

DIAGNOSTIC TROUBLE CODE (DTC) 1736

Speed Sensor Reference Voltage High

Circuit Description

The transfer case control unit (TOD) provides reference voltage to front and rear propeller-shaft speed sensor.

Conditions for Setting the DTC

If the reference voltage supply line is shorted to battery, then the 4WD CHECK indicator will illuminate and the diagnostic trouble code (DTC) will be stored to the TOD.

- If the system is in high range the TOD sets the EMC touch off level based on a vehicle speed of 0 and wheel slip control is suspended.
- If the system is in low range, the EMC duty cycle is set to maximum until the system is shifted out of low range.

Diagnostic Aids

- Check for short to ground or open circuit.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

2. This step, along with step 3, checks the voltage supply condition.
5. This step checks the continuity of ground line.
7. This step checks the speed sensors.

Step	Action	Value	Yes	No
1	Was the TOD Diagnostic System Check performed?	-	Go to Step 2	Go to "TOD Diagnostic System Check"
2	1. Disconnect white 7-pin connector, for propeller shaft speed sensor and clutch coil, located under the body. 2. Turn the ignition switch to ON. 3. Measure the voltage between following terminals of male white 7-pin connector: • Terminal D/E and terminal B/G Is measured value within the specified range?	4.5 ~ 5.5 V	Go to Step 7	Go to Step 3
3	Measure the resistance between terminal A8 and terminals B8 of transfer case control unit (TOD). Is measured value within the specified range?	4.5 ~ 5.5 V	Go to Step 5	Go to Step 4
4	1. Turn the ignition switch to OFF. 2. Check two connectors of the TOD and white 7-pin connector. 3. Repair any damaged pins, connector or wires. 4. Reconnect all the connectors and make sure it is seated properly. 5. Connect a scan tool to the data link connector (DLC). 6. Turn the ignition switch to ON. 7. Request DTC. Is the DTC still current?	-	Go to Step 5	System OK

DIAGNOSTIC TROUBLE CODE (DTC) 1741

Motor Output Open / Shorted to Battery

Circuit Description

The transfer case control unit (TOD) sends current to move the shift motor upon the position of the 4H/4L switch.

Conditions for Setting the DTC

If the TOD detects a shift motor fault continuously for one seconds, the 4WD CHECK indicator will illuminated and the diagnostic trouble code (DTC) will stored to the TOD.

- Motor HI-LO circuits are shorted to battery.
- Motor LO-HI circuits are shorted to battery.
- Motor HI-LO circuits are shorted to motor LO-HI circuits.
- Motor circuits are open.

Diagnostic Aids

Check for short to battery or open circuit.

Check for the shift motor.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

2. This step checks the connector and connection status.
3. This step, along with step 3, checks the voltage supply condition.
5. This step checks the continuity of ground line.
7. This step checks the shift motor.

[illegible]

Step	Action	Value	Yes	No
4	1. Connect terminal A1/A6 and terminal A9/A10 with digital voltmeter. 2. Measure the voltage while switching the 4L/4H switch from 4H to 4L. Is the voltage within the specified value? 3. Connect terminal A2/A7 between terminals A9/A10 with digital voltmeter. 4. Measure the voltage while switching the 4L/4H switch from 4L to 4H. Is the voltage within specified range?	11 ~ 14 V 11 ~ 14 V	Go to Step 5	Go to Step 9
5	1. Disconnect 12-pin connector from transfer case control unit (TOD) and black 7-pin connector. 2. Measure the resistance between following terminals. • A2 (TOD) and 6 (7-pin connector) • A7 (TOD) and 6 (7-pin connector) • A1 (TOD) and 7 (7-pin connector) • A6 (TOD) and 7 (7-pin connector) Is the resistance equal to specified value? 3. Measure the voltage between following terminals: • A2/A7 (TOD) and ground • A1/A6 (TOD) and ground Is the voltage below specified value?	0 Ω 1 V	Go to Step 7	Go to Step 6
6	Repair any open or short to battery circuit. Is the repair complete?	-	System OK	Go to Step 7
7	1. Turn the ignition switch to OFF. 2. Disconnect the black 7-pin connector, for shift motor, under the body. 3. Measure the resistance between terminal G and terminal B. Is the resistance within the specified value?	1 ~ 250 Ω	Go to Step 9	Go to Step 8
8	Replace the shift motor. Is the repair complete?	-	System OK	-
9	Replace the TOD. Is the repair complete?	-	System OK	Go to Step 7

DIAGNOSTIC TROUBLE CODE (DTC) 1742

Motor Output Shorted to Ground

Circuit Description

The transfer case control unit (TOD) sends current to move the shift motor upon the position of the 4H/4L switch.

Conditions for Setting the DTC

If the TOD detects a shift motor fault continuously for one second, the 4WD CHECK indicator will illuminated and the diagnostic trouble code (DTC) will stored to the TOD.

- Motor HI-LO circuits are shorted to ground.
- Motor LO-HI circuits are shorted to ground.
- Motor HI-LO circuits are shorted to motor LO-HI circuits.

Diagnostic Aids

- Check for short to ground circuit.
- Check for the shift motor.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

2. This step checks the connector and connection status.
3. This step, along with step 3, checks the voltage supply condition.
5. This step checks the continuity of ground line.
7. This step checks the shift motor.

Step	Action	Value	Yes	No
1	Was the TOD Diagnostic System Check performed?	-	Go to Step 2	Go to “TOD Diagnostic System Check”
2	1. Turn the ignition switch to OFF. 2. Disconnect two connectors of the transfer case control unit (TOD) and black 7-pin connector under the body. 3. Inspect the terminals for damage or improper connection. 4. Repair any damaged pins or terminals on the wiring harness and TOD. 5. Reconnect the connectors and make sure it is seated properly. 6. Connect a scan tool to the data link connector (DLC). 7. Turn the ignition ON. 8. Request the DTC with scan tool. Is the DTC still current?	-	Go to Step 3	System OK
3	1. Disconnect the black 7-pin connector for shift motor under the body. 2. Turn the ignition switch to ON. 3. Position shift lever to N (neutral). 4. Connect the voltmeter between terminal 7 of female 7-pin connector and ground. 5. Measure the voltage while switching the 4L/4H switch from 4H to 4L. Is the voltage within the specified value? 6. Connect the voltmeter between terminal 6 of female 7-pin connector and ground. 7. Measure the voltage while switching the 4L/4H switch from 4L to 4H. Is the voltage within the specified value?	11 ~ 14 V 11 ~ 14 V	Go to Step 7	Go to Step 4

Step	Action	Value	Yes	No
4	1. Connect terminal A1/A6 and terminal A9/A10 with digital voltmeter. 2. Measure the voltage while switching the 4L/4H switch from 4H to 4L. Is the voltage within the specified value? 3. Connect terminal A2/A7 between terminals A9/A10 with digital voltmeter. 4. Measure the voltage while switching the 4L/4H switch from 4L to 4H. Is the voltage within specified range?	11 ~ 4 V 11 ~ 4 V	Go to Step 5	Go to Step 9
5	1. Disconnect 12-pin connector from transfer case control unit (TOD) and 7-pin connector. 2. Measure the resistance between following terminals. • A2/A7 (TOD) and 6 (7-pin connector) • A1/A6 (TOD) and 7 (7-pin connector) • A1/A6 (TOD) and ground. • A2/A7 (TOD) and ground. Is the resistance equal to specified value?	0 Ω	Go to Step 6	System OK
6	Repair any short to ground or short between circuit. Is the repair complete?	-	System OK	Go to Step 7
7	1. Turn the ignition switch to OFF. 2. Disconnect the black 7-pin connector, for shift motor, under the body. 3. Measure the resistance between terminal G and terminal B. Is the resistance within the specified value?	1 ~ 205 Ω	Go to Step 9	Go to Step 8
8	Replace the shift motor. Is the repair complete?	-	System OK	-
9	Replace the TOD. Is the repair complete?	-	System OK	-

DIAGNOSTIC TROUBLE CODE (DTC) 1743

Shift System Timeout

Circuit Description

The transfer case control unit (TOD) sends current to move the shift motor upon the position of the 4H/4L switch.

Conditions for Setting the DTC

- Shifting to other drive range is failed within specified range.

Diagnostic Aids

- Check for short to ground circuit.
- Check for the shift motor.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

- This step checks the connector and connection status.
- This step checks the shift motor.

Step	Action	Value	Yes	No
1	Was the TOD Diagnostic System Check performed?	-	Go to Step 2	Go to "TOD Diagnostic System Check"
2	1. Turn the ignition switch to OFF. 2. Connect a scan tool to the data link connector (DLC) and follow the directions given in the scan tool manual. 3. Turn the ignition switch to ON. 4. Request DTC with scan tool. Is the DTC 1741 or 1742 also shown?	-	Go to Applicable DTC Table	Go to Step 3
3	1. Turn the ignition switch to OFF. 2. Disconnect two connectors of the transfer case control unit (TOD) and black 7-pin connector under the body. 3. Inspect the terminals for damage or improper connection. 4. Repair any damaged pins or terminals on the wiring harness and TOD. 5. Reconnect the connectors and make sure it is seated properly. 6. Connect a scan tool to the data link connector (DLC). 7. Turn the ignition ON. 8. Request the DTC with scan tool. Is the DTC still current?	-	Go to Step 4	System OK
4	1. Remove the shift motor. 2. Connect the black 7-pin connector to shift motor. 3. Check the motor operation by turning the 4H/4L switch. Is the motor run?	-	Go to Step 5	Replace shift motor and Go to Step 3
5	Replace the TOD. Is the repair complete?	-	System OK	Go to Step 6
6	Repair any problems in transfer case assembly. Is the repair complete?	-	System OK	-

DIAGNOSTIC TROUBLE CODE (DTC) 1750

General Position Encoder Fault (Invalid Code)

Circuit Description

The transfer case control unit (TOD) receives position encoder signals from position encoder.

Conditions for Setting the DTC

If the TOD detects a shift motor fault continuously for one second, the 4WD CHECK indicator will illuminated and the diagnostic trouble code (DTC) will stored to the TOD.

- Any position code which does not correspond to the valid 9 codes.
- A short to ground on any of the encoder lines.

Diagnostic Aids

- Check for short to ground circuit.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

3. This step checks the continuity of the position encoder line.

5. This step checks the connector and connection status.

Step	Action	Value	Yes	No
1	Was the TOD Diagnostic System Check performed?	-	Go to Step 2	Go to "TOD Diagnostic System Check"
2	1. Turn the ignition switch to OFF. 2. Connect a scan tool to the data link connector (DLC) and follow the directions given in the scan tool manual. 3. Turn the ignition switch to ON. 4. Request DTC with scan tool. Is the DTC 1751, 1752, 1753, or 1754 also shown?	-	Go to Step 3	Go to Step 5
3	1. Disconnect 18-pin connector from the transfer case control unit (TOD). 2. Measure the resistance between following terminals: - B15 (TOD) and ground - B5 (TOD) and ground - B16 (TOD) and ground - B18 (TOD) and ground Is any of the resistance equal to specified value?	0 Ω	Go to Step 4	Go to Step 5
4	Repair all of the short to ground circuit. Is the repair complete?	-	System OK	-
5	1. Turn the ignition switch to OFF. 2. Disconnect two connectors of the transfer case control unit (TOD) and 7-pin connector under the body. 3. Inspect the terminals for damage or improper connection. 4. Repair any damaged pins or terminals on the wiring harness and TOD. 5. Reconnect the connectors and make sure it is seated properly. 6. Connect a scan tool to the data link connector (DLC). 7. Turn the ignition ON. 8. Request the DTC with scan tool. Is the DTC still current?	-	Go to Step 6	System OK

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Step	Action	Value	Yes	No
6	Replace the shift motor with position encoder. Is the repair complete?	-	System OK	Go to Step 7
7	Replace the TOD. Is the repair complete?	-	System OK	-

DIAGNOSTIC TROUBLE CODE (DTC) 1751

Position 1 Shorted to Ground

Circuit Description

The transfer case control unit (TOD) receives position encoder signals from position encoder.

Conditions for Setting the DTC

- Position 2 code does not correspond to the specific codes.
- A short to ground on any of the encoder lines.

Diagnostic Aids

- Check for short to ground circuit.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

3. This step checks the continuity of the position encoder line.
5. This step checks the connector and connection status.

