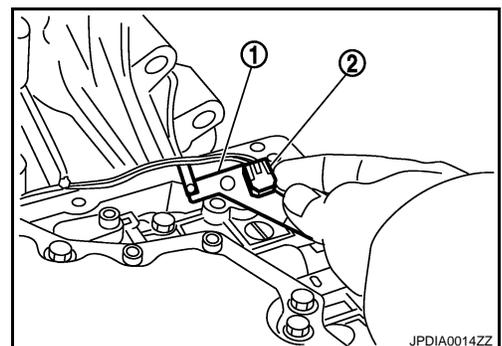
61. Connect TCM connectors (A) and (B).



62. Install O-ring (1) to A/T assembly harness connector (A).



63. Install bracket (1) to A/T fluid temperature sensor 2 (2).



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TRANSMISSION ASSEMBLY

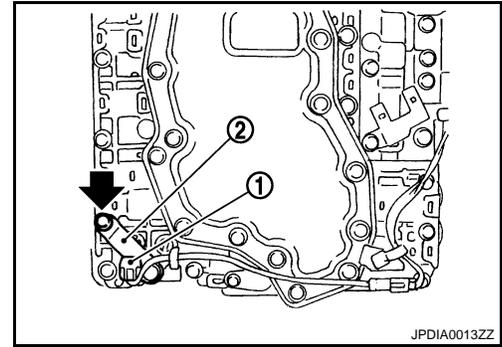
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

64. Install A/T fluid temperature sensor 2 (1) [with bracket (2)] in control valve with TCM. Tighten A/T fluid temperature sensor 2 bolt to the specified torque.

CAUTION:

Adjust bolt hole of bracket to bolt hole of control valve.



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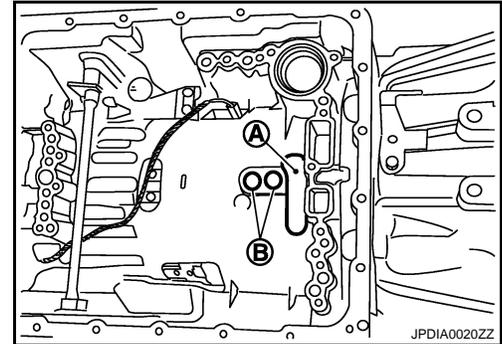
65. Install control valve with TCM in transmission case.

CAUTION:

- Make sure that turbine revolution sensor securely installs turbine revolution sensor hole (B).

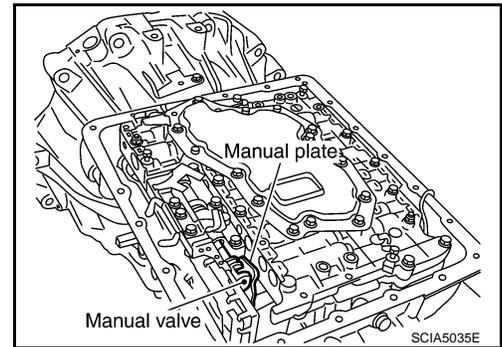
A : Brake band

- Hang down revolution sensor harness toward outside so as not to disturb installation of control valve with TCM.
- Adjust A/T assembly harness connector of control valve with TCM to terminal hole of transmission case.



JPDIA0020ZZ

- Assemble it so that manual valve cutout is engaged with manual plate projection.

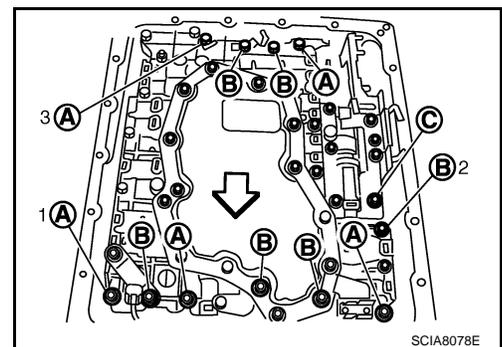


SCIA5035E

66. Install bolts (A), (B) and (C) in control valve with TCM. Tighten bolt 1, 2 and 3 temporarily to prevent dislocation. After that tighten them in order (1 → 2 → 3), and then tighten other bolts. Tighten control valve with TCM bolts to the specified torque.

↔ : Front

Bolt symbol	A	B	C
Number of bolts	5	6	1
Length mm (in)	42 (1.65)	55 (2.17)	40 (1.57)
Tightening torque N·m (km-g, in-lb)	7.9 (0.81, 70)		With ATF applied 7.9 (0.81, 70)



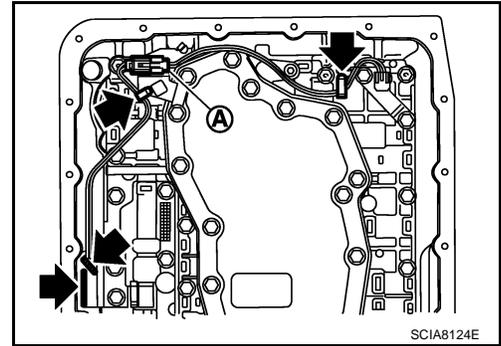
SCIA8078E

TRANSMISSION ASSEMBLY

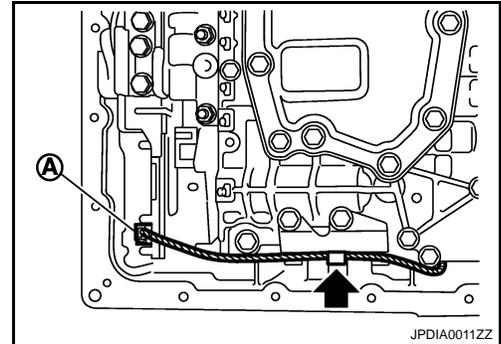
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

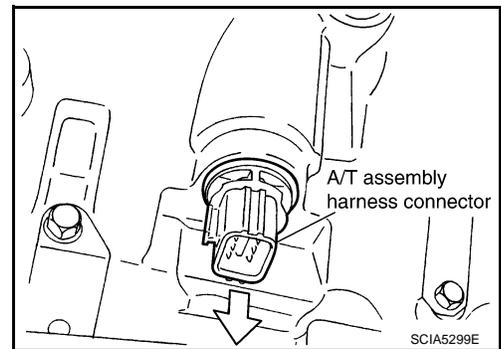
- 67. Connect A/T fluid temperature sensor 2 connector (A).
- 68. Engage terminal cord assembly and A/T fluid temperature sensor 2 harness with terminal clips (←).



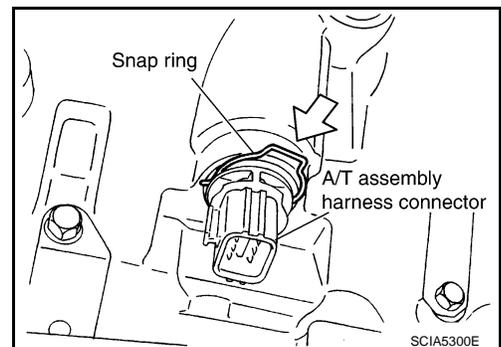
- 69. Connect revolution sensor connector (A).
- 70. Engage revolution sensor harness with terminal clip (←).



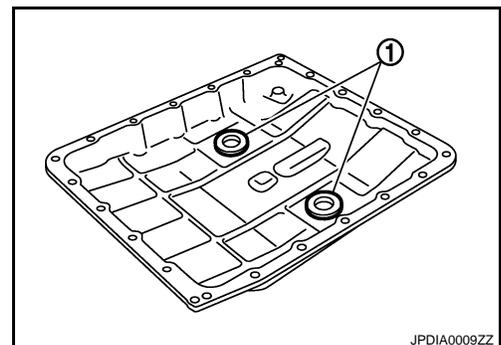
- 71. Pull down A/T assembly harness connector.
CAUTION:
Be careful not to damage connector.



- 72. Install snap ring to A/T assembly harness connector.



- 73. Install magnets (1) in oil pan.



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TRANSMISSION ASSEMBLY

< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

74. Install oil pan gasket to transmission case.

CAUTION:

- Do not reuse oil pan gasket.
- Install it in the direction to align hole positions.
- Completely remove all moisture, oil and old gasket, etc. from oil pan gasket mounting surface.

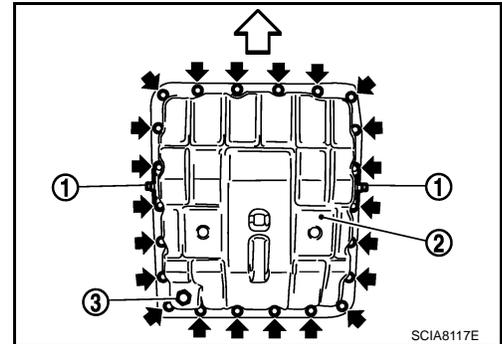
75. Install oil pan (2) and clips (1) to transmission case.

⇐ : Front

◀ : Oil pan mounting bolt

CAUTION:

- Install it so that drain plug (3) comes to the position as shown in the figure.
- Be careful not to pinch harnesses.
- Completely remove all moisture, oil and old gasket, etc. from oil pan mounting surface.



76. Tighten oil pan mounting bolts to the specified torque in numerical order shown in the figure after temporarily tightening them. Tighten oil pan mounting bolts to the specified torque.

⇐ : Front

CAUTION:

Do not reuse oil pan mounting bolts.

