
GROUP 23B

AUTOMATIC TRANSAXLE OVERHAUL

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AUTOMATIC TRANSAXLE MODELS

M12303000001USA0000010000

Transaxle model	Combined engine	Vehicle model
F6AJA-1-F7ZA	6B31 S4-MIVEC	CW6W
W6AJA-1-F7ZA	6B31 S4-MIVEC	CW6W

GENERAL SPECIFICATIONS

M12303000002USA0000010000

ITEM		SPECIFICATION	
Model		F6AJA-1-F7ZA	W6AJA-1-F7ZA
Type		Electronically controlled 6-speed full-automatic	
Torque converter	Type	3-element with torque converter clutch	
	Stall torque ratio	1.99	
Gear ratio	1st	4.199	
	2nd	2.405	
	3rd	1.583	
	4th	1.161	
	5th	0.855	
	6th	0.685	
	Reverse	3.457	
Final gear ratio		3.571	
Transfer	Type	Center differential type full-time 4WD	
	Transfer gear ratio	0.425	

SERVICE SPECIFICATIONS

M1233000300300

ITEM	STANDARD VALUE mm (in)
Low-reverse brake clearance	1.9 - 2.2 (0.07 - 0.09)
3-5 reverse clutch clearance	1.9 - 2.2 (0.07 - 0.09)
High clutch clearance	1.0 - 1.3 (0.39 - 0.05)
Low clutch clearance	1.0 - 1.3 (0.39 - 0.05)
2-6 brake clearance	1.9 - 2.2 (0.07 - 0.09)
Differential preload	0.19 - 0.25 (0.007 - 0.010)
Reduction gear preload	0.16 - 0.22 (0.006 - 0.009)
Side cover end play	0.7 - 1.05 (0.027 - 0.041)
Drum support end play	0 - 0.35 (0 - 0.014)
3-5 reverse clutch end play	0.55 - 0.85 (0.021 - 0.034)

TORQUE SPECIFICATIONS

M12303000231USA0000010000

Item	Specifications
Parking pawl	7.9 N·m (70 in-lb)

Item	Specifications
Output gear set	38.5 N·m (28 ft-lb)
Oil pump assembly	21 N·m (15 ft-lb)
Converter housing	47 N·m (35 ft-lb)
Oil strainer	9.4 N·m (83 in-lb)
Side cover	27 N·m (20 ft-lb)
FR roll stopper bracket	90 ± 10 N·m (66 ± 7 ft-lb)
RR roll stopper bracket	90 ± 10 N·m (66 ± 7 ft-lb)
Corrugate clamp Bracket	23 ± 3 N·m (17 ± 2 ft-lb)
Oil filler tube	11 ± 1 N·m (97 ± 9 in-lb)
Manual control lever	22 ± 3 N·m (16 ± 2 ft-lb)
Harness bracket	23 ± 3 N·m (17 ± 2 ft-lb)
Control bracket	23 ± 3 N·m (17 ± 2 ft-lb)
Inhibitor switch	5.9 N·m (52 in-lb)
Turbine sensor	5.9 N·m (52 in-lb)
Baffle plate	5.9 N·m (52 in-lb)
ATF adjusting bolt	7.4 N·m (65 in-lb)
Detent spring	4.9 N·m (43 in-lb)
Control valve assembly	7.9 N·m (70 in-lb)
Control valve cover	7.9 N·m (70 in-lb)
Pressure test port bolt	7.4 N·m (65 in-lb)
Cooler tube eye bolt	39.2 N·m (29 ft-lb)
Cooler tube	21.6 N·m (16 ft-lb)
Side cover	27 N·m (20 ft-lb)
Fluid water-cooled	4.2 N·m (37 in-lb)
Speed sensor	5.9 N·m (52 in-lb)
Transfer	68 ± 9 N·m (66 ± 7 ft-lb)

Size of torque wrench used

Tool size	Main parts to be used
E16	Side cover
E18	Output gear set
E20	Converter housing

ADJUSTING PLATE, SNAP RING AND SPACERS

M12303000230USA0000010000

Retaining plate (For adjustment of Low-reverse brake clearance)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
2.9 (0.11)	None	3.7 (0.15)	None
3.1 (0.12)	None	3.9 (0.15)	None
3.3 (0.13)	None	4.1 (0.16)	None