Step	Action	Value	Yes	No
1	Was the TOD Diagnostic System Check performed?	-	Go to Step 2	Go to "TOD Diagnostic System Check"
2	1. Turn the ignition switch to OFF. 2. Connect a scan tool to the data link connector (DLC) and follow the directions given in the scan tool manual. 3. Turn the ignition switch to ON. 4. Request DTC with scan tool. Is the DTC 1751 only current trouble code?	-	Go to Step 3	Go to "DTC 1750 General Position Encoder Fault (Invalid Code)"
3	1. Turn the ignition switch to OFF. 2. Disconnect 18-pin connector from the transfer case control unit (TOD). 3. Measure the resistance between terminal A15 of TOD connector and ground. Is the resistance equal to specified value?	0 Ω	Go to Step 4	Go to Step 5
4	Repair short to ground circuit. Is the repair complete?	-	System OK	-
5	1. Turn the ignition switch to OFF. 2. Disconnect two connectors of the transfer case control unit (TOD) and 7-pin connector under the body. 3. Inspect the terminals for damage or improper connection. 4. Repair any damaged pins or terminals on the wiring harness and TOD. 5. Reconnect the connectors and make sure it is seated properly. 6. Connect a scan tool to the data link connector (DLC). 7. Turn the ignition ON. 8. Request the DTC with scan tool. Is the DTC still current?	-	Go to Step 6	System OK
6	Replace the shift motor. Is the repair complete?	-	System OK	Go to Step 7
7	Replace the TOD. Is the repair complete?	-	System OK	-

DIAGNOSTIC TROUBLE CODE (DTC) 1752

Position 2 Shorted to Ground

Circuit Description

The transfer case control unit (TOD) receives position encoder signals from position encoder.

Conditions for Setting the DTC

- Position 2 code does not correspond to the specific codes.
- A short to ground on any of the encoder lines.

Diagnostic Aids

- Check for short to ground circuit.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

3. This step checks the continuity of the position encoder line.
5. This step checks the connector and connection status.

Step	Action	Value	Yes	No
1	Was the TOD Diagnostic System Check performed?	-	Go to Step 2	Go to "TOD Diagnostic System Check"
2	1. Turn the ignition switch to OFF. 2. Connect a scan tool to the data link connector (DLC) and follow the directions given in the scan tool manual. 3. Turn the ignition switch to ON. 4. Request DTC with scan tool. Is the DTC 1752 only current trouble code?	-	Go to Step 3	Go to "DTC 1750 General Position Encoder Fault (Invalid Code)"
3	1. Turn the ignition switch to OFF. 2. Disconnect 18-pin connector from the transfer case control unit (TOD). 3. Measure the resistance between terminal A10 of TOD connector and ground. Is the resistance equal to specified value?	0 Ω	Go to Step 4	Go to Step 5
4	Repair short to ground circuit. Is the repair complete?	-	System OK	-
5	1. Turn the ignition switch to OFF. 2. Disconnect two connectors of the TOD and black 7-pin connector under the body. 3. Inspect the terminals for damage or improper connection. 4. Repair any damaged pins or terminals on the wiring harness and TOD. 5. Reconnect the connectors and make sure it is seated properly. 6. Connect a scan tool to the data link connector (DLC). 7. Turn the ignition ON. 8. Request the DTC with scan tool. Is the DTC still current?	-	Go to Step 6	System OK
6	Replace the shift motor. Is the repair complete?	-	System OK	Go to Step 7
7	Replace the TOD. Is the repair complete?	-	System OK	-

DIAGNOSTIC TROUBLE CODE (DTC) 1753

Position 3 Shorted to Ground

Circuit Description

The transfer case control unit (TOD) receives position encoder signals from position encoder.

Conditions for Setting the DTC

- Position 3 code does not correspond to the specific codes.
- A short to ground on any of the encoder lines.

Diagnostic Aids

- Check for short to ground circuit.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

- This step checks the continuity of the position encoder line.
- This step checks the connector and connection status.

Step	Action	Value	Yes	No
1	Was the TOD Diagnostic System Check performed?	-	Go to Step 2	Go to "TOD Diagnostic System Check"
2	1. Turn the ignition switch to OFF. 2. Connect a scan tool to the data link connector (DLC) and follow the directions given in the scan tool manual. 3. Turn the ignition switch to ON. 4. Request DTC with scan tool. Is the DTC 1753 only current trouble code?	-	Go to Step 3	Go to "DTC 1750 General Position Encoder Fault(Invalid Code)"
3	1. Turn the ignition switch to OFF. 2. Disconnect 18-pin connector from the transfer case control unit (TOD). 3. Measure the resistance between terminal A28 of TOD connector and ground. Is the resistance equal to specified value?	0 Ω	Go to Step 4	Go to Step 5
4	Repair short to ground circuit. Is the repair complete?	-	System OK	-
5	1. Turn the ignition switch to OFF. 2. Disconnect two connectors of the TOD and black 7-pin connector under the body. 3. Inspect the terminals for damage or improper connection. 4. Repair any damaged pins or terminals on the wiring harness and TOD. 5. Reconnect the connectors and make sure it is seated properly. 6. Connect a scan tool to the data link connector (DLC). 7. Turn the ignition ON. 8. Request the DTC with scan tool. Is the DTC still current?	-	Go to Step 6	System OK
6	Replace the shift motor. Is the repair complete?	-	System OK	Go to Step 7
7	Replace the TOD. Is the repair complete?	-	System OK	-

DIAGNOSTIC TROUBLE CODE (DTC) 1754

Position 4 Shorted to Ground

Circuit Description

The transfer case control unit (TOD) receives position encoder signals from position encoder.

Conditions for Setting the DTC

- Position 4 code does not correspond to the specific codes.
- A short to ground on any of the encoder lines.

Diagnostic Aids

- Check for short to ground circuit.

Test Description

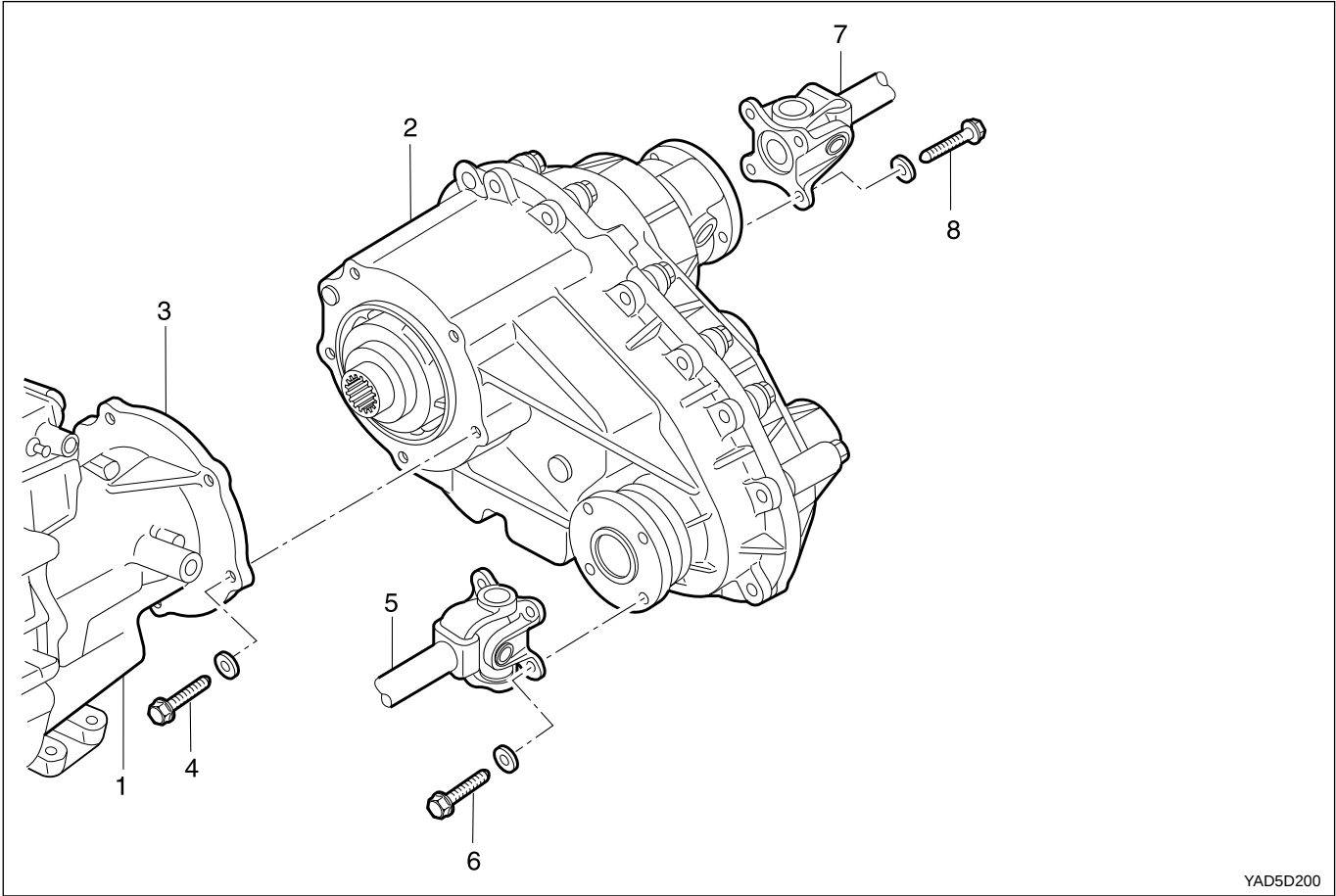
The number(s) below refer to step(s) on the diagnostic table.

3. This step checks the continuity of the position encoder line.
5. This step checks the connector and connection status.

Step	Action	Value	Yes	No
1	Was the TOD Diagnostic System Check performed?	-	Go to Step 2	Go to "TOD Diagnostic System Check"
2	1. Turn the ignition switch to OFF. 2. Connect a scan tool to the data link connector (DLC) and follow the directions given in the scan tool manual. 3. Turn the ignition switch to ON. 4. Request DTC with scan tool. Is the DTC 1754 only current trouble code?	-	Go to Step 3	Go to "DTC 1750 General Position Encoder Fault(Invalid Code)"
3	1. Turn the ignition switch to OFF. 2. Disconnect 18-pin connector from the transfer case control unit (TOD). 3. Measure the resistance between terminal A30 of TOD connector and ground. Is the resistance equal to specified value?	0 Ω	Go to Step 4	Go to Step 5
4	Repair short to ground circuit. Is the repair complete?	-	System OK	-
5	1. Turn the ignition switch to OFF. 2. Disconnect two connectors of the TOD and black 7-pin connector under the body. 3. Inspect the terminals for damage or improper connection. 4. Repair any damaged pins or terminals on the wiring harness and TOD. 5. Reconnect the connectors and make sure it is seated properly. 6. Connect a scan tool to the data link connector (DLC). 7. Turn the ignition ON. 8. Request the DTC with scan tool. Is the DTC still current?	-	Go to Step 6	System OK
6	Replace the shift motor. Is the repair complete?	-	System OK	Go to Step 7
7	Replace the TOD. Is the repair complete?	-	System OK	-

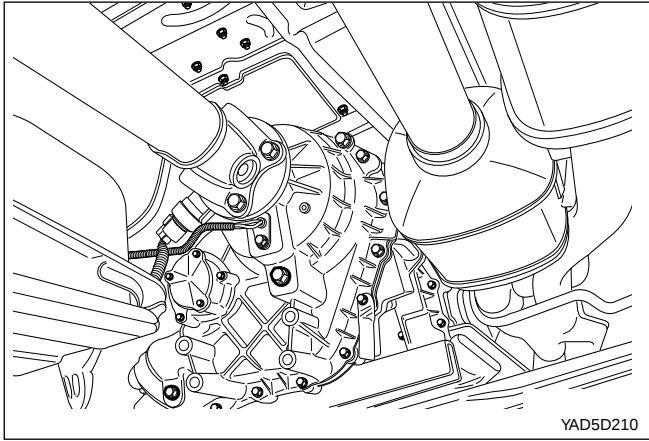
MAINTENANCE AND REPAIR
ON-VEHICLE SERVICE

TRANSFER CASE (TOD) COMPONENT LOCATOR



YAD5D200

- | | | | |
|---|-----------------------|-------------|--|
| 1 | Transmission (A/T) | | |
| 2 | TOD Transfer Case | | |
| 3 | Extension Housing | | |
| 4 | Bolt..... | 35 - 60 N•m | |
| 5 | Front Propeller Shaft | | |
| 6 | Bolt (M14, 4) | 81 - 89 N•m | |
| 7 | Rear Propeller Shaft | | |
| 8 | Bolt (M14, 4) | 81 - 89 N•m | |



Removal & Installation Procedure

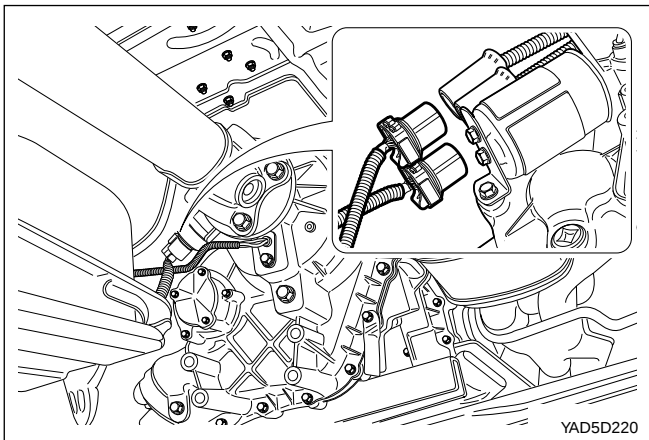
1. Disconnect (-) cable from battery.
2. Lift on vehicle and make sure on safety.

