

GROUP 23B

AUTOMATIC TRANSAXLE OVERHAUL <F4A4B>

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GENERAL DESCRIPTION

M1233000100577

This automatic transaxle is made up of the following main parts.

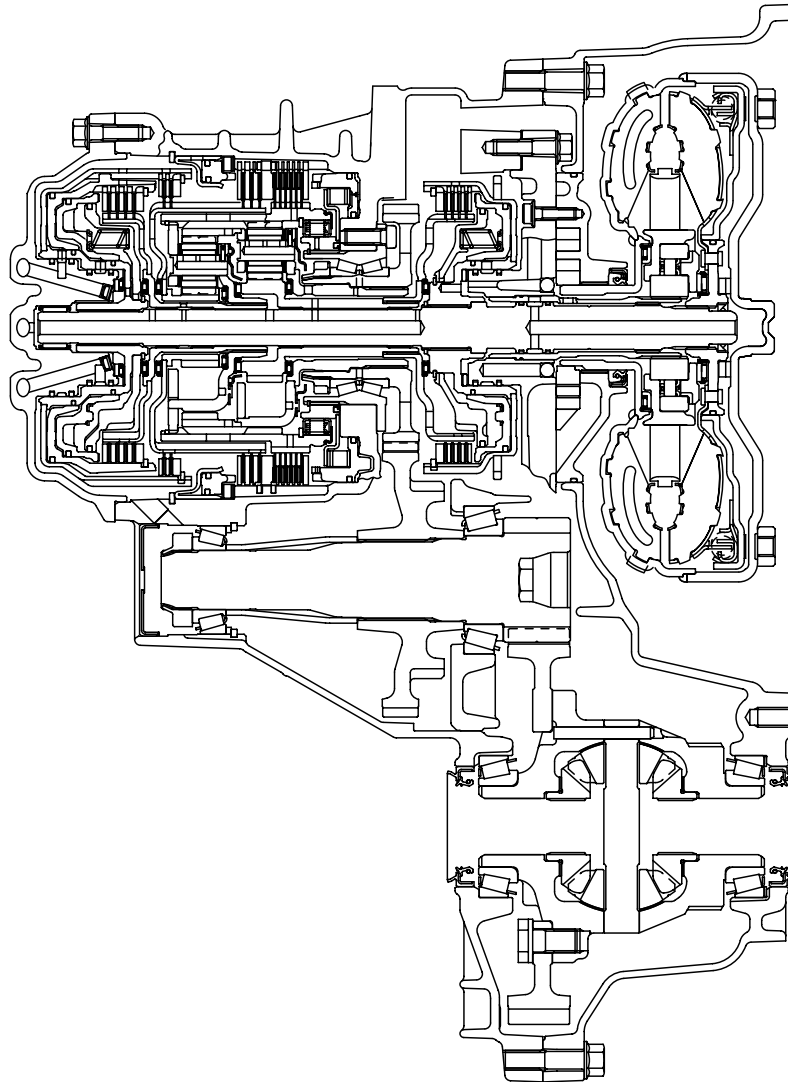
The torque converter employs a 3 element, 1 step, 2 phase lock-up clutch.

The gear train is made up of 3 multi-plate clutches, 2 multi-plate brakes and 2 planetary gears made up of a sun gear, carrier, pinion gear and annulus gear.

The cases consist of a converter housing, transaxle case, rear cover and a valve body cover.

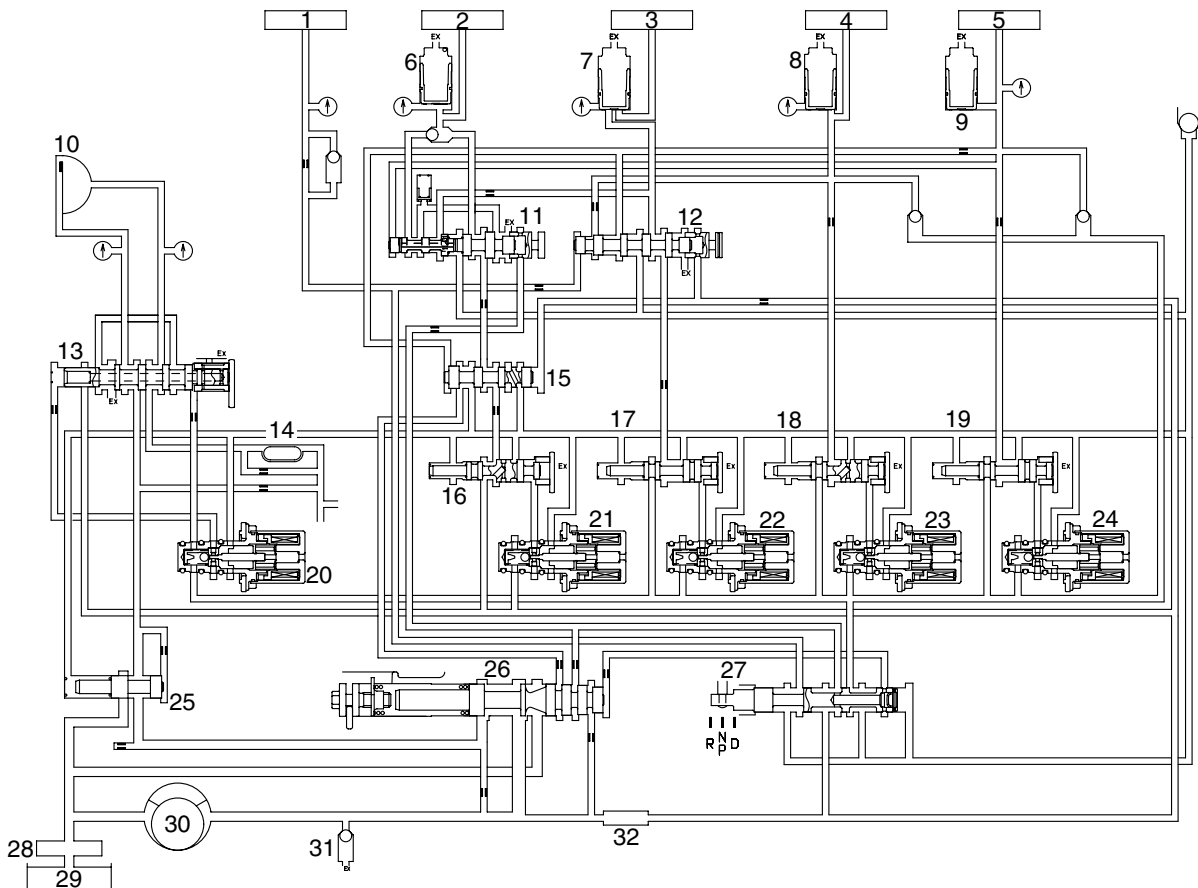
Parts related to oil pressure regulation are the oil pump, which pressurizes the oil; the regulator, which controls the pressure setting; the solenoid valves, which change the oil pressure with electrical signals; the pressure control valve, which controls the oil pressure coming from the solenoid valve that affects each clutch and brake; valves, which retain the oil pressure through the lines; and finally the valve body, which houses all the valves.

SECTIONAL VIEW



AK301596

HYDRAULIC CIRCUIT

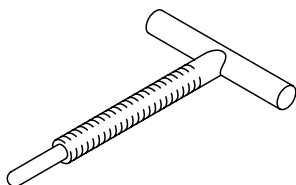
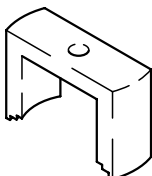
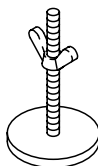
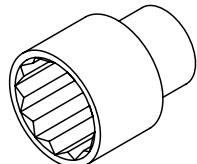
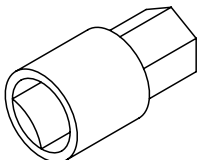
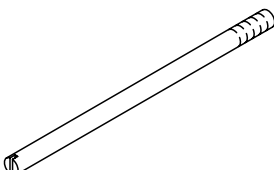
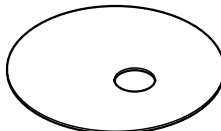


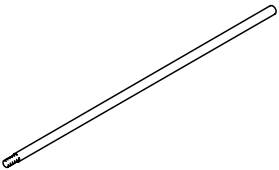
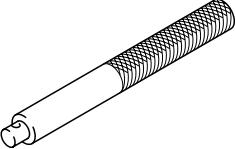
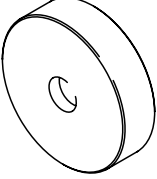
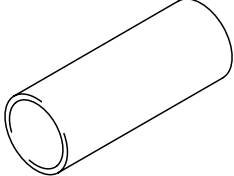
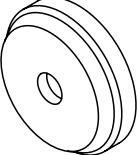
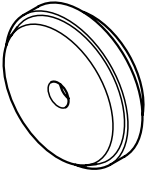
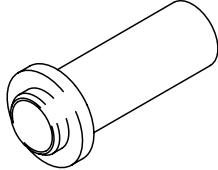
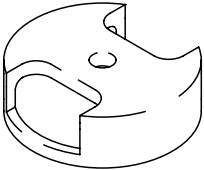
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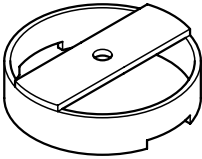
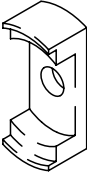
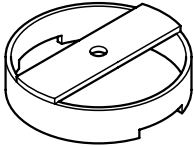
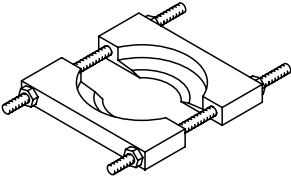
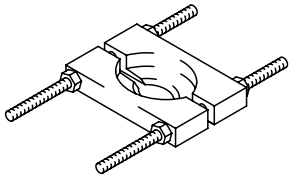
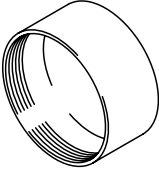
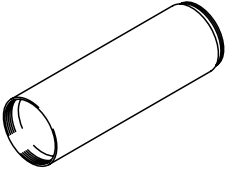
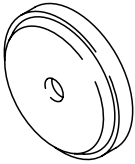
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|---|--|
| 1. REVERSE CLUTCH | 18. UNDERDRIVE PRESSURE CONTROL VALVE |
| 2. LOW-REVERSE BRAKE | 19. OVERDRIVE PRESSURE CONTROL VALVE |
| 3. SECOND BRAKE | 20. TORQUE CONVERTER CLUTCH CONTROL SOLENOID VALVE |
| 4. UNDERDRIVE CLUTCH | 21. LOW-REVERSE SOLENOID VALVE |
| 5. OVERDRIVE CLUTCH | 22. SECOND SOLENOID VALVE |
| 6. LOW-REVERSE ACCUMULATOR | 23. UNDERDRIVE SOLENOID VALVE |
| 7. SECOND ACCUMULATOR | 24. OVERDRIVE SOLENOID VALVE |
| 8. UNDERDRIVE ACCUMULATOR | 25. TORQUE CONVERTER PRESSURE CONTROL VALVE |
| 9. OVERDRIVE ACCUMULATOR | 26. REGULATOR VALVE |
| 10. TORQUE CONVERTER CLUTCH | 27. MANUAL VALVE |
| 11. FAIL-SAFE VALVE A | 28. OIL FILTER |
| 12. FAIL-SAFE VALVE B | 29. OIL PAN |
| 13. TORQUE CONVERTER CLUTCH CONTROL VALVE | 30. OIL PUMP |
| 14. COOLER | 31. RELIEF VALVE |
| 15. SWITCHING VALVE | 32. OIL STRAINER |
| 16. LOW-REVERSE PRESSURE CONTROL VALVE | |
| 17. SECOND PRESSURE CONTROL VALVE | |

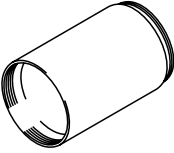
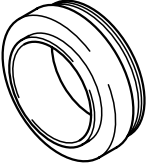
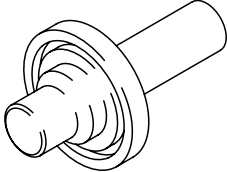
SPECIAL TOOLS

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TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
	MD998333 Oil pump remover	MD998333-01	Removal of oil pump
	MD998903 Spring compressor	MD998903-01	Removal and installation of one-way clutch inner race snap ring
	MD998924 Spring compressor retainer	MD998924-01	Use with spring compressor
	MB991625 Socket (41)	MB991625-01 or General service tool	Removal and installation of output shaft jam nut
	MB990607 Torque wrench socket	MB990607-01	Removal and installation of output shaft jam nut
	MD998412 Guide	MD998412	Installation of oil pump and transfer drive gear
	MB991631 Clearance dummy plate	MB991631-01	Measurement of reaction plate low-reverse brake and second brake end play

TOOL	TOOL NUMBER AND NAME	SUPERSESION	APPLICATION
	MD998913 Dial gauge extension	MD998913-01	Measurement of low-reverse brake end play
	MB990938 Handle	MB990938-01	<ul style="list-style-type: none"> • Installation of input shaft rear bearing • Use with installer adapter
	MB990930 Installer adapter	MB990930-01 or General service tool	Installation of output shaft taper roller bearing outer race
	MD998350 Bearing installer	MD998350-01	Installation of output shaft collar and taper roller bearing
	MB990931 Installer adapter	MB990931-01 or General service tool	Installation of cap
	MB990935 Installer adapter	MB990935-01 or General service tool	Installation of differential taper roller bearing outer race
	MD998334 Oil seal installer	MD998334-01	Installation of oil pump oil seal
	MD998907 Spring compressor	MD998907-01	Removal and installation of underdrive clutch snap ring

TOOL	TOOL NUMBER AND NAME	SUPERSESION	APPLICATION
	MB991628 Spring compressor	MB991628-01	Measurement of underdrive clutch and overdrive clutch end play
	MD999590 Spring compressor	MIT305039	Removal and installation of overdrive clutch snap ring
	MB991790 Spring compressor	MB991790-01	Measurement of reverse clutch end play
	MD998917 Bearing remover	General service tool or MD998348-01	Removal of transfer driven gear
	MD998801 Bearing remover	MD998348-01	Removal of each bearing
	MD998812 Installer cap	General service tool	Use with installer and installer adapter
	MD998814 Installer 200	MIT304180-A	Use with installer cap and installer adapter
	MB990936 Installer adapter	MB990936-01 or General service tool	Installation of output shaft taper roller bearing outer race

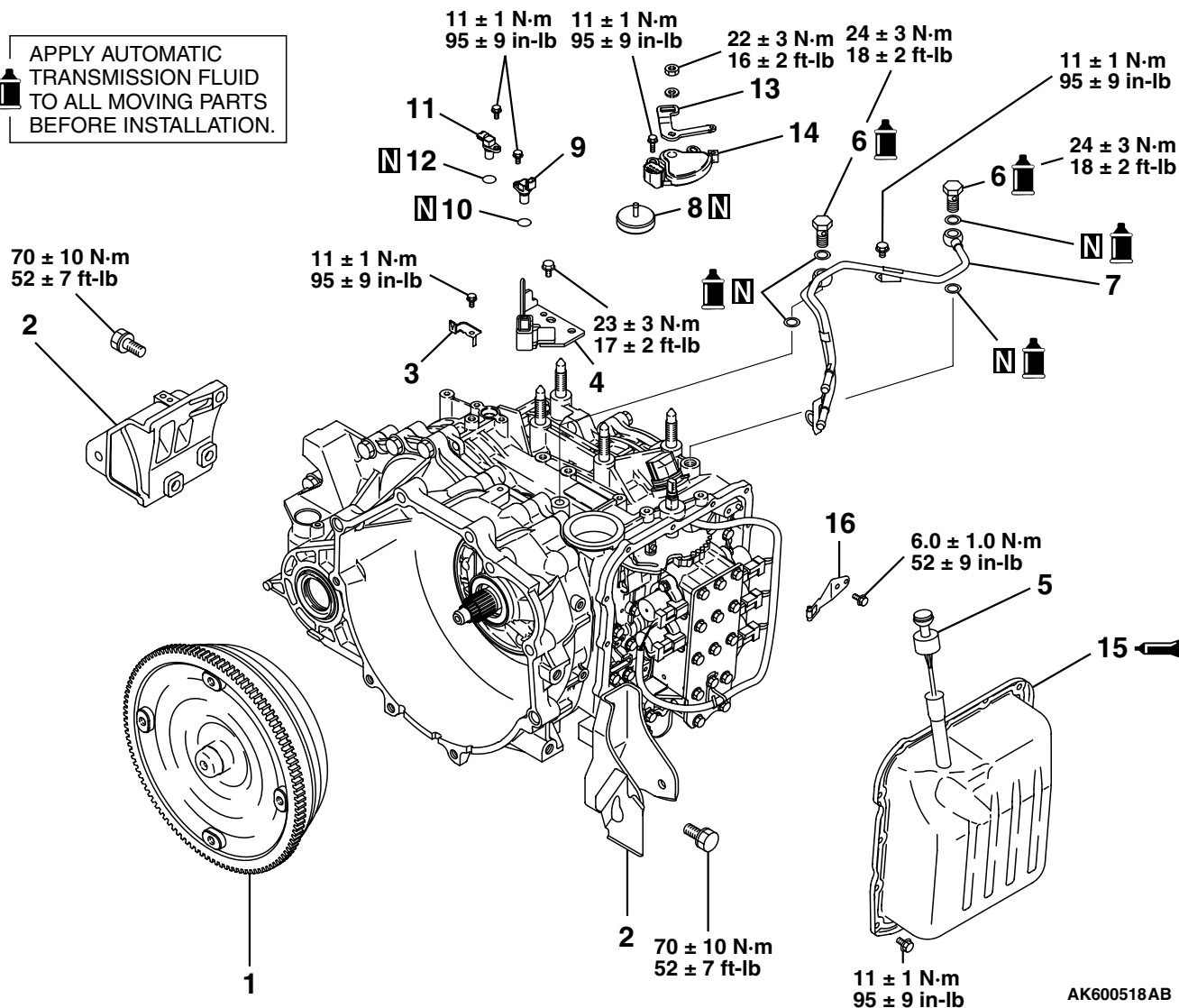
TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
	MD998813 Installer 100	General service tool	Use with installer cap and installer adapter
	MD998823 Installer adapter (48)	General service tool	Installation of output shaft taper roller bearing, transfer driven gear, differential taper roller bearing
	MD998800 Oil seal installer	General service tool	Installation of driveshaft oil seal

TRANSAXLE

DISASSEMBLY AND ASSEMBLY

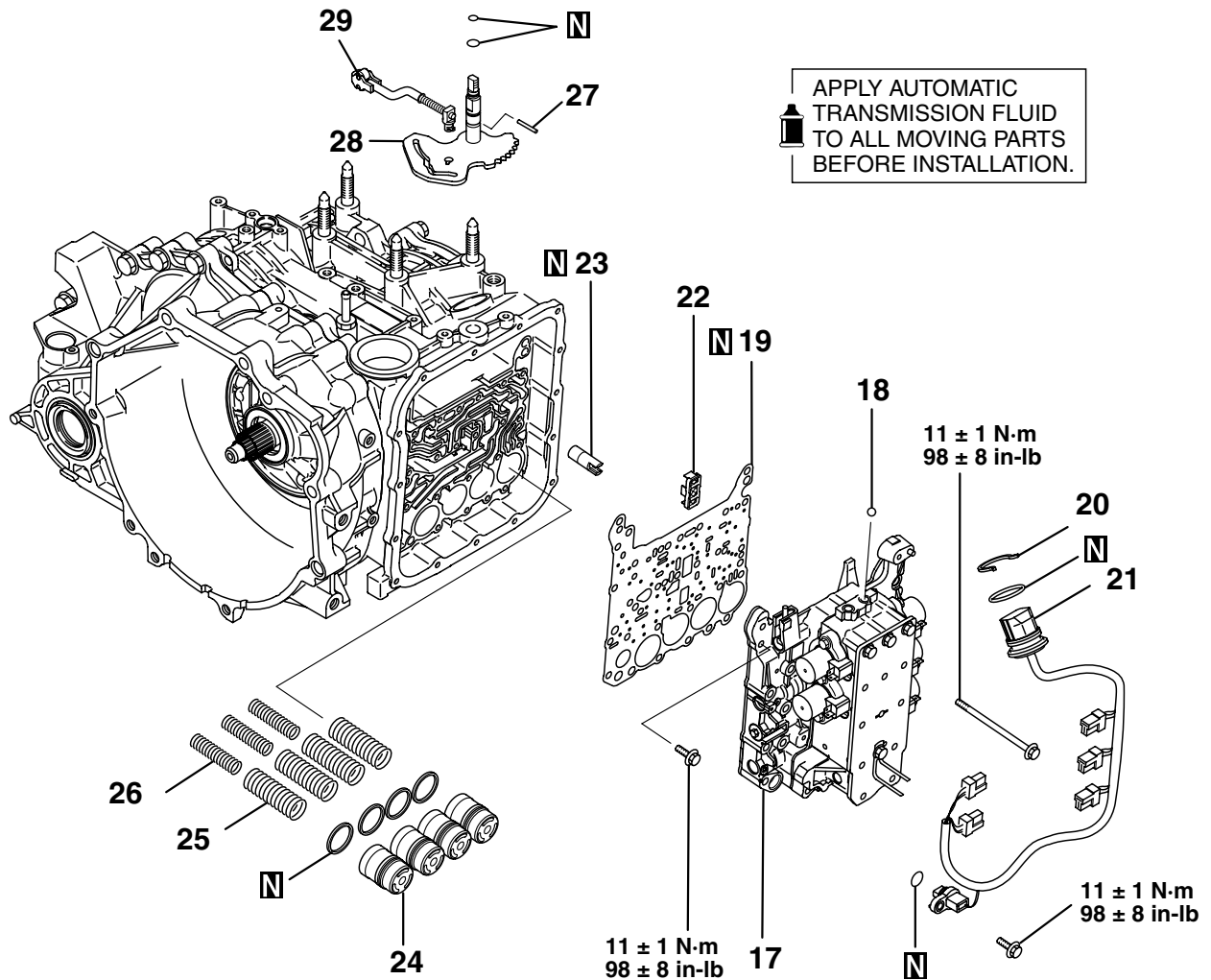
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APPLY AUTOMATIC
TRANSMISSION FLUID
TO ALL MOVING PARTS
BEFORE INSTALLATION.



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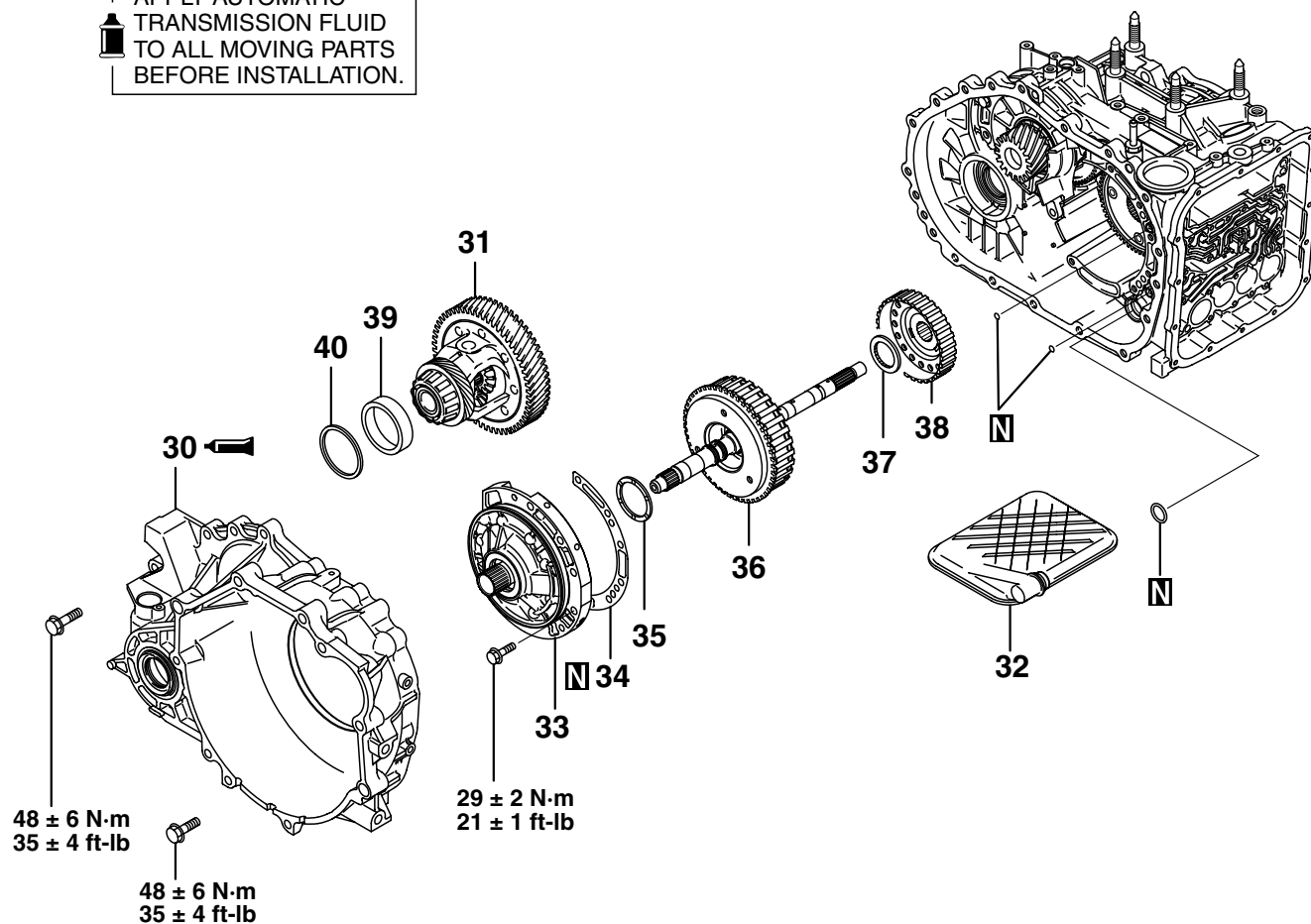
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|----------------------------------|----------------------------------|
| 1. TORQUE CONVERTER | 9. INPUT SHAFT SPEED SENSOR |
| 2. ROLL STOPPER BRACKET | 10. O-RING |
| 3. HARNESS BRACKET | 11. OUTPUT SHAFT SPEED SENSOR |
| 4. CONTROL CABLE SUPPORT BRACKET | 12. O-RING |
| 5. OIL DIPSTICK | 13. MANUAL CONTROL LEVER |
| 6. EYE BOLT | 14. PARK/NEUTRAL POSITION SWITCH |
| 7. OIL COOLER FEED TUBE | 15. VALVE BODY COVER |
| 8. AIR BREATHER | 16. MANUAL CONTROL SHAFT DETENT |



AK501411AC

- | | |
|------------------------------------|---------------------------------------|
| 17. VALVE BODY | 24. ACCUMULATOR PISTON |
| 18. STEEL BALL | 25. ACCUMULATOR SPRING |
| 19. GASKET | 26. ACCUMULATOR SPRING |
| 20. SNAP RING | 27. MANUAL CONTROL LEVER SHAFT ROLLER |
| 21. SOLENOID VALVE HARNESS | 28. MANUAL CONTROL LEVER SHAFT |
| 22. STRAINER | 29. PARKING PAWL ROD |
| 23. SECOND BRAKE RETAINER OIL SEAL | |

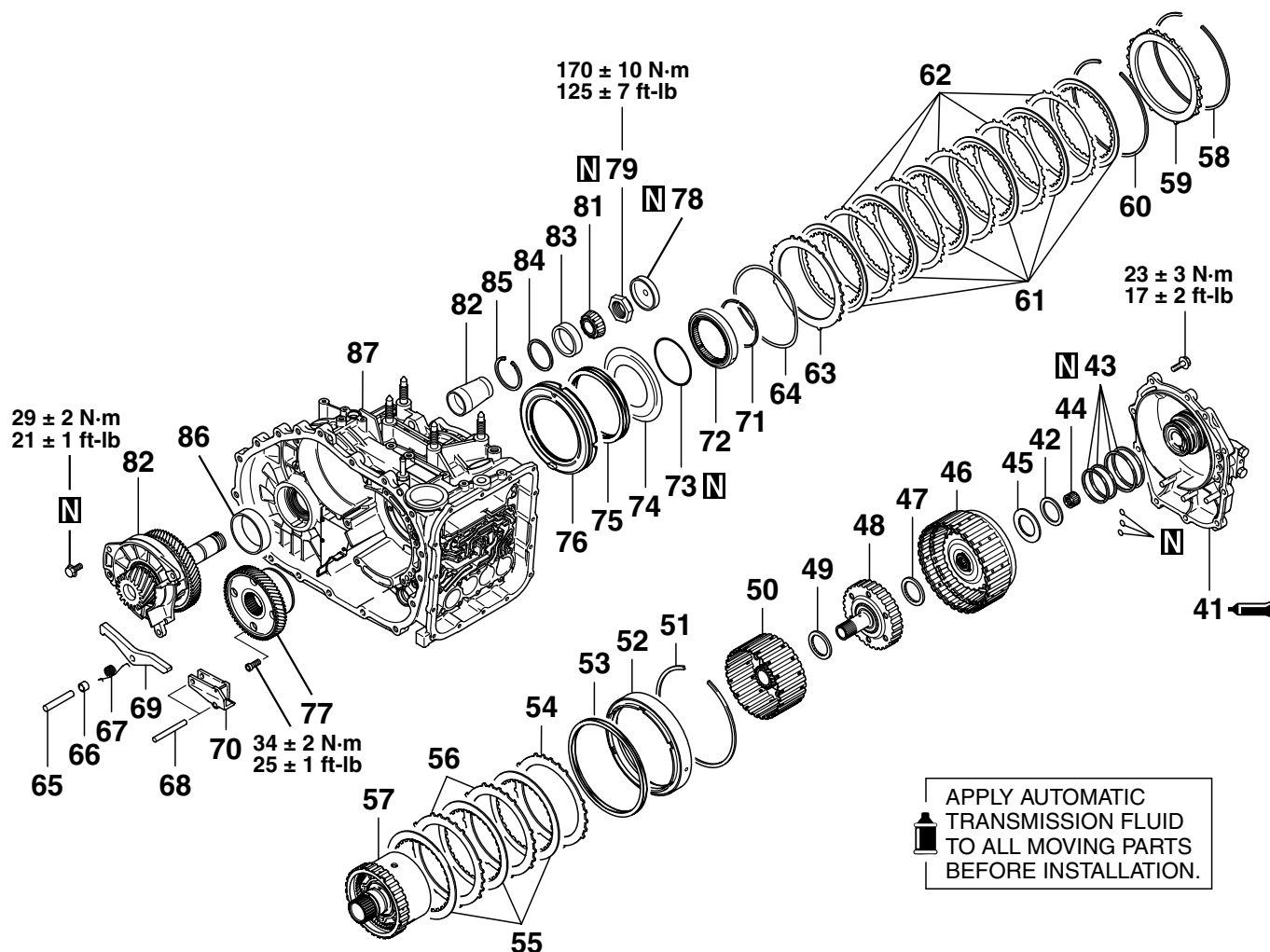
APPLY AUTOMATIC
TRANSMISSION FLUID
TO ALL MOVING PARTS
BEFORE INSTALLATION.