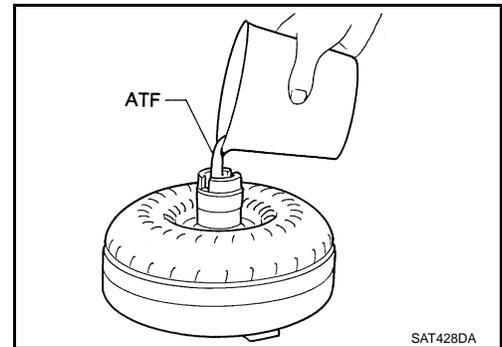
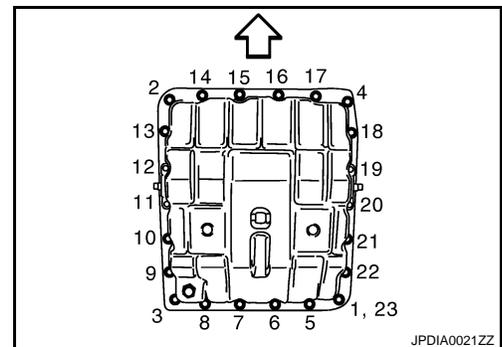
77. Install drain plug to oil pan. Tighten drain plug to the specified torque.

CAUTION:

Do not reuse drain plug gasket.

78. Pour ATF into torque converter.

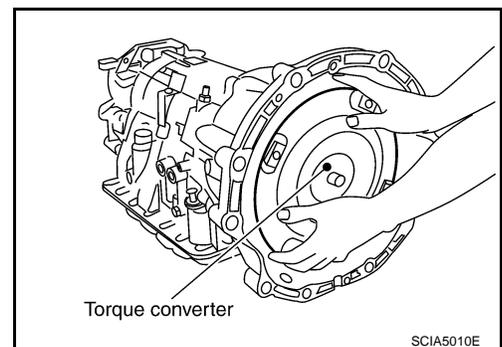
- Approximately 2 liter (2-1/8 US qt, 1-3/4 Imp qt) of ATF is required for a new torque converter.
- When reusing old torque converter, add the same amount of ATF as was drained.



79. Install torque converter while aligning notches of torque converter with notches of oil pump.

CAUTION:

Install torque converter while rotating it.



TRANSMISSION ASSEMBLY

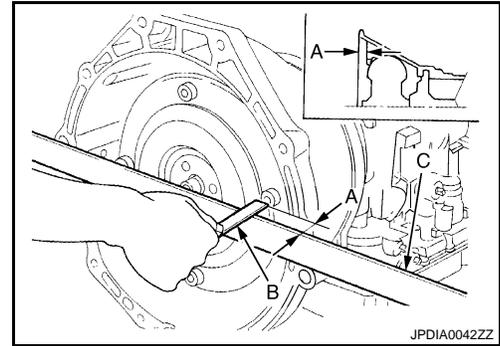
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

80. Measure distance (A) to make sure that torque converter is in proper position.

- B : Scale
- C : Straightedge

Distance (A) : Refer to [TM-270, "Torque Converter"](#).

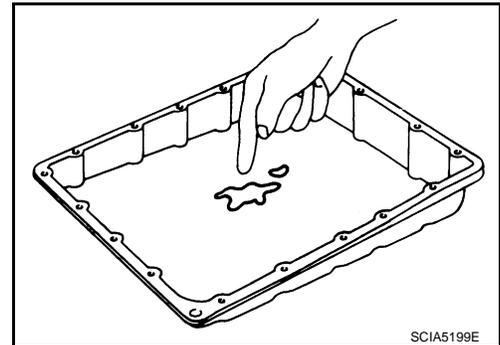


Inspection

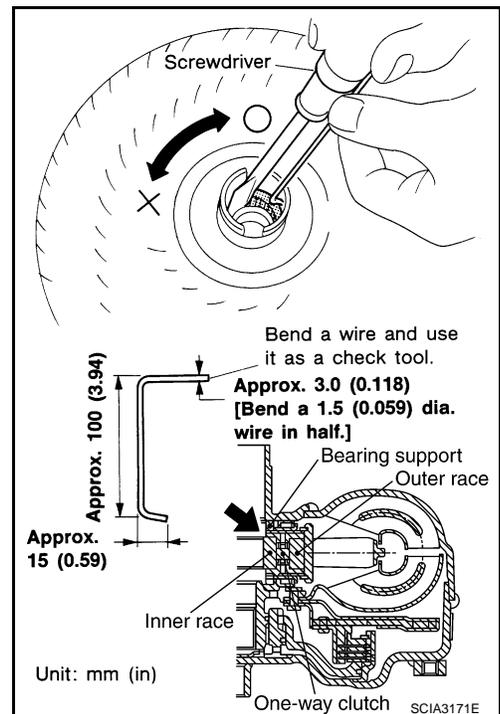
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INSPECTION AFTER REMOVAL

- Check foreign materials in oil pan to help determine causes of malfunction. If the ATF is very dark, smells burned, or contains foreign particles, the frictional material (clutches, band) may need replacement. A tacky film that will not wipe clean indicates varnish build up. Varnish can cause valves, servo, and clutches to stick and can inhibit pump pressure.
- **If frictional material is detected, perform A/T fluid cooler cleaning. Refer to [TM-143, "Cleaning"](#).**



- Check torque converter one-way clutch using a check tool as shown at figure.
1. Insert a check tool into the groove of bearing support built into one-way clutch outer race.
 2. When fixing bearing support with a check tool, rotate one-way clutch spline using a screwdriver.
 3. Make sure that inner race rotates clockwise only. If not, replace torque converter assembly.



OIL PUMP

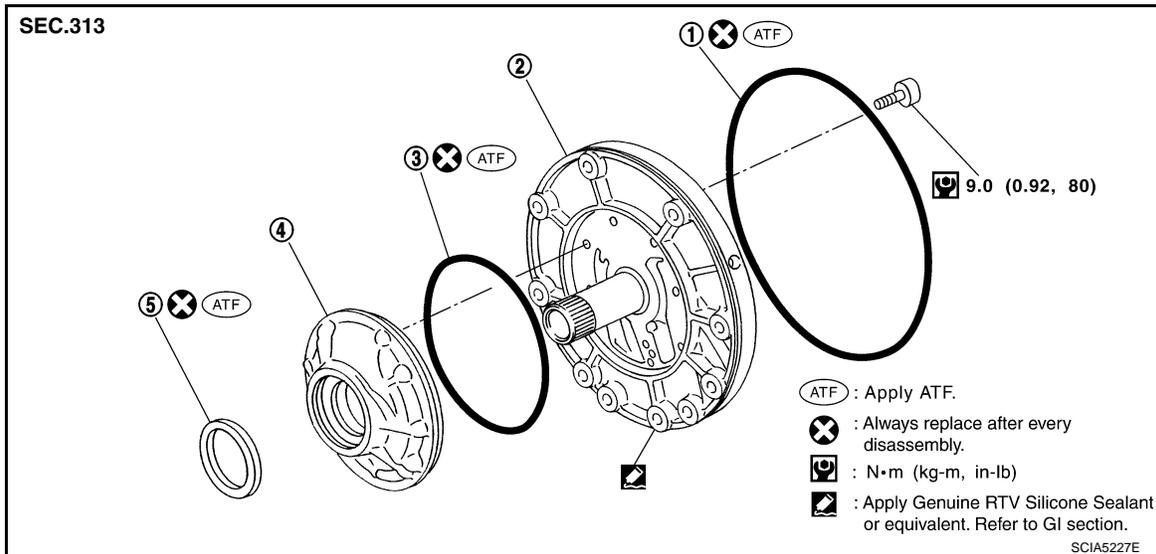
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

OIL PUMP

Exploded View

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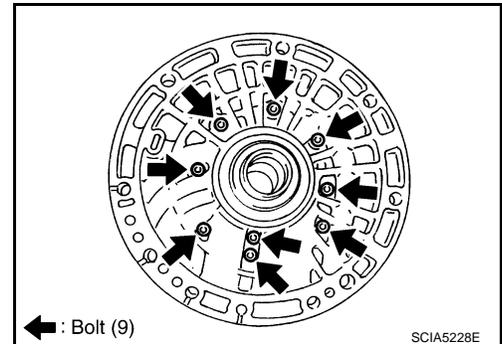


- | | | |
|---------------------|------------------------------|-----------|
| 1. O-ring | 2. Oil pump cover | 3. O-ring |
| 4. Oil pump housing | 5. Oil pump housing oil seal | |

Disassembly

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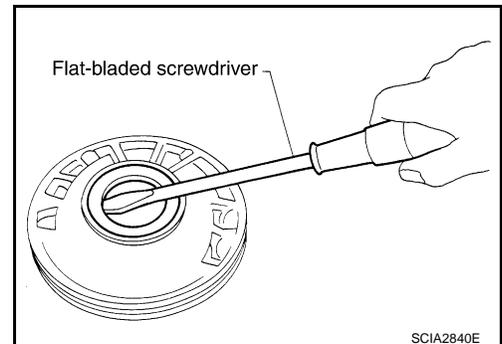
1. Remove oil pump housing from oil pump cover.



2. Remove oil pump housing oil seal using a flat-bladed screwdriver.

CAUTION:

Be careful not to scratch oil pump housing.