Notice: Be careful for catalytic converter due to high temperature after driving or engine running.

3. Prepare a vessel to drain transfer case and manual transmission oil.
4. Release drain plug and drain transfer case and manual transmission oil.

If planar damper is installed, unscrew 4 bolts and remove the planar damper.

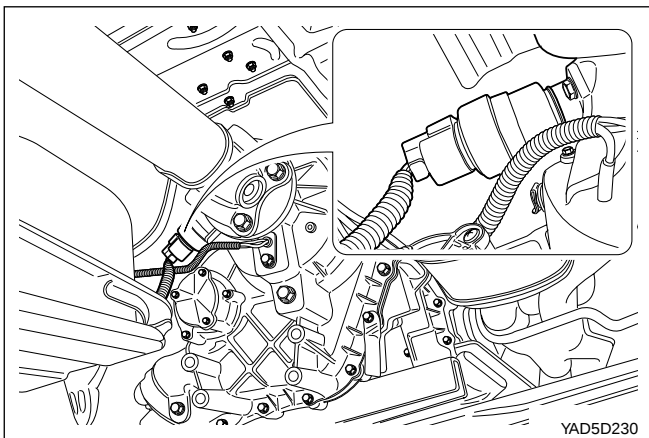
Notice: Oil drain should be along with whole transfer case disassembly and assembly.



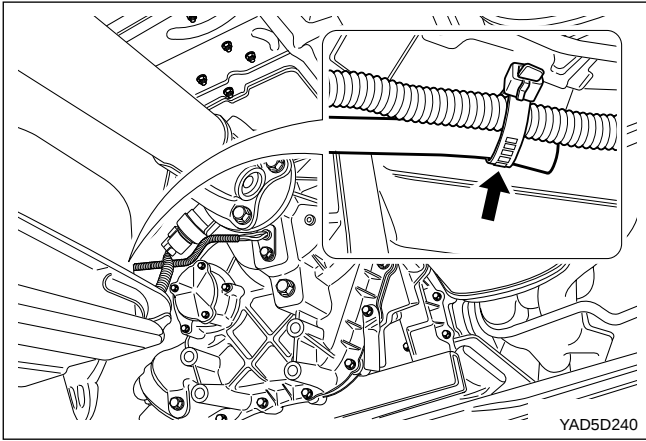
5. Disconnect transmission extension wiring connector back side transfer case.

Notice: When disconnect connector, make sure on direction of locking tab towards inside.

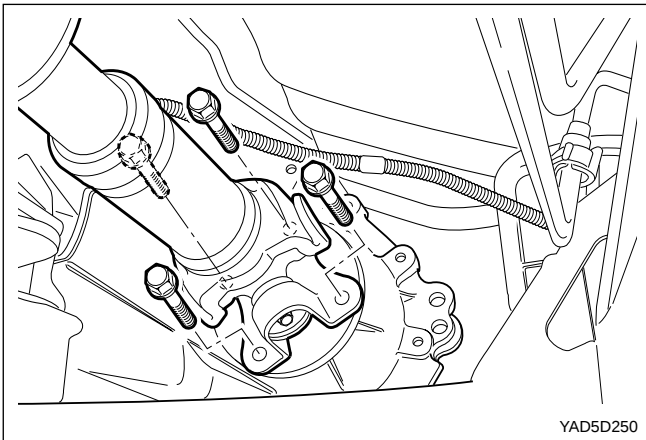
6. Disconnect shift motor/clutch coil connect (Black 7 pin) connector upper backside.
7. Disconnect front and rear speed sensor connector (white 7 pin).



8. Disconnect speedometer sensor connector right upper side.



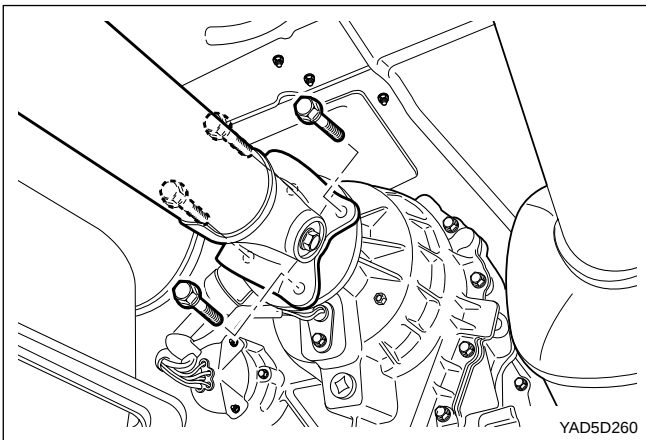
9. Disconnect breather tube front upper side transfer case (Upper connecting point of transfer case and front propeller).
10. Prepare hydraulic jack and support transfer case assembly.



11. Unscrew 4 units of M12 bolts from case flange then disconnect front propeller shaft from transfer case.

Installation Notice

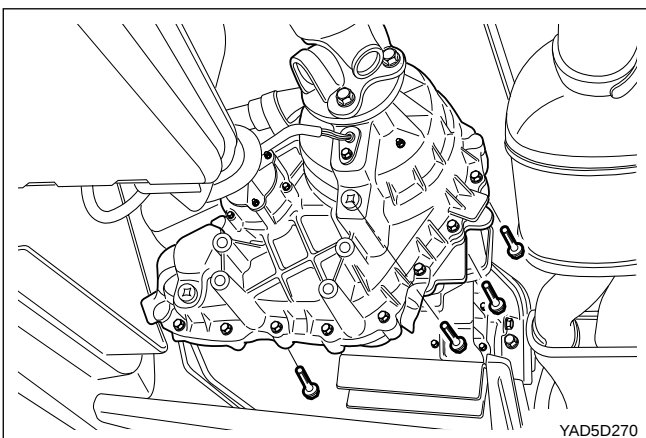
Tightening Torque	81 - 89 N•m (60 - 66 lb-ft)
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12. Unscrew 4 units of M12 bolts from case flange then disconnect rear propeller shaft from transfer case.

Installation Notice

Tightening Torque	81 - 89 N•m (60 - 66 lb-ft)
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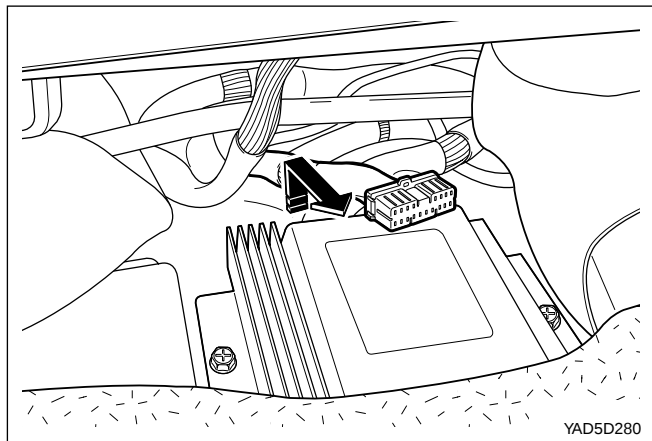
13. Unscrew 5 units of mounting bolt (M12) from extension housing in transmission.

Installation Notice

Tightening Torque	35 - 60 N•m (26 - 44 lb-ft)
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Notice: Make sure the connecting surface is clean. Applying long-life grease spline inside transfer case input shaft.

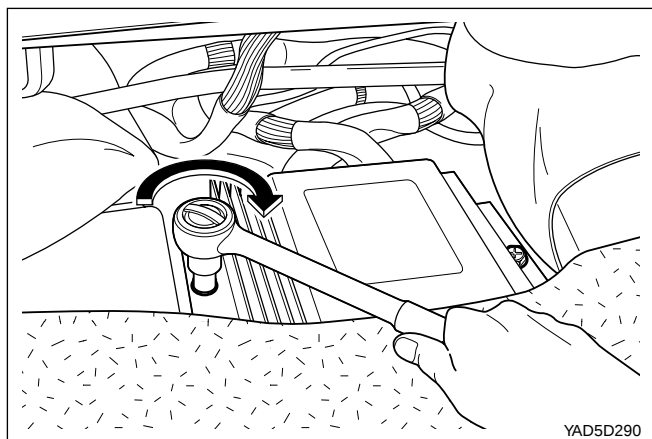
14. Installation should follow the removal procedure in the reverse order.



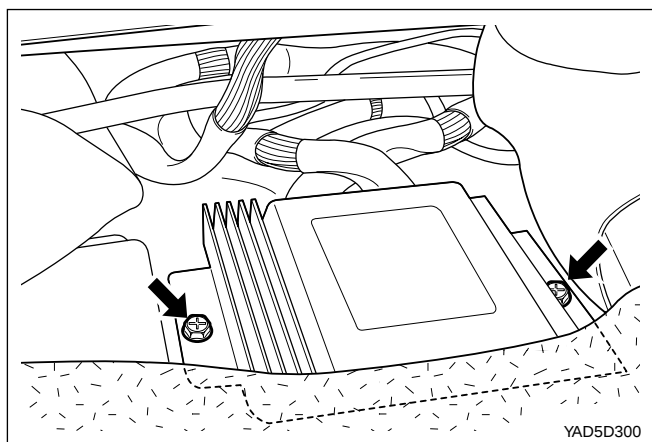
TOD CONTROL UNIT

Removal & Installation Procedure

1. Disconnect (-) cable from battery.
2. Pull toward the driver seat and disconnect the 30 pin connector from TOD control unit.



3. Unscrew 2 bolts.

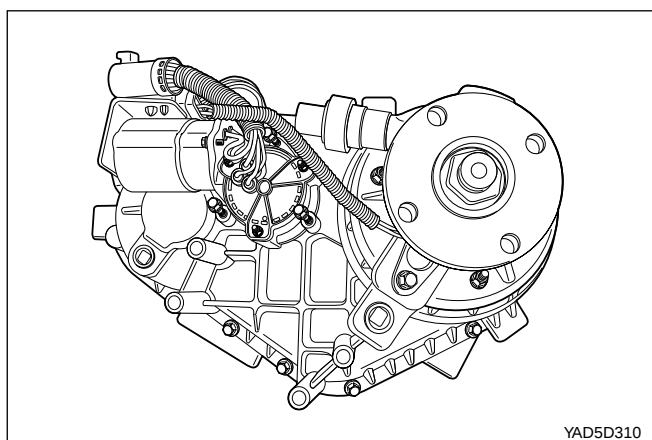


4. Installation should follow the removal procedure in the reverse order.

Notice: When replace TOD control unit, it is required to make a coding correspondent with vehicle specification.

Installation Notice

Tightening Torque	10 N•m (89 lb-in)
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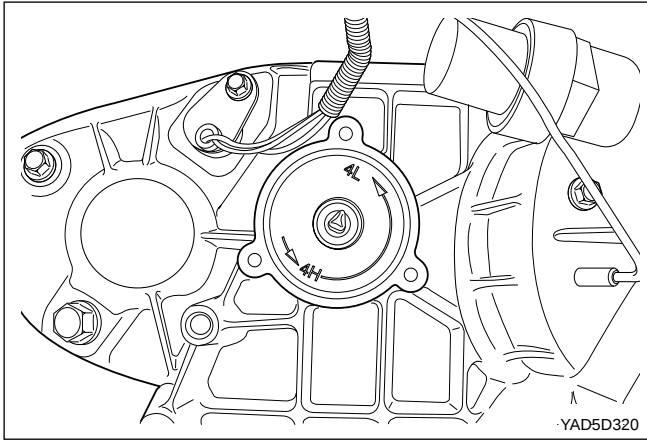


SHIFT MOTOR

Removal & Installation Procedure

1. Disconnect (-) cable from battery.
2. Disconnect shift motor/magnetic clutch coil connector (black pin7) upper backside.
3. Unscrew 3 shift motor mounting bolts (M10).
4. Unscrew a bracket mounting bolt (M10).