- 30. TORQUE CONVERTER HOUSING
- 31. DIFFERENTIAL
- 32. OIL FILTER
- 33. OIL PUMP
- 34. GASKET
- 35. THRUST WASHER NO.1

- 36. UNDERDRIVE CLUTCH AND INPUT SHAFT
- 37. THRUST BEARING NO.2
- 38. UNDERDRIVE CLUTCH HUB
- 39. OUTER RACE
- 40. SPACER

AK501415AC



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- | | |
|----------------------------------|----------------------------------|
| 41. REAR COVER | 64. WAVE SPRING |
| 42. THRUST RACE NO.8 | 65. PARKING PAWL SHAFT |
| 43. SEAL RING | 66. SPACER |
| 44. INPUT SHAFT REAR BEARING | 67. PARKING PAWL SPRING |
| 45. THRUST BEARING NO.7 | 68. PARKING ROLLER SUPPORT SHAFT |
| 46. REVERSE AND OVERDRIVE CLUTCH | 69. PARKING PAWL |
| 47. THRUST BEARING NO.6 | 70. PARKING ROLLER SUPPORT |
| 48. OVERDRIVE CLUTCH HUB | 71. SNAP RING |
| 49. THRUST BEARING NO.5 | 72. ONE-WAY CLUTCH INNER RACE |
| 50. PLANETARY REVERSE SUN GEAR | 73. O-RING |
| 51. SNAP RING | 74. SPRING RETAINER |
| 52. SECOND BRAKE PISTON | 75. RETURN SPRING |
| 53. RETURN SPRING | 76. LOW-REVERSE BRAKE PISTON |
| 54. PRESSURE PLATE | 77. TRANSFER DRIVE GEAR |
| 55. SECOND BRAKE DISCS | 78. CAP |
| 56. SECOND BRAKE PLATES | 79. LOCK NUT |
| 57. PLANETARY CARRIER ASSEMBLY | 80. OUTPUT SHAFT |
| 58. SNAP RING | 81. TAPER ROLLER BEARING |
| 59. REACTION PLATE | 82. COLLAR |
| 60. SNAP RING | 83. OUTER RACE |
| 61. LOW-REVERSE BRAKE DISCS | 84. SPACER |
| 62. LOW-REVERSE BRAKE PLATES | 85. SNAP RING |
| 63. PRESSURE PLATE | |

- 86. OUTER RACE
- 87. TRANSAXLE CASE

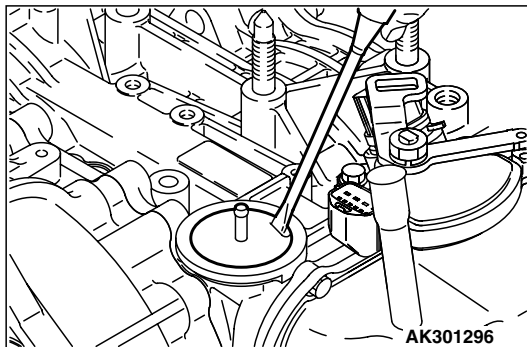
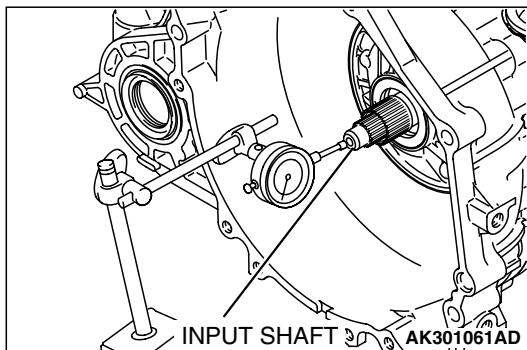
Required Special Tools:

- MB990607: Torque Wrench Socket
- MB990930: Installer Adapter
- MB990931: Installer Adapter
- MB990935: Installer Adapter
- MB990938: Handle
- MB991625: Special Socket (41)
- MB991631: Clearance Dummy Plate
- MD998333: Oil Pump Remover
- MD998350: Bearing Installer
- MD998412: Guide
- MD998903: Spring Compressor
- MD998913: Dial Gauge Extension
- MD998924: Spring Compressor Retainer

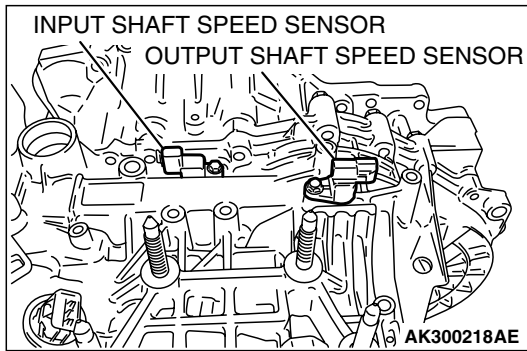
DISASSEMBLY**⚠ CAUTION**

- Because the automatic transaxle is manufactured from high-precision parts, care must be taken not to scratch or damage these parts during disassembly and assembly.
- Work on a rubber mat and keep it clean at all times.
- Do not wear any cloth gloves and do not use any shop towels during disassembly. Use only nylon cloth, paper towels or any other lint-free material.
- Parts which have been disassembled should all be cleaned. Metal parts can be cleaned with normal detergent, but they should be dried completely using compressed air.
- Clutch discs, plastic thrust plates and rubber parts should be cleaned with automatic transmission fluid (ATF).
- If the transaxle body has been damaged, disassemble and clean the cooler system.

1. Remove the torque converter.
2. Use a dial gauge to measure the input shaft end play.
3. Remove each bracket.
4. Remove the dipstick.
5. Remove the eye bolt, gaskets and the oil cooler feed tube.



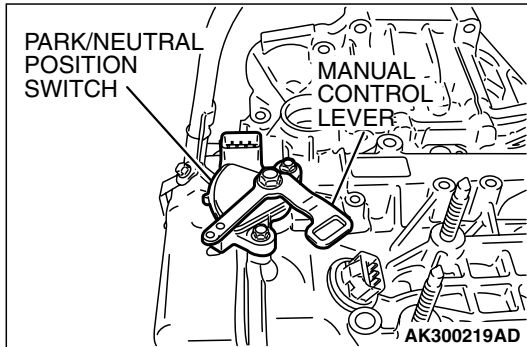
6. Remove the air breather by inserting a screwdriver into the air breather and prying it up.



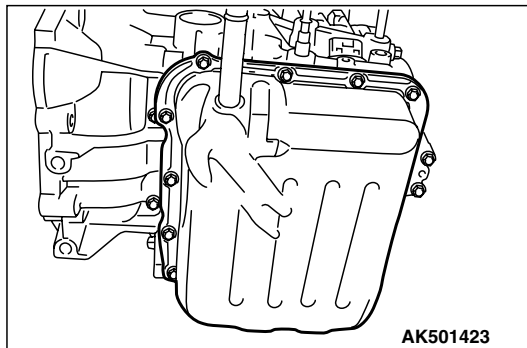
7. Remove the input shaft speed sensor and output shaft speed sensor.

CAUTION

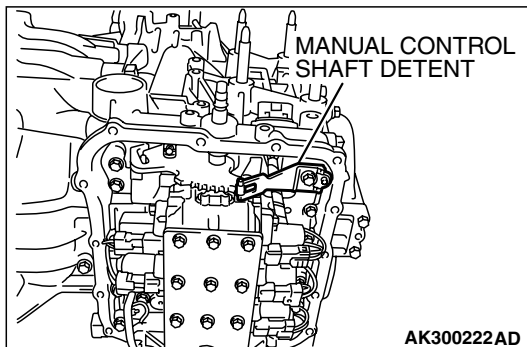
The manual control lever tightening nut must be removed before removing the valve body. If the valve body is removed before the nut, the park/neutral position switch will be damaged.



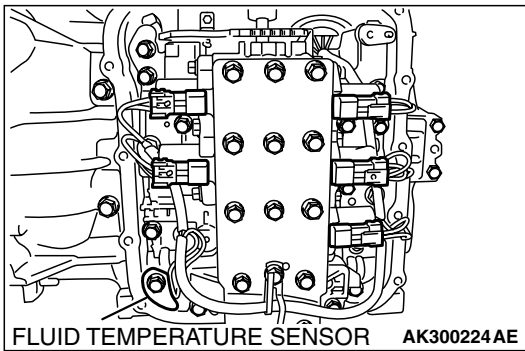
8. Loosen the manual control lever tightening nut, and then remove the manual control lever and the park/neutral position switch.



9. Remove the valve body cover.



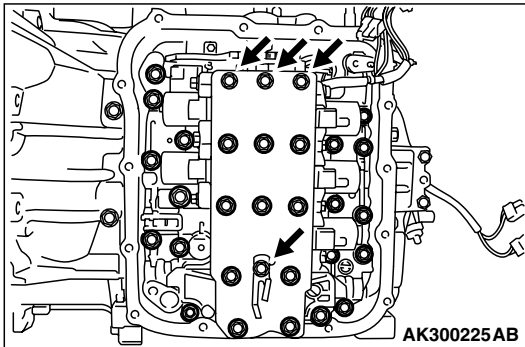
10. Remove the manual control shaft detent.



11. Disconnect the solenoid valve harness from the valve body by disconnecting the fluid temperature sensor and all the connectors.

⚠ CAUTION

- Make sure that the manual control lever and the park/neutral position switch are removed. See step 8.
- Do not remove the bolts (four pieces) shown in the illustration.

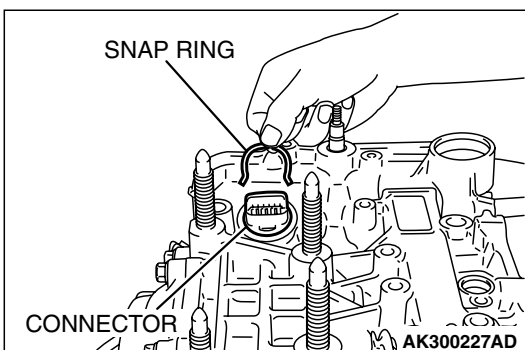
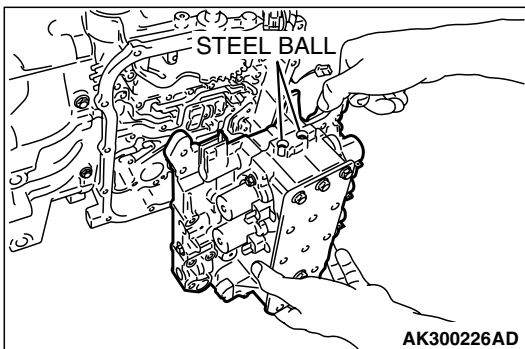


12. Remove the valve body mounting bolts (twenty seven pieces).

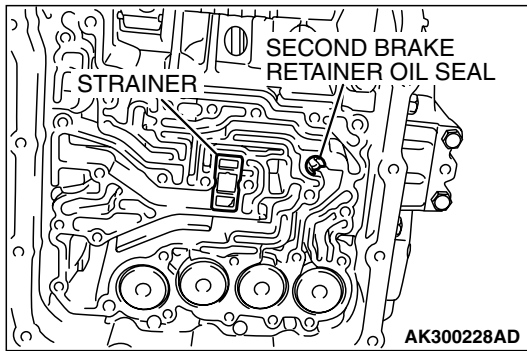
⚠ CAUTION

Do not lose the two steel balls.

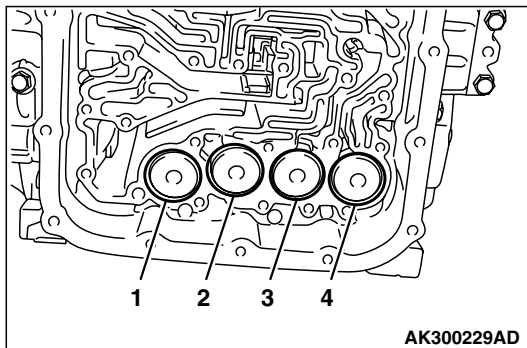
13. Remove the valve body, gasket, and the steel balls (two pieces).



14. Remove the snap ring from the connector. Push the connector into the transaxle case and remove the solenoid valve harness.

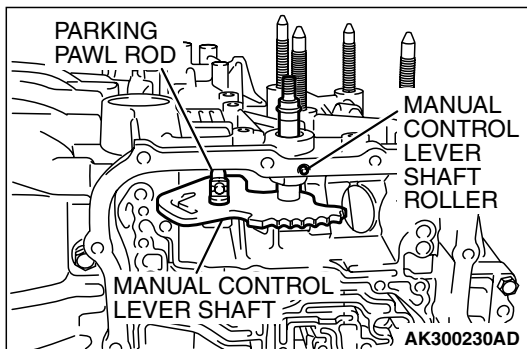


15.Remove the strainer and the second brake retainer oil seal.



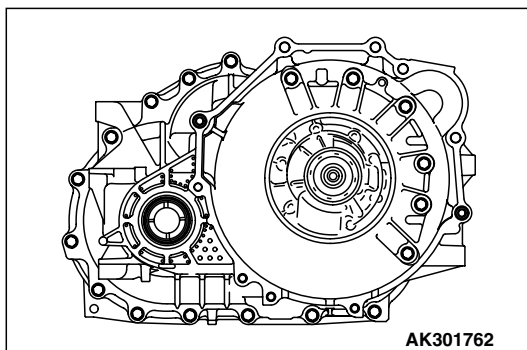
16.Remove each accumulator piston and spring.

NUMBER	NAME
1	For low-reverse brake
2	For underdrive clutch
3	For second brake
4	For overdrive clutch



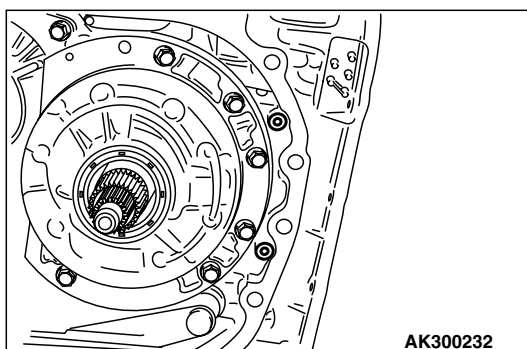
17.Remove the manual control lever shaft roller.

18.Remove the manual control lever shaft and the parking pawl rod.

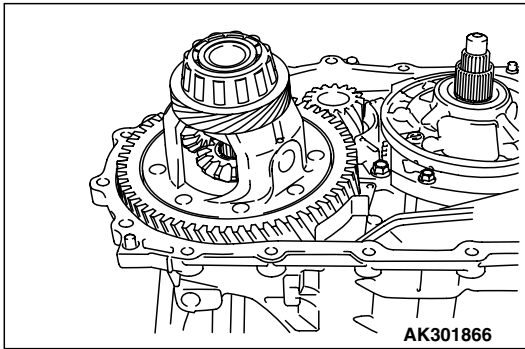


19.Remove the torque converter housing mounting bolts (eighteen pieces), and then remove the torque converter housing.

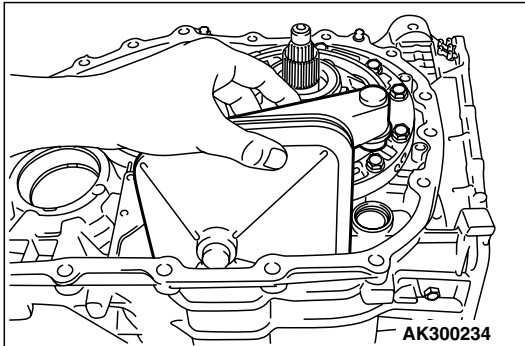
20.Remove the differential bearing outer race and spacer from the torque converter housing.



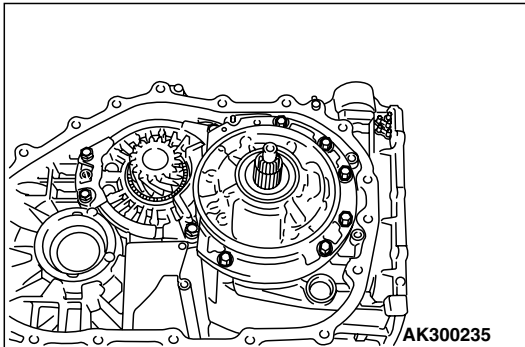
21.Remove the O-rings (two pieces).



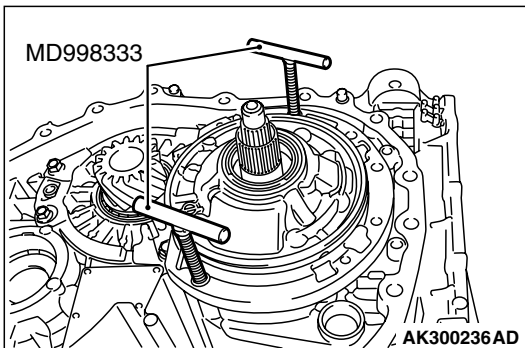
22. Remove the differential.



23. Remove the oil filter.



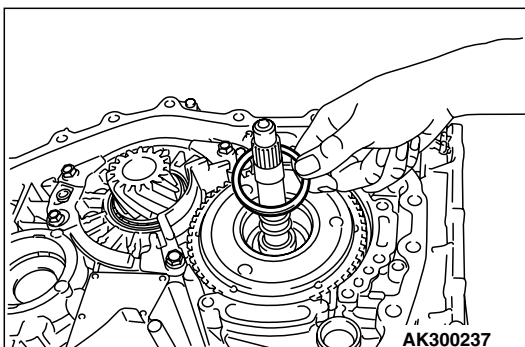
24. Remove the oil pump mounting bolts (six pieces).



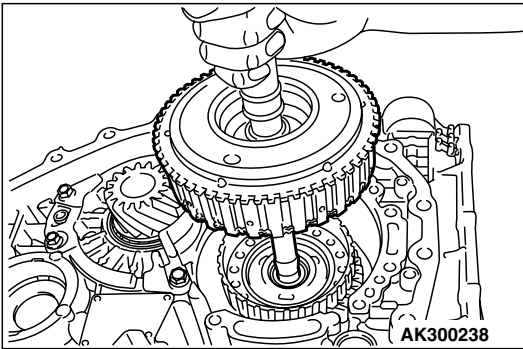
25. Install special tool MD998333 in the position shown in the illustration.

26. Turn special tool MD998333 to remove the oil pump.

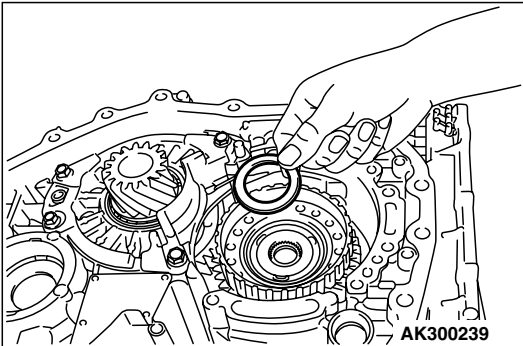
27. Remove the oil pump gasket.



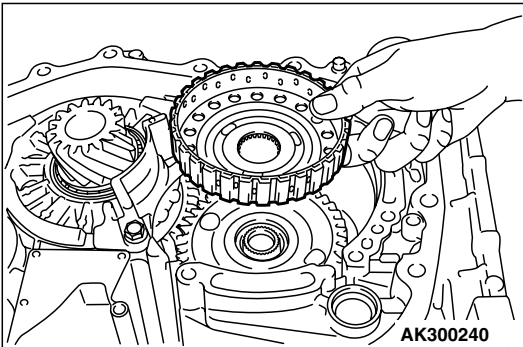
28. Remove thrust washer number 1.



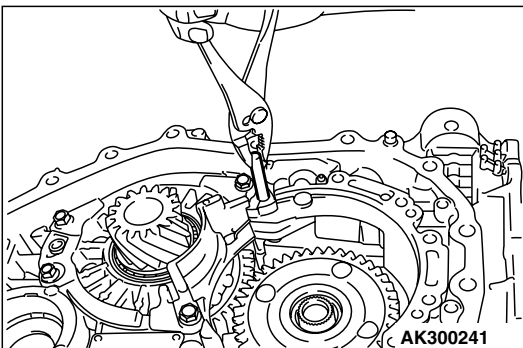
29. Holding the input shaft, remove the underdrive clutch and input shaft.



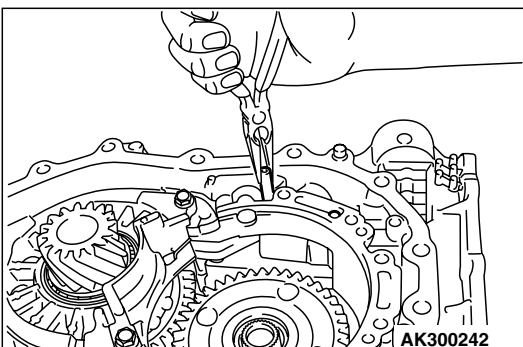
30. Remove thrust bearing number 2.



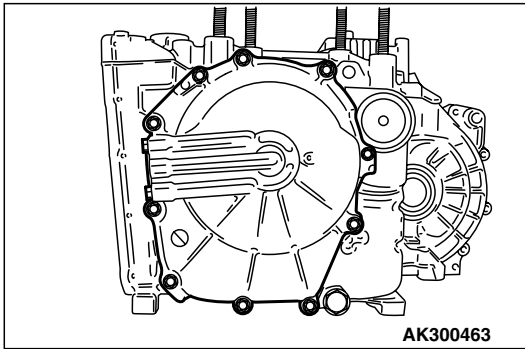
31. Remove the underdrive clutch hub.



32. Remove the parking pawl shaft, and then remove the spacer and spring.



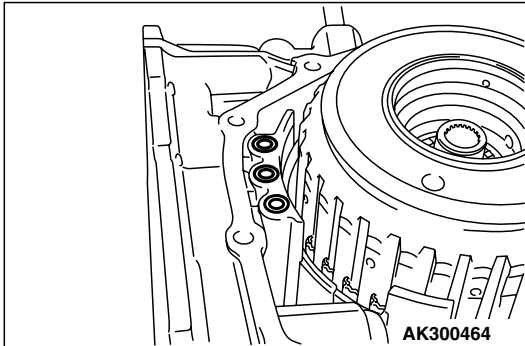
33. Remove the parking roller support shafts (two pieces), and then remove the parking pawl and parking roller support.



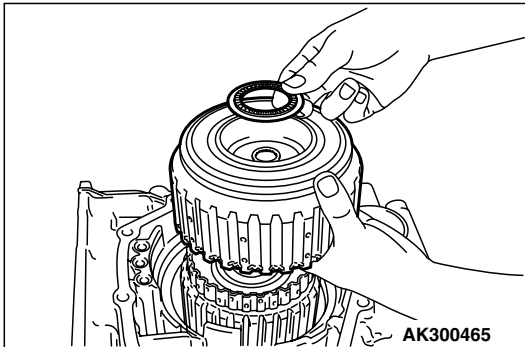
34. Remove the rear cover and input shaft rear bearing.

35. Remove thrust race number 8.

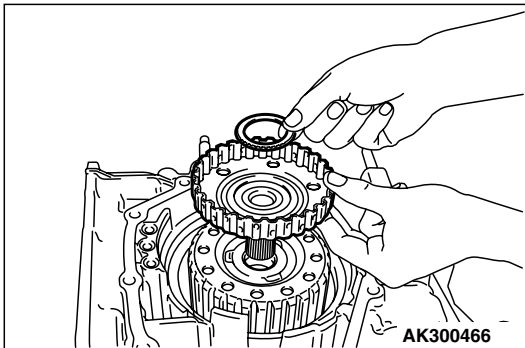
36. Remove the seal rings (four pieces).



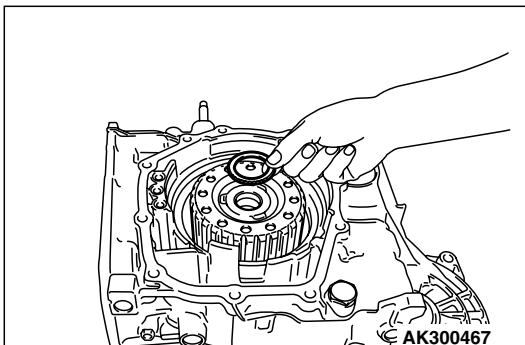
37. Remove the O-rings (three pieces).



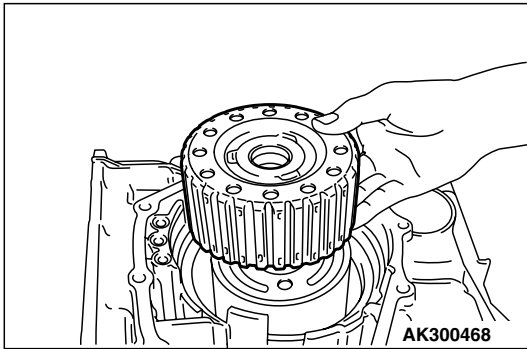
38. Remove the reverse and overdrive clutch and thrust bearing number 7.



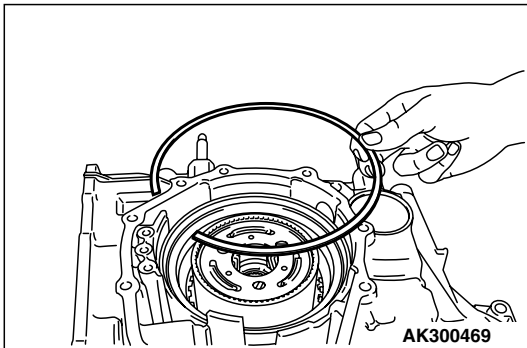
39. Remove overdrive clutch hub and thrust bearing number 6.



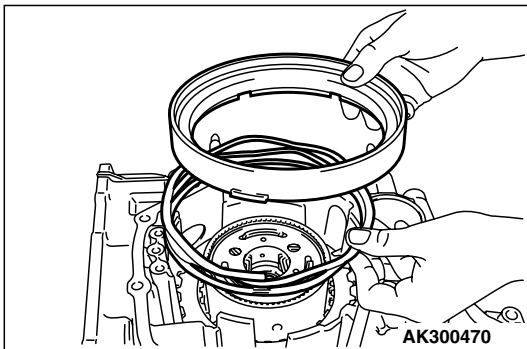
40. Remove thrust bearing number 5.



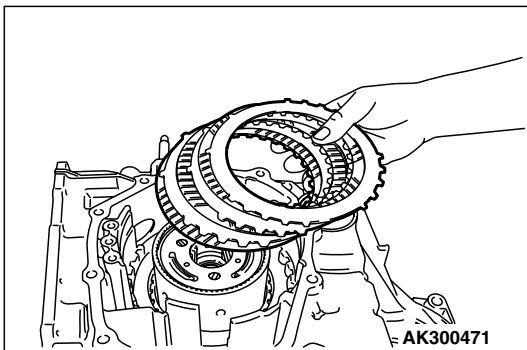
41. Remove the planetary reverse sun gear.



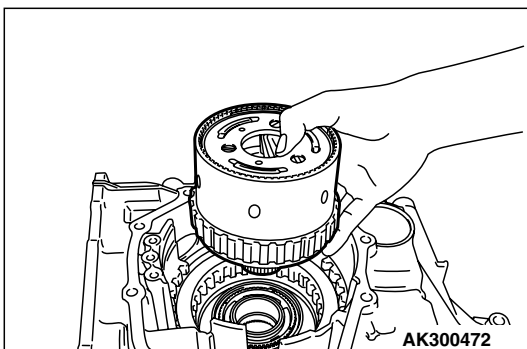
42. Remove the snap ring.



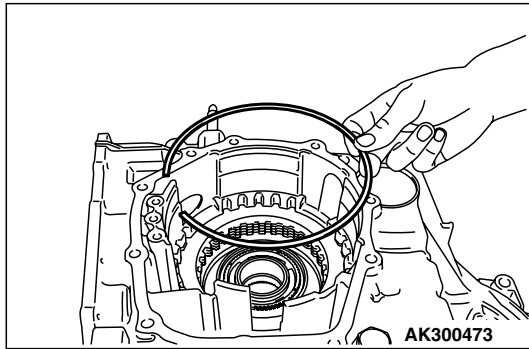
43. Remove the second brake piston and the return spring.



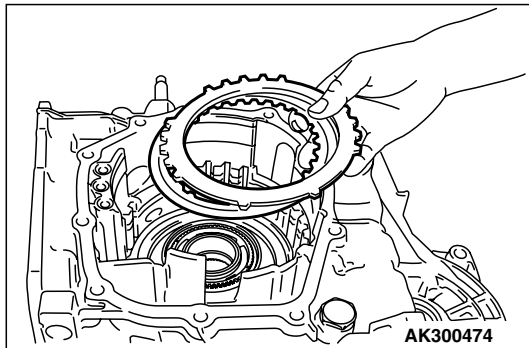
44. Remove the pressure plate, second brake discs (three pieces) and second brake plates (two pieces).