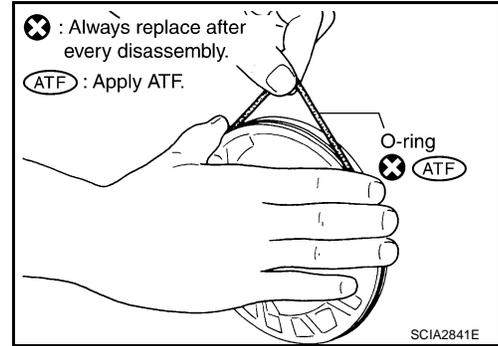


OIL PUMP

< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

3. Remove O-ring from oil pump housing.



4. Remove O-ring from oil pump cover.



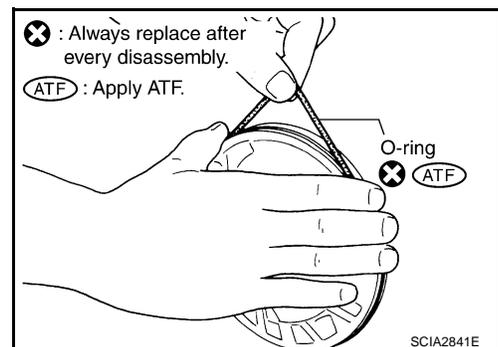
Assembly

INFOID:000000003130653

1. Install O-ring to oil pump cover.



2. Install O-ring to oil pump housing.



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OIL PUMP

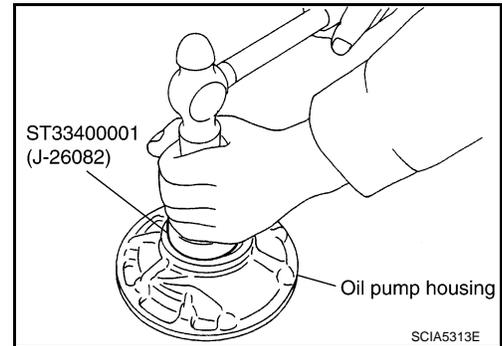
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

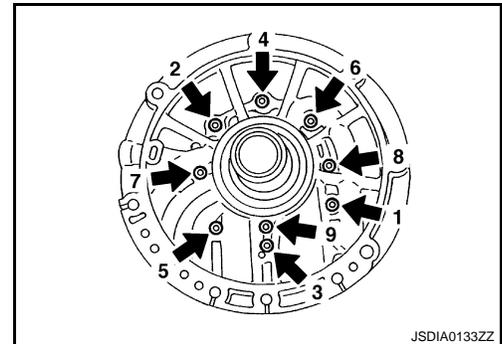
- Using the drift, install oil pump housing oil seal to the oil pump housing until it is flush.

CAUTION:

- Do not reuse oil seal.
- Apply ATF to oil seal.



- Install oil pump housing to oil pump cover.
- Tighten bolts (➡) to the specified torque in numerical order shown in the figure after temporarily tightening them.



FRONT SUN GEAR, 3RD ONE-WAY CLUTCH

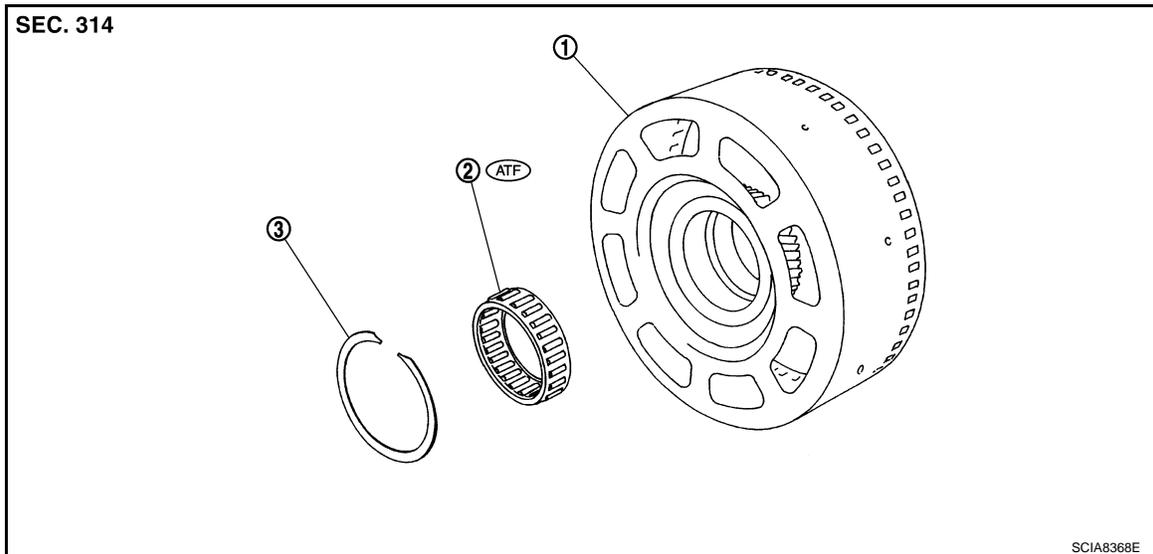
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[5AT: RE5R05A]

FRONT SUN GEAR, 3RD ONE-WAY CLUTCH

Exploded View

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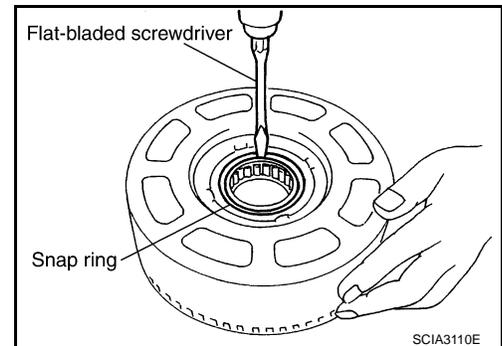
1. Front sun gear
2. 3rd one-way clutch
3. Snap ring

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

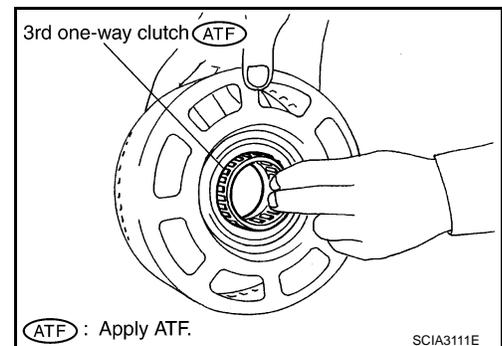
Disassembly

INFOID:000000003130655

1. Using a flat-bladed screwdriver, remove snap ring from front sun gear.



2. Remove 3rd one-way clutch from front sun gear.



(ATF) : Apply ATF.

FRONT SUN GEAR, 3RD ONE-WAY CLUTCH

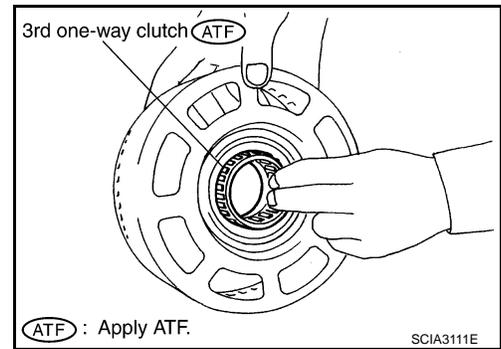
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

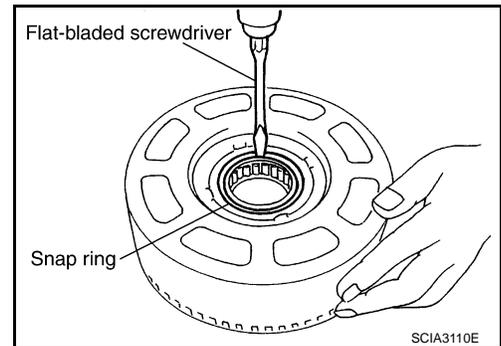
Assembly

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1. Install 3rd one-way clutch in front sun gear.



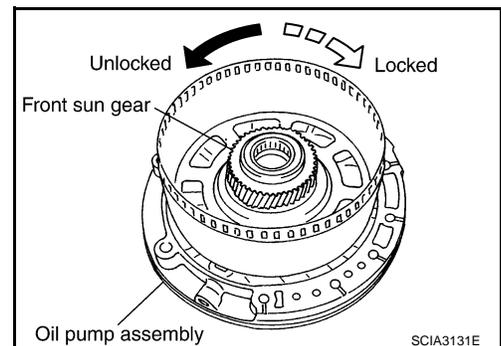
2. Using a flat-bladed screwdriver, install snap ring in front sun gear.



3. Check operation of 3rd one-way clutch.
 - a. Hold oil pump assembly and turn front sun gear.
 - b. Check 3rd one-way clutch for correct locking and unlocking directions.

CAUTION:

If not as shown in figure, check installation direction of 3rd one-way clutch.



Inspection

INFOID:000000003130657

- 3rd One-way Clutch
Check frictional surface for wear or damage.
CAUTION:
If necessary, replace the 3rd one-way clutch.
- Front Sun Gear Snap Ring
Check for deformation, fatigue or damage.
CAUTION:
If necessary, replace the snap ring.
- Front Sun Gear
Check for deformation, fatigue or damage.
CAUTION:
If necessary, replace the front sun gear.