Notice: When disconnecting shift motor and mounting bracket, it is required to unscrew 2 units of adjusting bolts (M10) form motor and bracket.



5. Keep shift motor even then pull rearward.
6. Clean connection surface of transfer case and shift motor.
7. If necessary, make a test by SCANNER with shift motor assembly.

Notice: Do not disassemble shift motor. If necessary, replace by shift motor assembly unit.

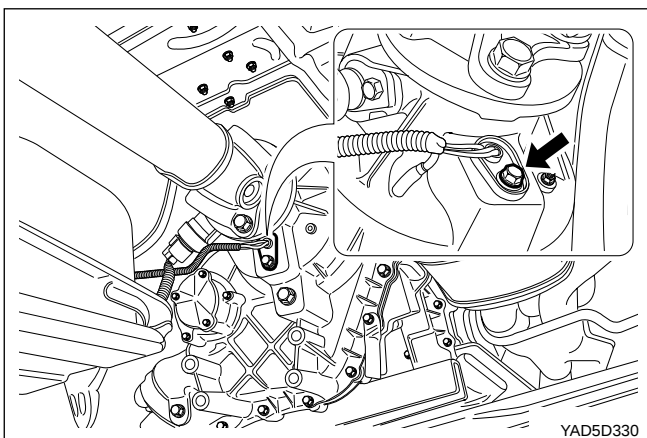
8. Applying sealant into connecting surface for new shift motor.
9. Installation should follow the removal procedure in the reverse order. Before installation, make sure that motor position match with mode of 4H/4L switch.

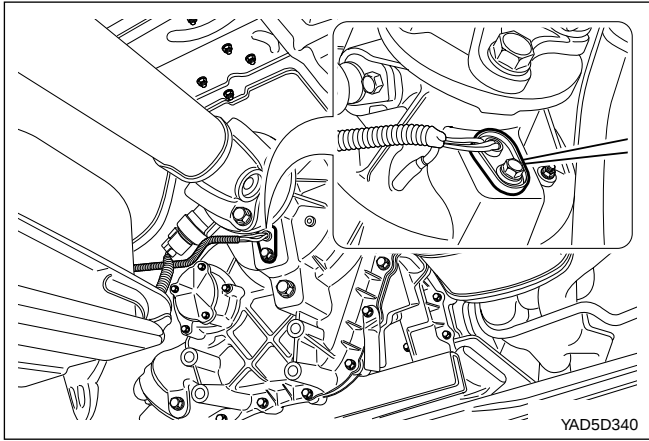
Notice: When accord position of motor with 4H/4L switch and transfer case match position of the disconnected motor and new one.

SPEED SENSOR IN FRONT AND REAR PROPELLER SHAFT

Replacement Procedure

1. Disconnect (-) cable from battery.
2. Detach shift motor assembly.
3. Disconnect front and rear speed sensor connector (white 3 pin) upper backside transfer case.
4. Disconnect speed sensor connect from locking sleeve by pushing.
5. Disconnect wire stick cap from the detached connector.
6. Unscrew rear speed sensor mounting bolt (M10) from upper side of rear case flange.

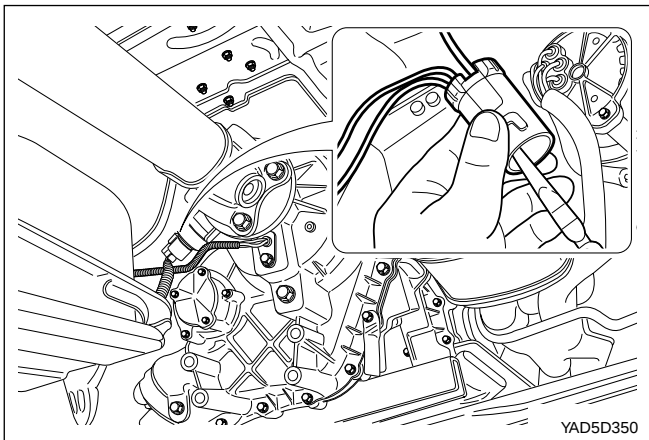




7. Detach sensor from transfer case by lifting up using tool.

Notice: When disconnect sensor, make sure on adequate pressure due to sensitiveness with shock.

8. Disconnect taping from both protection tube ends that wrap 3 wires of speed sensor and 1 wire of clutch coil.
9. Disconnect tube.



10. Disconnect pin and wire from speed sensor connector by pulling sticking long-nose plier into "L" pin in connector.
11. On the same way, disconnect pin and wire "M" and "N" from connector.

Notice: Do not touch the wires related with EMC.

12. Prepare new speed sensor.
13. Connect 3 pins with wires of speed sensor to coincide with each connection position.
14. Using long-nose plier, connect tightly by pulling pins.
15. Apply rubber cap into connector using long-nose plier not to detach.
16. Connect protection tube with wire.
17. Tape both ends of tube.
18. Putting rear speed sensor into hole, connect exactly pushing both ends.
19. Screw 1 unit of bolt (M10).

Installation Notice

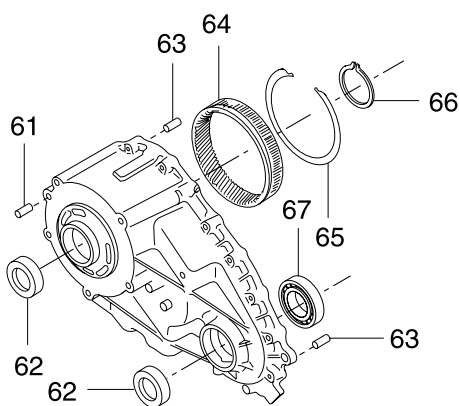
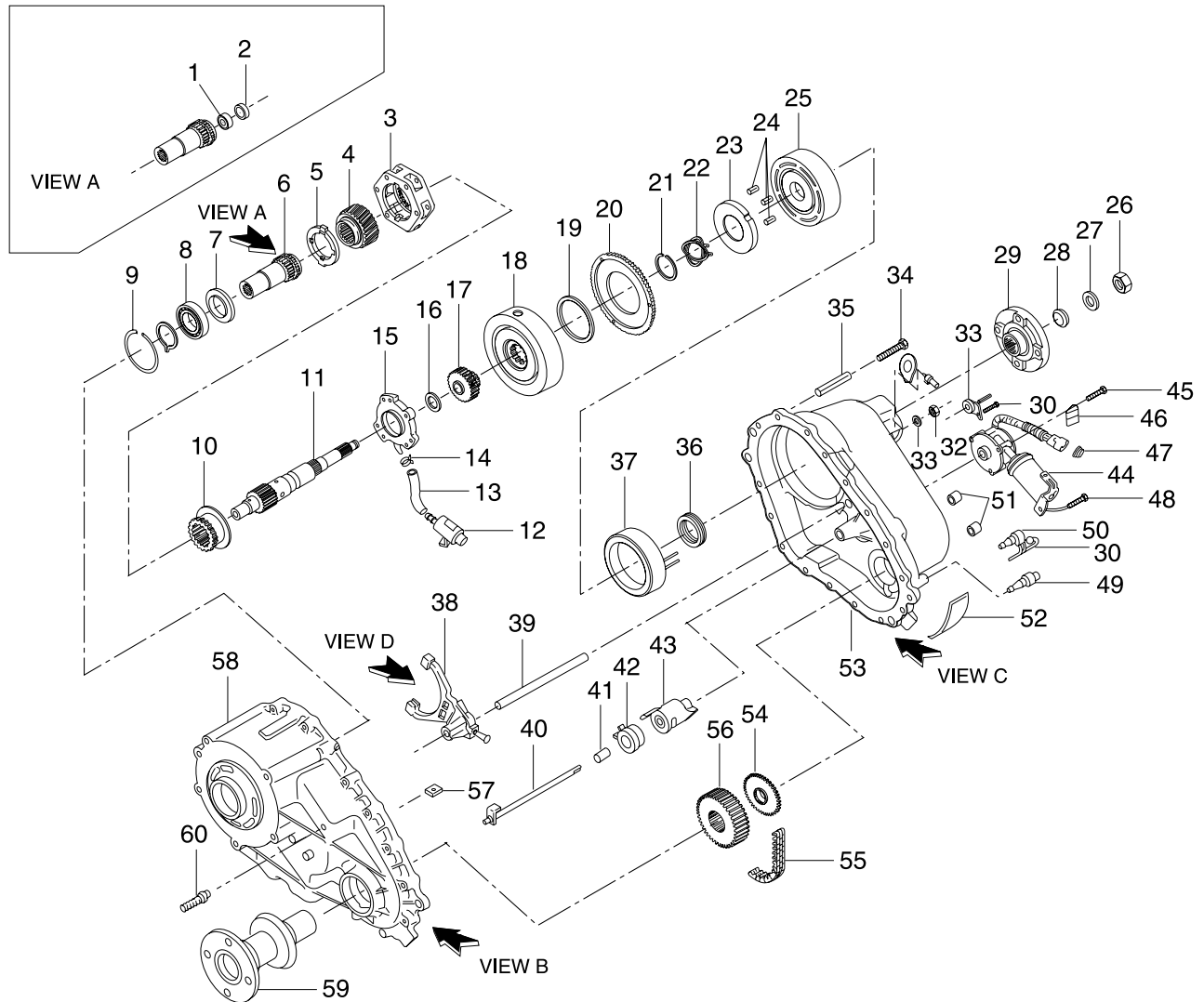
Tightening Torque	3 - 6 N•m (27 - 53 lb-in)
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20. Connect speed sensor connector, then locking sleeve.

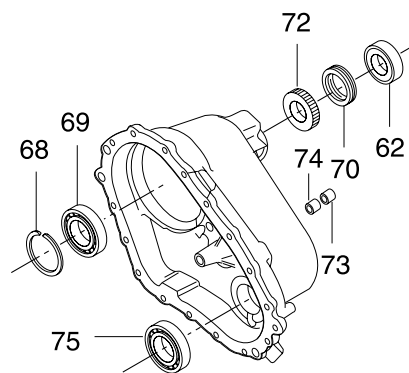
Notice: Front propeller shaft should be premised by removal of shift motor.
After disconnecting shift motor, procedure of replacement on sensor assembly of accords with one of rear speed sensor.

UNIT REPAIR

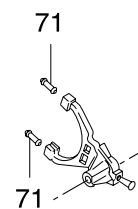
TRANSFER CASE, DISASSEMBLED VIEW



VIEW B

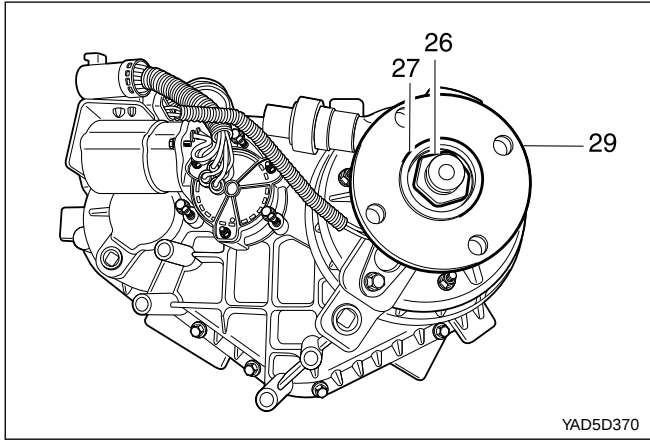


VIEW C



VIEW D

1	Bearing	39	Shift Rail
2	Bushing	40	Shaft, Shift
3	Carrier Assembly	41	Spacer
4	Sun Gear	42	Torsion Spring
5	Thrust Plate	43	Electric Shift Cam
6	Input Shaft	44	Transfer Case Shift Motor
7	Output Shaft Thrust Washer	45	Bolt
8	Bearing	46	J-clip
9	Snap Ring	47	Connector Retainer
10	High-low Collar	48	Bolt
11	Rear Output Shaft	49	Support Stud
12	Oil Strainer	50	Lower Speed Sensor (Front)
13	Coupling Hose	51	Plug
14	Hose Clamp	52	Identification Decal
15	Pump Assembly	53	Cover
16	Thrust Washer	54	Tone Wheel, Lower
17	Sprocket, Drive (24T)	55	Chain, Drive
18	Clutch Pack Assembly	56	Sprocket, Driven (24T)
19	Insulator Washer	57	Magnet, Oil Pan
20	Armature	58	Case
21	Snap Ring	59	Case Flange and Output Shaft
22	Wave Washer	59	Case Assembly
23	Apply Cam	60	Breather Bar
24	Ball	61	Spiral Pin
25	Cam and Coil Assembly	62	Oil Seal
26	Nut (2)	63	Pin, Dowel
27	Output Shaft Yoke Washer	64	Ring Gear
28	Oil Seal	65	Retaining Ring
29	Case Flange	66	Snap Ring
30	Bolt	67	Bearing
31	Upper Speed Sensor (Rear)	68	Snap Ring
32	Nut	69	Bearing
33	Washer	70	Speedometer Drive Gear
34	Bolt (M10 X 105 X 30)	71	Facing, Shift Fork
35	Tag, Identification	72	Upper Tone Wheel
36	Thrust Bearing	73	Oil Seal
37	Clutch Coil Assembly	74	Bearing Sleeve
38	Fork, Reduction Shift	75	Bearing