AUTOMATIC TRANSAXLE OVERHAUL
ADJUSTING PLATE, SNAP RING AND SPACERS

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
3.5 (0.14)	None		

Retaining plate (For adjustment of 3-5 reverse clutch clearance)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
3.8 (0.15)	None	4.4 (0.17)	None
4.0 (0.16)	None	4.6 (0.18)	None
4.2 (0.17)	None	4.8 (0.19)	None

Snap ring (For adjustment of High clutch clearance)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
2.0 (0.08)	None	2.8 (0.11)	None
2.2 (0.09)	None	3.0 (0.12)	None
2.4 (0.09)	None	3.2 (0.13)	None
2.6 (0.10)	None		

Snap ring (For adjustment of low clutch clearance)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
2.0 (0.08)	None	2.6 (0.10)	None
2.2 (0.09)	None	2.8 (0.11)	None
2.4 (0.09)	None		

Retaining plate (For adjustment of 2-6 brake clearance)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
2.0 (0.08)	None	2.6 (0.10)	None
2.2 (0.09)	None	2.8 (0.11)	None
2.4 (0.09)	None	3.0 (0.12)	None

Differential taper bearing shim (For adjustment of differential preload)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
0.12 (0.005)	None	0.60 (0.024)	None
0.16 (0.006)	None	0.64 (0.025)	None
0.18 (0.007)	None	0.68 (0.027)	None
0.20 (0.008)	None	0.72 (0.028)	None
0.24 (0.009)	None	0.76 (0.030)	None
0.28 (0.011)	None	0.80 (0.032)	None
0.32 (0.013)	None	0.84 (0.033)	None
0.36 (0.014)	None	0.88 (0.035)	None
0.40 (0.016)	None	0.92 (0.036)	None
0.44 (0.017)	None	0.96 (0.038)	None
0.48 (0.019)	None	1.00 (0.039)	None
0.52 (0.021)	None	1.22 (0.050)	None
0.56 (0.022)	None		

Reduction gear taper bearing shim (For adjustment of reduction gear taper bearing end play)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
0.12 (0.005)	None	0.56 (0.022)	None
0.14 (0.006)	None	0.60 (0.024)	None
0.16 (0.006)	None	0.68 (0.027)	None
0.24 (0.009)	None	0.72 (0.028)	None
0.28 (0.011)	None	0.76 (0.030)	None
0.32 (0.013)	None	0.80 (0.032)	None
0.36 (0.014)	None	0.84 (0.033)	None
0.40 (0.016)	None	0.88 (0.035)	None
0.44 (0.017)	None	0.92 (0.036)	None
0.48 (0.019)	None	0.98 (0.039)	None
0.52 (0.021)	None		

Spacer (For adjustment of reduction sun gear taper bearing end play)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
1.0 (0.04)	None	1.8 (0.07)	None
1.2 (0.05)	None	2.0 (0.08)	None
1.4 (0.06)	None	2.2 (0.09)	None
1.6 (0.06)	None		

Needle bearing (For adjustment of side cover)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
2.8 (0.11)	None	3.6 (0.14)	None
3.0 (0.12)	None	3.8 (0.15)	None
3.2 (0.13)	None	4.0 (0.16)	None
3.4 (0.13)	None		

Thrust washer (For adjustment of drum support)

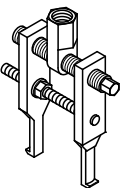
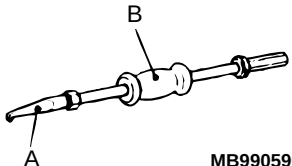
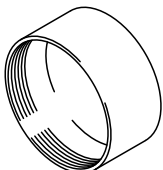
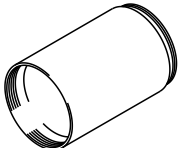
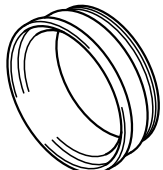
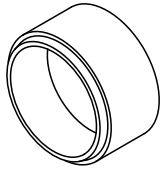
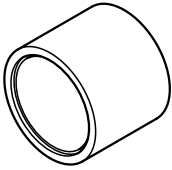
THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
1.5 (0.06)	None	2.3 (0.09)	None
1.7 (0.07)	None	2.5 (0.10)	None
1.9 (0.07)	None	2.7 (0.11)	None
2.1 (0.08)	None		