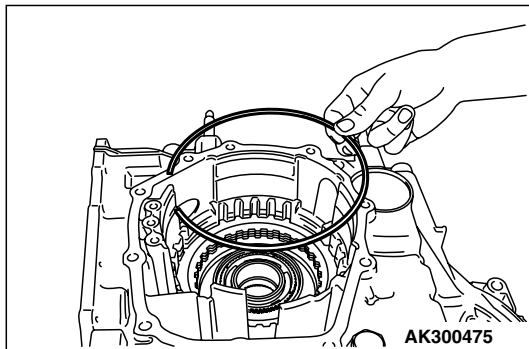
45. Remove the planetary carrier assembly.



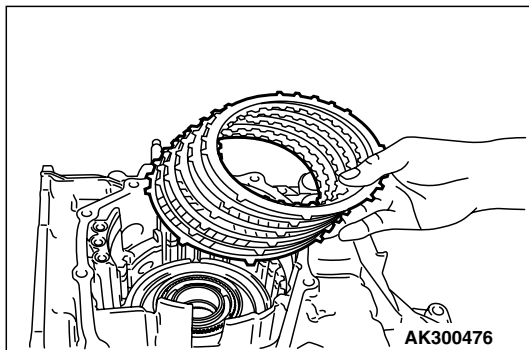
46. Remove the snap ring.



47. Remove the reaction plate and the brake disc.

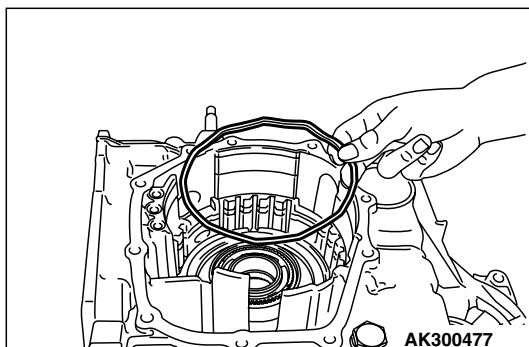


48. Remove the snap ring.

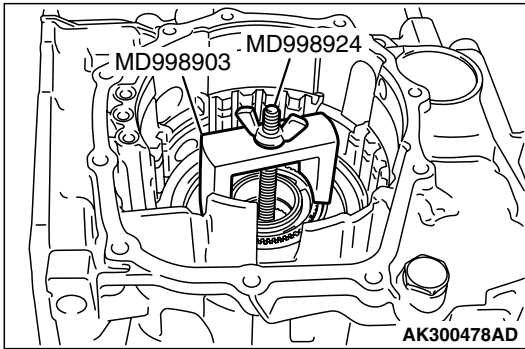


49. Remove the brake plates (five pieces), brake discs (six pieces) and pressure plate.

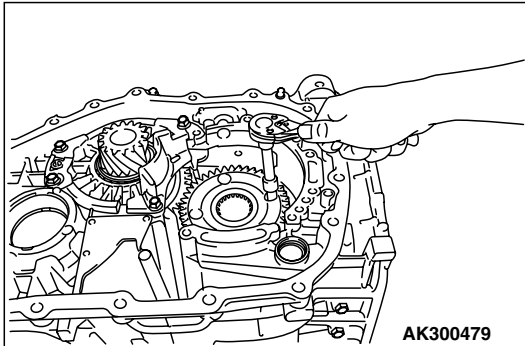
*NOTE: *Includes the brake discs removed in step 48.*



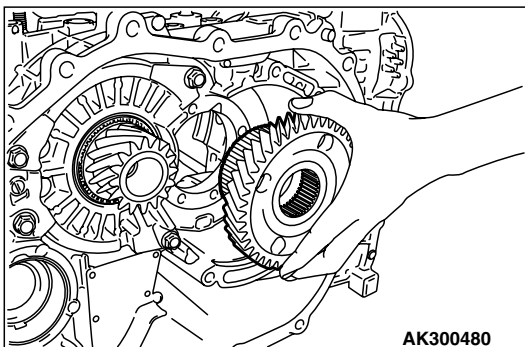
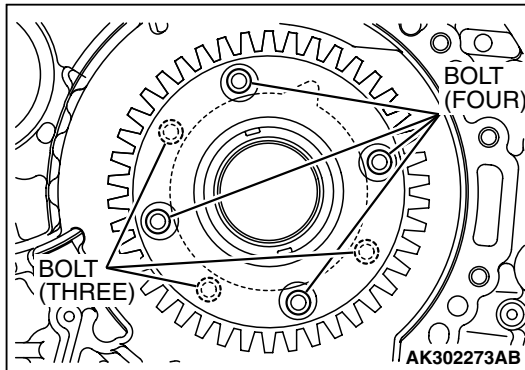
50. Remove the wave spring.



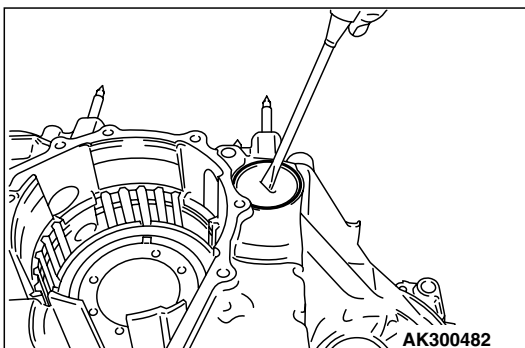
51. Remove the one-way clutch inner race and low-reverse brake piston as follows:
- (1) Using special tools MD998903 and MD998924, compress the one-way clutch inner race.
 - (2) Remove the snap ring.
 - (3) Remove the special tools.
 - (4) Remove the one-way clutch inner race, O-ring, spring retainer, return spring and low-reverse brake piston.



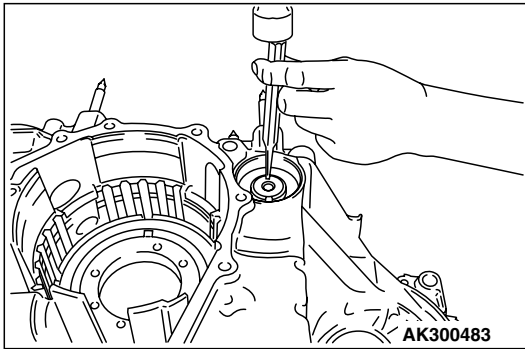
52. Remove the transfer drive gear bearing mounting bolts (three or four pieces). Then, turn the gear 1/8 turn (45 degrees) and remove the remaining bolts.



53. Remove the transfer drive gear.



54. Remove the cap by inserting a screwdriver into the center of the cap and prying it up.

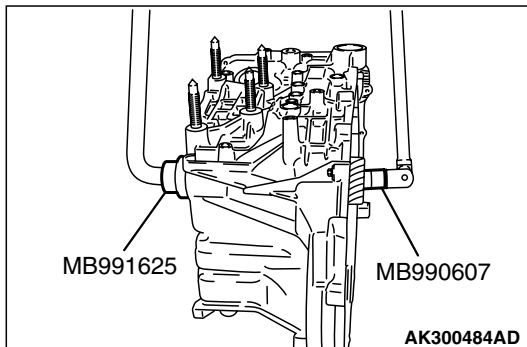


55. Using a chisel, straighten the staked portions from the output shaft lock nut.

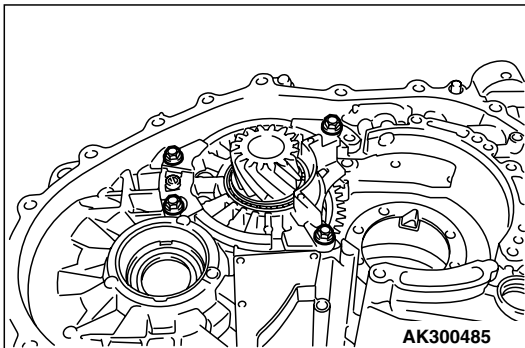
⚠ CAUTION

The lock nut is reverse threaded.

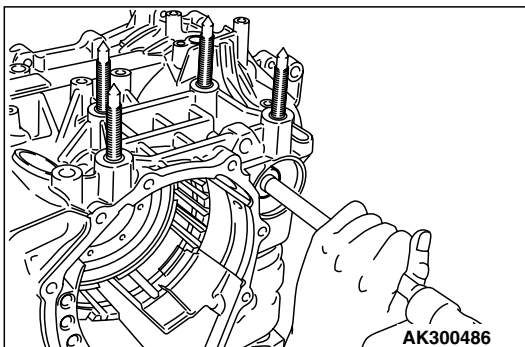
56. Use special tools MB991625 and MB990607 to remove the output shaft lock nut.

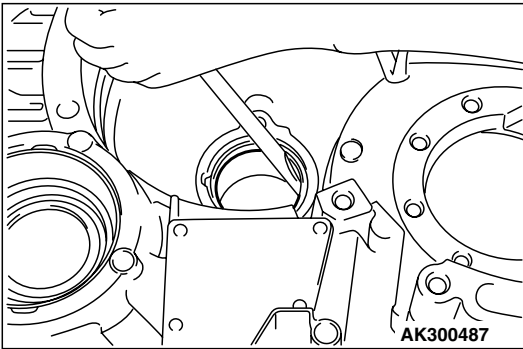


57. Remove the bearing retainer mounting bolts.



58. Tap on the rear end of the output shaft to remove the output shaft, taper roller bearing and collar.





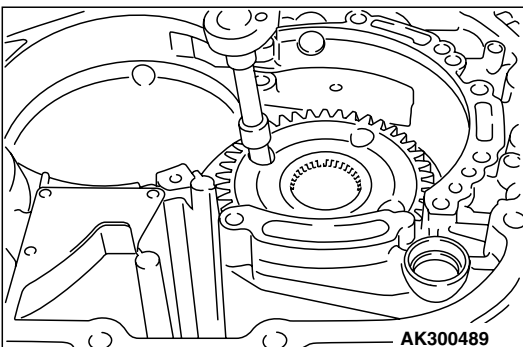
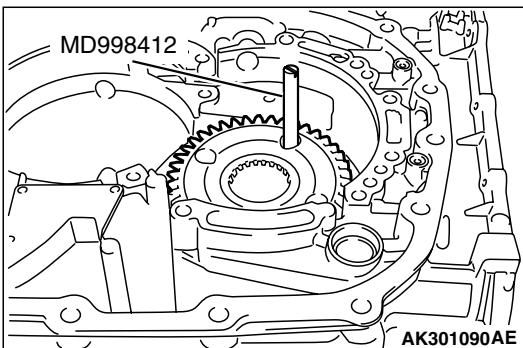
59. Tap out the outer race and the spacer.
60. Remove the snap ring.
61. Remove the differential bearing outer race from the transaxle case.

ASSEMBLY

⚠ CAUTION

- Do not reuse the gasket, O-ring, oil seal. Always replace with a new one when assembling.
- Do not use grease. Use petroleum jelly (i.e. Vaseline).
- Apply ATF to friction components, rotating parts, and sliding parts before installation. Immerse new clutch discs or brake discs in ATF for at least two hours before assembling them.
- When replacing a bushing, replace the assembly which it belongs to.
- Do not use cloth gloves or shop towels during assembly. Use nylon cloth or other lint-free material.

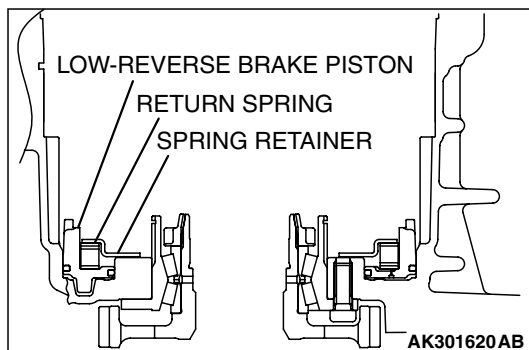
1. Install special tool MD998412 in the installation screw hole of the transfer drive gear bearing located in the transaxle case. Using this as a guide, install the transfer drive gear bearing and gear in the transaxle case.



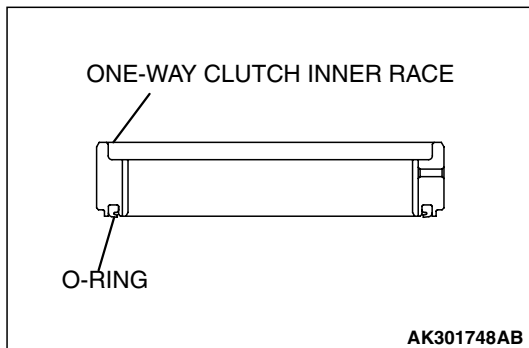
2. Tighten the mounting bolts (seven pieces) of the transfer drive gear bearing to the specified torque.

Tightening torque:

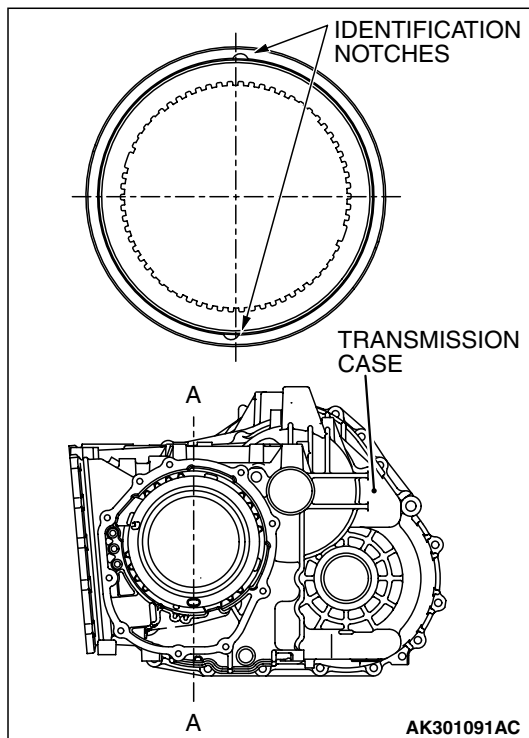
34 ± 2 N·m (25 ± 1 ft-lb)



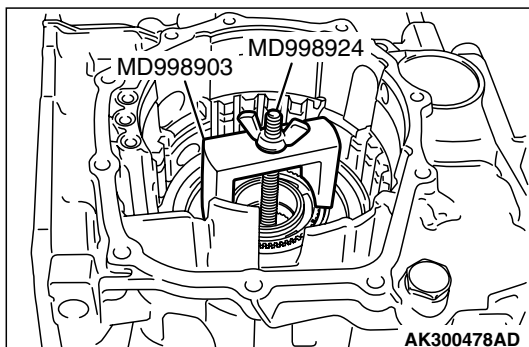
3. Install the low-reverse brake piston, return spring, and spring retainer into the transaxle case.



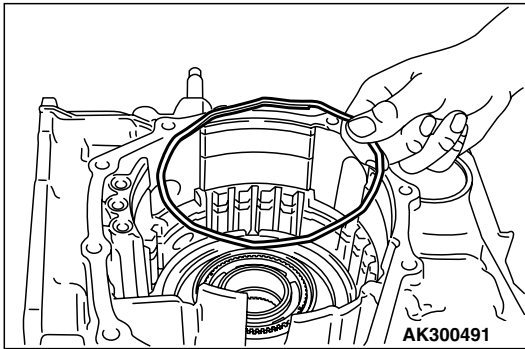
4. Install a new O-ring into the groove of one-way clutch inner race.



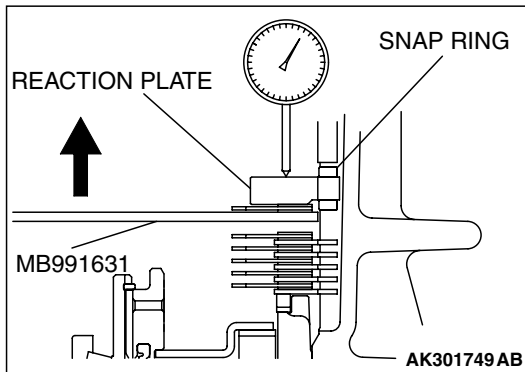
5. Check the placement of the identification notches in the one-way clutch inner race. Install the one-way clutch inner race to the transfer drive gear bearing so that the notches fall along the A – A line.



6. Put the snap ring on the inner race.
7. Set special tools MD998903 and MD998924 as shown, and then compress the one-way clutch inner race and install the snap ring.



8. Install the wave spring onto the low-reverse brake piston.



9. Install the brake discs (six pieces), brake plates (five pieces) and snap ring as shown in the illustration.

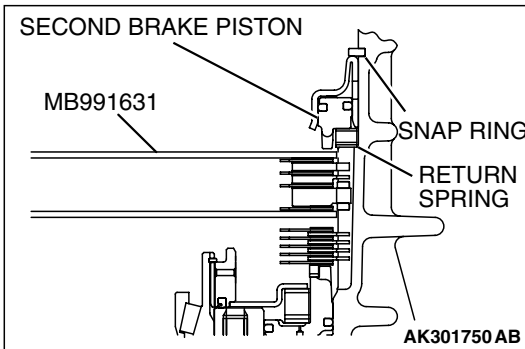
NOTE: Do not install the pressure plate at this time.

10. Install special tool MB991631 on the brake disc.

11. Install the reaction plate and the used snap ring.

12. Move special tool MB991631 to measure the end play of reaction plate. Then replace the snap ring installed in step 11 to adjust the end play to standard value.

Standard value: 0 – 0.16 mm (0 – 0.0063 inch)

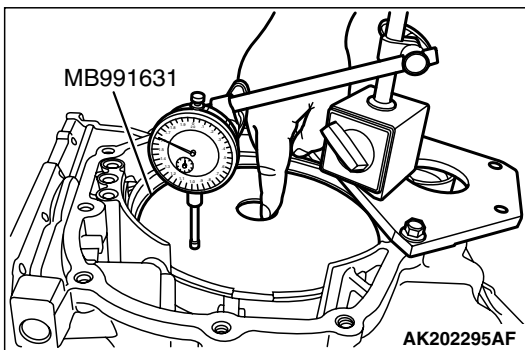


13. Install the brake discs (three pieces) and brake plates (two pieces) as shown in the illustration.

NOTE: Do not install the pressure plate at this time.

14. Place special tool MB991631 on top of the brake disc in place of the pressure plate.

15. Install the return spring, second brake piston and snap ring.



16. Move special tool MB991631 and measure its movement.

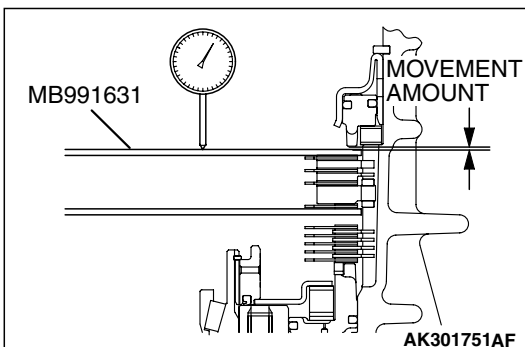
Standard value of end play (Reference):

0.79 – 1.25 mm (0.0311 – 0.0492 inch)

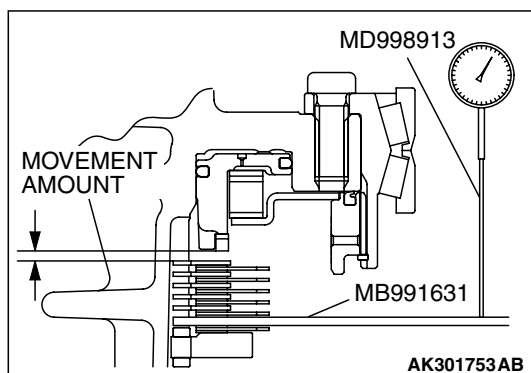
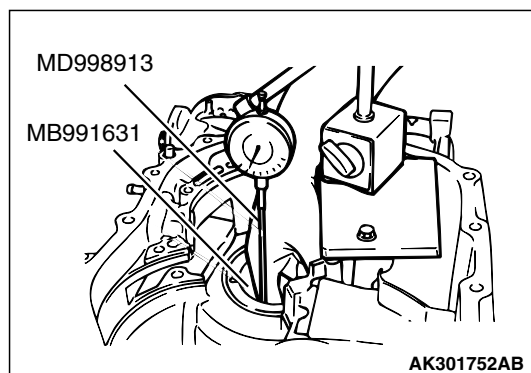
17. Select a pressure plate whose thickness corresponds to the measured amount of movement from the following table.

PRESSURE PLATE FOR SECOND BRAKE

MOVEMENT AMOUNT mm (in)	THICKNESS mm (in)	ID SYMBOL
0.6 – 0.8 (0.024 – 0.031)	1.6 (0.063)	L
0.8 – 1.0 (0.031 – 0.039)	1.8 (0.071)	1
1.0 – 1.2 (0.039 – 0.047)	2.0 (0.079)	0



MOVEMENT AMOUNT mm (in)	THICKNESS mm (in)	ID SYMBOL
1.2 – 1.4 (0.047 – 0.055)	2.2 (0.087)	2
1.4 – 1.6 (0.055 – 0.063)	2.4 (0.094)	4
1.6 – 1.8 (0.063 – 0.071)	2.6 (0.102)	6



18. Turn the transaxle over so that the installation surface of the torque converter housing is facing up.

Install special tool MD998913 in a dial gauge, and then move special tool MB991631 and measure its movement.

Standard value of end play (Reference):

1.65 – 2.11 mm (0.0649 – 0.0831 inch)

19. Select a pressure plate whose thickness corresponds to the measured amount of movement from the table below.

PRESSURE PLATE FOR LOW-REVERSE BRAKE

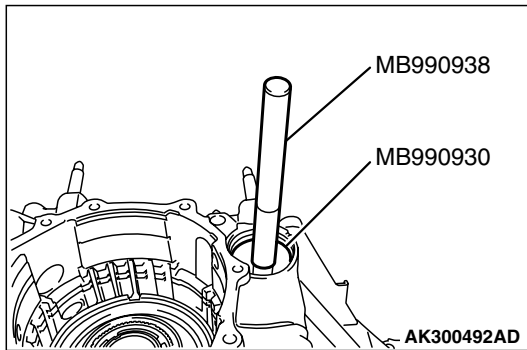
MOVEMENT AMOUNT mm (in)	THICKNESS mm (in)	ID SYMBOL
1.3 – 1.5 (0.051 – 0.059)	1.6 (0.063)	L
1.5 – 1.7 (0.059 – 0.067)	1.8 (0.071)	1
1.7 – 1.9 (0.067 – 0.075)	2.0 (0.079)	0
1.9 – 2.1 (0.075 – 0.083)	2.2 (0.087)	2
2.1 – 2.3 (0.083 – 0.091)	2.4 (0.094)	4
2.3 – 2.5 (0.091 – 0.098)	2.6 (0.102)	6
2.5 – 2.7 (0.098 – 0.106)	2.8 (0.110)	8
2.7 – 2.9 (0.106 – 0.114)	3.0 (0.118)	D

⚠ CAUTION

If necessary, take the measurements in steps 9 to 18 after replacing the pressure plate, brake plate and brake disc.

20. Remove all parts and special tools that were installed to take the measurements in steps 9 to 18. Remove and separate the pressure plate and snap ring chosen in steps 12, 16 and 18.

21. Install the snap ring into the groove of transaxle case output shaft bore.
22. Use special tools MB990930 and MB990938 to tap the output shaft bearing outer race in the transaxle case.

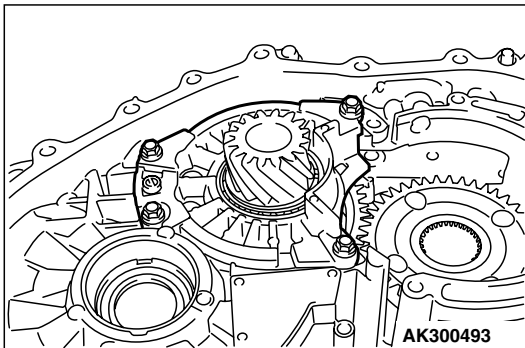


⚠ CAUTION

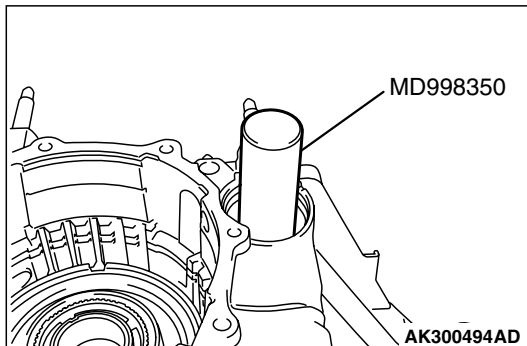
Do not reuse the bolt, as it has had sealant applied.

23. Tighten the mounting bolts of the output shaft bearing retainer to the specified torque.

Tightening torque:
 $29 \pm 2 \text{ N}\cdot\text{m}$ ($21 \pm 1 \text{ ft}\cdot\text{lb}$)



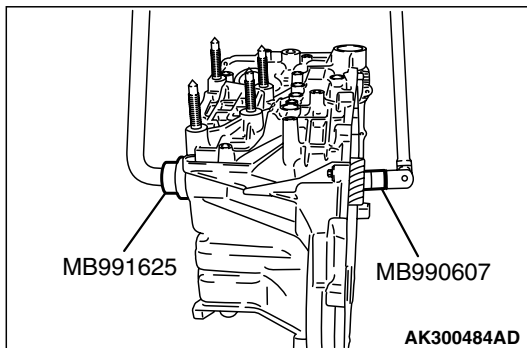
24. Use special tool MD998350 to install the collar and taper roller bearing on the output shaft.

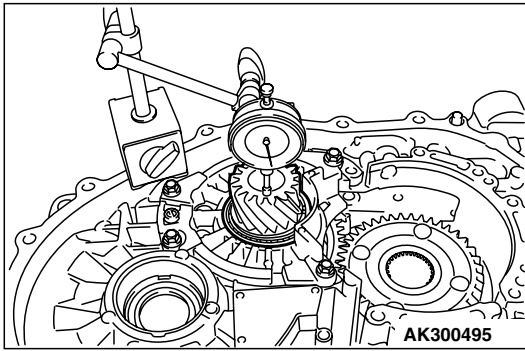


25. Apply ATF to a new lock nut, and use special tools MB990607 and MB991625 to tighten the lock nut to the specified torque. Then turn back one turn, and tighten to the specified torque again.

Tightening torque: $170 \pm 10 \text{ N}\cdot\text{m}$ ($125 \pm 7 \text{ ft}\cdot\text{lb}$)

NOTE: The lock nut is reverse threaded.





26. Move the output shaft to measure the end play and record the measurement value.

**Standard value of output shaft end play (reference):
0.01 – 0.09 mm (0.0004 – 0.0035 inch)**

27. Remove the parts that were installed in steps 22 to 25.

28. Select a spacer whose thickness corresponds to the measured amount of movement from the following table.

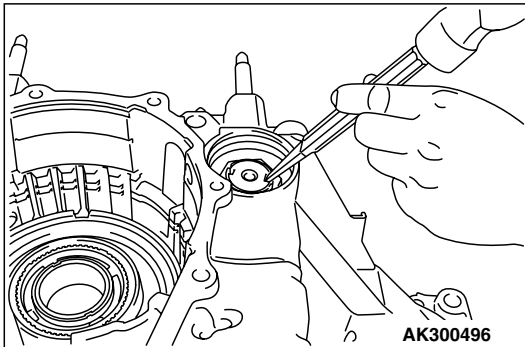
SPACER FOR OUTPUT SHAFT

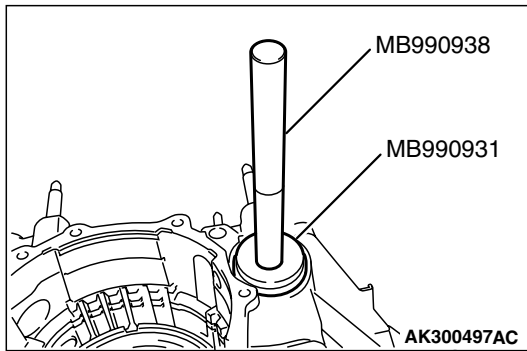
MOVEMENT AMOUNT mm (in)	THICKNESS mm (in)	ID SYMBOL
1.81 – 1.85 (0.0713 – 0.0728)	1.88 (0.0740)	88
1.85 – 1.89 (0.0728 – 0.0744)	1.92 (0.0756)	92
1.89 – 1.93 (0.0744 – 0.0760)	1.96 (0.0772)	96
1.93 – 1.97 (0.0760 – 0.0776)	2.00 (0.0787)	00
1.97 – 2.01 (0.0776 – 0.0791)	2.04 (0.0803)	04
2.01 – 2.05 (0.0791 – 0.0807)	2.08 (0.0819)	08
2.05 – 2.09 (0.0807 – 0.0823)	2.12 (0.0835)	12
2.09 – 2.13 (0.0823 – 0.0839)	2.16 (0.0850)	16
2.13 – 2.17 (0.0839 – 0.0854)	2.20 (0.0866)	20
2.17 – 2.21 (0.0854 – 0.0870)	2.24 (0.0882)	24
2.21 – 2.25 (0.0870 – 0.0886)	2.28 (0.0898)	28
2.25 – 2.29 (0.0886 – 0.0902)	2.32 (0.0913)	32
2.29 – 2.33 (0.0902 – 0.0917)	2.36 (0.0929)	36
2.33 – 2.37 (0.0917 – 0.0933)	2.40 (0.0945)	40
2.37 – 2.41 (0.0933 – 0.0949)	2.44 (0.0961)	44
2.41 – 2.45 (0.0949 – 0.0965)	2.48 (0.0976)	48

MOVEMENT AMOUNT mm (in)	THICKNESS mm (in)	ID SYMBOL
2.45 – 2.49 (0.0965 – 0.0980)	2.52 (0.0992)	52
2.49 – 2.53 (0.0980 – 0.0996)	2.56 (0.1008)	56
2.53 – 2.57 (0.0996 – 0.1012)	2.60 (0.1024)	60
2.57 – 2.61 (0.1012 – 0.1028)	2.64 (0.1039)	64
2.61 – 2.65 (0.1028 – 0.1043)	2.68 (0.1055)	68
2.65 – 2.69 (0.1043 – 0.1059)	2.72 (0.1071)	72
2.69 – 2.73 (0.1059 – 0.1075)	2.76 (0.1087)	76

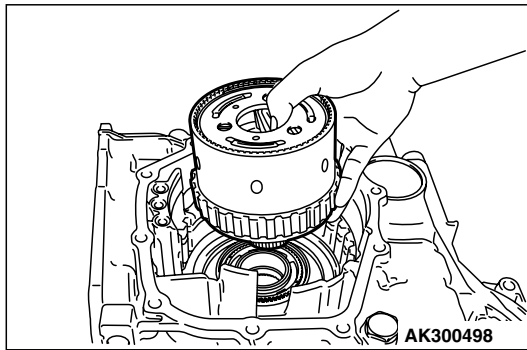
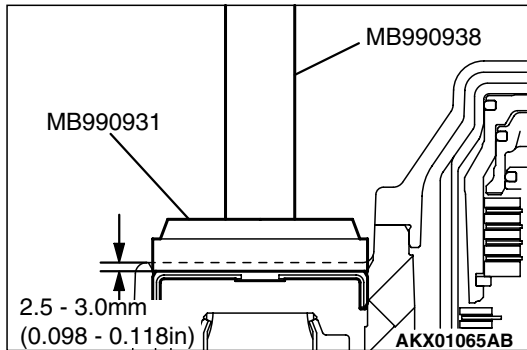
29.Repeat steps 22 to 25 again, installing each part and using the appropriate adjustment spacer determined in step 28.