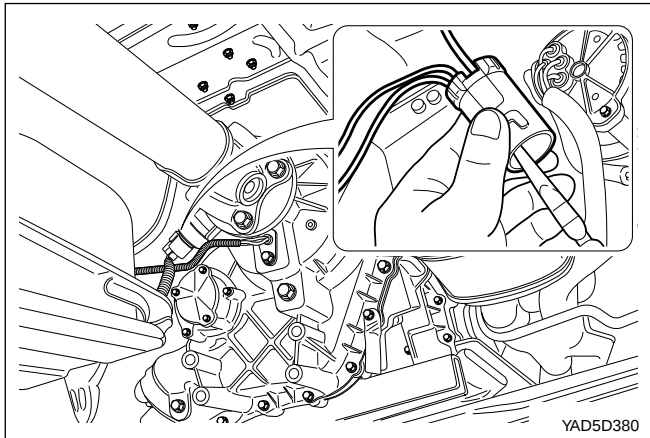


DISASSEMBLY PROCEDURE

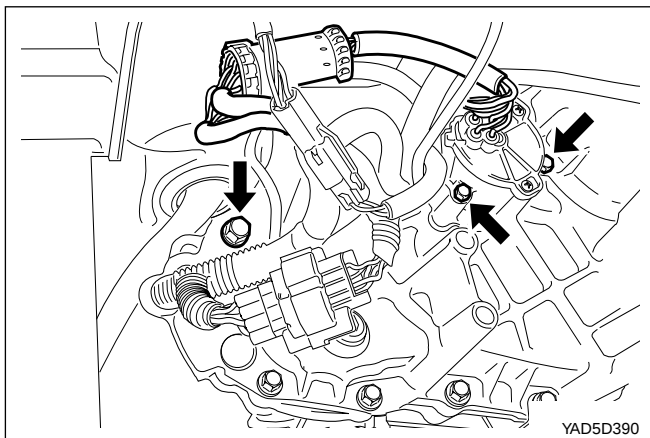
1. Disconnect transfer case from vehicle
2. Using a 30 mm thin-wall socket, first remove the rear output nut, output shaft yoke washer, oil seal then the case flange.
3. Disconnect shift motor/clutch coil connector and speed sensor connector from upper bracket of transfer case.

Notice: When disconnect connector, pull forwards grasping connector housing.

4. Remove outer tube on speed sensor connector.
5. Remove wire supporting cape back side of speed sensor connector.

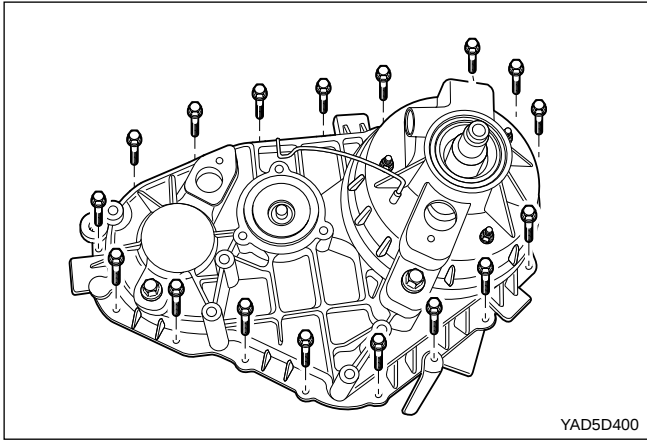


6. Disconnect pin of clutch coil wire (yellow) from speed sensor connector (7 pin) using long-nose plier.

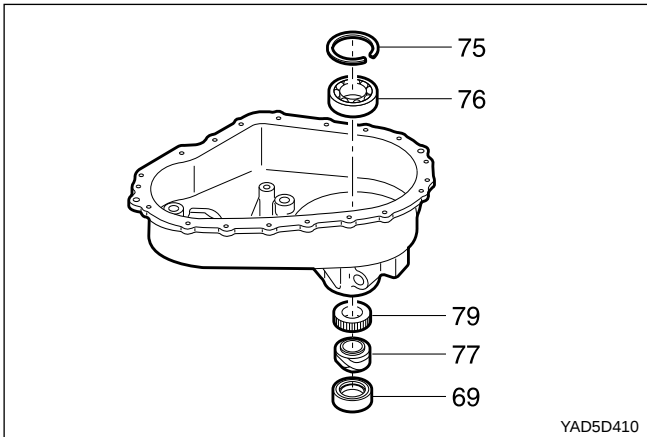


7. Remove shift motor.

Notice: When remove shift motor, pay attention to the location of triangular slot and shaft in transfer case inside motor.



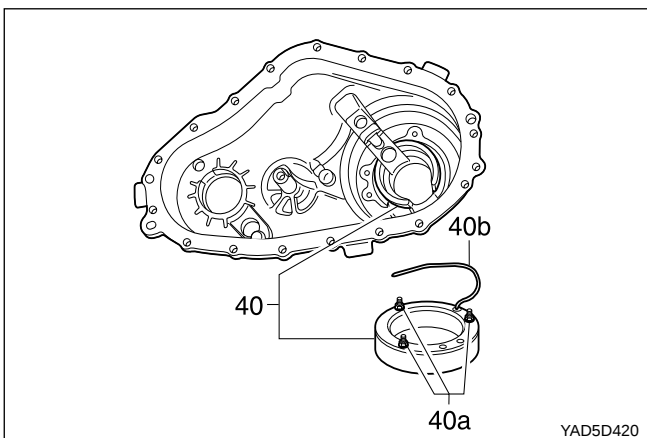
8. Disconnect front and rear speed sensor as needed.
9. Remove the 17 bolts that retain the front case to the rear case.



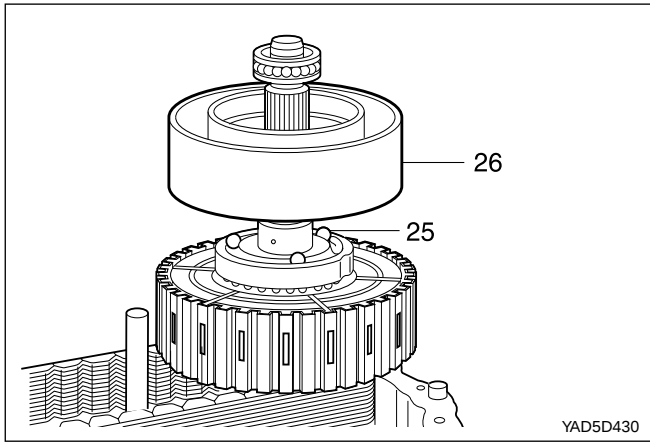
10. Make sure that the front case is facing downward so that the rear cover is facing upwards.
11. Remove the rear front case from the rear case.
12. Remove all traces of gasket sealant from the mating surfaces of the front case and rear case.
13. If the speedometer drive gear is to be replaced, first remove the flange seal by prying and pulling the curved-up lip of the flange seal.

Notice: Be careful not to damage the bearing, bearing cage or case. Remove and discard the flange seal.

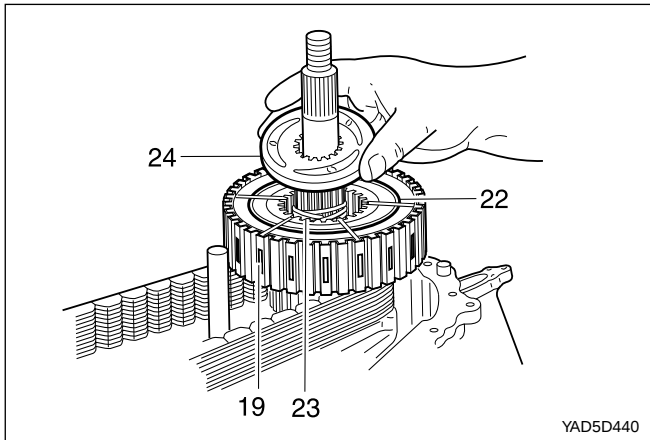
14. Remove the speedometer drive gear and upper tone wheel.
15. If the rear output shaft bearing requires replacing, remove the internal snap ring that retains the bearing in the bore.
16. From the outside of the case, drive out the bearing using the driver.



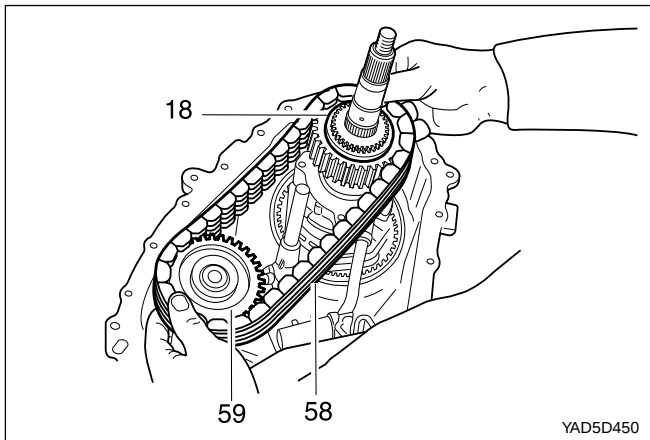
17. Remove the three nuts and washers retaining the clutch coil assembly to the rear case.
18. Pull the assembly, along with the O-ring and wire, from the case.



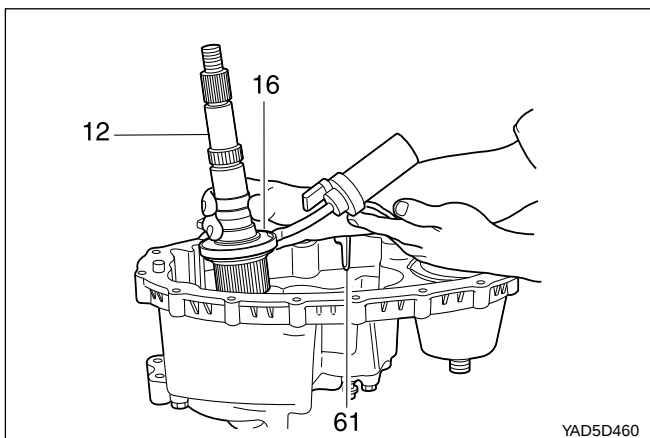
19. Remove bearing assembly from output shaft.
20. Remove the clutch housing from the output shaft.



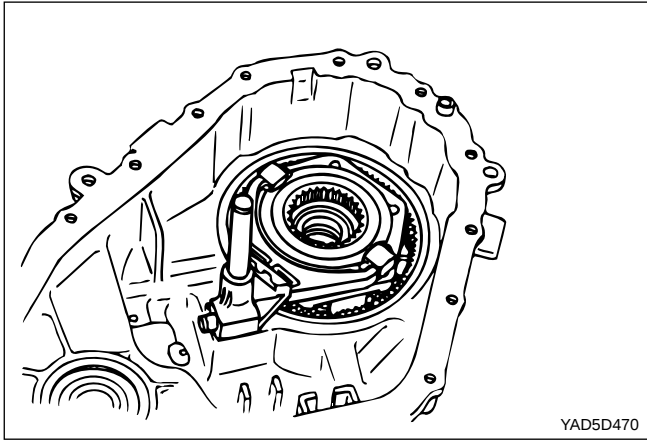
21. Remove the balls and apply cam and wave washer from the output shaft.
22. Remove snap ring from output shaft.
23. Remove clutch pack assembly from output shaft.