FRONT CARRIER, INPUT CLUTCH, REAR INTERNAL GEAR

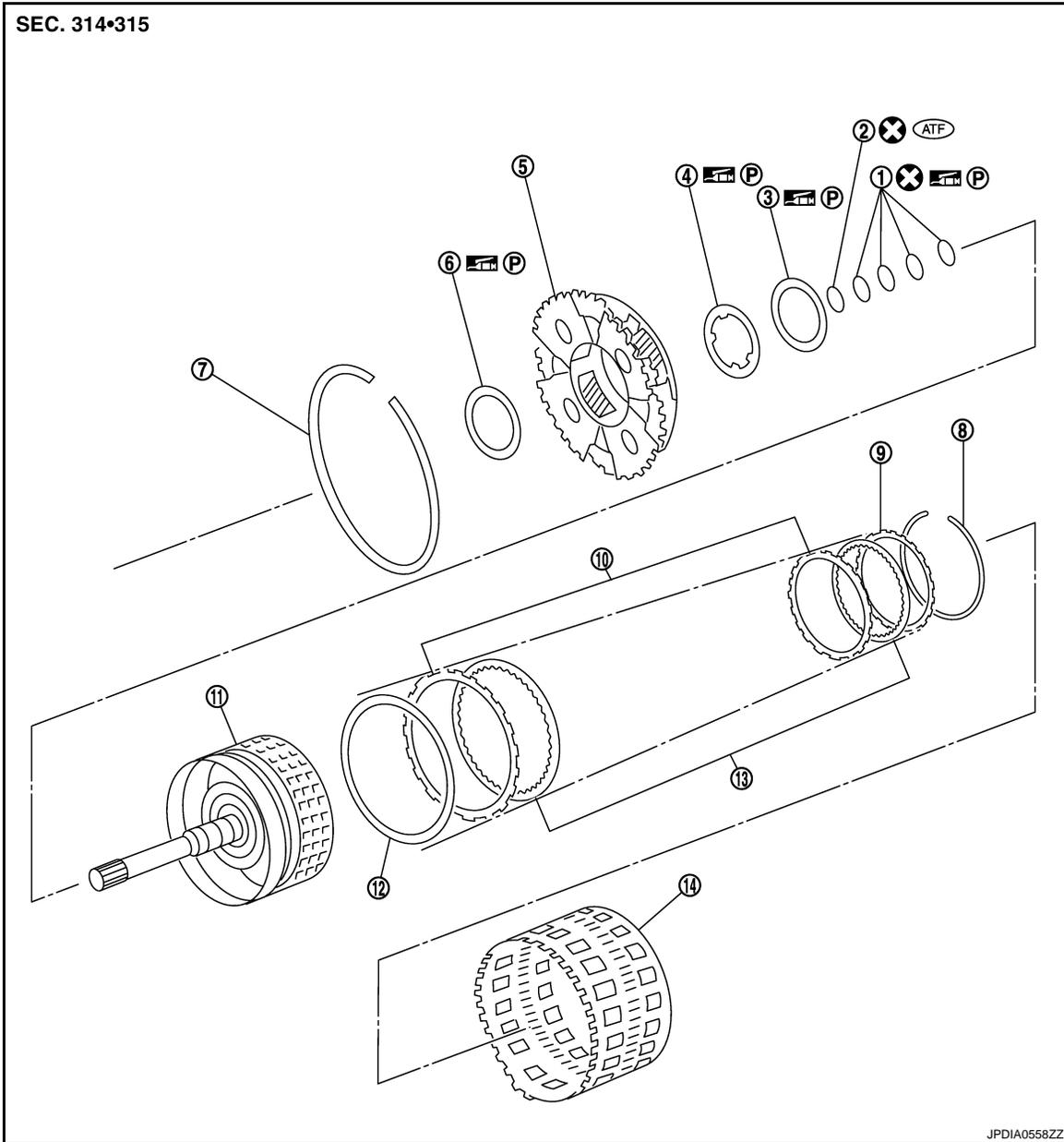
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

FRONT CARRIER, INPUT CLUTCH, REAR INTERNAL GEAR

Exploded View

INFOID:000000003130658



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|------------------|---------------------------|--------------------|
| 1. Seal ring | 2. O-ring | 3. Needle bearing |
| 4. Bearing race | 5. Front carrier assembly | 6. Needle bearing |
| 7. Snap ring | 8. Snap ring | 9. Retaining plate |
| 10. Driven plate | 11. Input clutch drum | 12. Dish plate |
| 13. Drive plate | 14. Rear internal gear | |

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

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FRONT CARRIER, INPUT CLUTCH, REAR INTERNAL GEAR

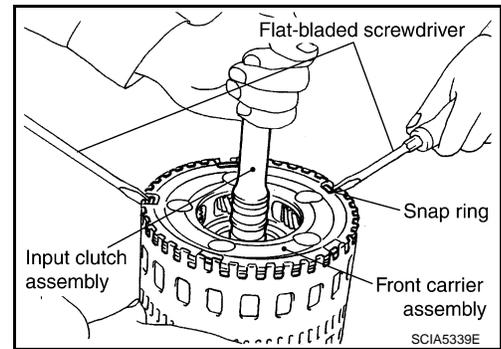
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[5AT: RE5R05A]

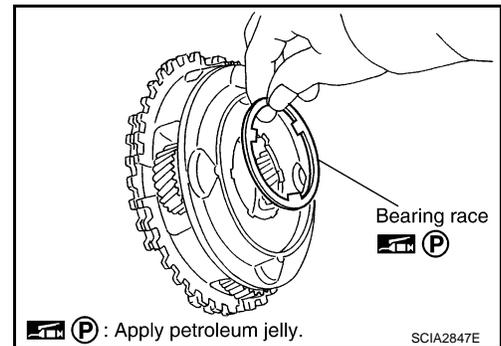
Disassembly

INFOID:000000003130659

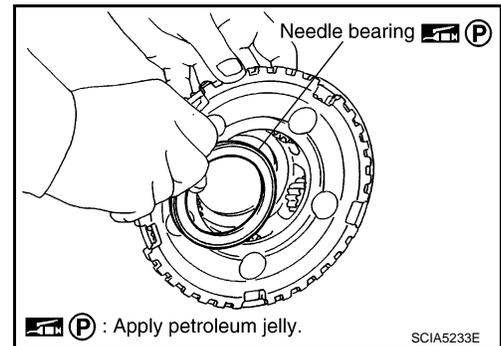
1. Compress snap ring using 2 flat-bladed screwdrivers.
2. Remove front carrier assembly and input clutch assembly from rear internal gear.
3. Remove front carrier assembly from input clutch assembly.



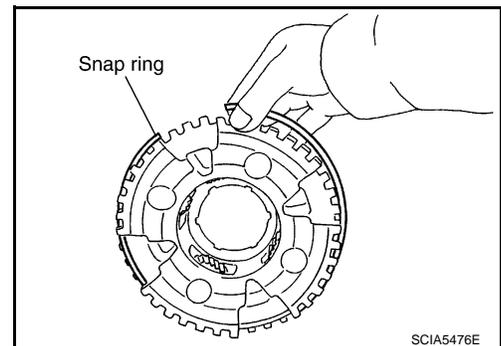
4. Remove bearing race from front carrier assembly.



5. Remove needle bearing from front carrier assembly.



6. Remove snap ring from front carrier assembly.
CAUTION:
Do not expand snap ring excessively.

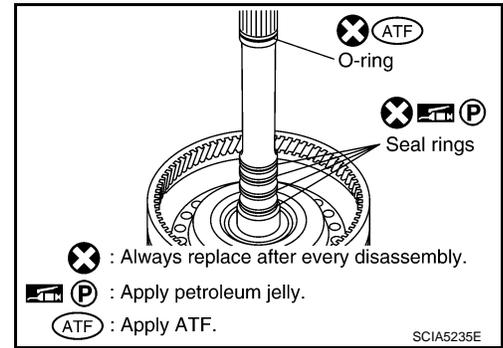


FRONT CARRIER, INPUT CLUTCH, REAR INTERNAL GEAR

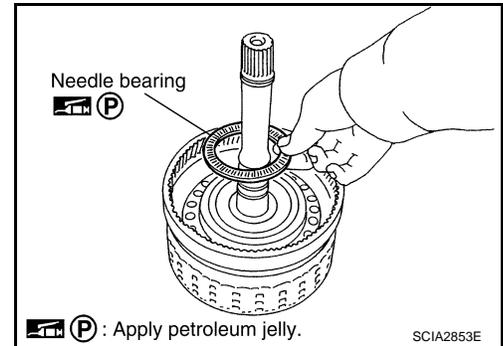
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

7. Remove O-ring and seal rings from input clutch assembly.

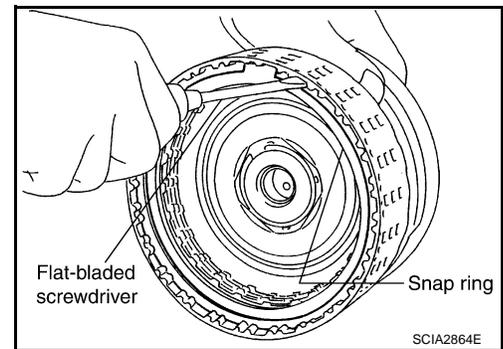


8. Remove needle bearing from input clutch assembly.



9. Using a flat-bladed screwdriver, remove snap ring from input clutch drum.

10. Remove drive plates, driven plates, dish plate and retaining plate from input clutch drum.



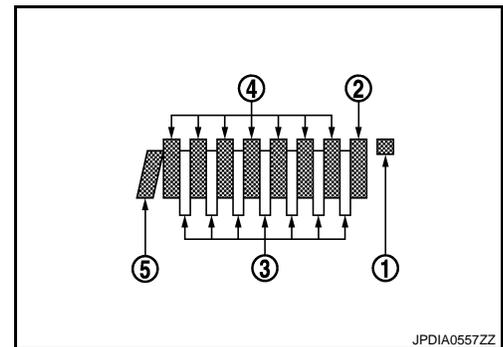
Assembly

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1. Install drive plates, driven plates, dish plate and retaining plate in input clutch drum.

- 1 : Snap ring
- 2 : Retaining plate
- 3 : Drive plate
- 4 : Driven plate
- 5 : Dish plate
- 7/7 : Drive plate / Driven plate

CAUTION:
Check order of plates.