30.Stake the lock nut with a punch (two places).

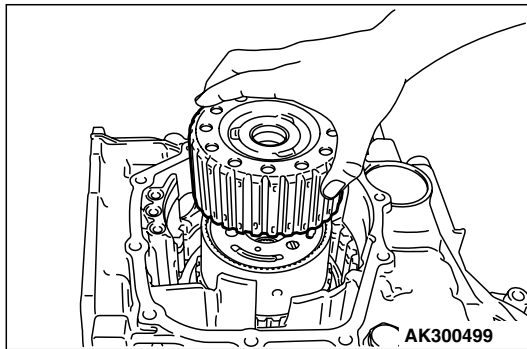




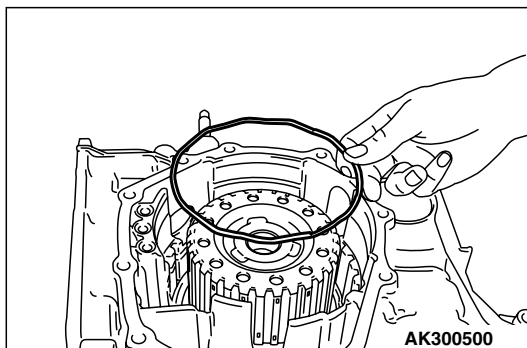
31. Use special tools MB990931 and MB990938 to install the cap as shown in the illustration.



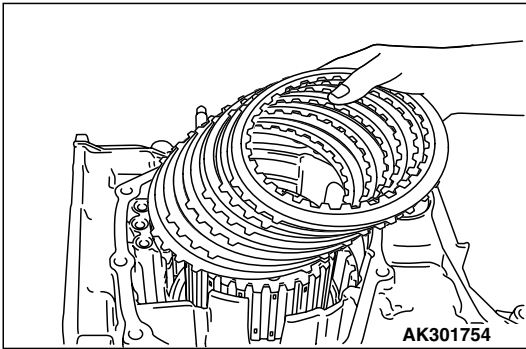
32. Install the planetary carrier assembly.



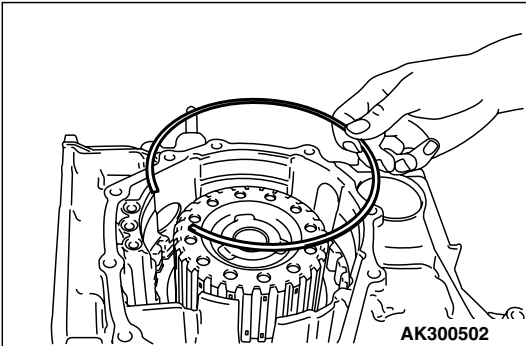
33. Install the planetary reverse sun gear.



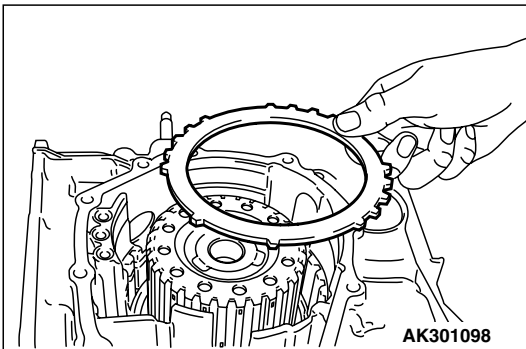
34. Install the wave spring on the low-reverse brake piston.



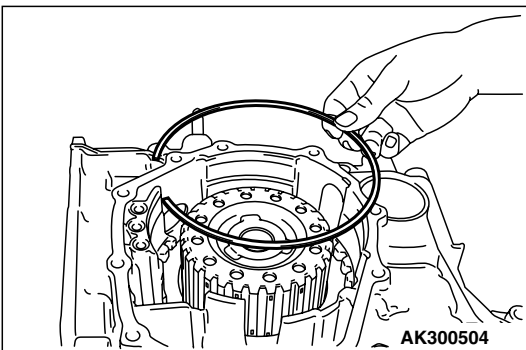
35. Install the pressure plate that was selected in step 19. Next, install brake discs (six pieces) and brake plates (five pieces), one on top of the other.



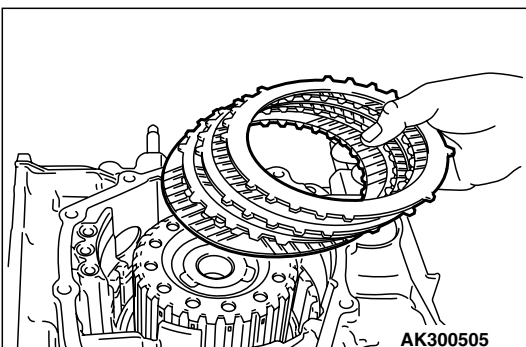
36. Install the snap ring.



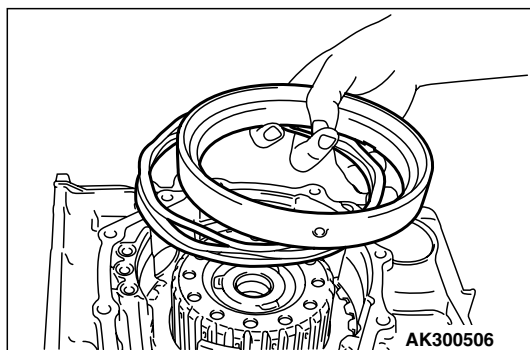
37. Install the reaction plate.



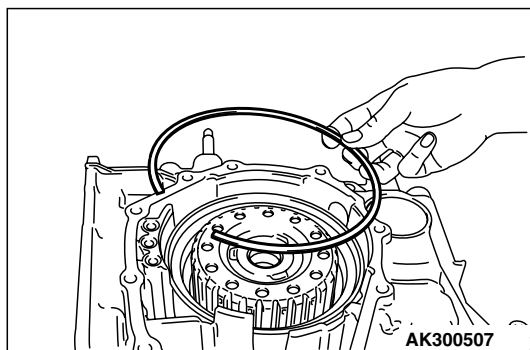
38. Install the snap ring that was selected in step 12.



39. Install second brake discs (three pieces) and second brake plates (two pieces), one on top of the other. Next, install the pressure plate that was selected in step 17.

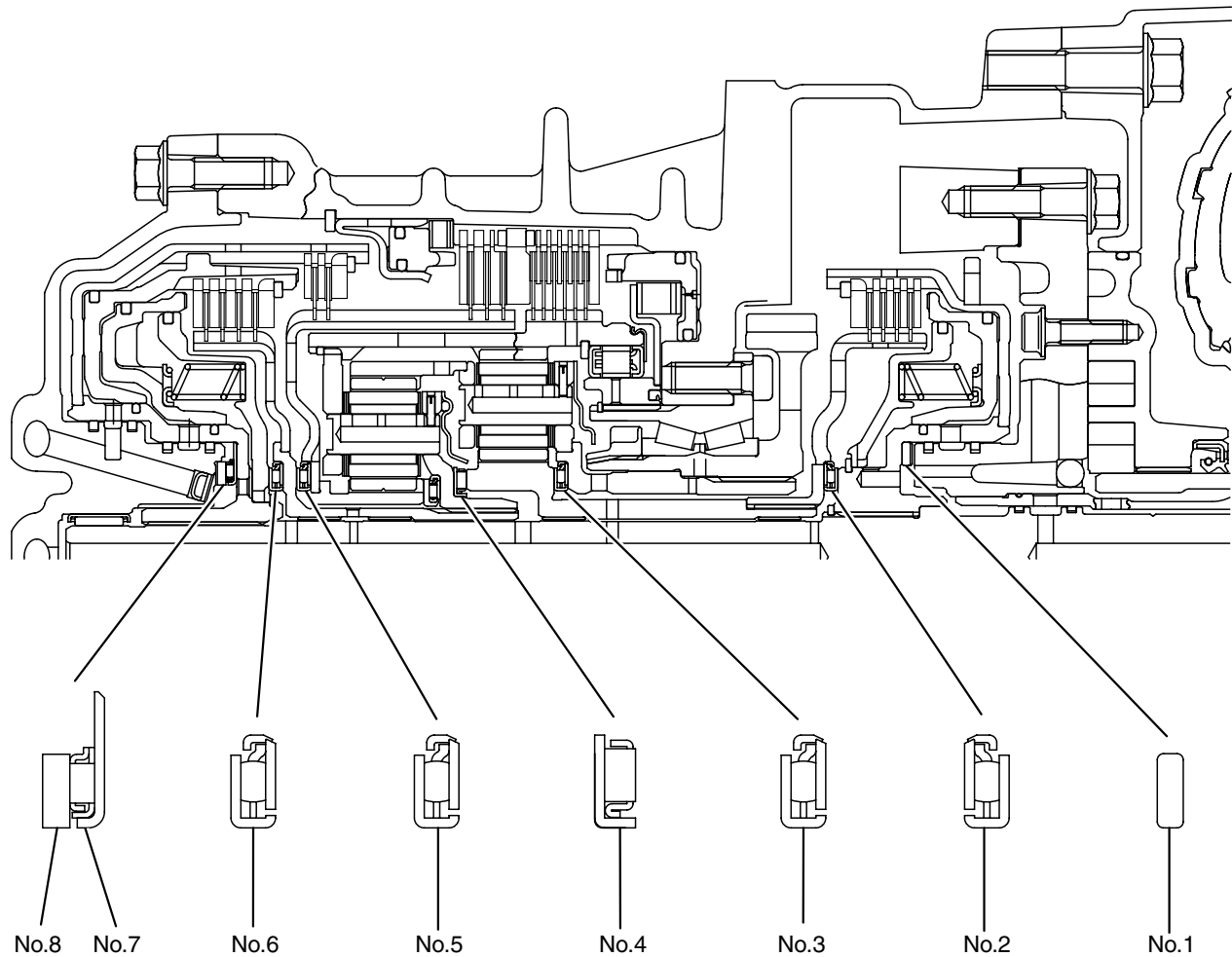


40. Install the return spring and second brake piston.



41. Install the snap ring.

IDENTIFICATION OF THRUST BEARING, THRUST RACES, AND THRUST WASHERS



AK301755 AB

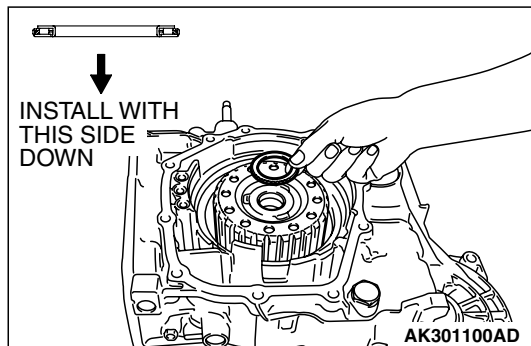
SYMBOL	OD mm (in)	ID mm (in)	THICKNESS mm (in)	SYMBOL	OD mm (in)	ID mm (in)	THICKNESS mm (in)
No. 1	59 (2.32)	47 (1.85)	1.8 (0.071)	No. 8	48.9 (1.925)	37 (1.46)	1.6 (0.063)
	59 (2.32)	47 (1.85)	2.0 (0.079)		48.9 (1.925)	37 (1.46)	1.7 (0.067)
	59 (2.32)	47 (1.85)	2.2 (0.087)		48.9 (1.925)	37 (1.46)	1.8 (0.071)
	59 (2.32)	47 (1.85)	2.4 (0.094)		48.9 (1.925)	37 (1.46)	1.9 (0.075)
	59 (2.32)	47 (1.85)	2.6 (0.102)		48.9 (1.925)	37 (1.46)	2.0 (0.079)
	59 (2.32)	47 (1.85)	2.8 (0.110)		48.9 (1.925)	37 (1.46)	2.1 (0.083)
No. 2	49 (1.93)	34 (1.34)	3.6 (0.142)	No. 8	48.9 (1.925)	37 (1.46)	2.2 (0.087)
No. 3	49 (1.93)	34 (1.34)	3.6 (0.142)		48.9 (1.925)	37 (1.46)	2.3 (0.091)
No. 4	46 (1.81)	31 (1.22)	3.3 (0.130)	No. 8	48.9 (1.925)	37 (1.46)	2.4 (0.094)
					48.9 (1.925)	37 (1.46)	2.4 (0.094)

SYMBOL	OD mm (in)	ID mm (in)	THICKNESS mm (in)	SYMBOL	OD mm (in)	ID mm (in)	THICKNESS mm (in)
No. 5	49 (1.93)	34 (1.34)	3.6 (0.142)		48.9 (1.925)	37 (1.46)	2.5 (0.098)
No. 6	49 (1.93)	34 (1.34)	3.6 (0.142)		48.9 (1.925)	37 (1.46)	2.6 (0.102)
No. 7	59 (2.32)	37 (1.46)	2.8 (0.110)				

⚠ CAUTION

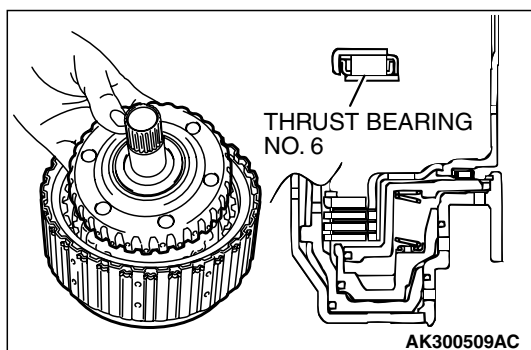
Be sure to install the thrust bearing in the correct direction as shown.

42. Check the installation direction of the thrust bearing number 5, and install it on the hub of the planetary reverse sun gear.

**⚠ CAUTION**

Use care to install the thrust bearing in the proper direction.

43. Attach thrust bearing number 6 to the inside of the overdrive clutch hub using petroleum jelly (Vaseline). Then install the assembly in the reverse and overdrive clutch.

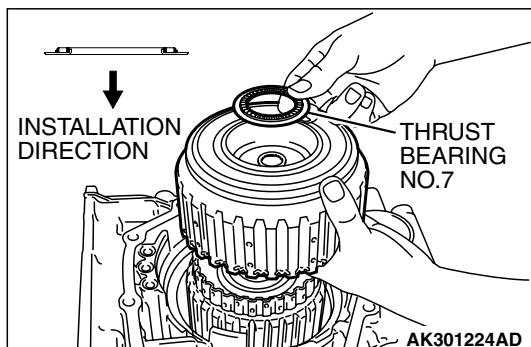


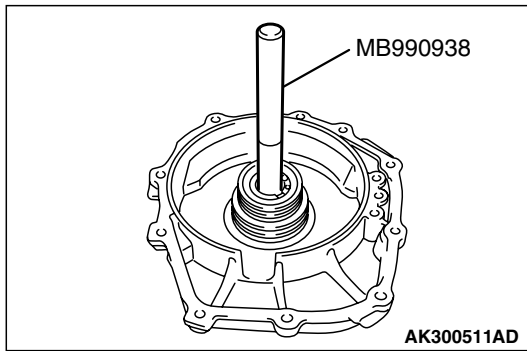
44. Install the reverse and overdrive clutch.

⚠ CAUTION

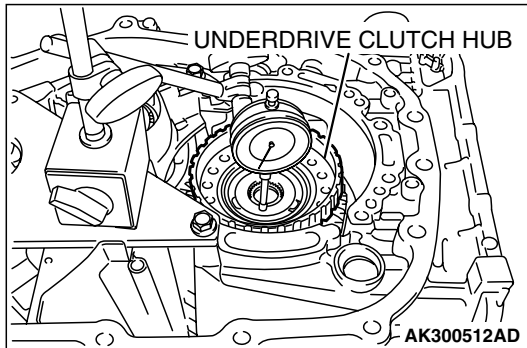
Be sure to install the thrust bearing in the correct direction as shown.

45. Check the installation direction of thrust bearing number 7, and install it on the reverse clutch retainer.





46. Use special tool MB990938 to tap the input shaft rear bearing in the rear cover.
47. Install the seal rings (four pieces) in the grooves of the rear cover.



48. Measure the end play of the under drive sun gear by the following procedures:

- (1) Install the thinnest thrust race number 8 [thickness 1.6 mm (0.063 inch); part number MD707267] on thrust bearing number 7.
- (2) Install the rear cover on the transaxle case and tighten the bolts to the specified torque.

Tightening torque: 23 ± 3 N·m (17 ± 2 ft-lb)

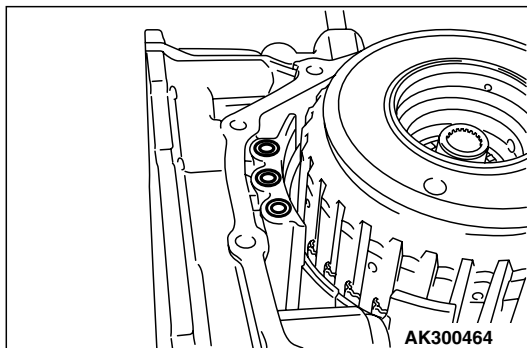
- (3) Turn over the transaxle case so that the installation surface of the torque converter housing is facing up.
- (4) Install the underdrive clutch hub on the underdrive sun gear.
- (5) Measure end play of the underdrive sun gear and record the measurement value.

Standard value (Reference):

0.25 – 0.45 mm (0.0098 – 0.0177 inch)

- (6) After taking the measurement in steps (5), take out the installed parts in steps (1) through (4).

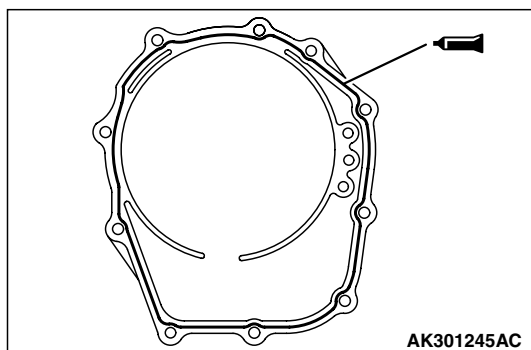
49. Install the O-rings (three pieces).



50. Select a thrust race number 8 whose thickness corresponds to the measured values taken in step 47 from the table below. Install it on thrust bearing number 7.

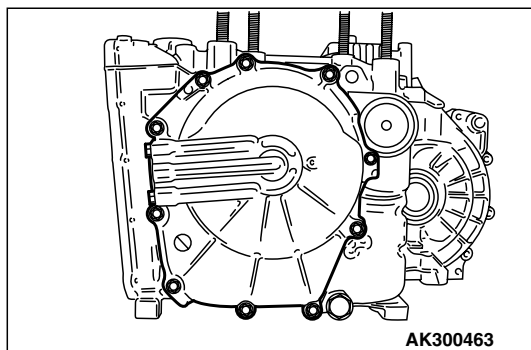
MEASUREMENT VALUE mm (in)	THICKNESS mm (in)
0.3 – 0.4 (0.012 – 0.016)	1.6 (0.063)
0.4 – 0.5 (0.016 – 0.020)	1.7 (0.067)
0.5 – 0.6 (0.020 – 0.024)	1.8 (0.071)
0.6 – 0.7 (0.024 – 0.028)	1.9 (0.075)

MEASUREMENT VALUE mm (in)	THICKNESS mm (in)
0.7 – 0.8 (0.028 – 0.031)	2.0 (0.079)
0.8 – 0.9 (0.031 – 0.035)	2.1 (0.083)
0.9 – 1.0 (0.035 – 0.039)	2.2 (0.087)
1.0 – 1.1 (0.039 – 0.043)	2.3 (0.091)
1.1 – 1.2 (0.043 – 0.047)	2.4 (0.094)
1.2 – 1.3 (0.047 – 0.051)	2.5 (0.098)
1.3 – 1.4 (0.051 – 0.055)	2.6 (0.102)



51. Apply a 2 mm (0.08 inch) diameter bead of sealant (Mitsubishi Genuine Part number MD974421 or equivalent) to the illustrated position of the rear cover.

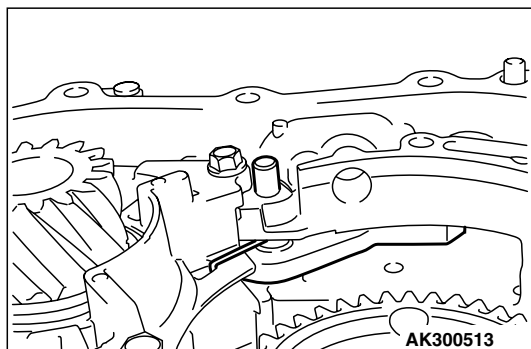
NOTE: Be sure to install the case quickly while the sealant is wet (within 15 minutes). Leaks will occur if the rear cover is installed after the sealant dries.



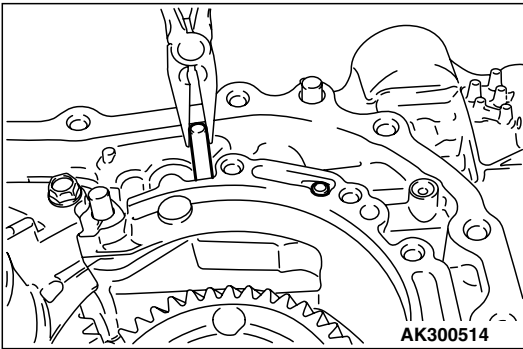
52. Install the rear cover, and tighten its mounting bolts to the specified torque.

Tightening torque: 23 ± 3 N·m (17 ± 2 ft-lb)

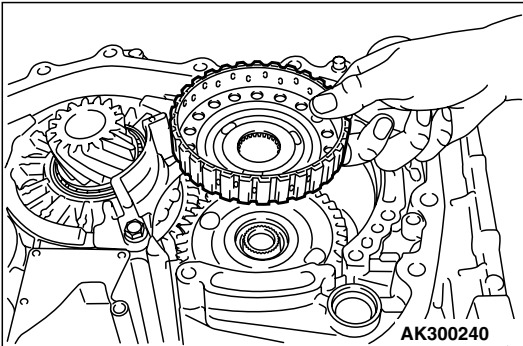
NOTE: After installation, keep the sealed area away from ATF for approximately one hour.



53. Install the parking pawl, spacer, and spring. Then insert the parking pawl shaft.



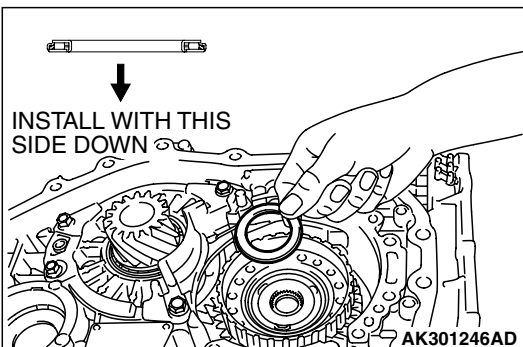
54. Install the parking roller support, and then insert the parking roller support shafts (two pieces).



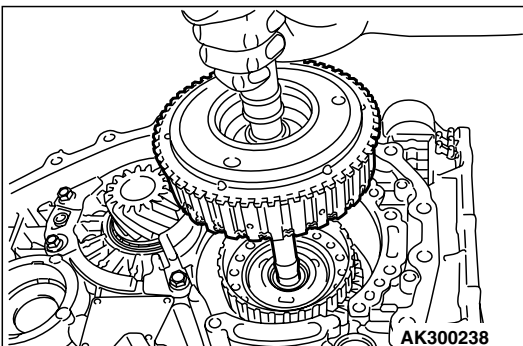
55. Install the underdrive clutch hub to the underdrive sun gear.

⚠ CAUTION

Be sure to install the thrust bearing in the correct direction as shown.

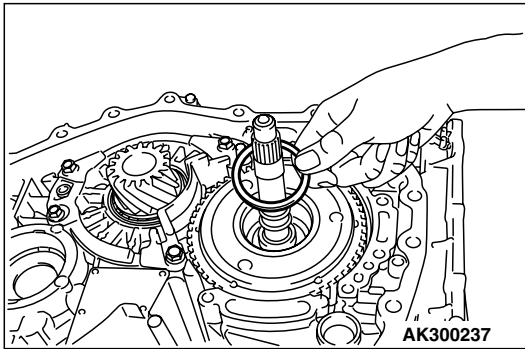


56. Check the installation direction of thrust bearing number 2, and install it on the underdrive clutch hub.

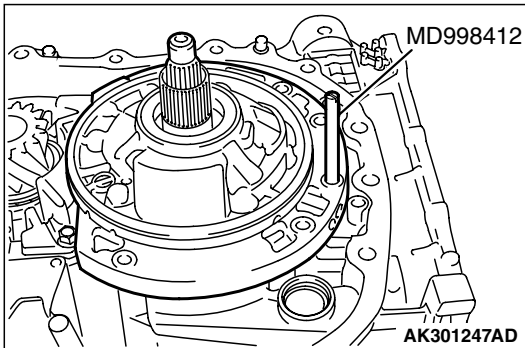


57. Hold the input shaft, and install the underdrive clutch.

58. Adjustment of input shaft end play and select the thrust washer number 1. (Refer to adjustment of transaxle - thrust washer selection for adjustment of input shaft end play [P.23B-45.](#))



59. Install thrust washer number 1 that was selected in step (58) on the underdrive clutch retainer.



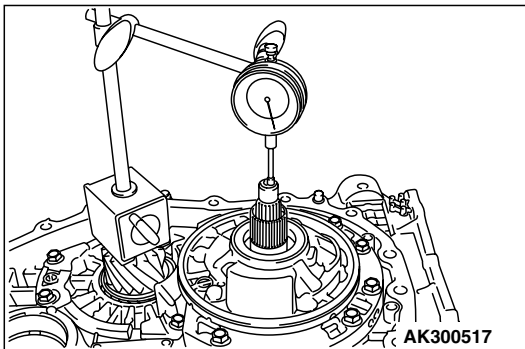
60. Install special tool MD998412 as shown.

61. Install the oil pump to the transaxle case.

NOTE: Do not install the oil pump gasket at this time.

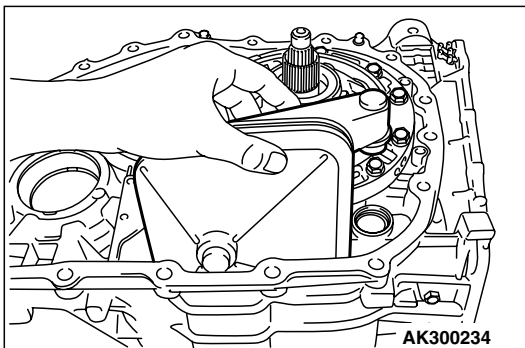
62. Tighten the six oil pump mounting bolts to the specified torque.

Tightening torque: 29 ± 2 N·m (21 ± 1 ft·lb)

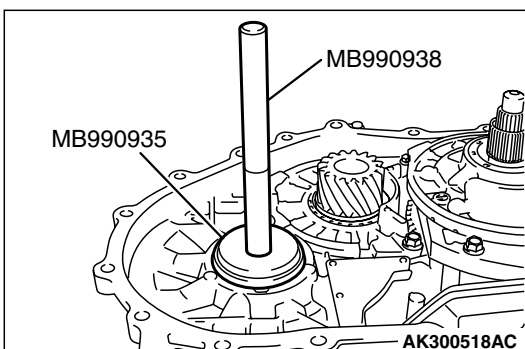


63. Make sure that the input shaft end play meets the standard value.

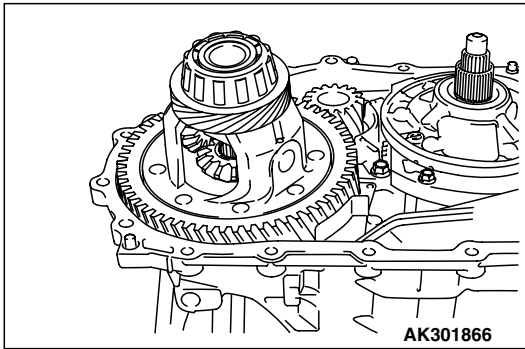
Standard value: 0.70 – 1.45 mm (0.028 – 0.057 inch)



64. Install the oil filter.



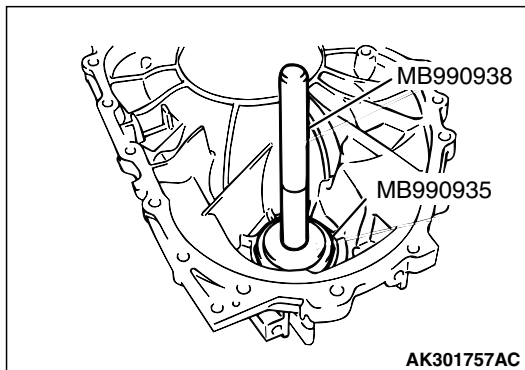
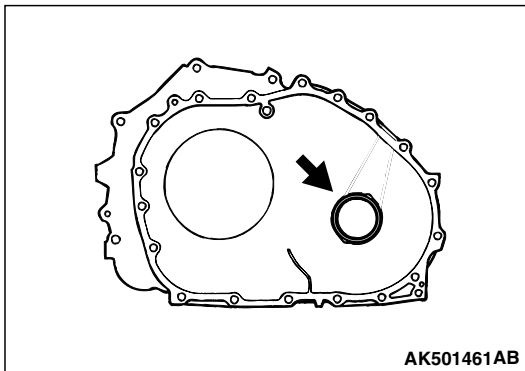
65. Use special tools MB990935 and MB990938 to tap the differential bearing outer race in the transaxle case.