24. Remove the chain, driven sprocket and drive sprocket as an assembly.
25. Remove thrust washer from output shaft.



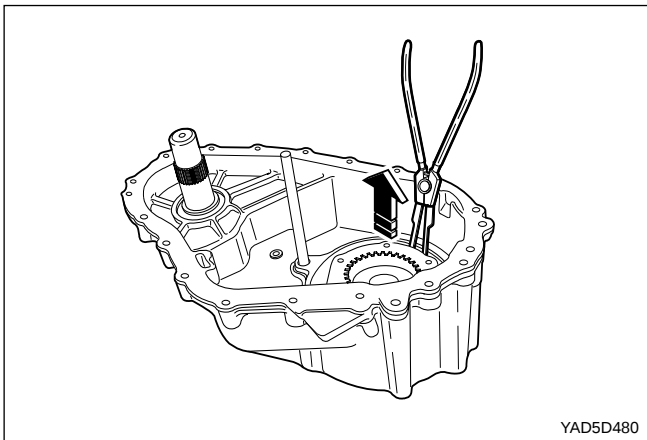
26. Remove the magnet from the slot in the front of the case bottom.
27. Remove the output shaft and oil pump as an assembly.
28. If required, to remove the pump from the output shaft, rotate the pump to align.
29. Pull out the shift rail.
30. Remove the helical cam from the front case.
31. If required, remove the helical cam, torsion spring and sleeve from the shaft.



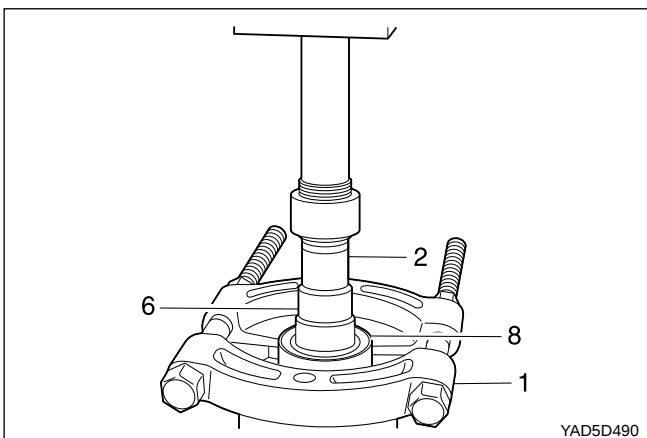
32. Remove the high-low range shift fork and collar as an assembly.
33. Expand the tangs of the large snap ring in the case.
34. With the input shaft against a bench, push the case down and slide the main drive gear bearing retainer off the bearing.
35. Lift the input shaft and front planet from the case.
36. If required, remove the oil seal from the case by prying and pulling on the curved-up lip of the oil seal.

Notice: Be careful not to damage the bearing, bearing cage or case.

37. Remove the internal snap ring from the planetary carrier.
38. Separate the front planet from the input shaft.
39. Remove the external snap ring from the input shaft.

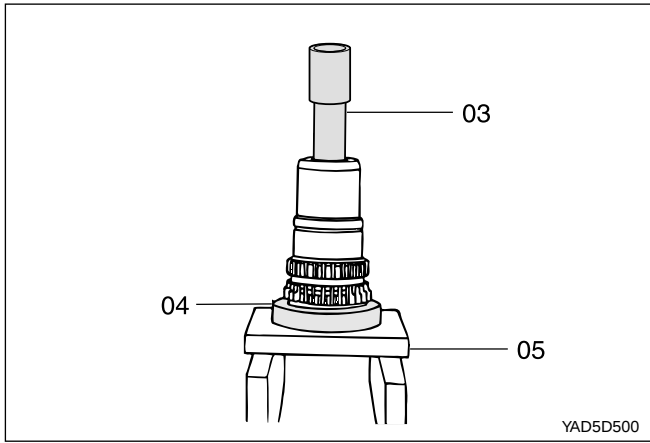


40. Place the input shaft in a vise and remove the bearing.
41. Remove the thrust washer, thrust plate and the sun gear off the input shaft.



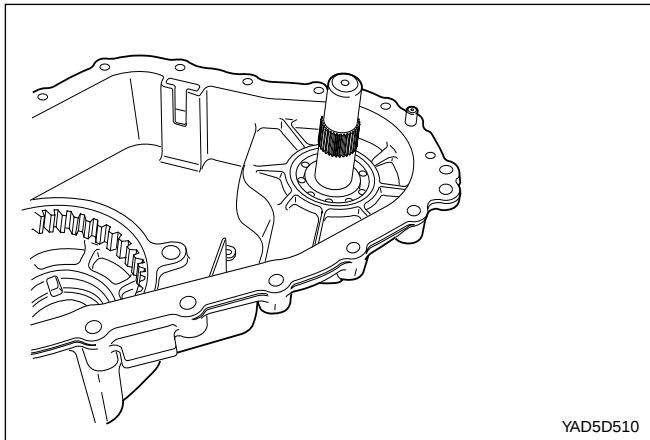
42. Inspect the bushing and needle bearing in the end of the input shaft for wear or damage.

Notice: Under normal use, the needle bearing and bushing should not require replacement. If replacement is required, the bushing and needle bearing must be replaced as a set.



43. If replacement of the needle bearing and bushing is required, press the bearing and bushing out as follows:

- Position the input shaft on Axle Bearing/Seal plate, and using Pinion Bearing Cone Replacer as a spacer.
- Insert Input Shaft Bearing Remover into the input shaft so it is resting on top of the bearing cage.
- Tighten the actuator pin until it stops, then press the bearing and bushing out together.



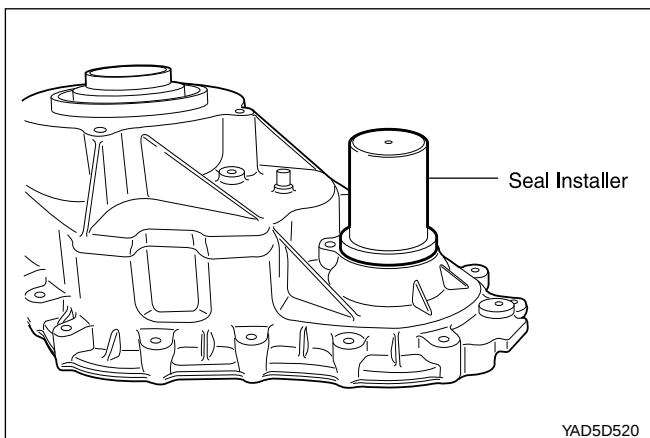
44. If required, remove the front yoke to flange seal by prying and pulling on the curved-up lip of the yoke to flange seal.

Notice: Be careful not to damage the bearing, bearing cage or case.

45. If required, remove the internal snap ring retaining the front output shaft ball bearing and remove the bearing.

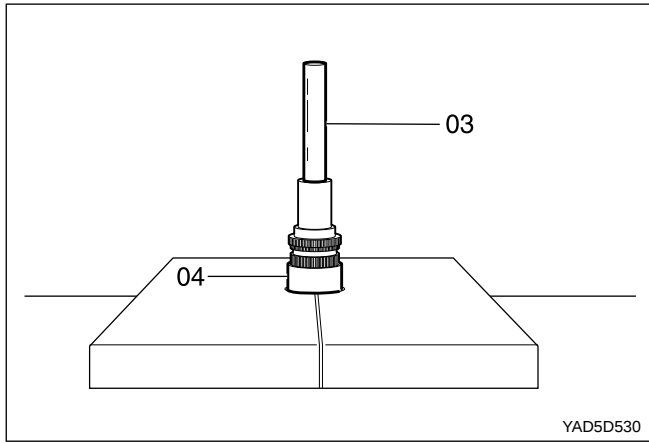
Assembly Procedure

1. Before assembly, lubricate all parts with Automatic Transmission Fluid or equivalent.
2. If removed, drive the bearing into the front output case bore.



Notice: Drive the bearing in straight, making sure it is not cocked in the bore.

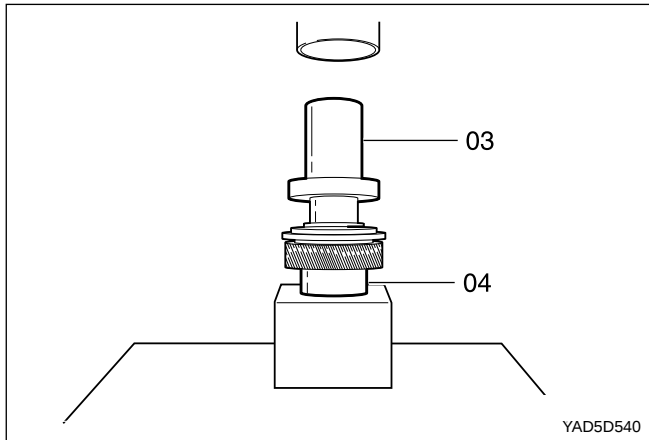
3. Install the internal snap ring that retains the bearing to the front case.
4. If removed, install the front yoke to flange seal in the front case bore.
5. If removed, install the yoke to flange seal into the mounting adapter bore.



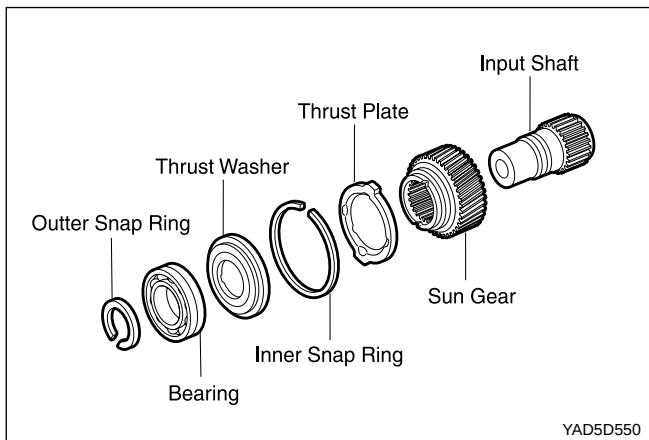
6. If the input shaft needle bearing and bushing were removed, install a new bearing and bushing as detailed in the following steps:

Press a new needle bearing, then a new bushing in the input shaft as follows:

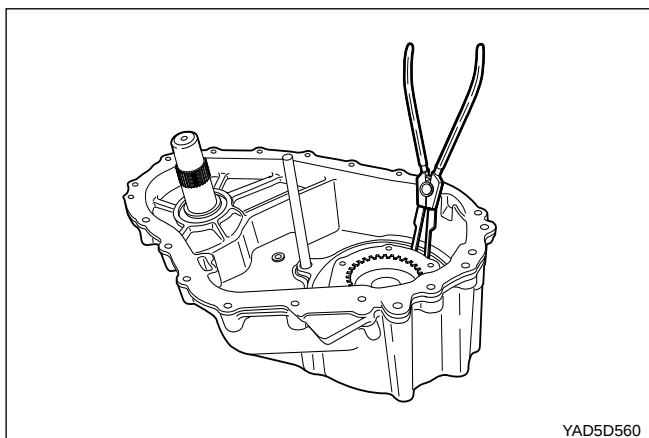
- Position the input shaft on Axle Bearing/Seal Plate or equivalent, and Pinion Bearing Cone Replacer as a spacer.
- Press a new needle bearing into the end of the input shaft until it seats in the input shaft.



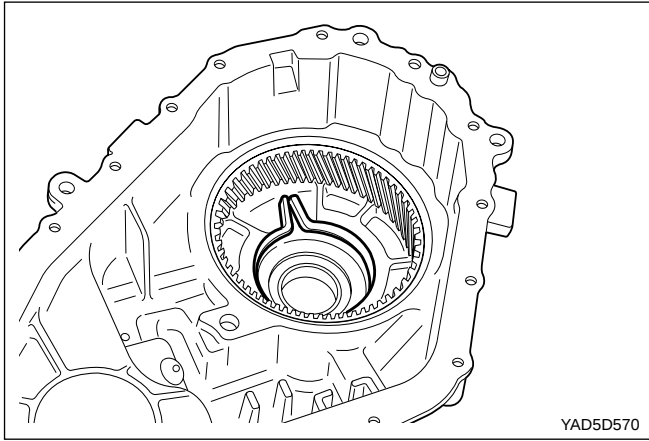
- Press in a new bushing.