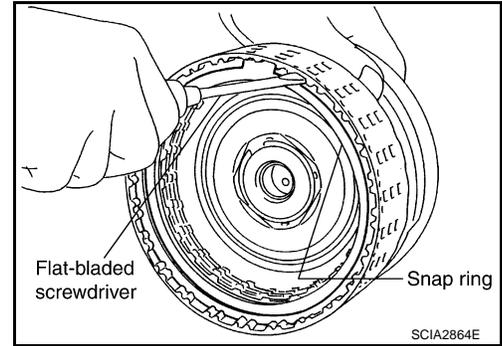


FRONT CARRIER, INPUT CLUTCH, REAR INTERNAL GEAR

< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

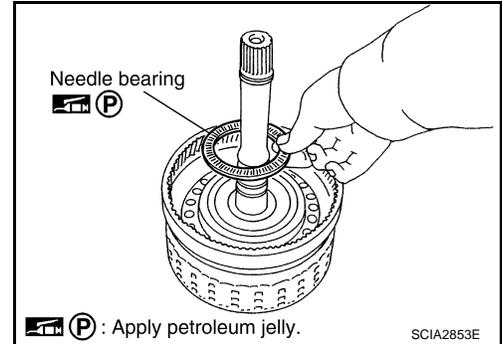
- Using a flat-bladed screwdriver, install snap ring in input clutch drum.



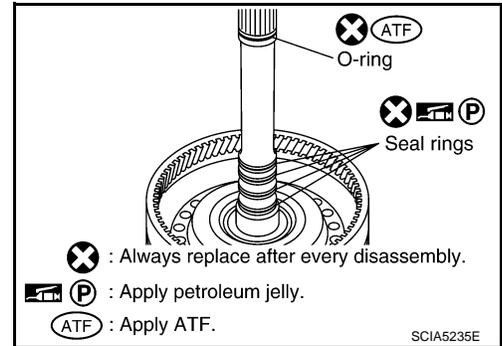
- Install needle bearing in input clutch assembly.

CAUTION:

Check the direction of needle bearing. Refer to [TM-207, "Location of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings"](#).



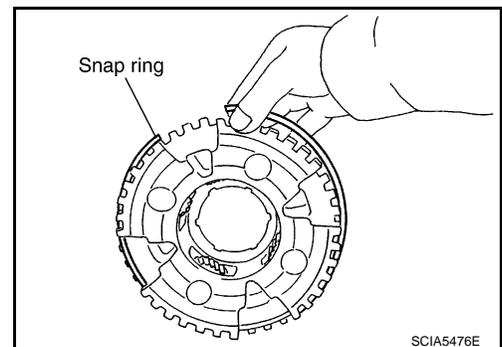
- Install O-ring and seal rings in input clutch assembly.



- Install snap ring to front carrier assembly.

CAUTION:

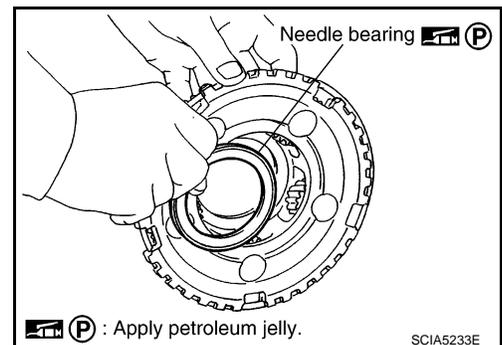
Do not expand snap ring excessively.



- Install needle bearing in front carrier assembly.

CAUTION:

Check the direction of needle bearing. Refer to [TM-207, "Location of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings"](#).

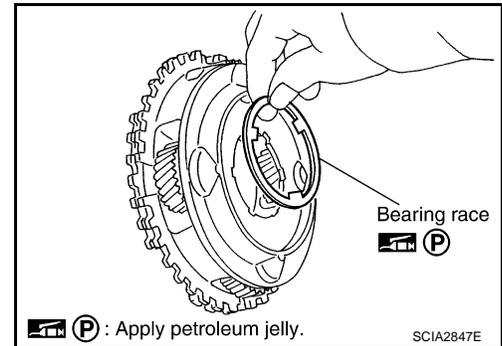


FRONT CARRIER, INPUT CLUTCH, REAR INTERNAL GEAR

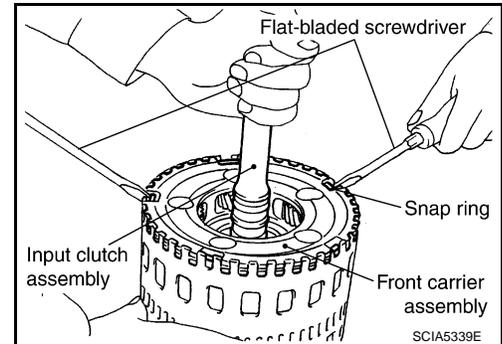
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

7. Install bearing race in front carrier assembly.
8. Install front carrier assembly to input clutch assembly.



9. Compress snap ring using 2 flat-bladed screwdrivers.
10. Install front carrier assembly and input clutch assembly to rear internal gear.



Inspection

- Front Carrier Snap Ring
Check for deformation, fatigue or damage.
CAUTION:
If necessary, replace the snap ring.
- Input Clutch Snap Ring
Check for deformation, fatigue or damage.
CAUTION:
If necessary, replace the input clutch assembly.
- Input Clutch Drum
Check for deformation, fatigue or damage or burns.
CAUTION:
If necessary, replace the input clutch assembly.
- Input Clutch Drive Plates and Driven Plates
Check facing for burns, cracks or damage.
CAUTION:
If necessary, replace the input clutch assembly.
- Input Clutch Retaining Plate and Dish Plate
Check facing for burns, cracks or damage.
CAUTION:
If necessary, replace the input clutch assembly.
- Front Carrier
Check for deformation, fatigue or damage.
CAUTION:
If necessary, replace the front carrier assembly.
- Rear Internal Gear
Check for deformation, fatigue or damage.
CAUTION:
If necessary, replace the rear internal gear.

INFOID:000000003130661

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MID SUN GEAR, REAR SUN GEAR, HIGH AND LOW REVERSE CLUTCH HUB

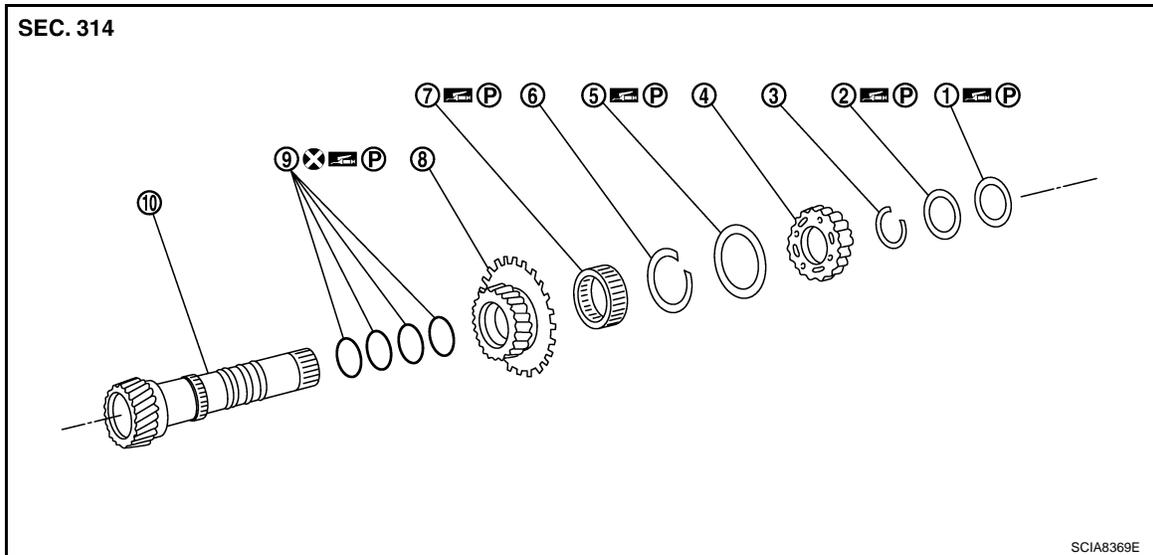
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

MID SUN GEAR, REAR SUN GEAR, HIGH AND LOW REVERSE CLUTCH HUB

Exploded View

INFOID:000000003130662



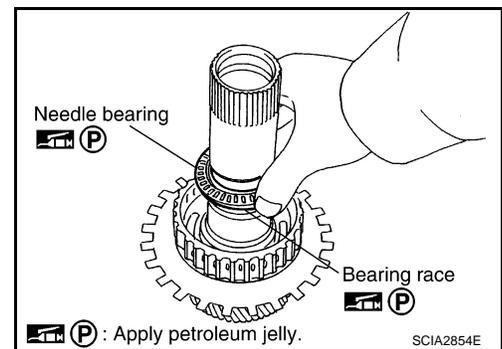
- | | | |
|------------------------------------|-------------------|--------------|
| 1. Needle bearing | 2. Bearing race | 3. Snap ring |
| 4. High and low reverse clutch hub | 5. Needle bearing | 6. Snap ring |
| 7. 1st one-way clutch | 8. Rear sun gear | 9. Seal ring |
| 10. Mid sun gear | | |

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

Disassembly

INFOID:000000003130663

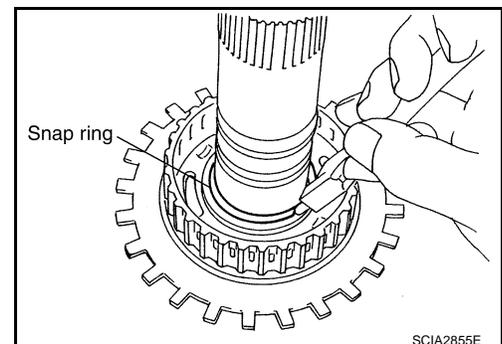
1. Remove needle bearing and bearing race from high and low reverse clutch hub.