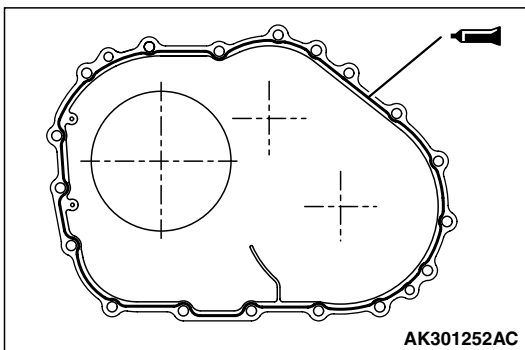
66. Install the differential.

67. Adjustment of differential case preload and select the spacer. (Refer to adjustment of transaxle - spacer selection for adjustment of differential case preload [P.23B-45.](#))

68. Install the selected spacer to the torque converter housing.



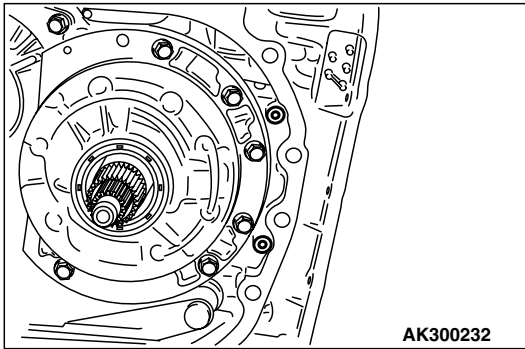
69. Use special tools MB990935 and MB990938 to press the differential bearing outer race into the torque converter housing.



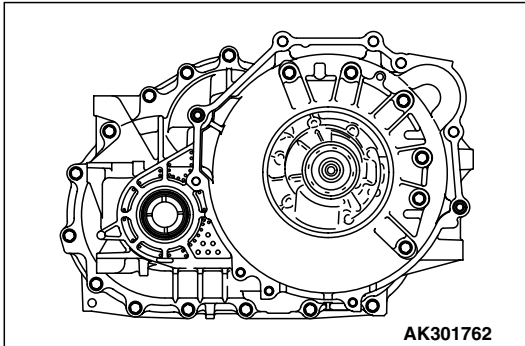
70. Apply a 2 mm (0.08 inch) diameter bead of sealant (Mitsubishi Genuine Part number MD974421 or equivalent) to the torque converter housing in the area shown.

NOTE: Be sure to install the case quickly while the sealant is wet (with 15 minutes). Leaks will occur if the rear cover is installed after the sealant dries.

NOTE: After installation, keep the sealed area away from ATF for approximately one hour.



71. Install the O-rings (two pieces).

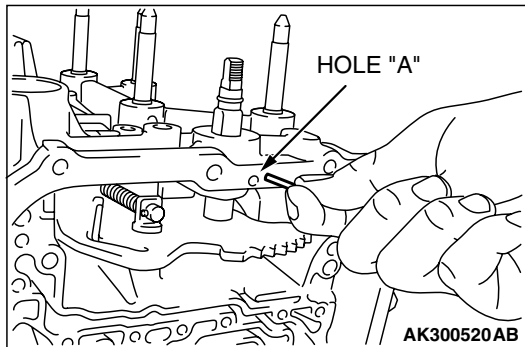


72. Install the torque converter housing and then tighten its mounting bolts (eighteen pieces) to the specified torque.

Tightening torque: 48 ± 6 N·m (36 ± 4 ft-lb)

73. Insert the O-rings (two pieces) into the grooves of the manual control lever shaft.

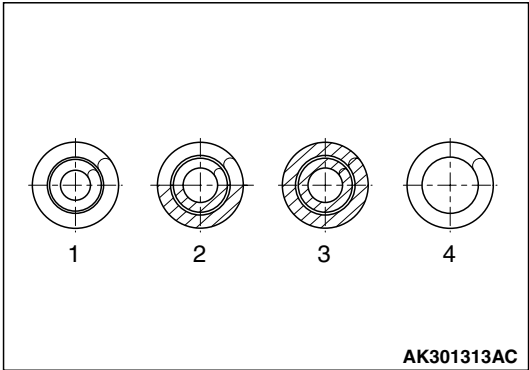
74. Install the manual control lever shaft and parking pawl rod.



75. Align hole "A" with the groove in the manual control lever shaft. Insert the manual control lever shaft roller into hole "A."

76. Insert the new seal rings in the grooves of the accumulator pistons.

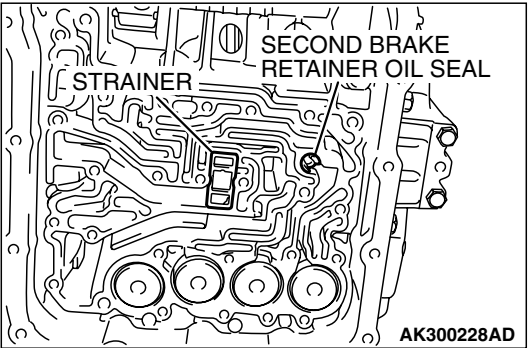
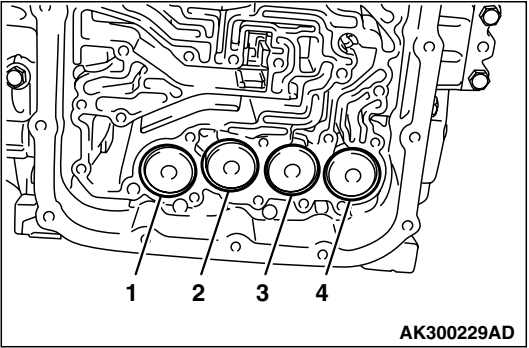
NOTE: The piston and seal ring are common parts.



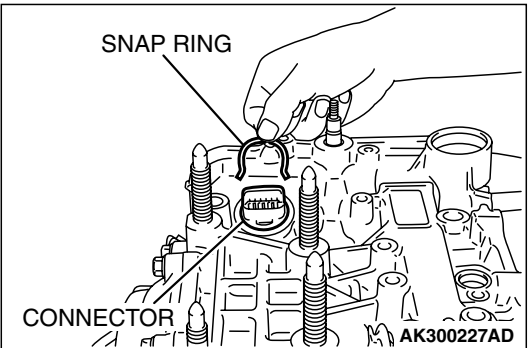
77. Identify the accumulator spring and insert it and the accumulator piston into each hole of the transaxle case.

NOTE: Accumulator springs are identified as shown in the illustration.

NO.	NAME	IDENTIFICATION "BLUEING"
1	For low-reverse brake	None
2	For underdrive clutch	Half
3	For second brake	Whole surface
4	For overdrive clutch	None

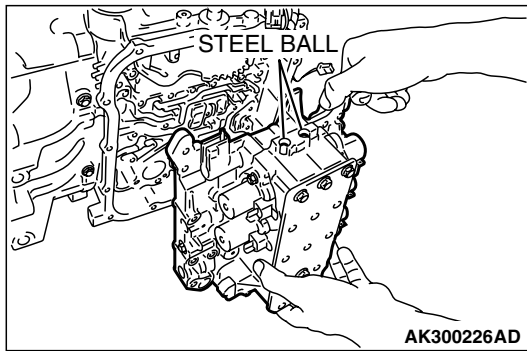


78. Install the strainer and second brake retainer oil seal.

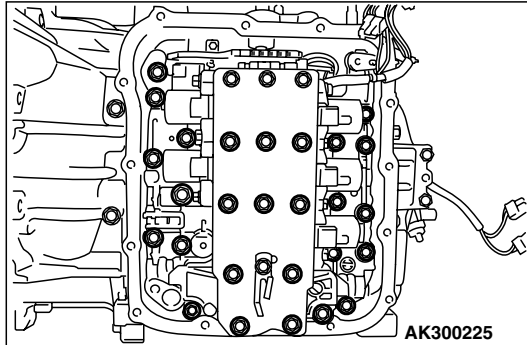


79. Insert a new O-ring to the groove of the solenoid valve harness connector.

80. Insert the solenoid valve harness connector into the hole from the inside of the transaxle case so it is oriented as shown in the illustration. Then secure the snap ring to the connector groove.

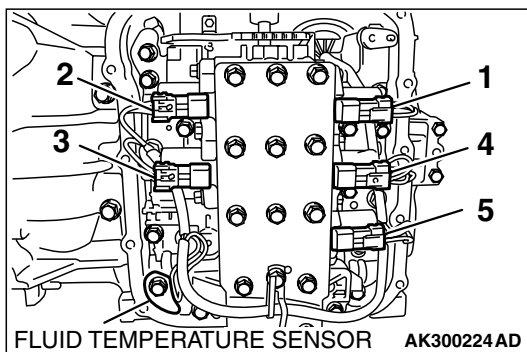


81. Install the steel balls into each of the two holes in the top face of the valve body (outside valve body).
82. Install the valve body and gasket to the transaxle case. Make sure that the manual valve's pin is in the groove in the detent plate of the manual control lever.



83. Install the valve body mounting bolts (twenty seven pieces), and tighten to the specified torque.

Tightening torque: 11 ± 1 N·m (97 ± 9 in-lb)

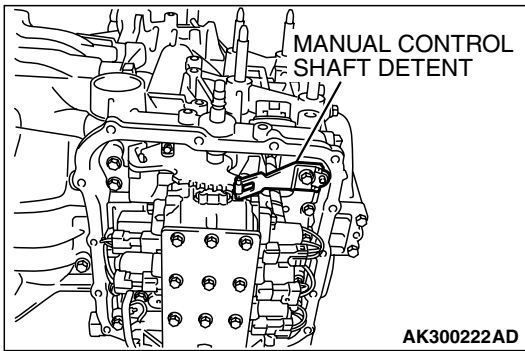


84. Attach the solenoid valve harness to valve body by connecting the all the connectors.

NO.	PARTS TO BE CONNECTED	SOLENOID VALVE HARNESS	
		CABLE COLOR	CONNECTOR HOUSING COLOR
1	Underdrive solenoid valve	White, red, red	Black
2	Overdrive solenoid valve	Orange, red	Black
3	Low-reverse solenoid valve	Brown, yellow	Milky white
4	Second solenoid valve	Blue, red, red	Milky white
5	Torque converter clutch control solenoid valve	Blue, yellow, yellow	Black

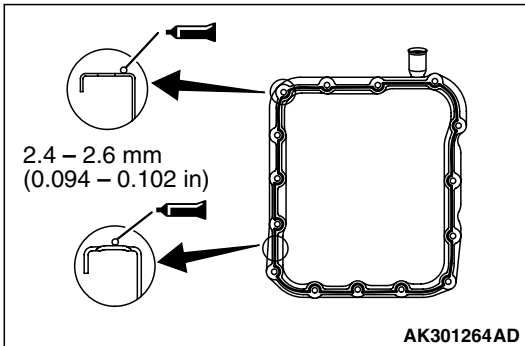
85. Install the fluid temperature sensor to the specified torque.

Tightening torque: 11 ± 1 N·m (97 ± 9 in-lb)



86. Install the manual control shaft detent and tighten the bolt to the specified torque.

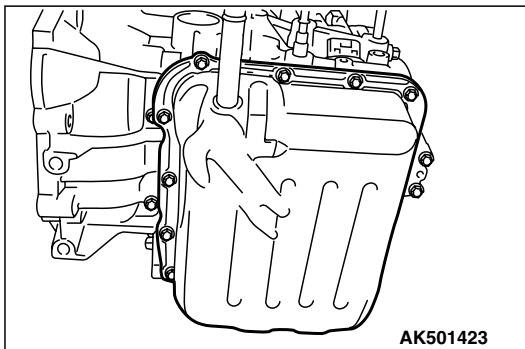
Tightening torque: 6.0 ± 1.0 N·m (53 ± 9 in·lb)



87. Apply a 2 mm (0.08 inch) diameter bead of sealant (Mitsubishi Genuine Part number MD974421 or equivalent) to the valve body cover in the area shown.

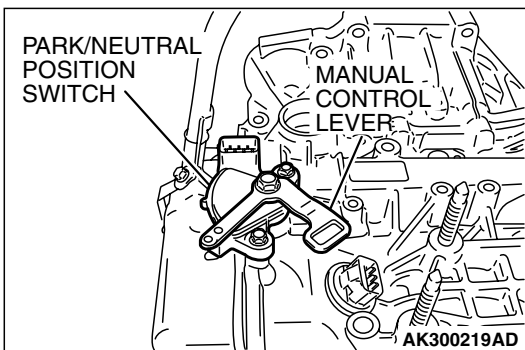
NOTE: Be sure to install the case quickly while the sealant is wet (with 15 minutes) or leaks will occur if the rear cover is installed after the sealant dries.

NOTE: After installation, keep the sealed area away from ATF for approximately one hour.



88. Install the valve body cover, and then tighten its mounting bolts to the specified torque.

Tightening torque: 11 ± 1 N·m (97 ± 9 in·lb)

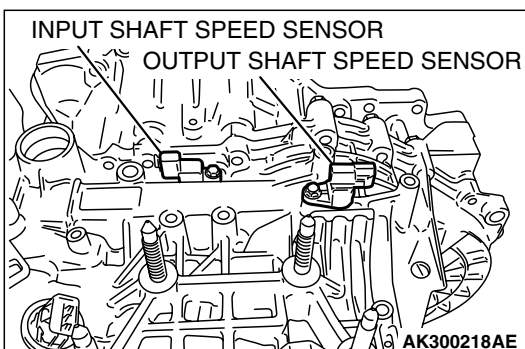


89. Install the park/neutral position switch and tighten the bolt to the specified torque.

Tightening torque: 11 ± 1 N·m (97 ± 9 in·lb)

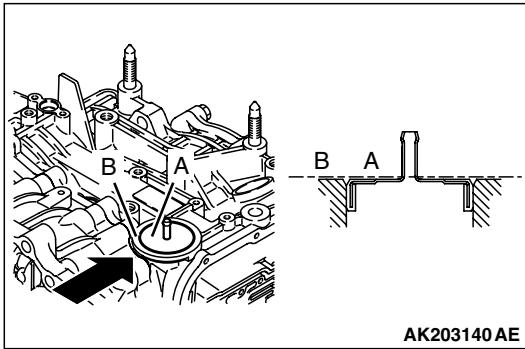
90. Install the manual control lever and tighten the nut to the specified torque.

Tightening torque: 22 ± 3 N·m (16 ± 2 ft·lb)



91. Install the input shaft speed sensor and output shaft speed sensor and tighten the bolt to the specified torque.

Tightening torque: 11 ± 1 N·m (97 ± 9 in·lb)



92. Press Face "A" of the air breather to be on the same plane as the Face "B" of the transaxle case as shown in the illustration.

93. Apply ATF on the both sides of the new gasket and threads of the eyebolts, and then tighten to the specified torque.

Tightening torque: 24 ± 3 N·m (18 ± 2 ft-lb)

94. Tighten the oil cooler feed pipe clamp bolt to the specified torque.

Tightening torque: 11 ± 1 N·m (97 ± 9 in-lb)

95. Install the oil dipstick.

96. Install the cable support brackets to the specified torque.

Tightening torque: 23 ± 3 N·m (17 ± 2 ft-lb)

97. Install the harness bracket to the specified torque.

Tightening torque: 11 ± 1 N·m (97 ± 9 in-lb)

98. Install the roll stopper brackets.

Tightening torque: 90 ± 10 N·m (66 ± 7 ft-lb)

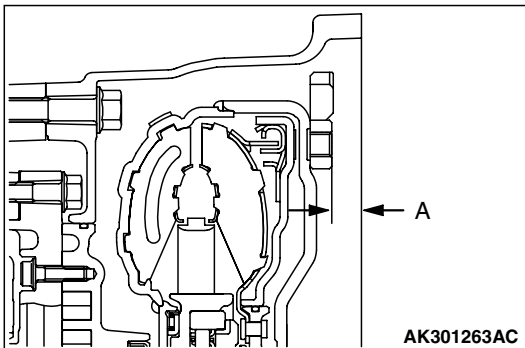
CAUTION

Apply ATF to the oil pump drive hub before installing the torque converter. Be careful not to damage the oil seal lip when installing the torque converter.

99. Install the torque converter, and align it with the oil pump so that the shown dimension "A" meets the reference value.

Reference value:

Approximately 12.2 mm (0.48 inch)



ADJUSTMENT OF TRANSAXLE

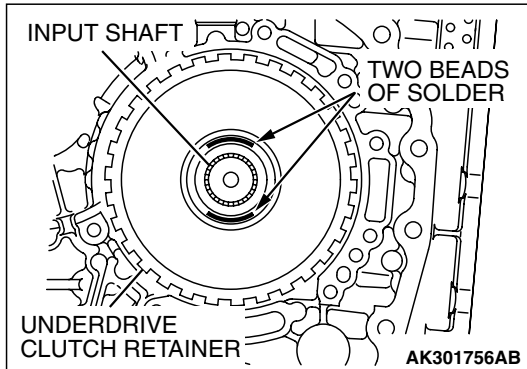
THRUST WASHER SELECTION FOR ADJUSTMENT OF INPUT SHAFT END PLAY

<Measurement using a Solder>

CAUTION

- If solder is not available, select the thrust washer in accordance with Plastigage method.
- If the thrust washer appropriate for the standard value cannot be selected using solder, select the thrust washer in accordance with Plastigage method.

1. Put solders (1.0 mm (0.039 inch) diameter, about 10 mm (0.39 inch) long) in the illustrated positions of the underdrive clutch retainer.
2. Install the adjusting thrust washer having minimum thickness.



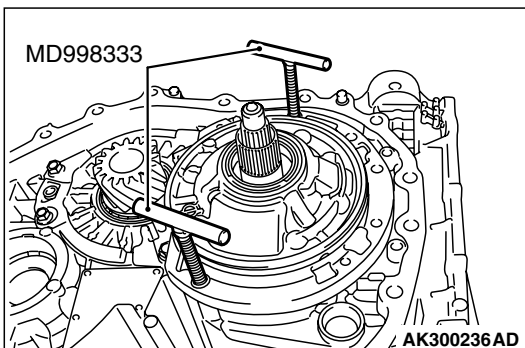
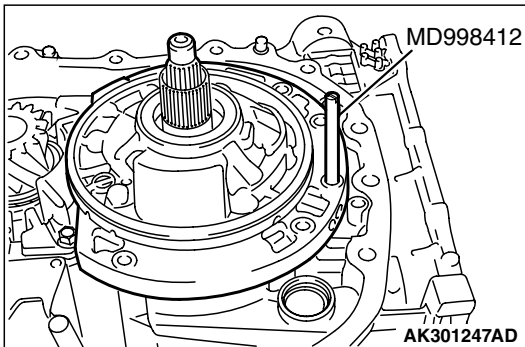
CAUTION

Never use a gasket that has been tightened.

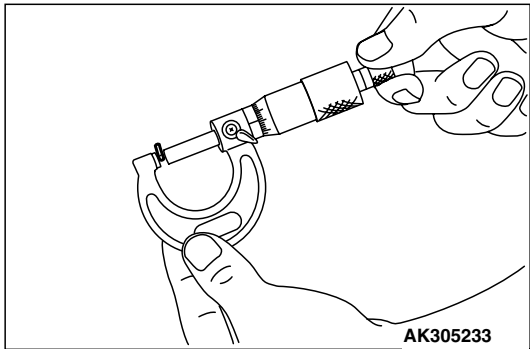
3. Use the special tool Guide (MD998412) to install a new oil pump gasket and the oil pump. Tighten the oil pump mounting bolts to the specified torque.

Tightening torque: 29 ± 2 N·m (21 ± 2 in-lb)

4. Remove the oil pump mounting bolts.



5. Using special tools MD998333, remove the oil pump and then take out crushed solders.
6. If the solders have not crushed, use thicker thrust washer and repeat steps 3 to 5.



- 7. Use a micrometer to measure the thickness of the crushed solder beads and record the measured value.
- 8. Select the thrust washer, calculated by the following formula, in the table.

T = T1 + T2

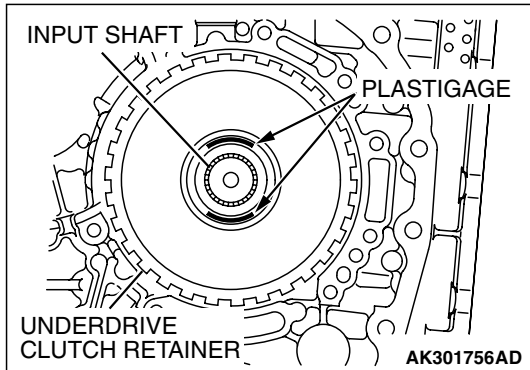
T: Clearance mm

T1: The crushed solder thickness mm

T2: The thrust washer thickness used for measurement mm

Available thrust washer

MEASUREMENT VALUE mm (in)	THICKNESS mm (in)	ID SYMBOL
2.25 – 2.45 (0.089 – 0.096)	1.8 (0.071)	18
2.45 – 2.65 (0.096 – 0.104)	2.0 (0.079)	20
2.65 – 2.85 (0.104 – 0.112)	2.2 (0.087)	22
2.85 – 3.05 (0.112 – 0.120)	2.4 (0.094)	24
3.05 – 3.25 (0.120 – 0.128)	2.6 (0.102)	26
3.25 – 3.45 (0.128 – 0.136)	2.8 (0.110)	28

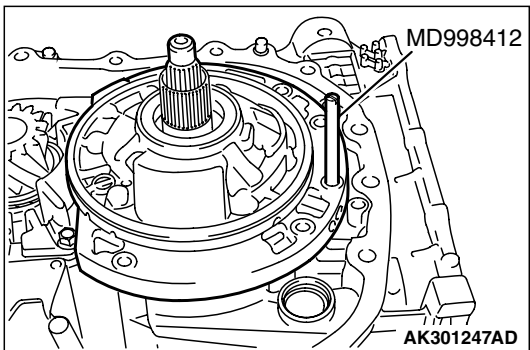


<Measurement using Plastigage>

- 1. Put plastigage (about 10 mm (0.039 inch) long) in the illustrated positions of the underdrive clutch retainer.
- 2. Install the adjusting thrust washer having the minimum thickness.

⚠ CAUTION

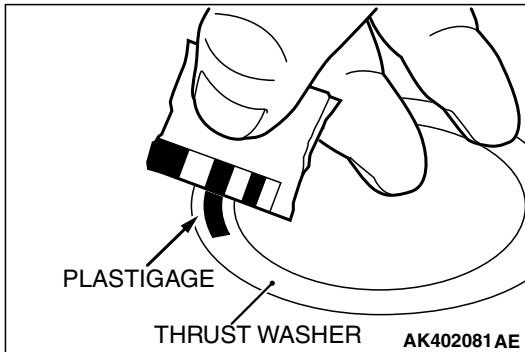
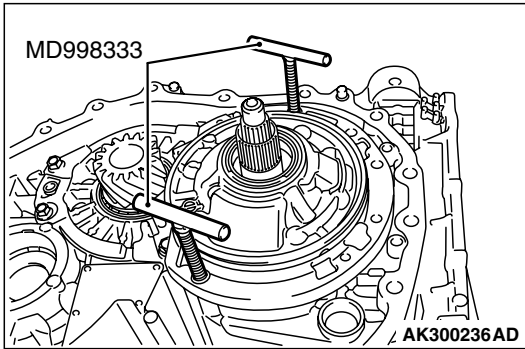
Never use a gasket that has been tightened.



- 3. Use the special tool Guide (MD998412) to install a new oil pump gasket and the oil pump. Tighten the oil pump mounting bolts to the specified torque.

Tightening torque: 29 ± 2 N·m (21 ± 1 ft·lb)

- 4. Remove the oil pump mounting bolts.



5. Using special tools MD998333, remove the oil pump and then take out crushed Plastigages.
6. If the plastigages have not crushed, use thicker adjusting thrust washer and repeat steps 3 to 5.
7. Measure the width of the crushed plastigage at its widest part using a scale printed on the plastigage package.
8. Select the thrust washer, calculated by the following formula, in the table.

$$T = T3 + T2$$

T: Clearance mm

T3: The crushed plastigage thickness mm

T2: The thrust washer thickness used for measurement mm

Available thrust washer

MEASUREMENT VALUE mm (in)	THICKNESS mm (in)	ID SYMBOL
2.25 – 2.45 (0.089 – 0.096)	1.8 (0.071)	18
2.45 – 2.65 (0.096 – 0.104)	2.0 (0.079)	20
2.65 – 2.85 (0.104 – 0.112)	2.2 (0.087)	22
2.85 – 3.05 (0.112 – 0.120)	2.4 (0.094)	24
3.05 – 3.25 (0.120 – 0.128)	2.6 (0.102)	26
3.25 – 3.45 (0.128 – 0.136)	2.8 (0.110)	28

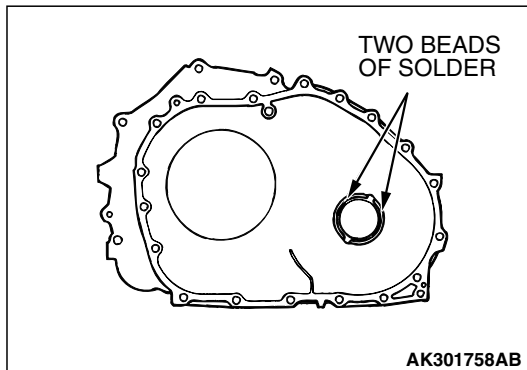
SPACER SELECTION FOR ADJUSTMENT OF
DIFFERENTIAL CASE PRELOAD

<Measurement using a Solder>

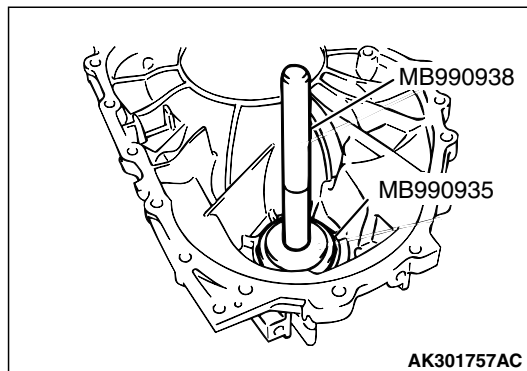
⚠ CAUTION

- If solder is not available, select the spacer in accordance with Plastigage method.
- If the spacer appropriate for the standard value cannot be selected using solder, select the spacer in accordance with Plastigage method.

1. Put solders (1.0 mm (0.039 inch) diameter, about 10 mm (0.39 inch) long) in the illustrated positions of the converter housing.



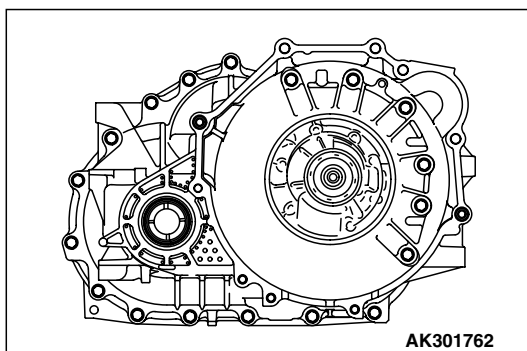
2. Use special tools MB990935 and MB990938 to press the outer race into housing.

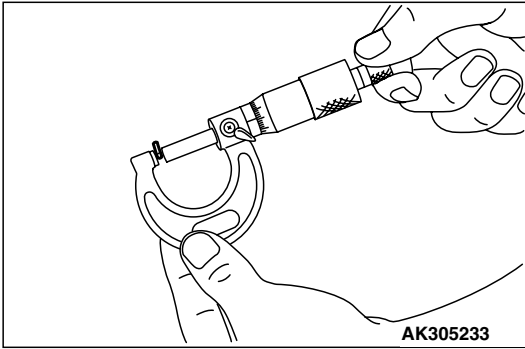


3. Install the torque converter housing to the transaxle case without applying sealant. Tighten its mounting bolts to the specified torque.

Tightening torque: 48 ± 6 N·m (35 ± 4 ft·lb)

4. Remove the bolts and converter housing, and take out the solder pieces.
5. If the solders have not crushed, use thicker solders (1.6 mm (0.063 inch) diameter, about 10 mm (0.39 inch) long) and repeat steps 2 to 4.



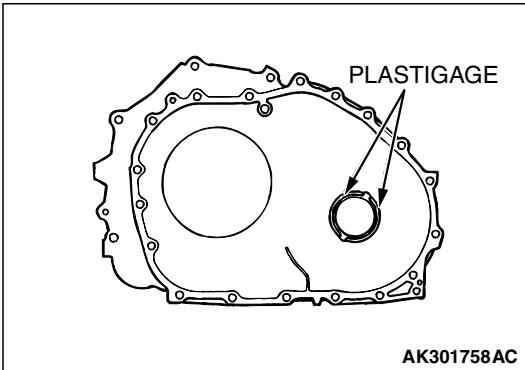


6. Measure the thickness of the crushed solder with a micrometer, and then select a spacer that will provide the standard value.