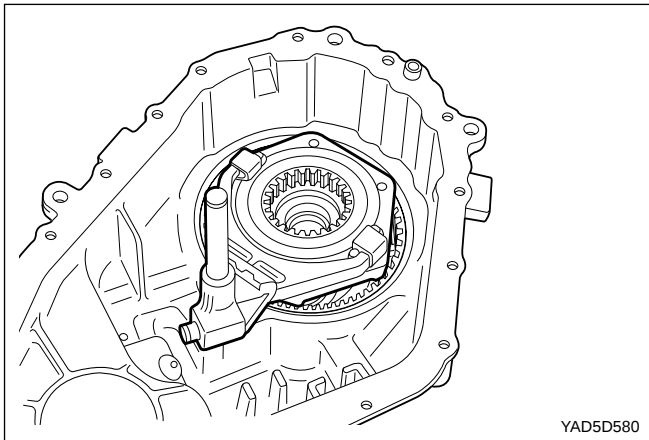
7. The recessed face of the sun gear and the snap ring groove on the bearing outer race should be toward the rear of the transfer case.
8. The stepped face of the thrust washer should face toward the bearing.
9. Slide the sun gear, thrust plate and thrust washer into position on the input shaft.
10. Press the bearing over the input shaft.
11. Install the external snap ring to the input shaft.



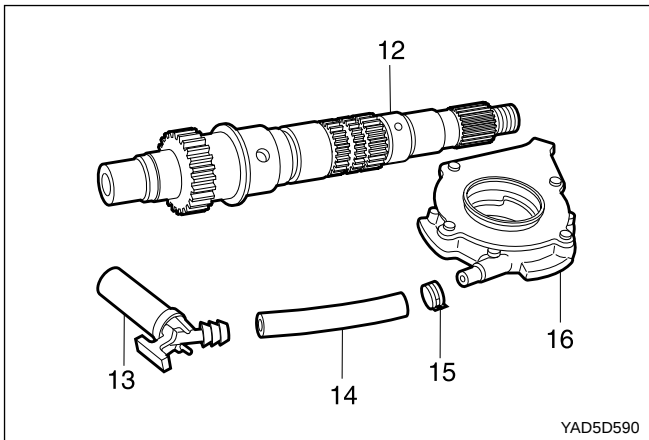
12. Install the front planet to the sun gear and input shaft.
13. Install the internal snap ring to the planetary carrier.



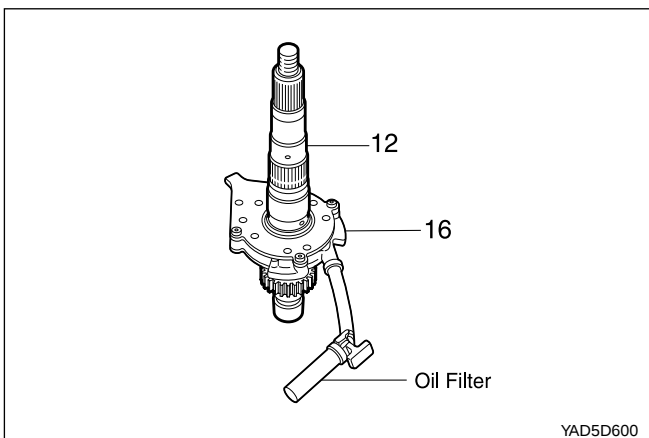
14. Place the tangled snap ring in the case. Expand snap ring with snap ring pliers and install planetary carrier assembly. Check installation by holding the case and carefully tapping the face of the input shaft against a wooden block to make sure the snap ring is installed.
15. Remove all traces of gasket sealant from the front case and mounting adapter mating surfaces. Install a bead of gasket sealant on the surface of the front case.



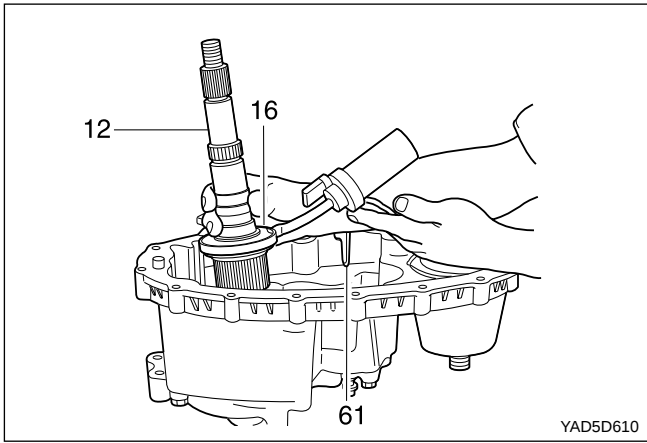
16. Install the high-low shift fork and high-low collar as an assembly into the front planet.
17. If new pump is used, align the flat of the output shaft and the flat of the pump. Slide the pump onto the output shaft.



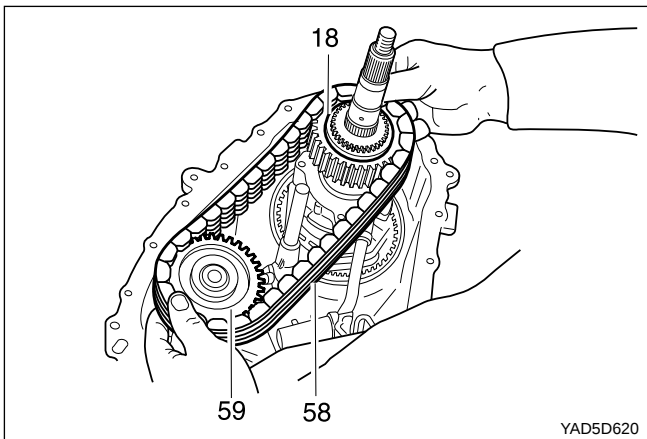
18. Inspect the outside surfaces and bore of the oil pump.



19. Install the output shaft and oil pump in the input shaft.
Make sure that the internal splines of the output shaft engage the internal splines of the high-low shift collar.
Make sure that the oil pump retainer arm and oil filter leg are in the groove and slot of the front case.

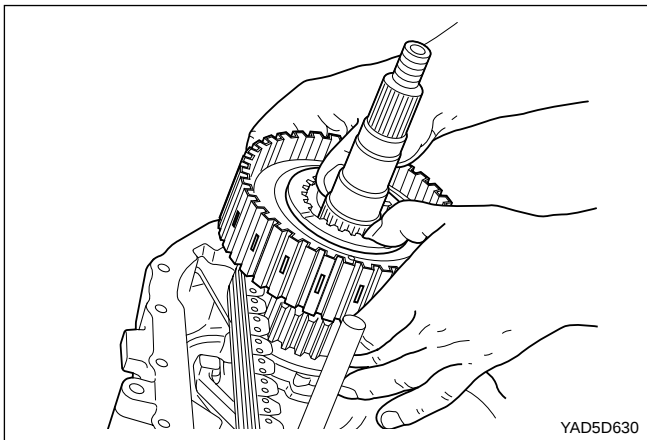


20. Install the magnet in the slot in the front case just above the oil filter leg.
21. Install the front output shaft in the front case.
22. Install the thrust washer on the rear output shaft.

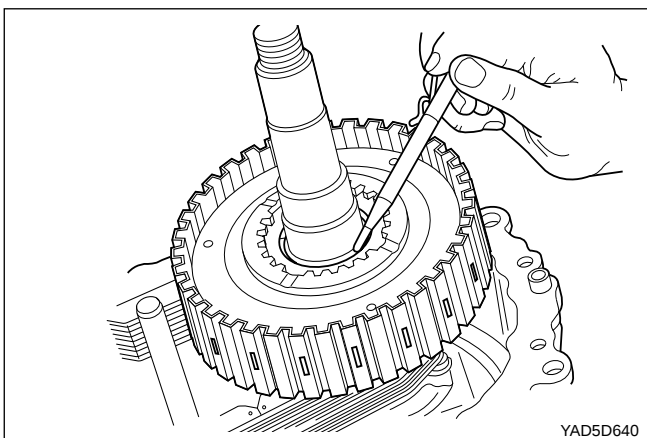


23. Install the chain, drive sprocket and driven sprocket as an assembly over the output shaft.

Notice: The driven sprocket (on the front output shaft) must be installed with the marking REAR facing toward the rear case, if so marked. Drive sprocket has a bushing pressed into it.



24. Install tone wheel onto the front output shaft. Make sure the spline on the tone wheel engages the spline on the front output shaft.
25. Install clutch pack assembly onto the rear output shaft. Make sure the spline of the clutch pack engages to the spline of the sprocket.

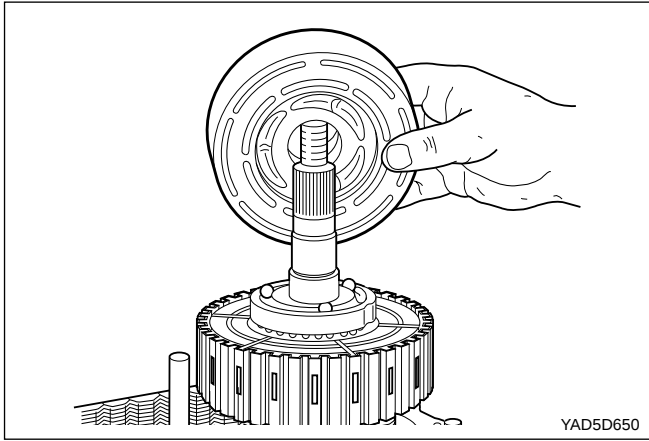


26. Install snap ring onto the rear output shaft. Start the snap ring over the spline and use the wave spring to seat the snap ring in the snap ring groove.

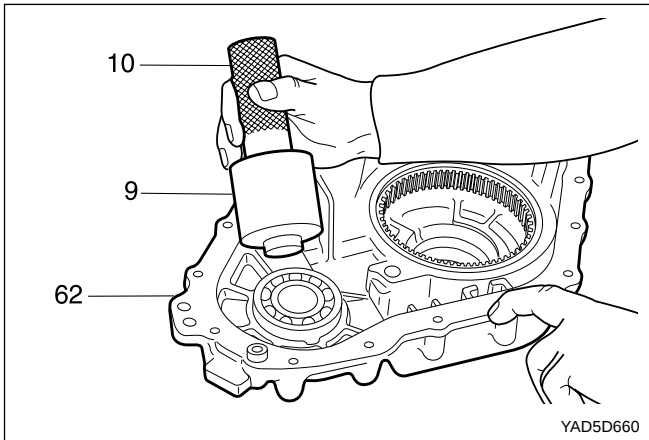
If the snap ring will not install, the thrust washer inside the clutch pack may not be seated properly.

27. Install wave spring, insulator washer and armature. (Three offset slots must align with housing to be installed)

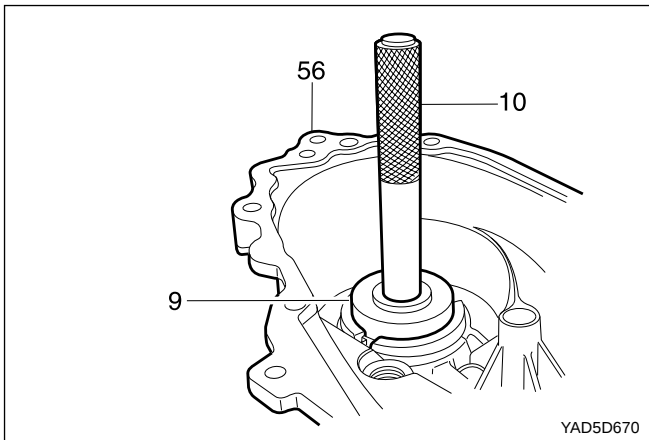
Notice: Three slots on the thrust washer must be aligned with the three tabs on the clutch pack housing.



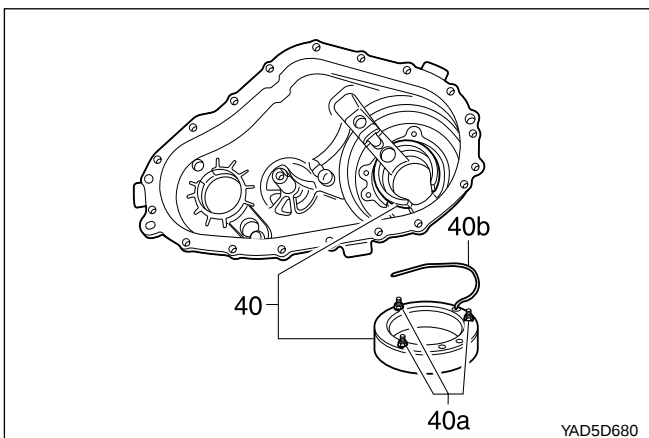
28. Install apply cam onto the rear output shaft,
29. Install three balls into the apply cam.
30. Install cam and coil housing assembly onto rear output shaft.
31. Install thrust bearing assembly onto output shaft.