2. Using pair of snap ring pliers, remove snap ring from mid sun gear assembly.

CAUTION:

Do not expand snap ring excessively.

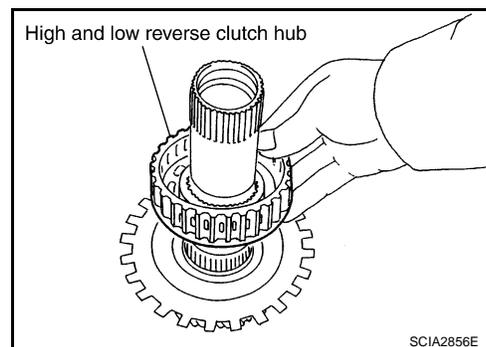


MID SUN GEAR, REAR SUN GEAR, HIGH AND LOW REVERSE CLUTCH HUB

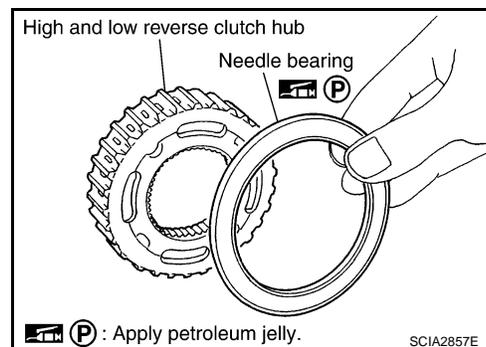
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

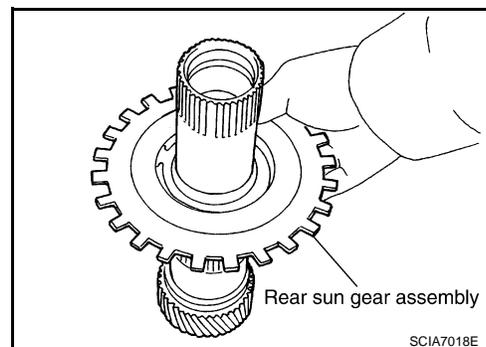
3. Remove high and low reverse clutch hub from mid sun gear assembly.



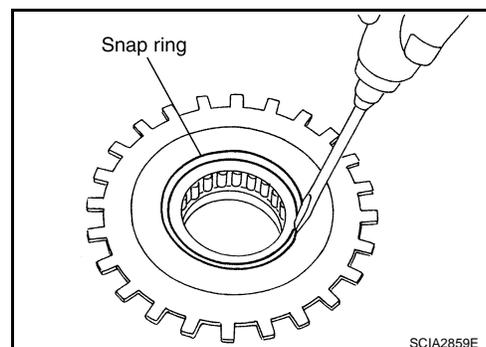
4. Remove needle bearing from high and low reverse clutch hub.



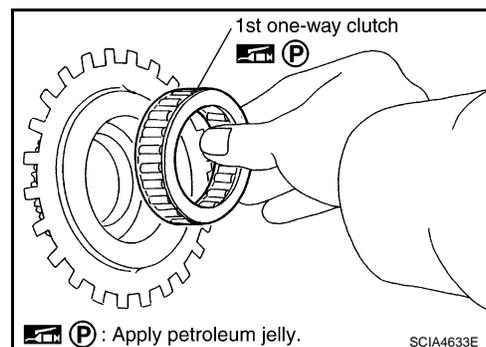
5. Remove rear sun gear assembly from mid sun gear assembly.



6. Using a flat-bladed screwdriver, remove snap ring from rear sun gear.



7. Remove 1st one-way clutch from rear sun gear.



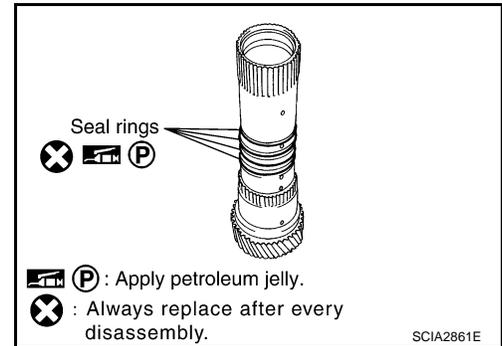
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MID SUN GEAR, REAR SUN GEAR, HIGH AND LOW REVERSE CLUTCH HUB

< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

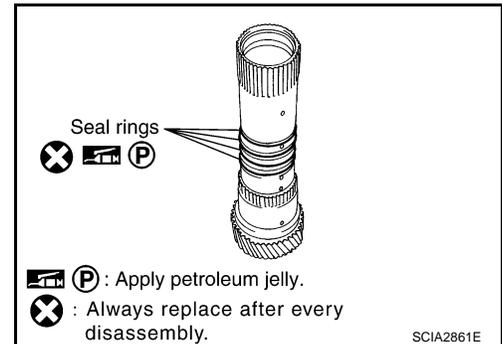
8. Remove seal rings from mid sun gear.



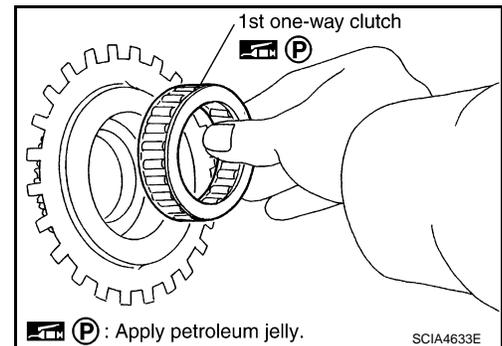
Assembly

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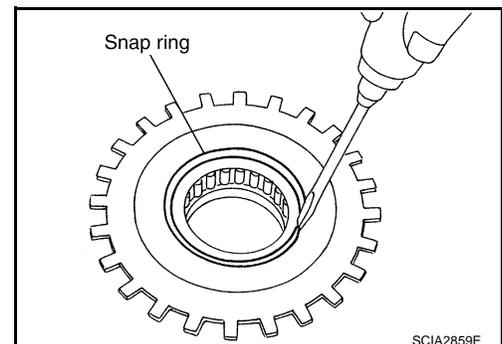
1. Install seal rings to mid sun gear.



2. Install 1st one-way clutch to rear sun gear.



3. Using a flat-bladed screwdriver, install snap ring to rear sun gear.

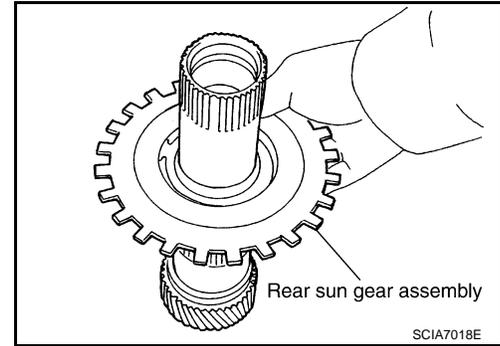


MID SUN GEAR, REAR SUN GEAR, HIGH AND LOW REVERSE CLUTCH HUB

< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

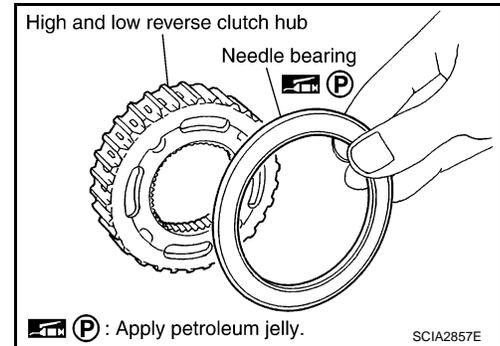
4. Install rear sun gear assembly to mid sun gear assembly.



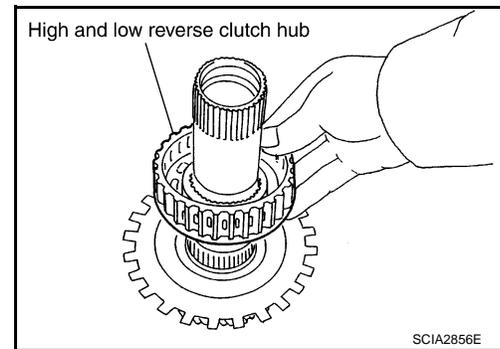
5. Install needle bearing to high and low reverse clutch hub.

CAUTION:

Check the direction of needle bearing. Refer to [TM-207, "Location of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings"](#).



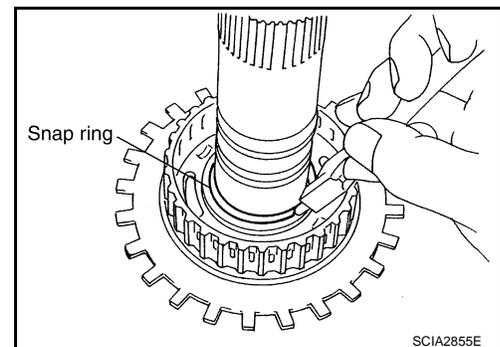
6. Install high and low reverse clutch hub to mid sun gear assembly.



7. Using pair of snap ring pliers, install snap ring to mid sun gear assembly.

CAUTION:

Do not expand snap ring excessively.