Spacer thickness: (T1 – 0.045 mm (0.0018 inch) to (T1 – 0.105mm (0.0041 inch)

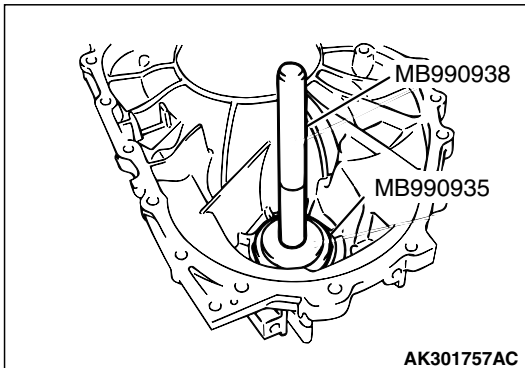
T1: The crushed solder thickness mm (inch)

Standard value: 0.045 – 0.105 mm (0.0018 – 0.0041 inch)

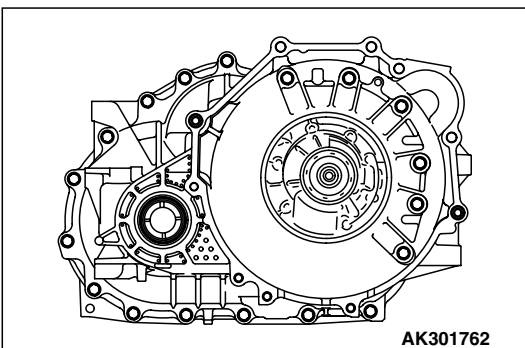


<Measurement using Plastigage>

1. Put plastigage (about 10 mm (0.39 inch) long) in the illustrated positions of the converter housing.
2. Install the adjusting spacer having the minimum thickness.



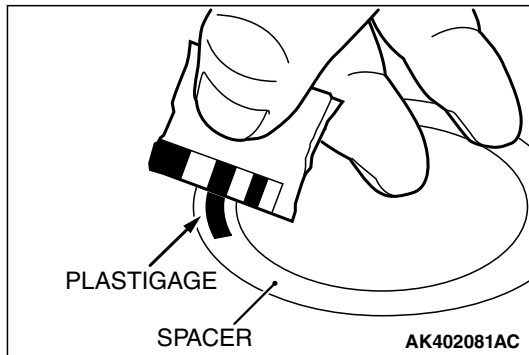
3. Use special tools MB990935 <F4A4B> or MB990936 <F4A5A> and MB990938 to press the differential bearing outer race into the torque converter housing.



4. Install the torque converter housing to the transaxle case without applying sealant. Tighten its mounting bolts to the specified torque.

Tightening torque: 48 ± 6 N·m (35 ± 4 ft-lb)

5. Remove the bolts and converter housing, and take out crushed plastigage.
6. If the plastigages have not crushed, replace the spacer with a thicker one and repeat steps 3 to 5.



7. Measure the width of the crushed plastigage at its widest part using a scale printed on the plastigage package, and then select a spacer that will provide the standard value.

Spacer thickness: (T3 – 0.045 mm (0.0018 inch) to (T3 – 0.105mm (0.0041 inch)

T3: The crushed plastigage thickness mm (inch)

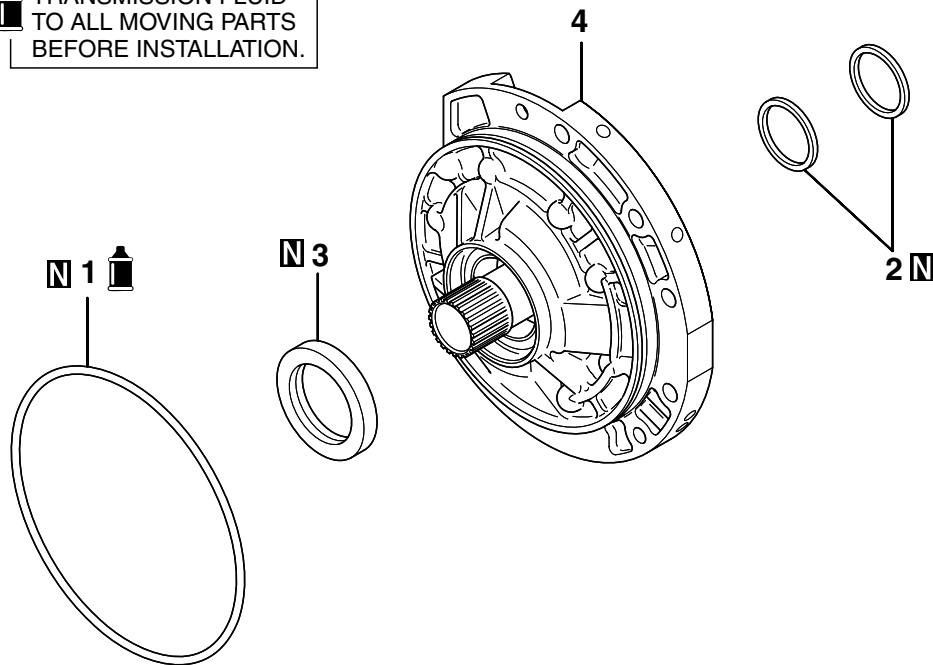
Standard value: 0.045 – 0.105 mm (0.0018 – 0.0041 inch)

OIL PUMP

DISASSEMBLY AND ASSEMBLY

M1233001300198

APPLY AUTOMATIC
TRANSMISSION FLUID
TO ALL MOVING PARTS
BEFORE INSTALLATION.



AK301599 AB

- >>B<<**
- DISASSEMBLY STEPS**
1. O-RING
 2. SEAL RING

- >>A<<**
- DISASSEMBLY STEPS**
3. OIL SEAL
 4. OIL PUMP ASSEMBLY

Required Special Tool:

- MD998334: Oil Seal Installer

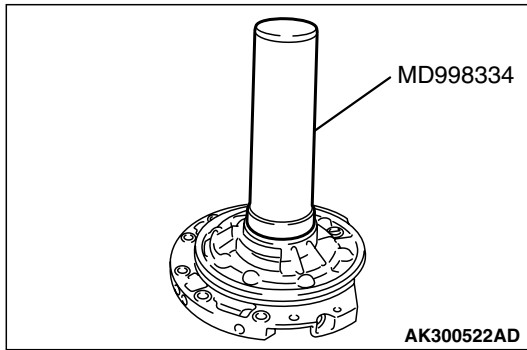
ASSEMBLY SERVICE POINTS

>>A<< OIL SEAL INSTALLATION

1. Apply a small amount of ATF to the oil seal lip.
2. Use special tool MD998334 to tap the oil seal in the oil pump body.

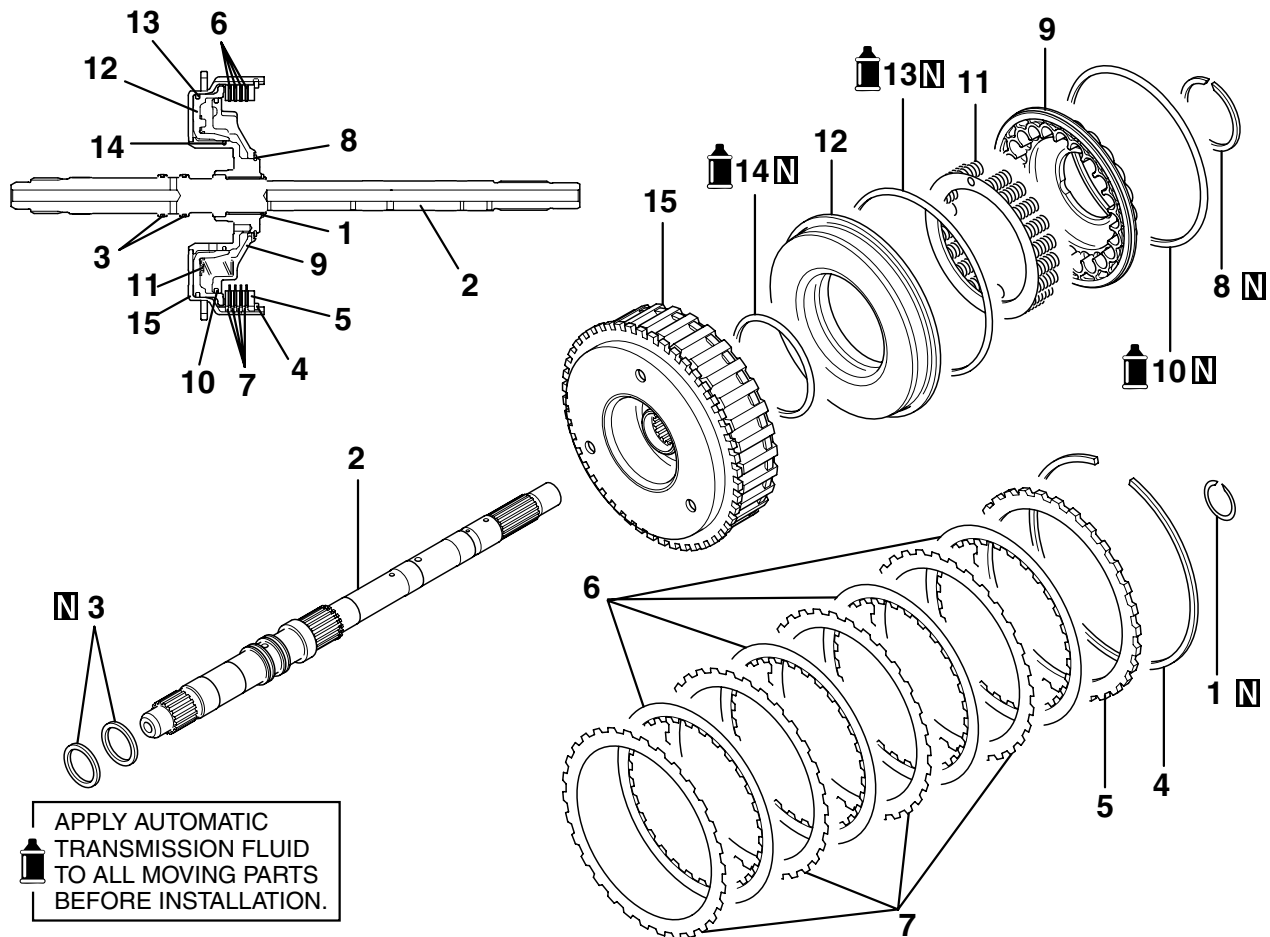
>>B<< O-RING INSTALLATION

Install a new O-ring to the outer groove of the oil pump, and apply ATF or petroleum jelly (Vaseline) to the O-ring.



UNDERDRIVE CLUTCH AND INPUT SHAFT DISASSEMBLY AND ASSEMBLY

M1233024500160



AK301600 AB

DISASSEMBLY STEPS

1. SNAP RING
2. INPUT SHAFT
3. SEAL RING
- >>D<< 4. SNAP RING
- >>C<< 5. CLUTCH REACTION PLATE
- >>C<< 6. CLUTCH DISC
- >>C<< 7. CLUTCH PLATE
- <<A>> >>B<< 8. SNAP RING

DISASSEMBLY STEPS

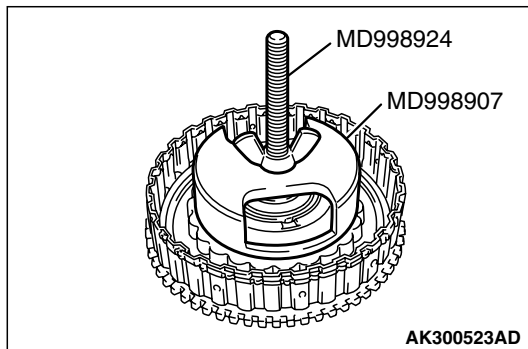
9. SPRING RETAINER
- >>A<< 10. D-RING
11. RETURN SPRING
12. UNDERDRIVE CLUTCH PISTON
- >>A<< 13. D-RING
- >>A<< 14. D-RING
15. UNDERDRIVE CLUTCH RETAINER

Required Special Tools:

- MB991628: Spring Compressor
- MD998907: Spring Compressor
- MD998924: Spring Compressor Retainer

DISASSEMBLY SERVICE POINT**<<A>> SNAP RING REMOVAL**

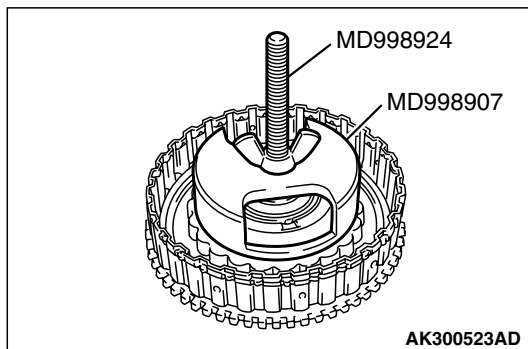
1. Set special tools MD998907 and MD998924 as shown in the illustration.
2. Compress the return spring and remove the snap ring.

**ASSEMBLY SERVICE POINTS****>>A<< D-RING INSTALLATION**

1. Install a D-ring in the groove in the underdrive clutch retainer and piston, and in the groove in the outside of the spring retainer. Be careful not to twist or damage the D-rings.
2. Apply ATF or petroleum jelly (Vaseline) to the D-rings.

>>B<< SNAP RING INSTALLATION

1. Place the snap ring on top of the spring retainer, and then set special tool MD998907 and MD998924 as shown in the illustration.
2. Compress the return spring and install the snap ring.

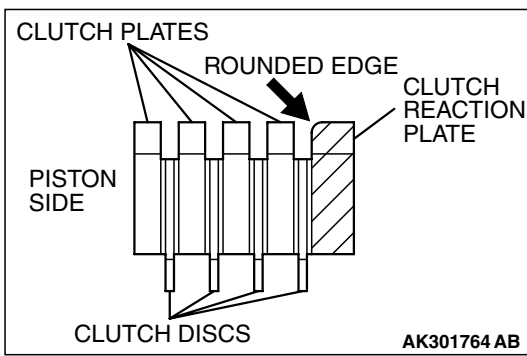
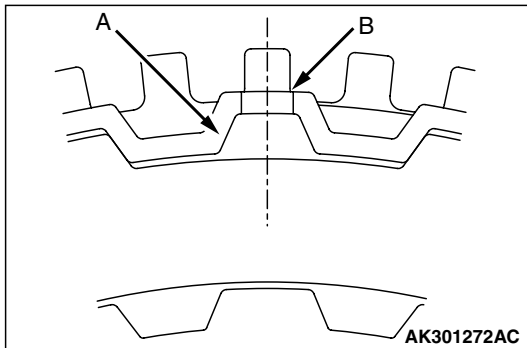


>>C<< CLUTCH PLATE/CLUTCH DISC/CLUTCH REACTION PLATE INSTALLATION

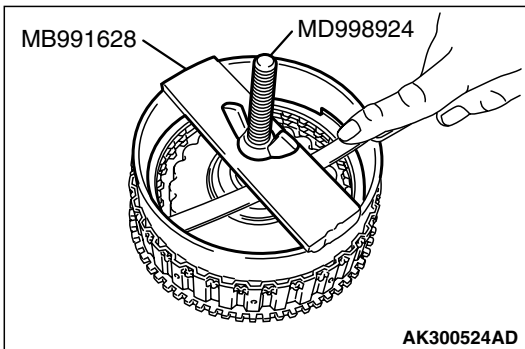
⚠ CAUTION

Immerse the clutch disc in ATF before assembling it. If the clutch disc is new, soak it in ATF for at least two hours.

1. Assemble the four clutch plates and four clutch discs one on top of the other inside the underdrive clutch retainer. All four clutch plates should be assembled so that the places with no teeth (marked "A") are aligned with the holes in the retainer (marked "B").



2. Install the clutch reaction plate in the direction shown. Install it the same as the clutch plates, so that the areas with no teeth (marked "A") are aligned with the retainer (marked "B").



>>D<< SNAP RING INSTALLATION

1. Install the snap ring into the groove of clutch retainer.
2. Set special tools MB991628 and MD998924 as shown in the illustration, and then compress the clutch element.
3. Check that the clearance between the snap ring and the clutch reaction plate is within the standard value. If not within the standard value, select a snap ring so that it is.

Standard value: 1.6 – 1.8 mm (0.0630 – 0.0709 inch)

REVERSE AND OVERDRIVE CLUTCH

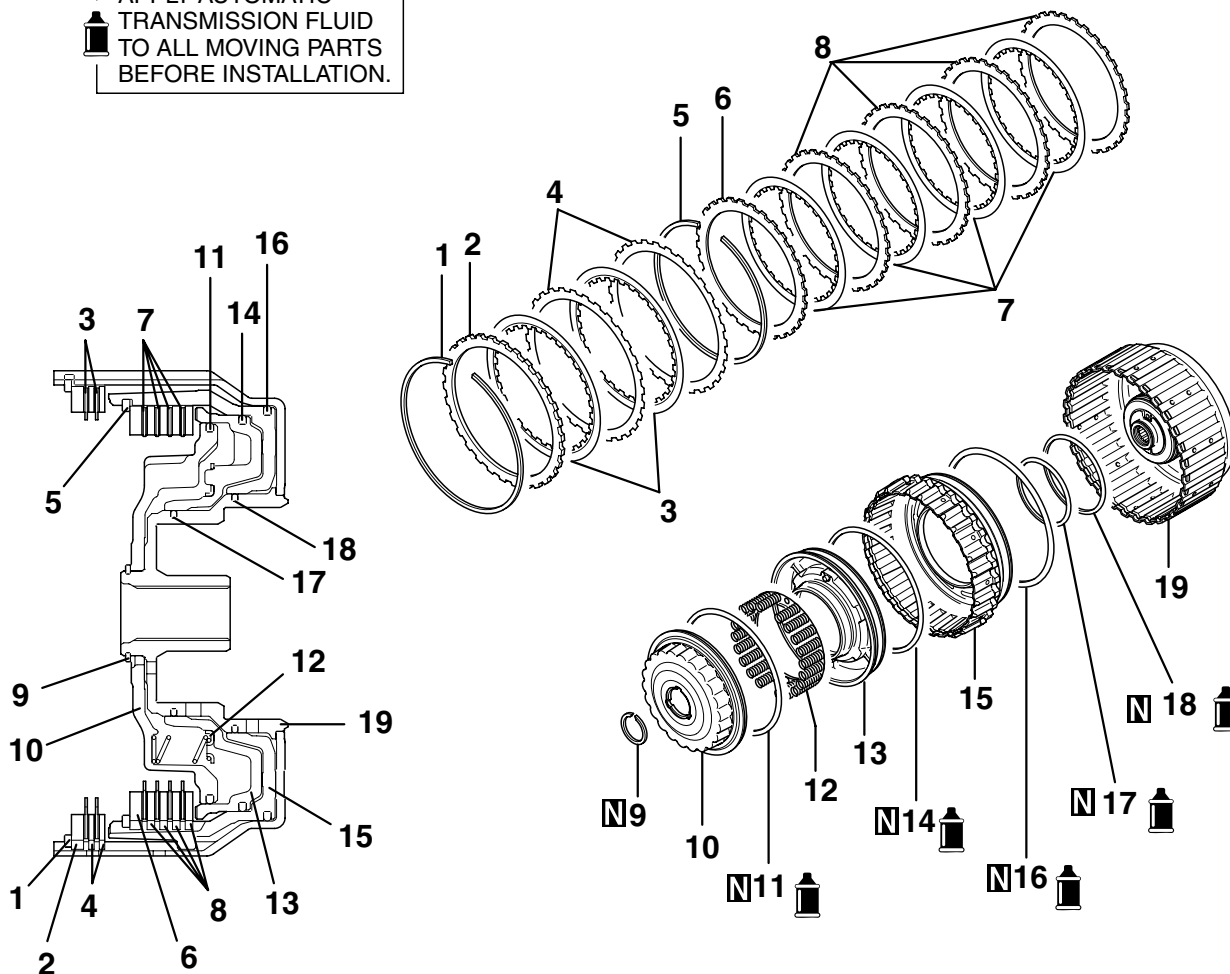
DISASSEMBLY AND ASSEMBLY

M1233024800105

NUMBER OF CLUTCH DISCS AND PLATES

	CLUTCH DISC	CLUTCH PLATE	CLUTCH REACTION PLATE
Over drive clutch	4	4	1
Reverse clutch	2	2	1

APPLY AUTOMATIC
TRANSMISSION FLUID
TO ALL MOVING PARTS
BEFORE INSTALLATION.



AK301601 AB

DISASSEMBLY STEPS

- >>G<< 1. SNAP RING
 >>F<< 2. CLUTCH REACTION PLATE
 >>F<< 3. CLUTCH DISC
 >>F<< 4. CLUTCH PLATE
 >>E<< 5. SNAP RING
 >>D<< 6. CLUTCH REACTION PLATE
 >>D<< 7. CLUTCH DISC
 >>D<< 8. CLUTCH PLATE
 <<A>> >>C<< 9. SNAP RING
 10. SPRING RETAINER

DISASSEMBLY STEPS

- >>A<< 11. D-RING
 12. RETURN SPRING
 13. OVERDRIVE CLUTCH PISTON
 >>A<< 14. D-RING
 >>B<< 15. REVERSE CLUTCH PISTON
 >>A<< 16. D-RING
 >>A<< 17. D-RING
 >>A<< 18. D-RING
 19. REVERSE CLUTCH RETAINER

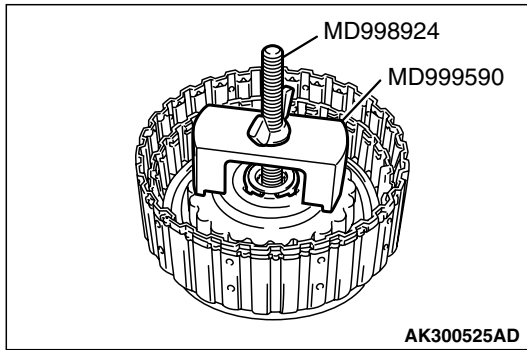
Required Special Tools:

- MB991628: Spring Compressor
- MB991790: Spring Compressor
- MD998924: Spring Compressor Retainer
- MD999590: Spring Compressor

DISASSEMBLY SERVICE POINT

<<A>> SNAP RING REMOVAL

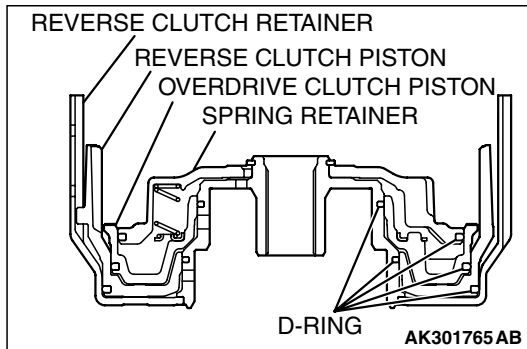
1. Set special tools MD999590 and MD998924 as shown in the illustration.
2. Compress the return spring and remove the snap ring.



ASSEMBLY SERVICE POINTS

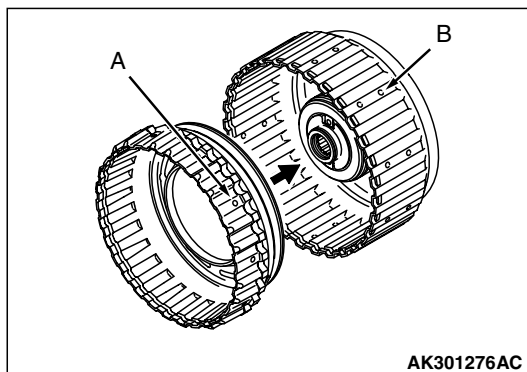
>>A<< D-RING INSTALLATION

1. Install D-rings in the grooves on the reverse clutch retainer, piston, overdrive clutch piston and spring retainer. Be careful not to twist or damage the D-rings.
2. Apply ATF or petroleum jelly (Vaseline) to D-rings.



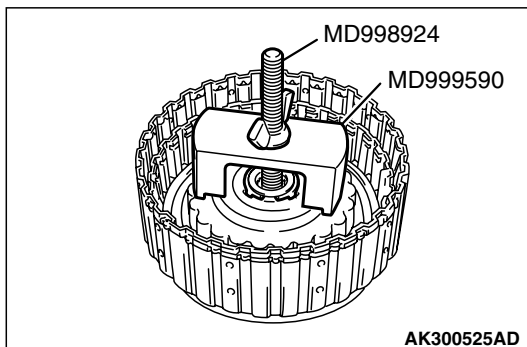
>>B<< REVERSE CLUTCH PISTON INSTALLATION

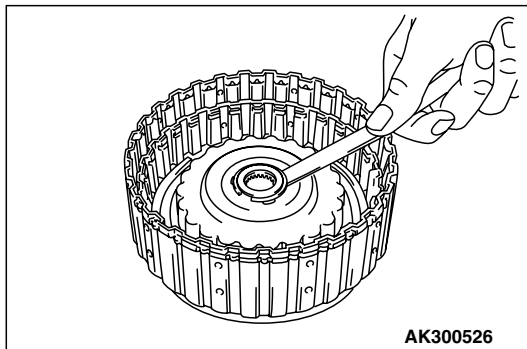
Align the outer circumference holes ("A" and "B") of the reverse clutch piston and the reverse clutch retainer to assemble them.



>>C<< SNAP RING INSTALLATION

1. Set special tools MD999590 and MD998924 as shown in the illustration.
2. Tighten the nut on the special tool to press down on the spring retainer and reverse clutch retainer, and then install the snap ring.





3. Check that the clearance between the snap ring and the return spring retainer is within the standard value. If not within the standard value, select a snap ring so that it is.

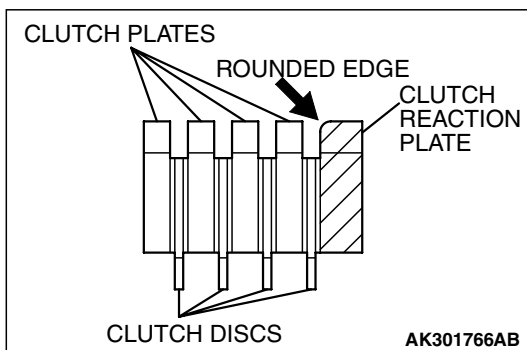
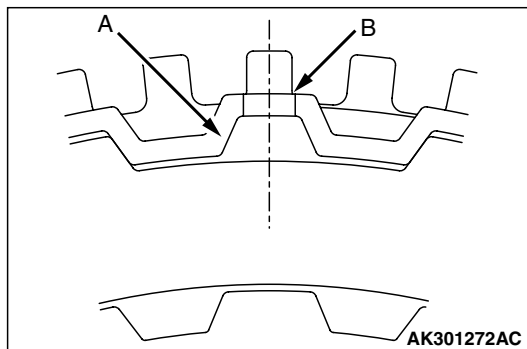
Standard value: 0 – 0.09 mm (0 – 0.0035 inch)

>>D<< PRESSURE PLATE/CLUTCH PLATE/CLUTCH DISC/ CLUTCH REACTION PLATE INSTALLATION

⚠ CAUTION

Immerse the clutch disc in ATF before assembling it. If the clutch disc is new, soak it in ATF for more than two hours.

1. Assemble the clutch discs (four pieces) and clutch plates (four pieces), one on top of the other, inside the reverse clutch piston. Assemble both clutch plates so that the places with no teeth (marked "A") are aligned with the holes in the retainer (marked "B").

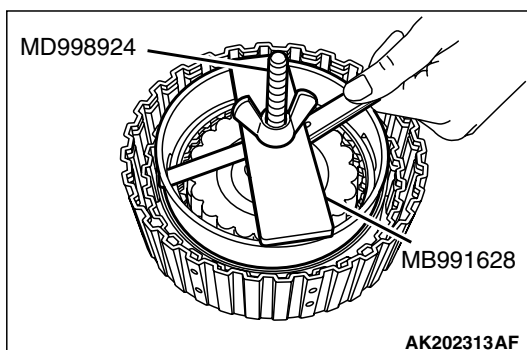


2. Install the clutch reaction plate in the direction shown.

>>E<< SNAP RING INSTALLATION

1. Install the snap ring into the groove in the reverse clutch piston.
2. Set special tools MB991628 and MD998924 as shown in the illustration, and compress the clutch element.
3. Check that the clearance between the snap ring and the clutch reaction plate is within the standard value. If not within the standard value, select a snap ring so that it is.

Standard value: 1.6 – 1.8 mm (0.0630 – 0.0709 inch)

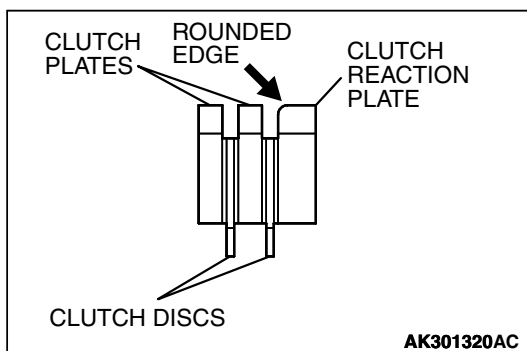
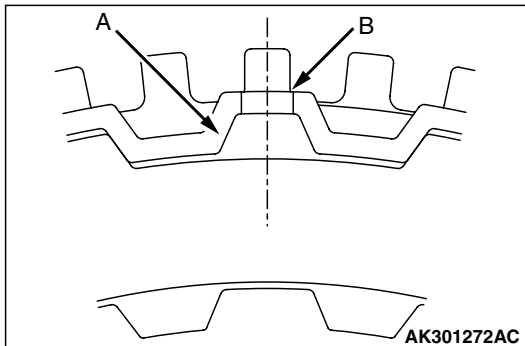


>>F<< CLUTCH PLATE/CLUTCH DISC/CLUTCH REACTION PLATE INSTALLATION

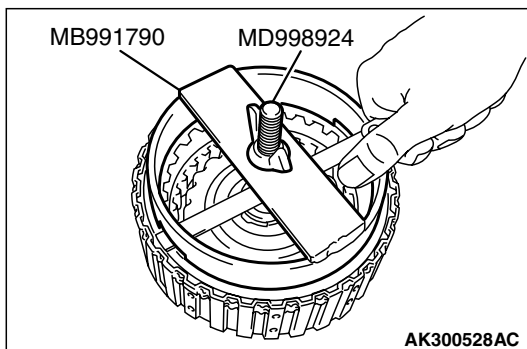
CAUTION

Immerse the clutch disc in ATF before assembling it. If the clutch disc is new, soak it in ATF for at least two hours.