32. If removed, drive the front output shaft ball bearing into the rear cover bore with Front Shaft Needle Bearing Replacer and Driver Handle.



33. If removed, install the rear output bearing in the rear case bore. Drive the bearing into the rear case bore with Output Shaft Bearing Replacer and Driver Handle. Make sure that the bearing is not cocked in the bore.
34. Install the internal snap ring that retains the bearing to the rear case.



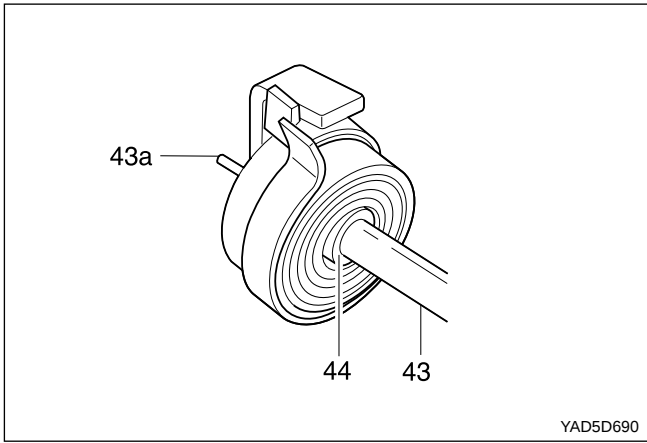
35. Install the clutch coil from inside the rear case until the wire and studs extend through the cover.

Notice: Do not kink or trap the wire while seating the clutch coil to the case.

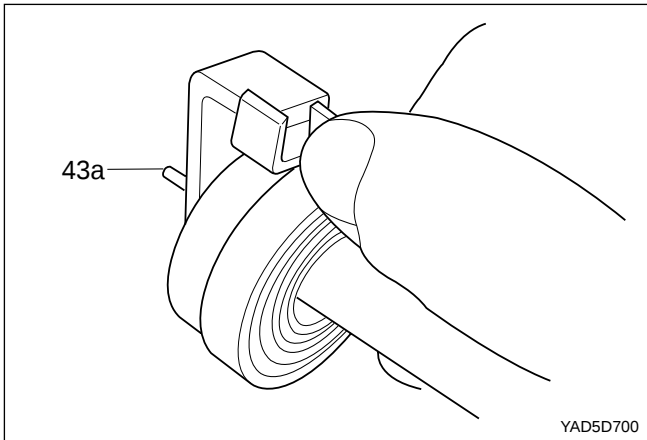
36. Install the washers and nuts and tighten.

Installation Notice

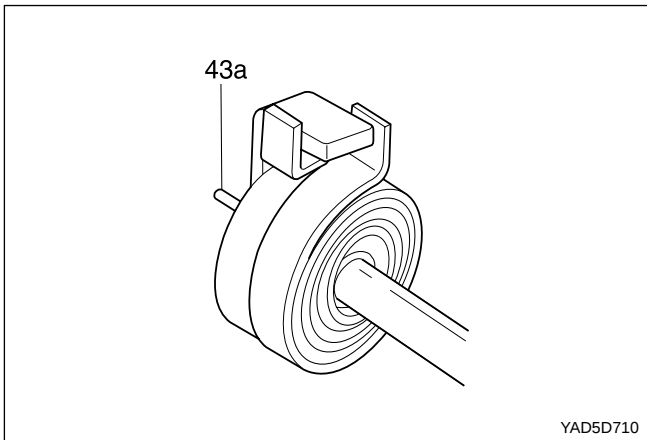
Tightening Torque	8 - 11 N•m (71 - 97 lb-in)
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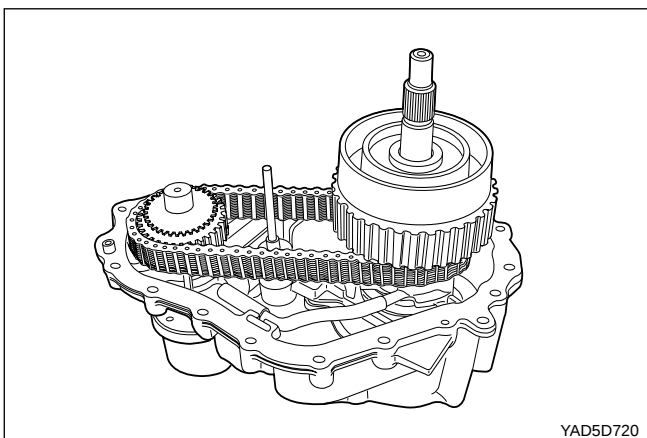
37. Slide the spring spacer on the camshaft and position it beneath the drive tang.
38. Place the torsion spring on the camshaft. Position the first spring tang to the left of the camshaft drive tang.



39. Rotate the second spring tang clockwise past the drive tang.



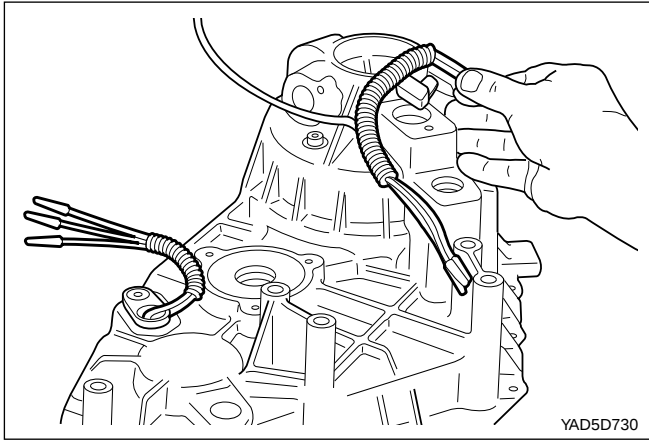
40. Push the torsion spring and sleeve in as far as it will go.
41. Install the helical cam and slide the drive tang between the torsion spring tangs as far as it will go.



42. Install the pin on the tang end of the helical cam into the hole in the front case. Position the torsion spring tangs so that they are pointing toward the top side of the transfer case and just touching the high-low shift fork.

Notice: Do not bend the helical cam during installation to the front case because of possible damage to the pin at the tang end of the motor shaft.

43. Install the shift rail through the high-low shift fork and make sure that the reverse gear shift rail is seated in the front case bore.

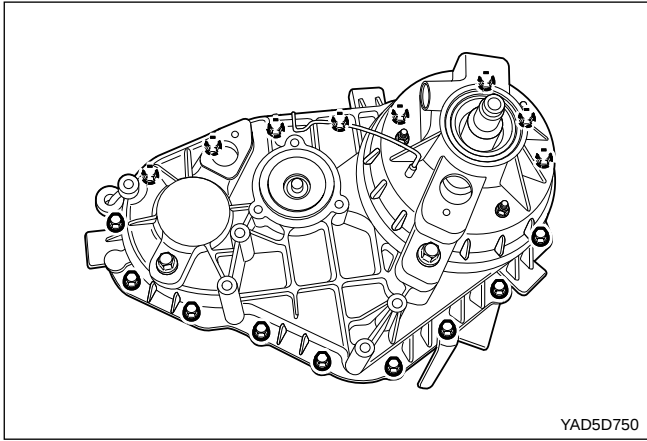


44. Install upper and lower speed sensors into the cover. Feed the coil wire through the upper speed sensor wire shield.



45. Install upper tone wheel, speedometer gear and rear output seal. Use Output Shaft Seal Replacer and Driver or equivalent to install seal.

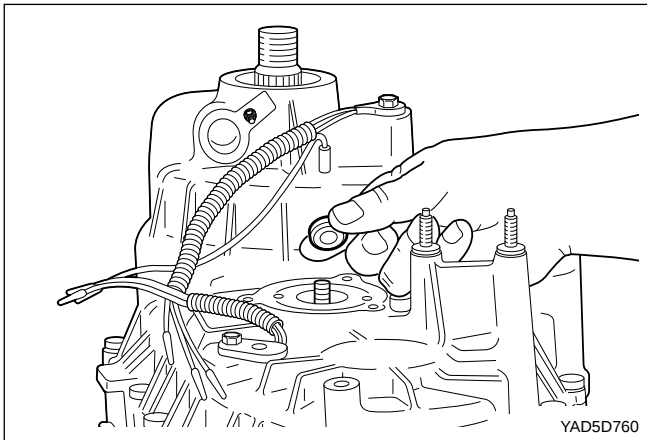
46. Coat the mating surface of the front case with a bead of Black Non-Acid Cure Silicone Rubber or equivalent.
47. The following procedure must be followed prior to installing the rear case onto the front case half:
- Align the output shaft with the rear case output shaft bore.
 - Align the helical cam with the rear case motor bore.
 - If difficulty is encountered with seating the rear case, tap the rear output shaft with a sharp blow using a rubber mallet in a direction away from the triangular shaft while pushing down on the rear case.



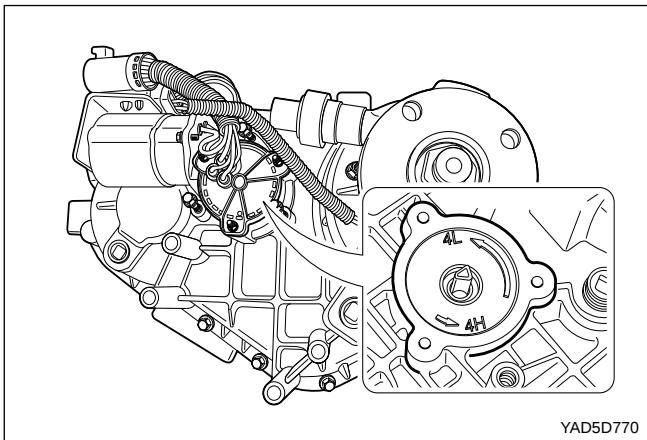
48. Install the bolts retaining the case halves and tighten.

Installation Notice

Tightening Torque	25 - 37 N•m (8 - 27 lb-ft)
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49. Install shift shaft oil seal if it is not installed.



50. Using pliers equipped with soft jaws, rotate the triangular shaft so it is aligned with the triangular slot in the transfer case shift motor.

Notice: If triangular shaft will not rotate, rotate the rear output shaft.

51. Tighten manually the two nuts that attach the slotted support bracket to the end of the motor house.
52. Apply Black Non-Acid Cure Silicone Rubber or equivalent to motor housing base and install on transfer case.
53. Install the transfer case shift motor and three bolts along with speed sensor wire harness bracket and tighten.

Installation Notice

Tightening Torque	8 - 11 N•m (71 - 97 lb-in)
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54. Holding the slotted support bracket tight against the motor housing end, secure the bracket to the transfer case, tightening the bolt with lock washer.

Installation Notice

Tightening Torque	8 - 11 N•m (71 - 97 lb-in)
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55. Retighten the two nuts that attach the slotted support bracket to the end of the motor.

Installation Notice

Tightening Torque	3 - 6 N•m (27 - 53 lb-in)
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56. Install the clutch coil wire terminal(brown) and other shift motor wires to the 7-pin connector(black).
57. Install the connector retainer at the connector end.
58. Connect the front and rear speed sensors wiring to the 7-pin connector(white).
59. Install the rear case flange on the output shaft.
60. Install the rubber seal, output shaft yoke washer and nut. Tighten the nut.

Installation Notice

Tightening Torque	137 - 196 N•m
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61. Install the drain plug and tighten.

Tightening Torque	19 - 30 N•m (14 - 22 lb-ft)
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62. Fill the transfer case with 1.4 liters of Automatic Transmission Fluid or equivalent.
63. Install the fill plug and tighten.

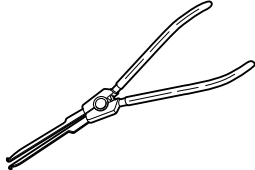
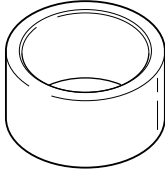
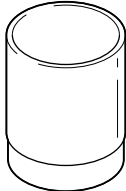
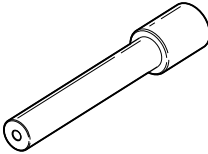
Installation Notice

Tightening Torque	19 - 30 N•m (14 - 22 lb-ft)
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64. Install the transfer case as outlined in removal and Installation.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS TABLE

 YAD5D780	Snap Ring Plier	 YAD5D790	Input Shaft Support
 YAD5D800	Bearing Installer	 YAD5D810	Bearing Removal/ Installer
 YAD5D820	Seal Installer		