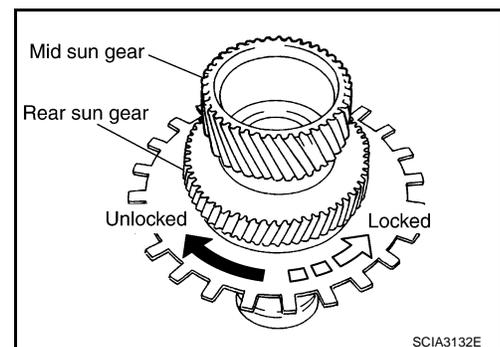
8. Check operation of 1st one-way clutch.

- a. Hold mid sun gear and turn rear sun gear.

- b. Check 1st one-way clutch for correct locking and unlocking directions.

CAUTION:

If not as shown in the figure, check installation direction of 1st one-way clutch.



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MID SUN GEAR, REAR SUN GEAR, HIGH AND LOW REVERSE CLUTCH HUB

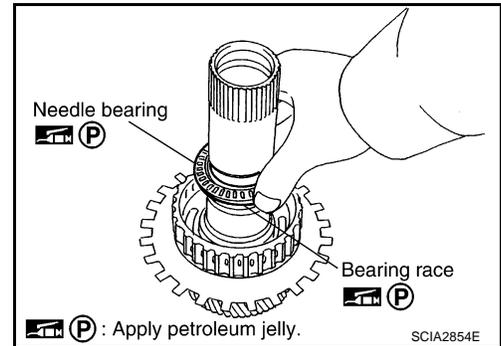
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

9. Install needle bearing and bearing race to high and low reverse clutch hub.

CAUTION:

Check the direction of needle bearing. Refer to [TM-207](#), "[Location of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings](#)".



Inspection

INFOID:000000003130665

- High and Low Reverse Clutch Hub Snap Ring, Rear Sun Gear Snap Ring
Check for deformation, fatigue or damage.

CAUTION:

If necessary, replace the snap ring.

- 1st One-way Clutch
Check frictional surface for wear or damage.

CAUTION:

If necessary, replace the 1st one-way clutch.

- Mid Sun Gear
Check for deformation, fatigue or damage.

CAUTION:

If necessary, replace the mid sun gear.

- Rear Sun Gear
Check for deformation, fatigue or damage.

CAUTION:

If necessary, replace the rear sun gear.

- High and Low Reverse Clutch Hub
Check for deformation, fatigue or damage.

CAUTION:

If necessary, replace the high and low reverse clutch hub.

HIGH AND LOW REVERSE CLUTCH

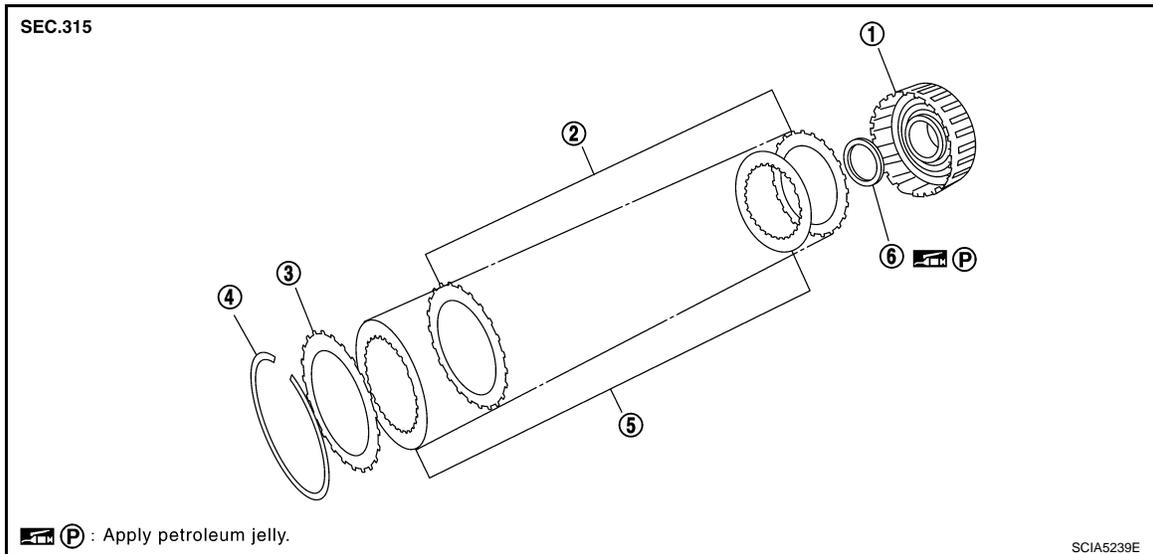
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

HIGH AND LOW REVERSE CLUTCH

Exploded View

INFOID:000000003130666

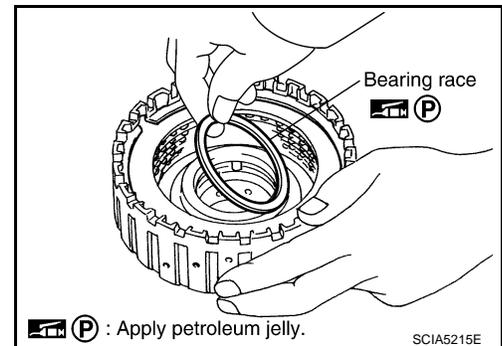


- | | | |
|-------------------------------------|-----------------|--------------------|
| 1. High and low reverse clutch drum | 2. Driven plate | 3. Retaining plate |
| 4. Snap ring | 5. Drive plate | 6. Bearing race |

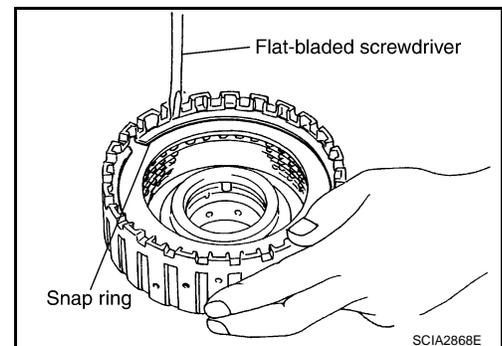
Disassembly

INFOID:000000003130667

1. Remove bearing race from high and low reverse clutch drum.



2. Using a flat-bladed screwdriver, remove snap ring from high and low reverse clutch drum.
3. Remove drive plates, driven plates and retaining plate from high and low reverse clutch drum.



Assembly

INFOID:000000003130668

1. Install drive plates, driven plates and retaining plate in high and low reverse clutch drum.

CAUTION:

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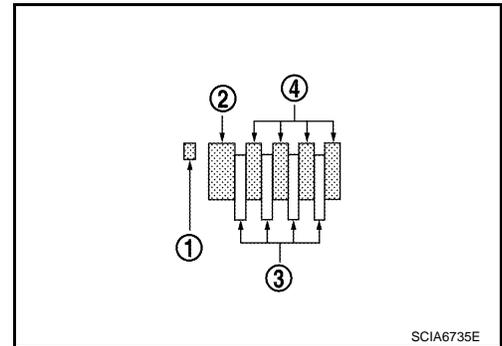
HIGH AND LOW REVERSE CLUTCH

< DISASSEMBLY AND ASSEMBLY >

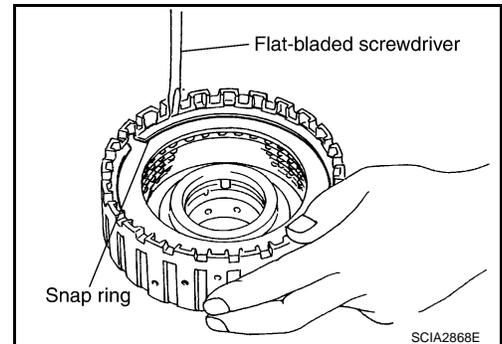
[5AT: RE5R05A]

Check the order of plates.

- | | |
|-----|------------------------------|
| 1 | : Snap ring |
| 2 | : Retaining plate |
| 3 | : Drive plate |
| 4 | : Driven plate |
| 4/4 | : Drive plate / Driven plate |



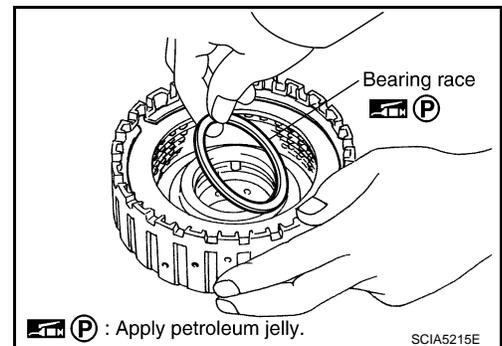
2. Using a flat-bladed screwdriver, install snap ring in high and low reverse clutch drum.



3. Install bearing race to high and low reverse clutch drum.

CAUTION:

Check the direction of needle bearing. Refer to [TM-207, "Location of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings"](#).



Inspection

INFOID:000000003130669

Check the following, and replace transmission assembly if necessary.

- High and Low Reverse Clutch Snap Ring
Check for deformation, fatigue or damage.
- High and Low Reverse Clutch Drive Plates
Check facing for burns, cracks or damage.
- High and Low Reverse Clutch Retaining Plate and Driven Plates
Check facing for burns, cracks or damage.