1. Assemble two clutch discs and two clutch plates, one on top of the other, inside the reverse clutch retainer. Assemble both clutch plates so that the places with no teeth (marked "A") are aligned with the holes in the retainer (marked "B").



2. Install the clutch reaction plate in the direction shown. Install it the same as the clutch plate, so that the places with no teeth (marked "A") are aligned with the holes in the retainer (marked "B").



>>G<< SNAP RING INSTALLATION

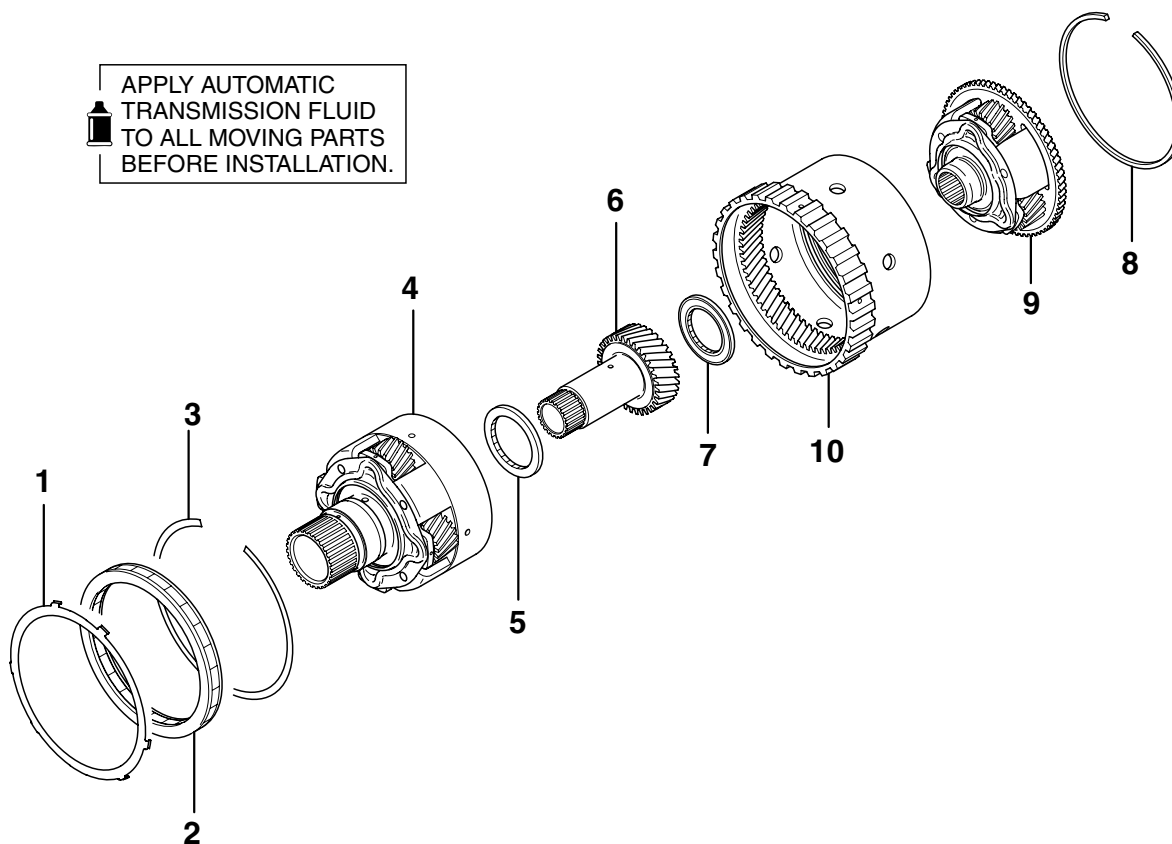
1. Install the snap ring into the groove of reverse clutch retainer.
2. Set special tools MB991790 and MD998924 as shown in the illustration, and compress the clutch element.
3. Check that the clearance between the snap ring and the clutch reaction plate is within the standard value. If not within the standard value, select a snap ring so that it is.

Standard value: 1.5 – 1.7 mm (0.0591 – 0.0669 inch)

PLANETARY GEAR

DISASSEMBLY AND ASSEMBLY

M1233002500173



AK301602AB

DISASSEMBLY STEPS

- >>B<< 1. STOPPER PLATE
2. ONE-WAY CLUTCH
3. SNAP RING
4. OUTPUT PLANETARY CARRIER
>>A<< 5. THRUST BEARING NUMBER 3
6. UNDERDRIVE SUN GEAR

DISASSEMBLY STEPS

- >>A<< 7. THRUST BEARING NUMBER 4
8. SNAP RING
9. OVERDRIVE PLANETARY CARRIER
10. OVERDRIVE ANNULUS GEAR

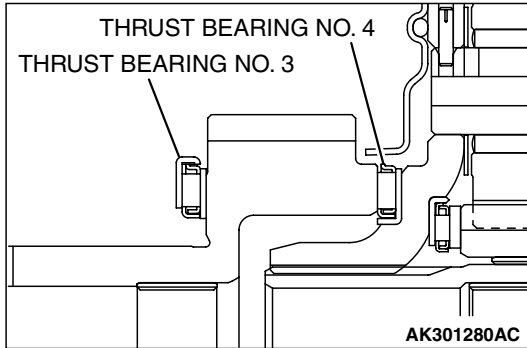
ASSEMBLY SERVICE POINTS

>>A<< THRUST BEARING NUMBER 3 AND THRUST BEARING NUMBER 4 INSTALLATION

CAUTION

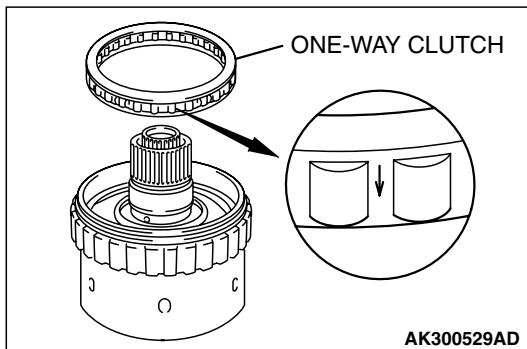
Use care to install the thrust bearings in the correct direction.

Check the installation direction of thrust bearings number 3 and 4, and install them as shown.



>>B<< ONE-WAY CLUTCH INSTALLATION

Insert the one-way clutch into the overdrive annulus gear so that the arrow points towards the output planetary carrier.

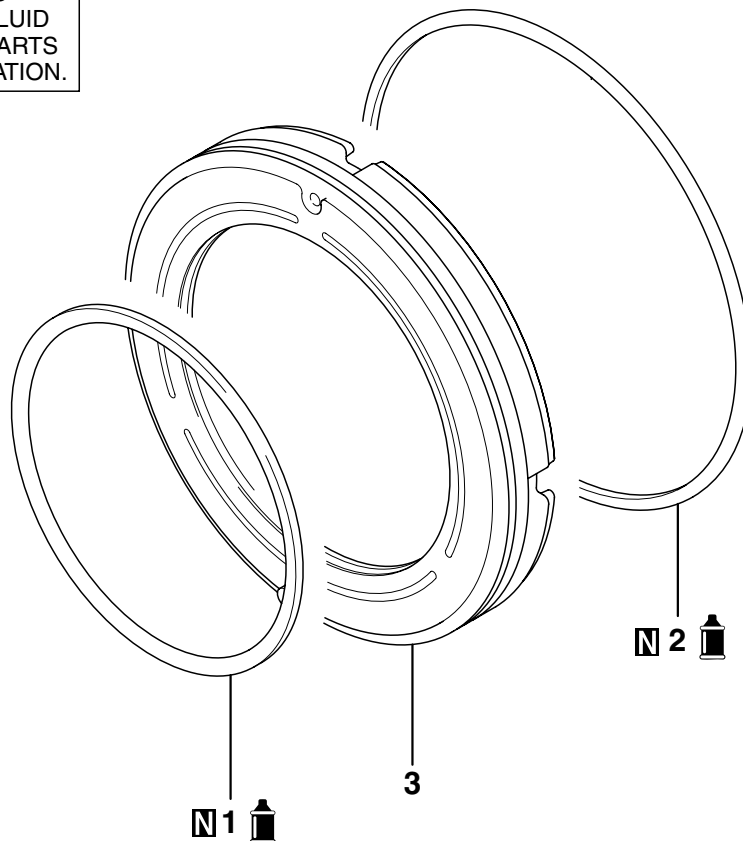


LOW-REVERSE BRAKE

DISASSEMBLY AND ASSEMBLY

M1233003700181

APPLY AUTOMATIC
TRANSMISSION FLUID
TO ALL MOVING PARTS
BEFORE INSTALLATION.



AK301603AB

>>A<< DISASSEMBLY STEPS
1. D-RING

>>A<< DISASSEMBLY STEPS
2. D-RING
3. LOW-REVERSE BRAKE PISTON

ASSEMBLY SERVICE POINT

>>A<< D-RING INSTALLATION

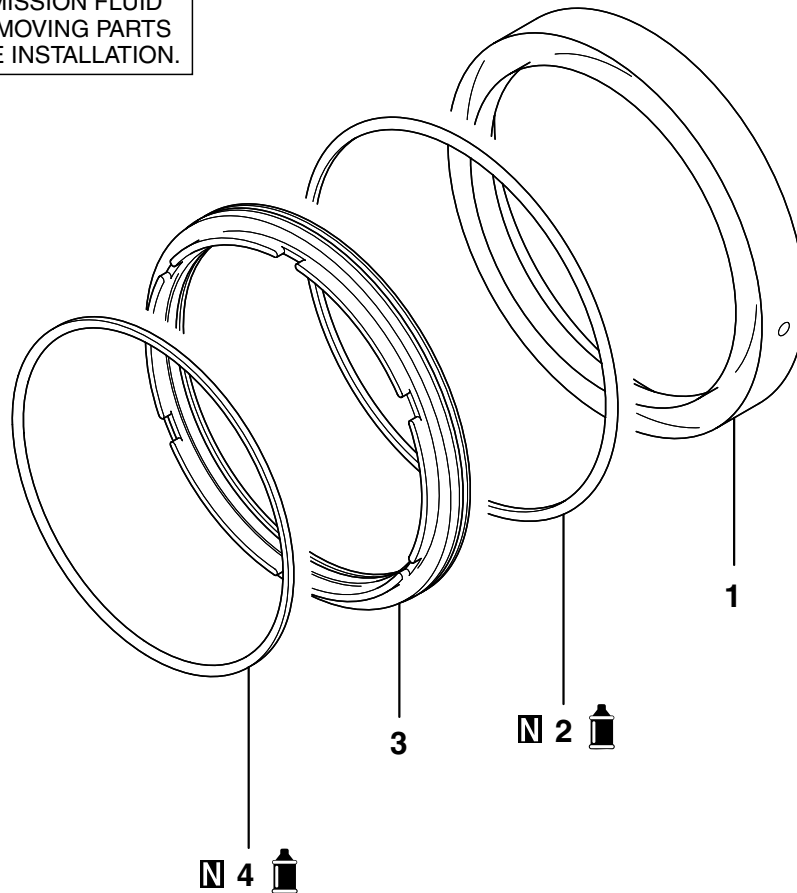
Apply ATF or petroleum jelly (Vaseline) to the D-ring, and install carefully.

SECOND BRAKE

DISASSEMBLY AND ASSEMBLY

M12330254 00070

APPLY AUTOMATIC
TRANSMISSION FLUID
TO ALL MOVING PARTS
BEFORE INSTALLATION.



AK301604 AB

DISASSEMBLY STEPS

- >>A<< 1. SECOND BRAKE RETAINER
2. D-RING

DISASSEMBLY STEPS

- >>A<< 3. SECOND BRAKE PISTON
4. D-RING

ASSEMBLY SERVICE POINT

>>A<< D-RING INSTALLATION

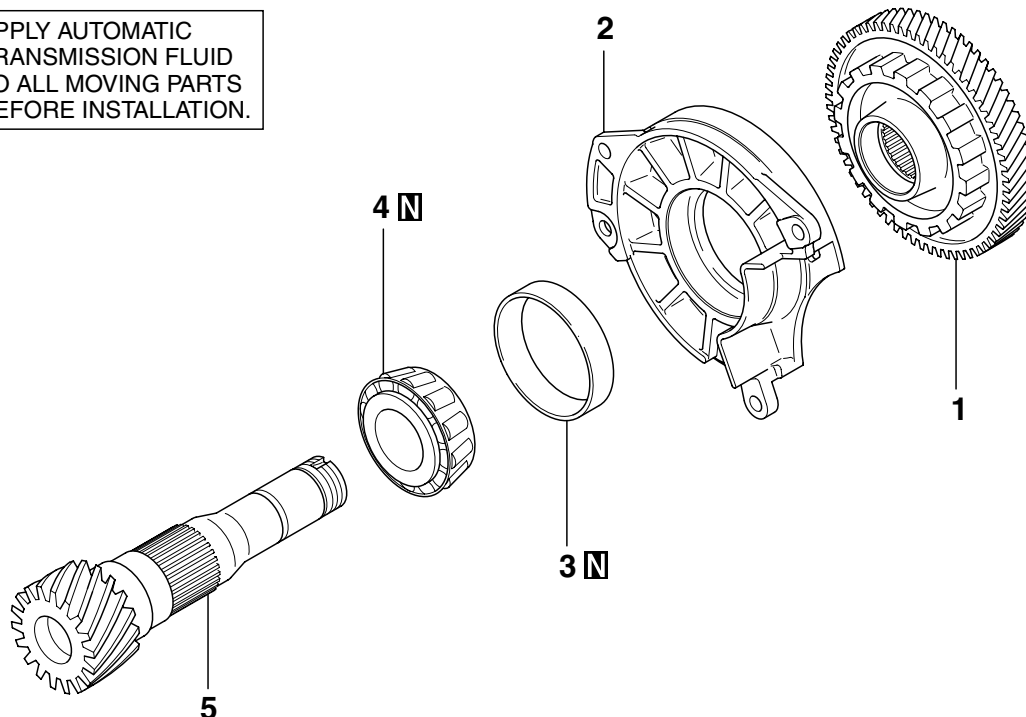
Apply ATF or petroleum jelly (Vaseline) to the D-ring, and install carefully.

OUTPUT SHAFT

DISASSEMBLY AND ASSEMBLY

M1233025700145

APPLY AUTOMATIC
TRANSMISSION FLUID
TO ALL MOVING PARTS
BEFORE INSTALLATION.



AK301605 AB

- DISASSEMBLY STEPS**
- <<A>> >>C<< 1. TRANSFER DRIVEN GEAR
2. BEARING RETAINER
>>B<< 3. OUTER RACE

- DISASSEMBLY STEPS**
- <> >>A<< 4. TAPER ROLLER BEARING
5. OUTPUT SHAFT

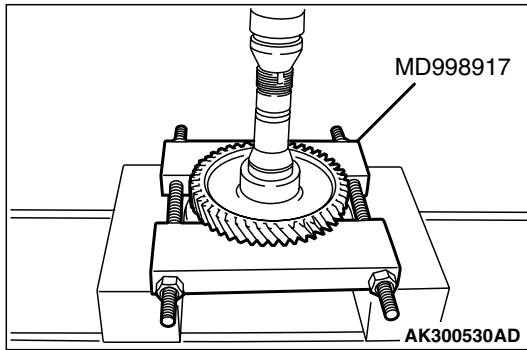
Required Special Tools:

- MB990936: Installer Adapter
- MB990938: Handle
- MD998801: Bearing Remover
- MD998812: Installer Cap
- MD998813: Installer 100
- MD998814: Installer 200
- MD998823: Installer Adapter (48)
- MD998917: Bearing Remover

DISASSEMBLY SERVICE POINTS

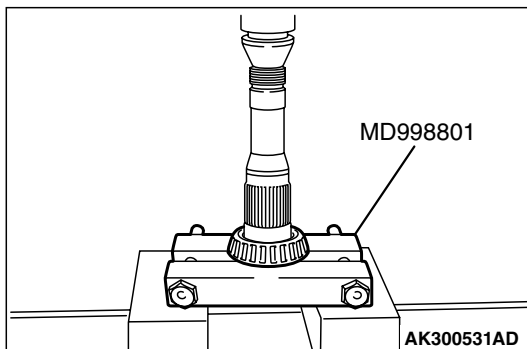
<<A>> TRANSFER DRIVEN GEAR REMOVAL

1. Support the transfer driven gear with general service tool or special tool MD998917, and then set them on the press.
2. Push down on the output shaft with the press to remove the transfer driven gear.



<> TAPER ROLLER BEARING REMOVAL

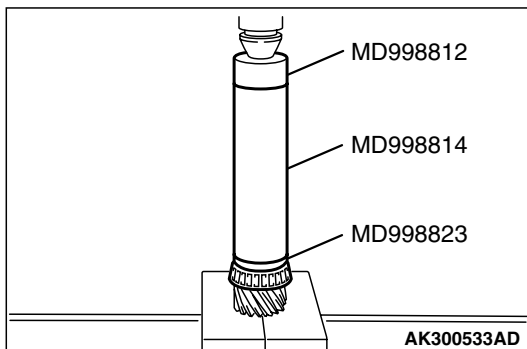
1. Support the taper roller bearing with the special tool MD998801, and then set them on the press.
2. Push down on the output shaft with the press to remove the taper roller bearing.



ASSEMBLY SERVICE POINTS

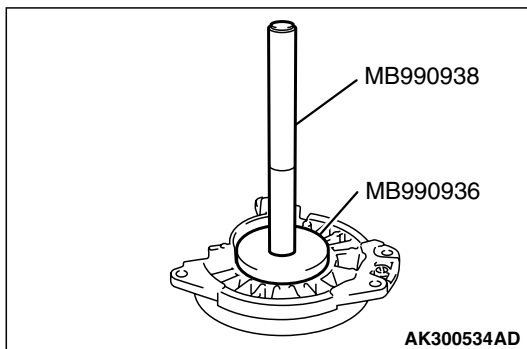
>>A<< TAPER ROLLER BEARING INSTALLATION

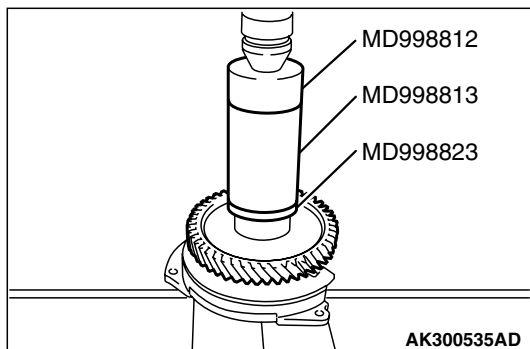
1. Set the output shaft on the press support stand.
2. Using special tools MD998823, MD998812 and MD998814, press in the taper roller bearing.



>>B<< OUTER RACE INSTALLATION

Use the special tools MB990936 and MB990938 to tap the outer race in the bearing retainer.





>>C<< TRANSFER DRIVEN GEAR INSTALLATION

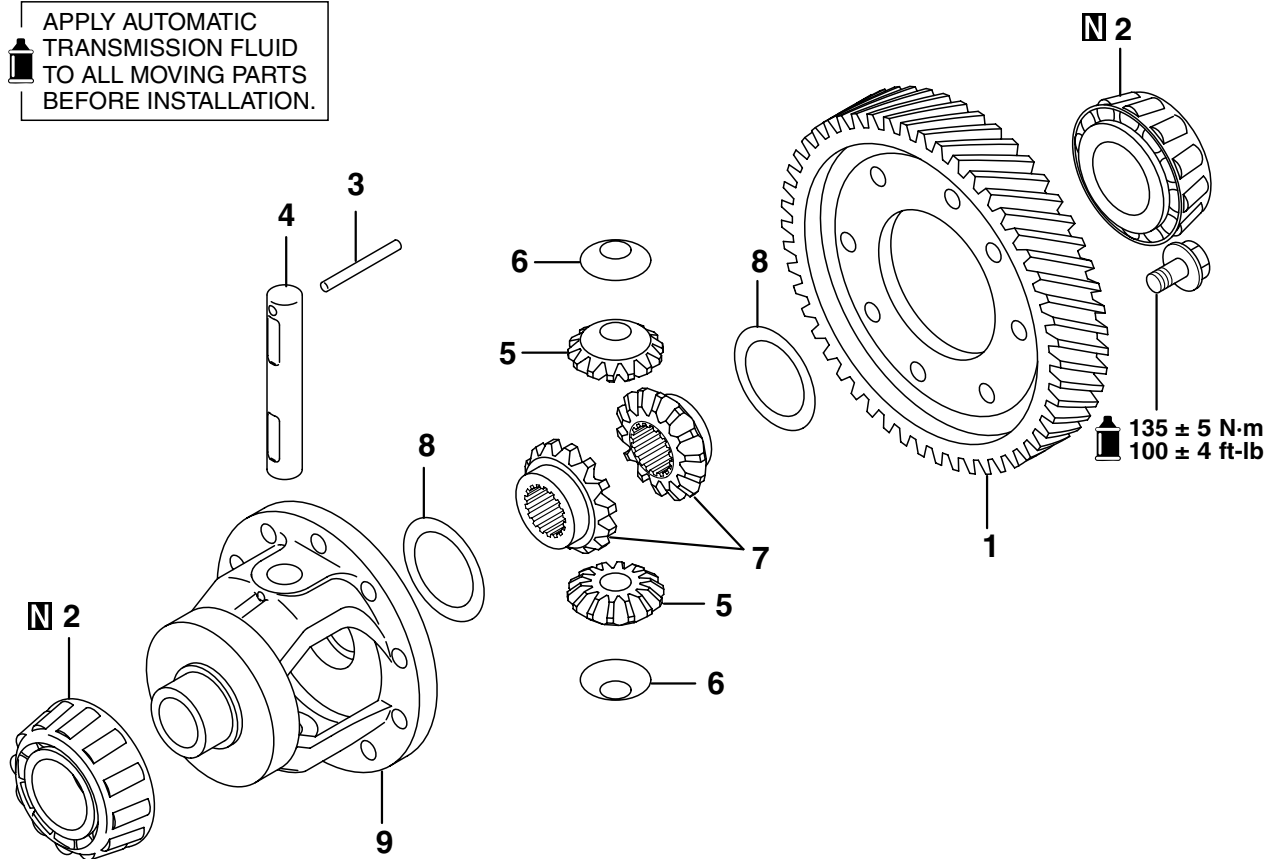
1. Set the output shaft on the press support stand.
2. Using special tools MD998823, MD998812 and MD998813, press in the transfer driven gear.

DIFFERENTIAL

DISASSEMBLY AND ASSEMBLY

M1233003100350

APPLY AUTOMATIC
TRANSMISSION FLUID
TO ALL MOVING PARTS
BEFORE INSTALLATION.



AK503664AB

<<A>>

DISASSEMBLY STEPS

- >>D<< 1. DIFFERENTIAL DRIVE GEAR
>>C<< 2. TAPER ROLLER BEARINGS
>>B<< 3. LOCK PIN

>>A<< 4.
>>A<< 5.
>>A<< 6.

DISASSEMBLY STEPS

4. PINION SHAFT
5. PINIONS
6. WASHERS

DISASSEMBLY STEPS

- >>A<< 7. SIDE GEARS
- >>A<< 8. SPACERS
- 9. DIFFERENTIAL CASE

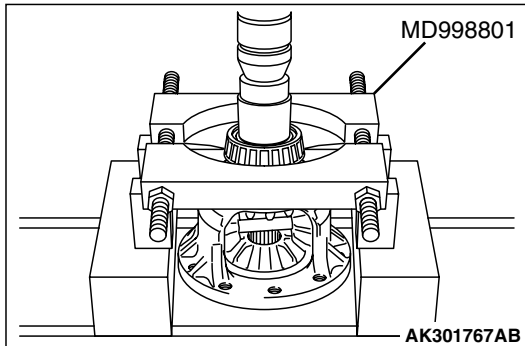
Required Special Tools:

- MD998801: Bearing Remover
- MD998812: Installer Cap
- MD998823: Installer Adapter (48)

DISASSEMBLY SERVICE POINT

<<A>> TAPER ROLLER BEARING REMOVAL

1. Support the taper roller bearing with special tool MD998801, and then set them on the press.
2. Push down on the differential case with the press to remove the bearing.



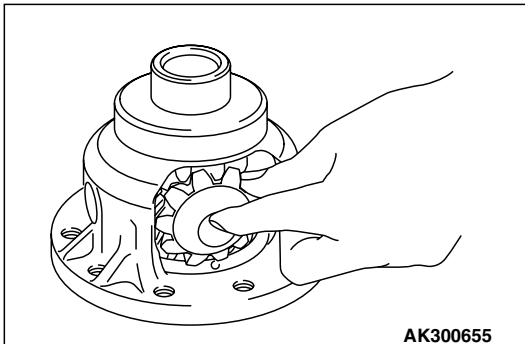
ASSEMBLY SERVICE POINTS

>>A<< SPACER, SIDE GEAR, WASHER, PINION AND PINION SHAFT INSTALLATION

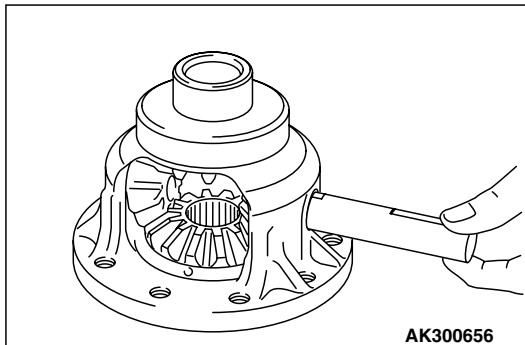
1. Mount a spacer on the back surface of the side gear, and then install the side gear in the differential case.

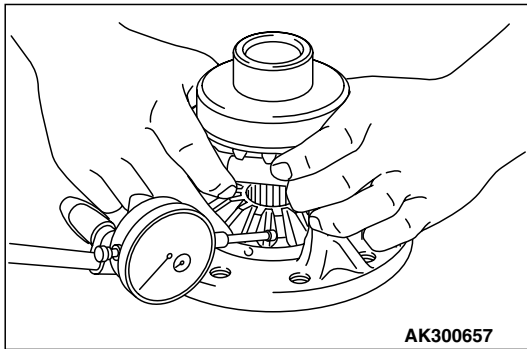
NOTE: When a new side gear is to be installed, use a medium thickness spacer [0.93 to 1.00 mm (0.0366 to 0.0394 inch)].

2. Set the washer on the back of each pinion, and put both pinions simultaneously in mesh with the side gears. While rotating them, install them into position.



3. Insert the pinion shaft.





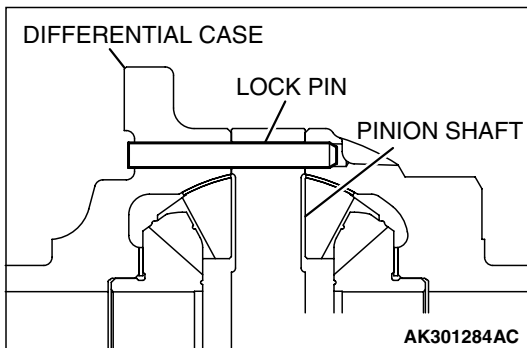
4. Measure the backlash between the side gear and pinion.

Standard value:

0.025 – 0.150 mm (0.0010 – 0.0059 inch)

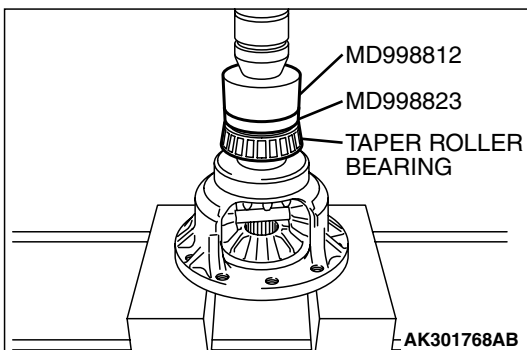
5. If the backlash is out of the standard value, select a spacer and re-measure the backlash.

NOTE: Adjust until the backlash on both sides are equal.



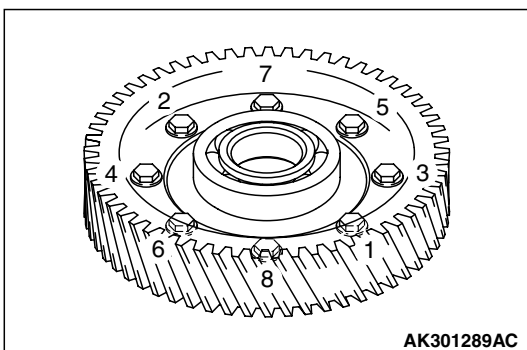
>>B<< LOCK PIN INSTALLATION

Install the lock pin so that it will be oriented in the direction shown.



>>C<< TAPER ROLLER BEARING INSTALLATION

Using special tools MD998812 and MD998823, press in the taper roller bearing.