DIRECT CLUTCH

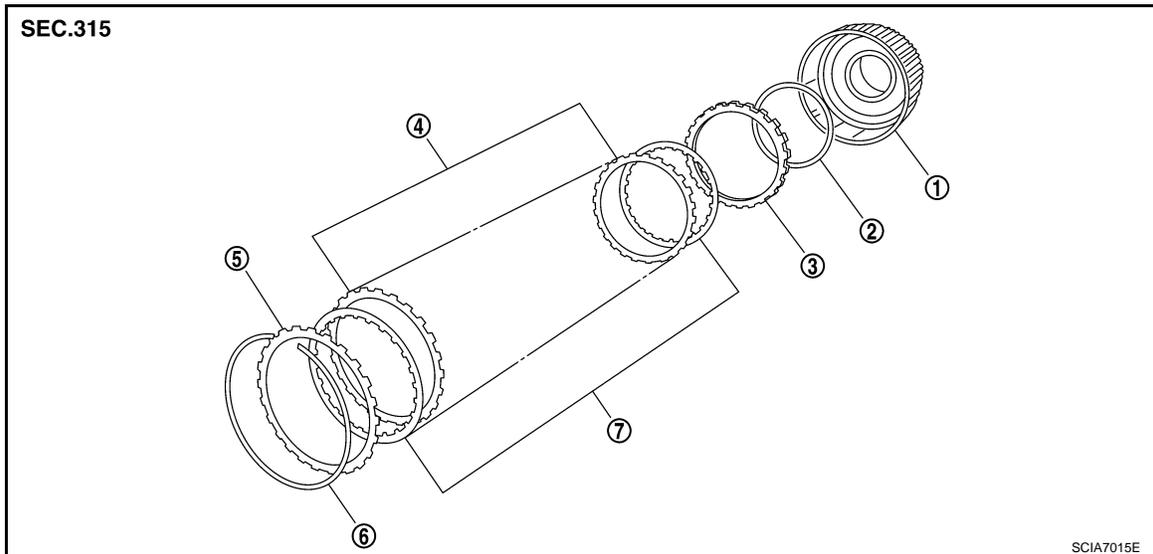
< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

DIRECT CLUTCH

Exploded View

INFOID:000000003130670

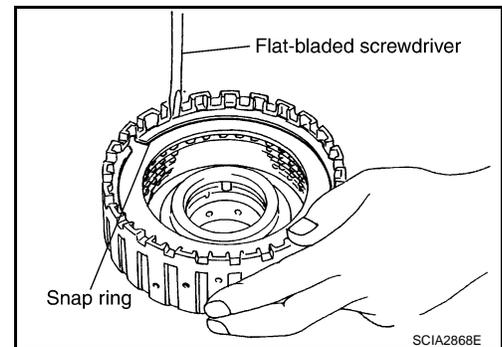


- | | | |
|-----------------------|--------------------|--------------------|
| 1. Direct clutch drum | 2. Dish plate | 3. Retaining plate |
| 4. Driven plate | 5. Retaining plate | 6. Snap ring |
| 7. Drive plate | | |

Disassembly

INFOID:000000003130671

- Using a flat-bladed screwdriver, remove snap ring from direct clutch drum.
- Remove drive plates, driven plates, dish plate and retaining plates from direct clutch drum.



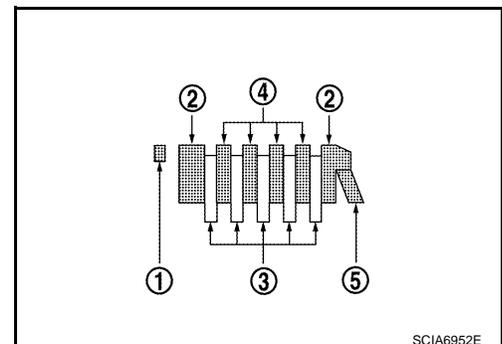
Assembly

INFOID:000000003130672

- Install drive plates, driven plates, dish plate and retaining plates in direct clutch drum.

CAUTION:
Check the order of plates.

- | | |
|-------|------------------------------|
| 1 | : Snap ring |
| 2 | : Retaining plate |
| 3 | : Drive plate |
| 4 | : Driven plate |
| 5 | : Dish plate |
| 5 / 4 | : Drive plate / Driven plate |

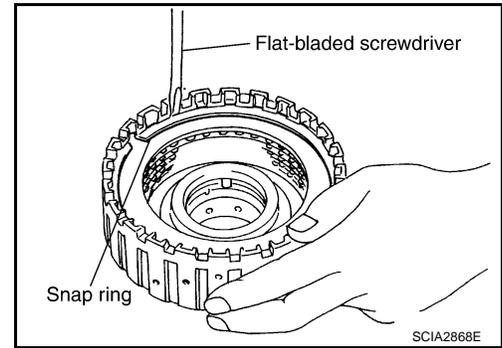


DIRECT CLUTCH

< DISASSEMBLY AND ASSEMBLY >

[5AT: RE5R05A]

- Using a flat-bladed screwdriver, install snap ring in direct clutch drum.



Inspection

INFOID:000000003130673

Check the following, and replace direct clutch assembly if necessary.

- Direct Clutch Snap Ring
Check for deformation, fatigue or damage.
- Direct Clutch Drive Plates and Driven Plates
Check facing for burns, cracks or damage.
- Direct Clutch Dish Plate and Retaining Plates
Check facing for burns, cracks or damage.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[5AT: RE5R05A]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specification

INFOID:000000003130674

Applied model	VQ35HR engine	
	2WD	AWD
Automatic transmission model	RE5R05A	
Transmission model code number	98X6E	98X7A
Stall torque ratio	1.74 : 1	
Transmission gear ratio	1st	3.842
	2nd	2.353
	3rd	1.529
	4th	1.000
	5th	0.839
	Reverse	2.765
Recommended fluid	Genuine NISSAN Matic S ATF*1	
Fluid capacity	10.3 liter (10-7/8 US qt, 9-1/8 Imp qt)*2	

CAUTION:

- If Genuine NISSAN Matic S ATF is not available, Genuine NISSAN Matic J ATF may also be used.
- Using ATF other than Genuine NISSAN Matic S ATF or Matic J ATF will cause deterioration in driveability and A/T durability, and may damage the A/T, which is not covered by the INFINITI new vehicle limited warranty.

*1: Refer to [MA-10, "Fluids and Lubricants"](#).

*2: The fluid capacity is the reference value. Check the fluid level with A/T fluid level gauge.

Vehicle Speed at Which Gear Shifting Occurs

INFOID:000000003130675

Throttle position	Vehicle speed km/h (MPH)							
	D1→D2	D2→D3	D3→D4	D4→D5	D5→D4	D4→D3	D3→D2	D2→D1
Full throttle	70 – 74 (44 – 46)	114 – 122 (71 – 76)	172 – 182 (107 – 113)	246 – 256 (153 – 159)	242 – 252 (150 – 157)	157 – 167 (98 – 104)	98 – 106 (61 – 66)	43 – 47 (27 – 29)
Half throttle	47 – 51 (29 – 32)	77 – 83 (48 – 52)	100 – 108 (62 – 67)	167 – 175 (104 – 109)	137 – 145 (85 – 90)	63 – 71 (39 – 44)	32 – 38 (20 – 24)	7 – 11 (4 – 7)

- At half throttle, the accelerator opening is 4/8 of the full opening.

Vehicle Speed at Which Lock-up Occurs/Releases

INFOID:000000003130676

Throttle position	Vehicle speed km/h (MPH)	
	Lock-up ON	Lock-up OFF
Closed throttle	57 – 65 (35 – 40)	54 – 62 (34 – 39)
Half throttle	167 – 175 (104 – 109)	137 – 145 (85 – 90)

- 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:000000003130677

Stall speed	2,700 – 3,000 rpm
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SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[5AT: RE5R05A]

Line Pressure

INFOID:000000003130678

Engine speed	Line pressure kPa (kg/cm ² , psi)	
	"R" position	"D" and "M" positions
At idle speed	425 – 465 (4.4 – 4.7, 62 – 67)	379 – 428 (3.9 – 4.3, 55 – 62)
At stall speed	1,605 – 1,950 (16.4 – 19.9, 233 – 282)	1,310 – 1,500 (13.4 – 15.3, 190 – 217)

Turbine Revolution Sensor

INFOID:000000003130679

Name	Condition	Data (Approx.)
Turbine revolution sensor 1	When running at 50 km/h (31 MPH) in 4th speed with the closed throttle position signal OFF.	1.3 kHz
Turbine revolution sensor 2	When running at 20 km/h (12 MPH) in 1st speed with the closed throttle position signal OFF.	

Vehicle Speed Sensor A/T (Revolution Sensor)

INFOID:000000003130680

Name	Condition	Data (Approx.)
Revolution sensor	When running at 20 km/h (12 MPH).	185 Hz

Reverse Brake

INFOID:000000003130681

Model code number	98X6E, 98X7A	
Number of drive plates	6	
Number of driven plates	6	
Clearance mm (in)	Standard	0.7 – 1.1 (0.028 – 0.043)
Thickness of retaining plates mm (in)	4.2 (0.165) 4.4 (0.173) 4.6 (0.181) 4.8 (0.189) 5.0 (0.197) 5.2 (0.205) 5.4 (0.213)	

Total End Play

INFOID:000000003130682

Total end play mm (in)	0.25 – 0.55 (0.0098 – 0.0217)
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BEARING RACE FOR ADJUSTING TOTAL END PLAY

Thickness mm (in)	0.8 (0.031) 1.0 (0.039) 1.2 (0.047) 1.4 (0.055) 1.6 (0.063) 1.8 (0.071)
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Torque Converter

INFOID:000000003130683

Distance between end of converter housing and torque converter mm (in)	25.0 (0.98) or more
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