>>D<< DIFFERENTIAL DRIVE GEAR INSTALLATION

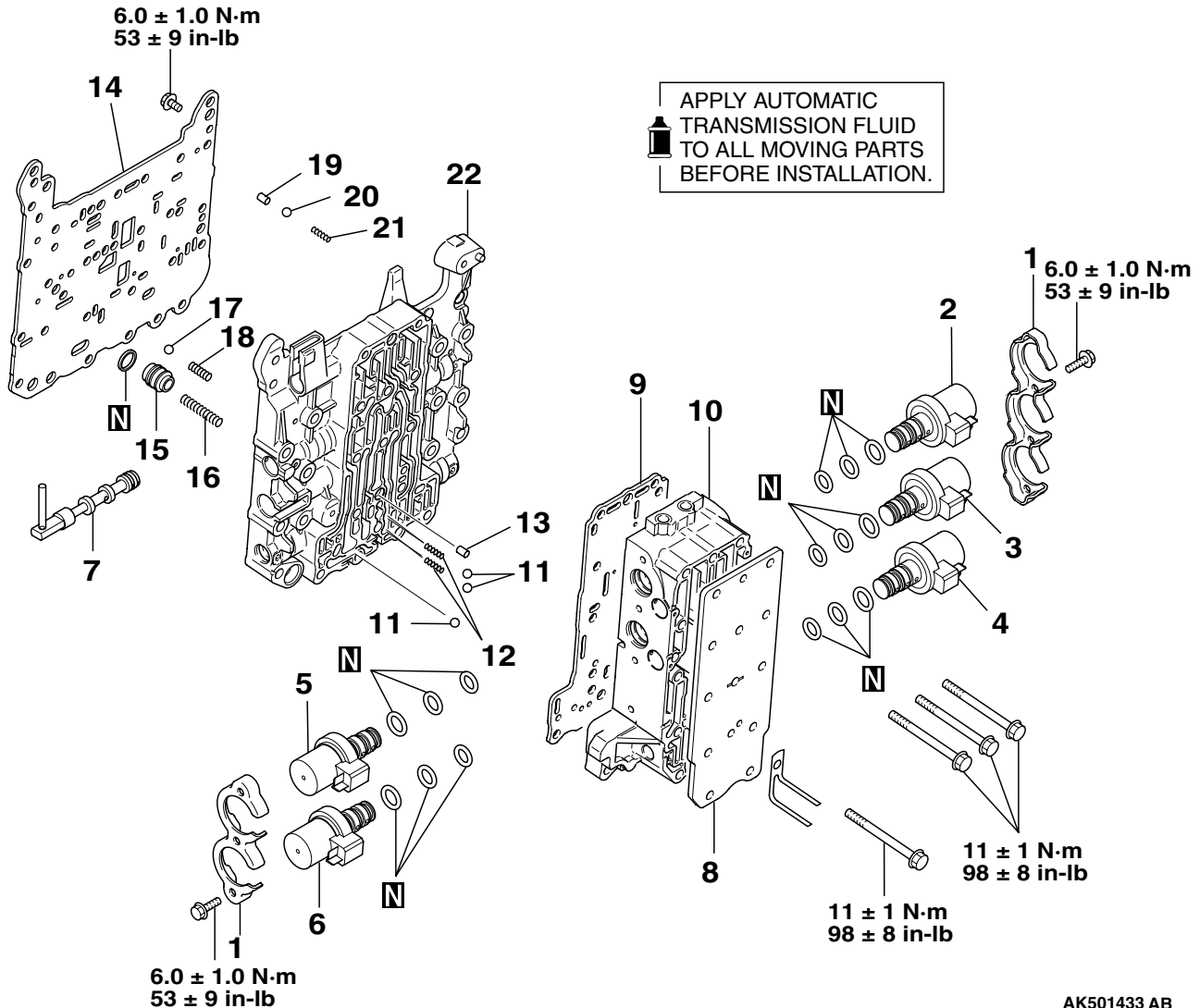
Apply ATF to the bolt, and then tighten the bolts to the specified torque in the sequence shown.

Tightening torque: 135 ± 5 N·m (100 ± 3 ft-lb)

VALVE BODY

DISASSEMBLY AND ASSEMBLY

M1233005500354



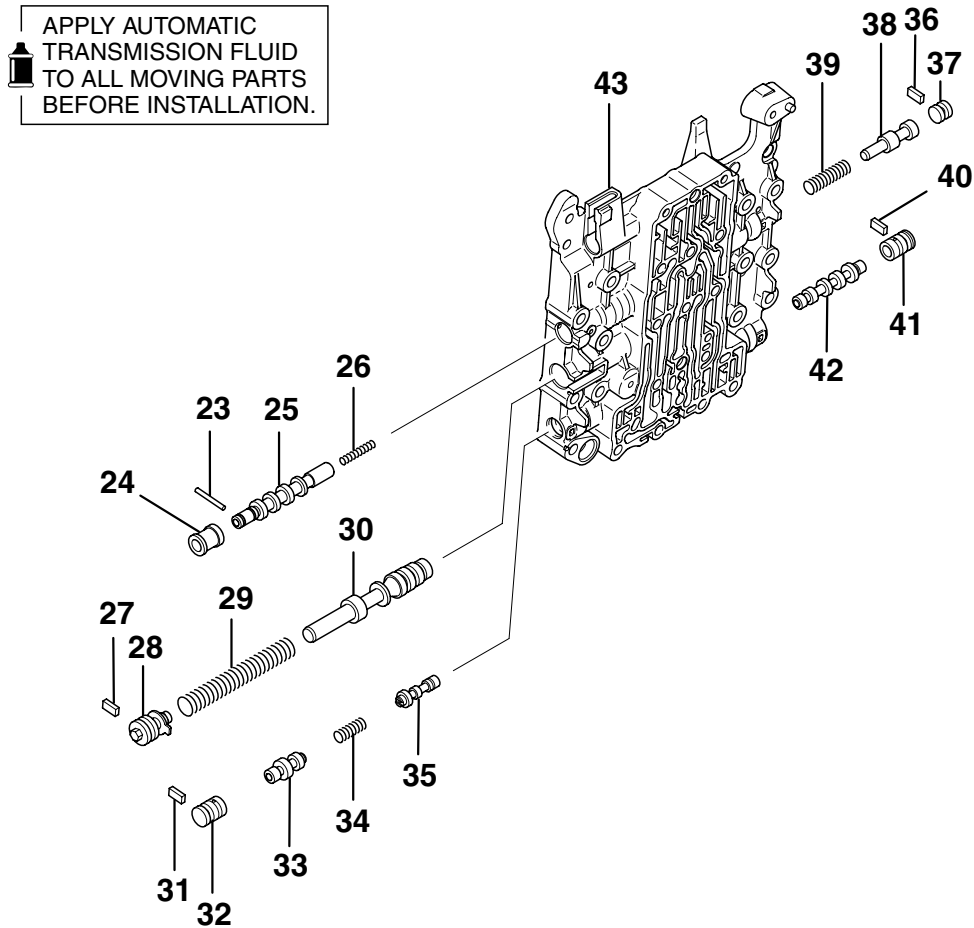
AK501433 AB

DISASSEMBLY STEPS

- | | | | |
|-------|-------|-----|--|
| <<A>> | >>C<< | 1. | SOLENOID VALVE SUPPORT |
| <<A>> | >>C<< | 2. | UNDERDRIVE SOLENOID VALVE |
| <<A>> | >>C<< | 3. | SECOND SOLENOID VALVE |
| <<A>> | >>C<< | 4. | TORQUE CONVERTER CLUTCH CONTROL SOLENOID VALVE |
| <<A>> | >>C<< | 5. | OVERDRIVE SOLENOID VALVE |
| <<A>> | >>C<< | 6. | LOW-REVERSE SOLENOID VALVE |
| | | 7. | MANUAL VALVE |
| | | 8. | COVER |
| | | 9. | PLATE |
| | | 10. | OUTSIDE VALVE BODY ASSEMBLY |

DISASSEMBLY STEPS

- | | | |
|-------|-----|---------------------------------|
| >>B<< | 11. | STEEL BALL (ORIFICE CHECK BALL) |
| >>B<< | 12. | SPRING |
| | 13. | KNOCK BUSHING |
| | 14. | PLATE |
| >>A<< | 15. | DAMPING VALVE |
| >>A<< | 16. | DAMPING VALVE SPRING |
| >>A<< | 17. | STEEL BALL (LINE RELIEF) |
| >>A<< | 18. | SPRING |
| | 19. | KNOCK BUSHING |
| >>A<< | 20. | STEEL BALL (ORIFICE CHECK BALL) |
| >>A<< | 21. | SPRING |
| | 22. | INSIDE VALVE BODY ASSEMBLY |



AK301609AD

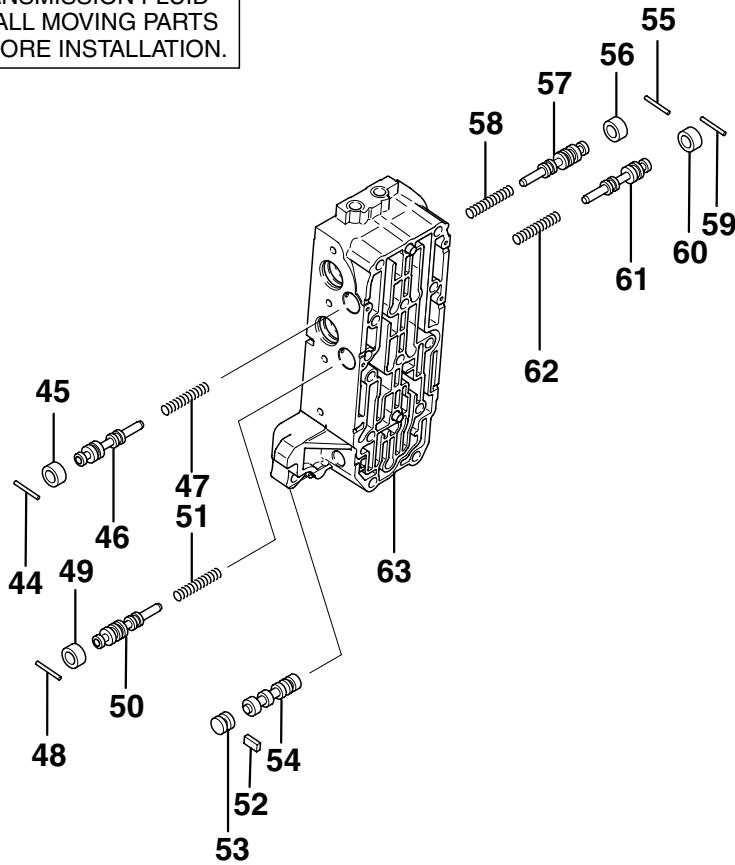
DISASSEMBLY STEPS

- 23. ROLLER
- 24. TORQUE CONVERTER CLUTCH CONTROL VALVE SLEEVE
- 25. TORQUE CONVERTER CLUTCH CONTROL VALVE
- 26. TORQUE CONVERTER CLUTCH CONTROL VALVE SPRING
- 27. PLATE
- 28. SCREW
- 29. REGULATOR VALVE SPRING
- 30. REGULATOR VALVE
- 31. PLATE
- 32. FAIL-SAFE VALVE A SLEEVE

DISASSEMBLY STEPS

- 33. FAIL-SAFE VALVE A2
- 34. FAIL-SAFE VALVE A SPRING
- 35. FAIL-SAFE VALVE A1
- 36. PLATE
- 37. PLUG
- 38. TORQUE CONVERTER VALVE
- 39. TORQUE CONVERTER VALVE SPRING
- 40. PLATE
- 41. FAIL-SAFE VALVE B SLEEVE
- 42. FAIL-SAFE VALVE B
- 43. INSIDE VALVE BODY

 **APPLY AUTOMATIC
TRANSMISSION FLUID
TO ALL MOVING PARTS
BEFORE INSTALLATION.**



AK301610 AD

DISASSEMBLY STEPS

- 44. ROLLER
- 45. OVERDRIVE PRESSURE
CONTROL VALVE SLEEVE
- 46. OVERDRIVE PRESSURE
CONTROL VALVE
- 47. OVERDRIVE PRESSURE
CONTROL VALVE SPRING
- 48. ROLLER
- 49. LOW-REVERSE PRESSURE
CONTROL VALVE SLEEVE
- 50. LOW-REVERSE PRESSURE
CONTROL VALVE
- 51. LOW-REVERSE PRESSURE
CONTROL VALVE SPRING
- 52. PLATE
- 53. PLUG

DISASSEMBLY STEPS

- 54. SWITCHING VALVE
- 55. ROLLER
- 56. UNDERDRIVE PRESSURE
CONTROL VALVE SLEEVE
- 57. UNDERDRIVE PRESSURE
CONTROL VALVE
- 58. UNDERDRIVE PRESSURE
CONTROL VALVE SPRING
- 59. ROLLER
- 60. SECOND PRESSURE CONTROL
VALVE SLEEVE
- 61. SECOND PRESSURE CONTROL
VALVE
- 62. SECOND PRESSURE CONTROL
VALVE SPRING
- 63. OUTSIDE VALVE BODY

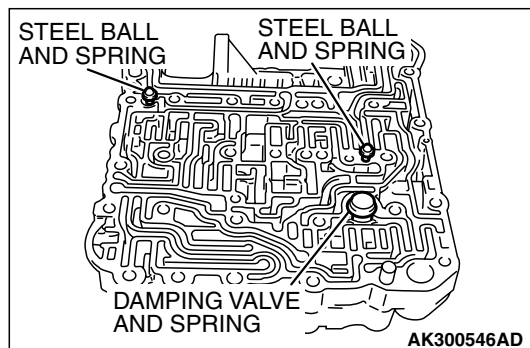
DISASSEMBLY SERVICE POINT

<<A>> SOLENOID VALVES REMOVAL

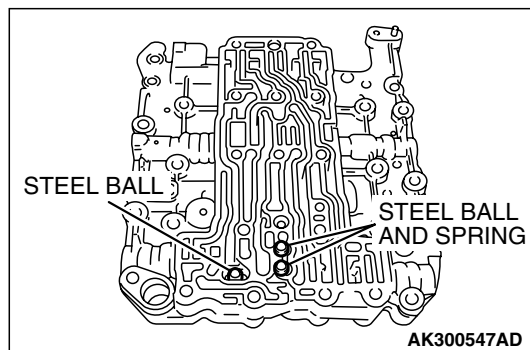
Mark the solenoid valves with white paint to make assembly easier.

ASSEMBLY SERVICE POINTS**>>A<< SPRING, STEEL BALL, DAMPING VALVE AND
DAMPING VALVE SPRING INSTALLATION**

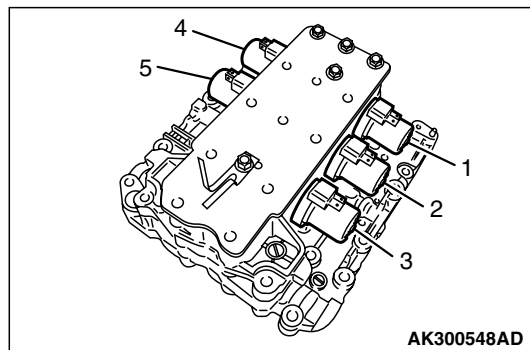
1. Install the steel balls (two pieces) and springs (two pieces) to the inside valve body as shown.
2. Install the damping valve and spring to the inside valve body as shown.

**>>B<< SPRING AND STEEL BALL INSTALLATION**

Install the steel balls (three pieces) and springs (two pieces) to the inside valve body as shown.

**>>C<< SOLENOID VALVES INSTALLATION**

1. Apply ATF or petroleum jelly (Vaseline) to the O-ring and install carefully.
2. Install the solenoid valves by referring to the marks applied during disassembly.

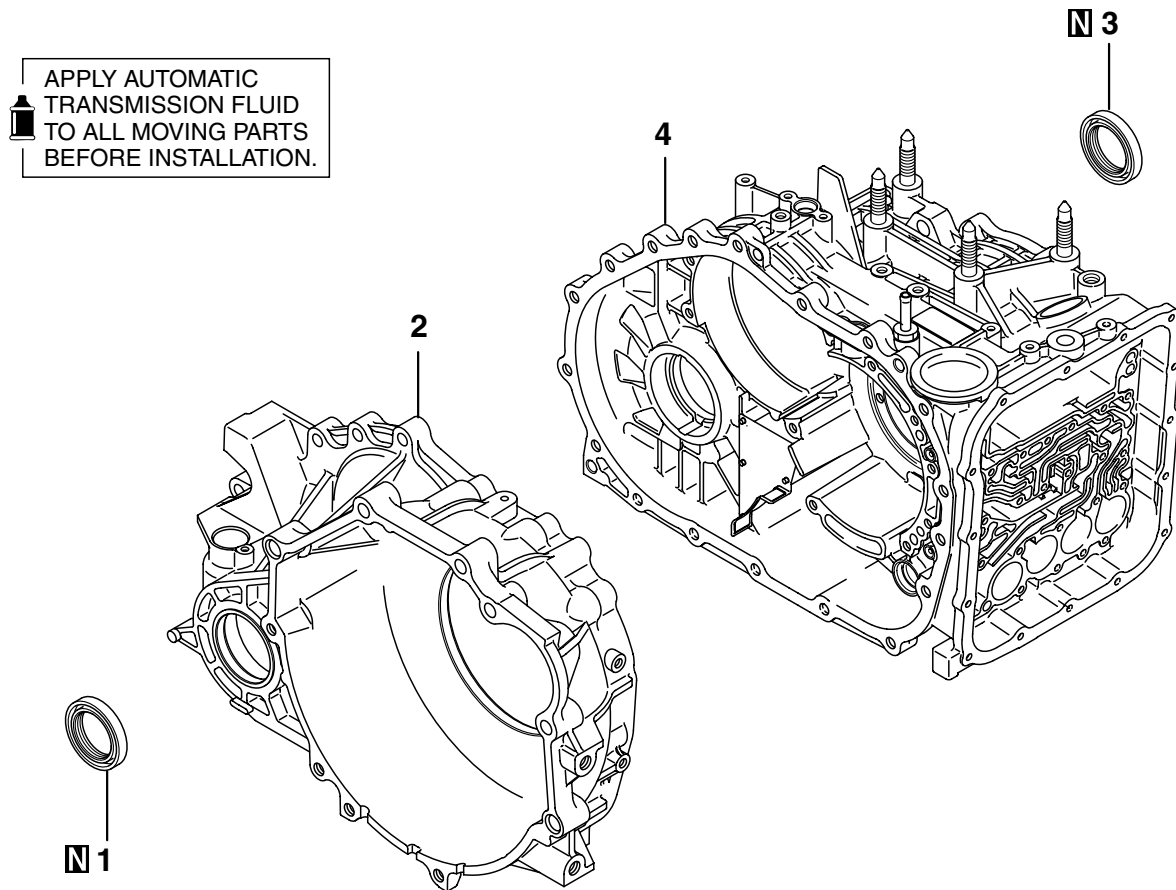


NO.	NAME
1	Underdrive solenoid valve
2	Second solenoid valve
3	Torque converter clutch control solenoid valve
4	Overdrive solenoid valve
5	Low-reverse solenoid valve

DRIVE SHAFT OIL SEAL

DISASSEMBLY AND ASSEMBLY

M1233004300153



AK301611 AB

- >>A<<
- DISASSEMBLY STEPS**
1. OIL SEAL
 2. TORQUE CONVERTER HOUSING

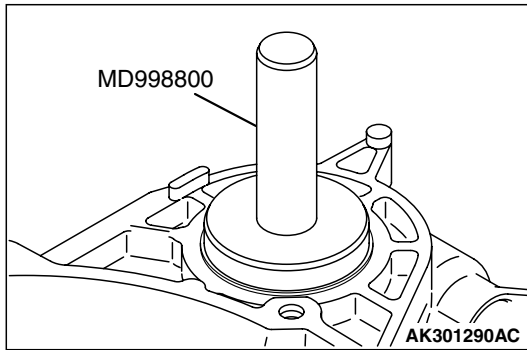
- >>B<<
- DISASSEMBLY STEPS**
3. OIL SEAL
 4. TRANSAXLE CASE

Required Special Tool:

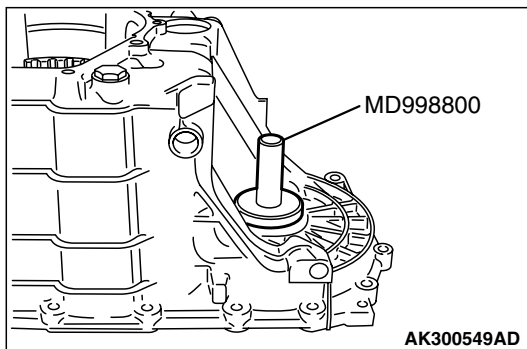
- MD998800: Oil Seal Installer

ASSEMBLY SERVICE POINTS**>>A<< OIL SEAL INSTALLATION**

Use special tool MD998800 to tap the oil seal into the torque converter housing.

**>>B<< OIL SEAL INSTALLATION**

Use special tool MD998800 to tap the oil seal in the transaxle case.



SPECIFICATION(S)

FASTENER TIGHTENING SPECIFICATIONS

M1233023100813

ITEM		SPECIFICATIONS
Transaxle	Roll stopper bracket	70 ± 10 N·m (52 ± 7 ft-lb)
	Harness bracket	11 ± 1 N·m (95 ± 9 in-lb)
	Control cable support bracket	23 ± 3 N·m (17 ± 2 ft-lb)
	Eye bolt	24 ± 3 N·m (18 ± 2 ft-lb)
	Oil cooler feed tube	11 ± 1 N·m (95 ± 9 in-lb)
	Input shaft speed sensor	11 ± 1 N·m (95 ± 9 in-lb)
	Output shaft speed sensor	11 ± 1 N·m (95 ± 9 in-lb)
	Manual control lever	22 ± 3 N·m (16 ± 2 ft-lb)
	Park/neutral position switch (PNP switch)	11 ± 1 N·m (95 ± 9 in-lb)
	Valve body cover	11 ± 1 N·m (95 ± 9 in-lb)
	Manual control shaft detente	6.0 ± 1.0 N·m (52 ± 9 in-lb)
	Valve body mounting bolt	11 ± 1 N·m (95 ± 9 in-lb)
	Fluid temperature sensor mounting bolt	11 ± 1 N·m (95 ± 9 in-lb)
	Torque converter housing	48 ± 6 N·m (35 ± 4 ft-lb)
	Oil pump	29 ± 2 N·m (21 ± 1 ft-lb)
	Rear cover	23 ± 3 N·m (17 ± 2 ft-lb)
	Transfer drive gear	34 ± 2 N·m (25 ± 1 ft-lb)
	Output shaft jam nut	170 ± 10 N·m (125 ± 7 ft-lb)
	Output shaft bearing retainer	29 ± 2 N·m (21 ± 2 ft-lb)
Components	Differential drive gear	135 ± 5 N·m (100 ± 3 ft-lb)
	Solenoid valve support	6.0 ± 1.0 N·m (53 ± 9 in-lb)
	Valve body	11 ± 1 N·m (98 ± 8 in-lb)
	Plate	6.0 ± 1.0 N·m (53 ± 9 in-lb)

GENERAL SPECIFICATIONS

M1233000200585

ITEM		SPECIFICATION
Model		F4A4B
Type		Electronically controlled 4-speed full-automatic
Torque converter	Type	3-element with torque converter clutch
	Stall torque ratio	1.93
Gear ratio	1st	2.842
	2nd	1.573
	3rd	1.000
	4th	0.688
	Reverse	2.214
Final gear ratio		4.212

SERVICE SPECIFICATIONS

M1233000300270

ITEM	STANDARD VALUE
Brake reaction plate end play mm (in)	0 – 0.16 (0 – 0.0063)
Second brake end play mm (in)	0.79 – 1.25 (0.0311 – 0.0492)
Low-reverse brake end play mm (in)	1.65 – 2.11 (0.0649 – 0.0831)
Output shaft preload mm (in)	0.01 – 0.09 (0.0004 – 0.0035)
Underdrive sun gear end play mm (in)	0.25 – 0.45 (0.0098 – 0.0177)
Input shaft end play mm (in)	0.70 – 1.45 (0.028 – 0.057)
Differential case preload mm (in)	0.045 – 0.105 (0.0018 – 0.0041)
Underdrive clutch end play mm (in)	1.6 – 1.8 (0.0630 – 0.0709)
Reverse and overdrive clutch return spring retainer end play mm (in)	0 – 0.09 (0 – 0.0035)
Overdrive clutch end play mm (in)	1.6 – 1.8 (0.0630 – 0.0709)
Reverse clutch end play mm (in)	1.5 – 1.7 (0.0591 – 0.0669)
Backlash between differential side gear and pinion mm (in)	0.025 – 0.150 (0.0010 – 0.0059)

VALVE BODY SPRING IDENTIFICATION TABLE

M1233022900128

SPRING	WIRE DIAMETER mm (in)	OUTSIDE DIAMETER mm (in)	FREE LENGTH mm (in)	NUMBER OF LOOPS
Regulator valve spring	1.8 (0.071)	15.7 (0.618)	86.7 (3.413)	24
Underdrive pressure control valve spring	0.7 (0.028)	7.6 (0.299)	37.7 (1.484)	25
Overdrive pressure control valve spring	0.7 (0.028)	7.6 (0.299)	37.7 (1.484)	25
Low-reverse pressure control valve spring	0.7 (0.028)	7.6 (0.299)	37.7 (1.484)	25
Second pressure control valve spring	0.7 (0.028)	7.6 (0.299)	37.7 (1.484)	25
Torque converter spring	1.6 (0.063)	11.2 (0.441)	34.4 (1.354)	12.5
Torque converter clutch control valve spring	0.7 (0.028)	5.9 (0.232)	28.1 (1.106)	19
Fail-safe valve spring	0.7 (0.028)	8.9 (0.350)	21.9 (0.862)	9.5
Damping valve spring	1.0 (0.039)	7.7 (0.303)	35.8 (1.409)	17
Line relief valve spring	1.0 (0.039)	7.0 (0.276)	17.3 (0.681)	10
Orifice check ball spring	0.5 (0.020)	4.5 (0.177)	17.2 (0.677)	15

ADJUSTING PLATE, SNAP RING AND SPACERS

M1233023000429

Thrust washer (For adjustment of input shaft end play)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
1.8 (0.071)	18	2.4 (0.094)	24
2.0 (0.079)	20	2.6 (0.102)	26
2.2 (0.087)	22	2.8 (0.110)	28

Snap ring (For adjustment of underdrive clutch and overdrive clutch end play)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
1.6 (0.063)	None	2.4 (0.094)	Brown
1.7 (0.067)	Blue	2.5 (0.098)	None
1.8 (0.071)	Brown	2.6 (0.102)	Blue

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
1.9 (0.075)	None	2.7 (0.106)	Brown
2.0 (0.079)	Blue	2.8 (0.110)	None
2.1 (0.083)	Brown	2.9 (0.114)	Blue
2.2 (0.087)	None	3.0 (0.118)	Brown
2.3 (0.091)	Blue		

Snap ring (For adjustment of low-reverse brake and second brake reaction plates end play)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
2.2 (0.087)	Blue	2.4 (0.094)	None
2.3 (0.091)	Brown	2.5 (0.098)	Blue

Pressure plate (For adjustment of low-reverse brake and second brake end play)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
1.6 (0.063)	L	2.4 (0.094)	4
1.8 (0.071)	1	2.6 (0.102)	6
2.0 (0.079)	0	2.8 (0.110)	8
2.2 (0.087)	2	3.0 (0.118)	D

Snap ring (For adjustment of reverse clutch end play)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
1.6 (0.063)	None	2.3 (0.091)	Blue
1.7 (0.067)	Blue	2.4 (0.094)	Brown
1.8 (0.071)	Brown	2.5 (0.098)	None
1.9 (0.075)	None	2.6 (0.102)	Blue
2.0 (0.079)	Blue	2.7 (0.106)	Brown
2.1 (0.083)	Brown	2.8 (0.110)	None
2.2 (0.087)	None		

Snap ring (For adjustment of reverse clutch and overdrive clutch spring retainer end plays)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
1.48 (0.0583)	Brown	1.58 (0.0622)	Blue
1.53 (0.0602)	None	1.63 (0.0642)	Brown

Thrust race (For adjustment of underdrive sun gear end play)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
1.6 (0.063)	—	2.2 (0.087)	—
1.7 (0.067)	—	2.3 (0.091)	—
1.8 (0.071)	—	2.4 (0.094)	—
1.9 (0.075)	—	2.5 (0.098)	—
2.0 (0.079)	—	2.6 (0.102)	—
2.1 (0.083)	—		

Spacer (For adjustment of output shaft preload)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
1.88 (0.0740)	88	2.36 (0.0929)	36
1.92 (0.0756)	92	2.40 (0.0945)	40
1.96 (0.0772)	96	2.44 (0.0961)	44
2.00 (0.0787)	00	2.48 (0.0976)	48
2.04 (0.0803)	04	2.52 (0.0992)	52
2.08 (0.0819)	08	2.56 (0.1008)	56
2.12 (0.0835)	12	2.60 (0.1024)	60
2.16 (0.0850)	16	2.64 (0.1039)	64
2.20 (0.0866)	20	2.68 (0.1055)	68
2.24 (0.0882)	24	2.72 (0.1071)	72
2.28 (0.0898)	28	2.76 (0.1087)	76
2.32 (0.0913)	32		

Spacer (For adjustment of differential case preload)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
0.71 (0.0280)	71	1.07 (0.0421)	07
0.74 (0.0291)	74	1.10 (0.0433)	J
0.77 (0.0303)	77	1.13 (0.0445)	D
0.80 (0.0315)	80	1.16 (0.0457)	K
0.83 (0.0327)	83	1.19 (0.0469)	L
0.86 (0.0339)	86	1.22 (0.0480)	G
0.89 (0.0350)	89	1.25 (0.0492)	M
0.92 (0.0362)	92	1.28 (0.0504)	N
0.95 (0.0374)	95	1.31 (0.0516)	E
0.98 (0.0386)	98	1.34 (0.0528)	O
1.01 (0.0398)	01	1.37 (0.0539)	P
1.04 (0.0409)	04		

Spacer (For adjustment of backlash between differential side gear and pinion)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
0.75 – 0.82 (0.0295 – 0.0323)	–	1.01 – 1.08 (0.0398 – 0.0425)	–
0.83 – 0.92 (0.0327 – 0.0362)	–	1.09 – 1.16 (0.0429 – 0.0457)	–
0.93 – 1.00 (0.0366 – 0.0394)	–		

SEALANTS

M1233000500229

ITEM	SPECIFIED SEALANT
Rear cover	Mitsubishi Part No. MD974421 or equivalent
Torque converter housing	Mitsubishi Part No. MD974421 or equivalent
Valve body cover	Mitsubishi Part No. MD974421 or equivalent