Bearing race (For adjustment of 3-5 reverse clutch)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
2.0 (0.08)	None	2.6 (0.10)	None
2.2 (0.09)	None	2.8 (0.11)	None
2.4 (0.09)	None	3.0 (0.12)	None

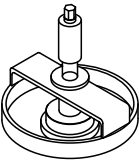
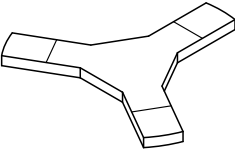
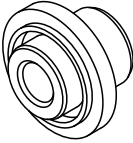
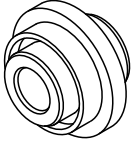
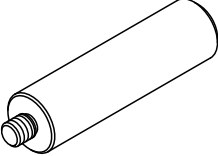
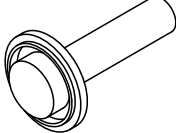
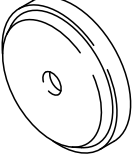
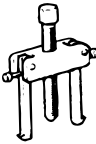
SPECIAL TOOLS

M12303000006USA0000010000

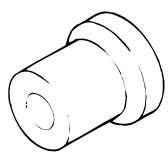
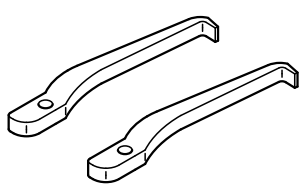
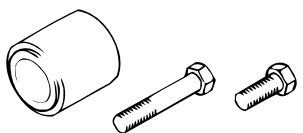
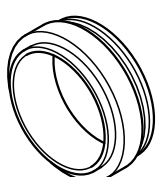
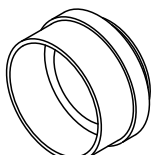
TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
	MB992039 Slid hammer puller	MB992039-01	Remove of bearing outer race
 MB990590	MB990590 Slide hammer	MB990211-01	Use with slid hammer puller
	MD998812 Installer cap	MIT304180-A or General service tool	Use with installer and installer adapter
	MD998813 Installer 100	MIT304180-A or General service tool	Use with installer and installer adapter
	MD998830 Installer adapter	MD998830-01	Installation of bearing outer race
	MB991550 Bearing outer race installer	-	Installation of differential taper roller bearing outer race
	MB991445 Bushing remover and installer base	MB991445-01	Installation of differential taper roller bearing outer race <W6AJ>

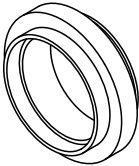
AUTOMATIC TRANSAXLE OVERHAUL
SPECCIAL TOOLS

23B-7

TOOL	TOOL NUMBER AND NAME	SUPERSESION	APPLICATION
	MB992195 Spring compressor	-	Removal and installation of low and reverse brake snap ring
	MB992196 Spring compressor	-	Removal and installation of 2-6 brake piston snap ring
	MB992197 Oil seal installer	-	Installation of differential side oil seal
	MB992198 Oil seal installer	-	Installation of converter housing oil seal
	MB992075 Handle	-	Use with oil seal installer
	MB992142 Oil seal installer	-	Installation of transfer oil seal <W6AJ>
	MB990936 Oil seal installer	-	Installation of transfer oil seal <W6AJ>
	MB990801 Rear axle bearing puller	-	Remove of tapered roller bearing

AUTOMATIC TRANSAXLE OVERHAUL
SPECIAL TOOLS

TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
 YB990811AA00	MB990811 Side bearing puller cap	-	Use with rear axle bearing puller
	MB990956 Needle bearing installer	-	Use with rear axle bearing puller
 YB990810AA00	MB990810 Side bearing puller	-	Remove of tapered roller bearing
	MD999566 Claw	-	Use with side bearing puller
	MD998761 Cam oil seal installer	-	Use with side bearing puller
	MD998826 Installer adapter	-	Installation of tapered roller bearing <F6AJ>
 YB991559AA00	MB991559 Cam oil seal installer adapter	-	Installation of tapered roller bearing <F6AJ>
	MB992213 Bearing installer	-	Installation of tapered roller bearing

TOOL	TOOL NUMBER AND NAME	SUPERSESION	APPLICATION
	MB992150 Oil seal installer	-	Installation of tapered roller bearing

TRANSAXLE

DISASSEMBLY AND ASSEMBLY

M12303000010USA0000010000

⚠ CAUTION

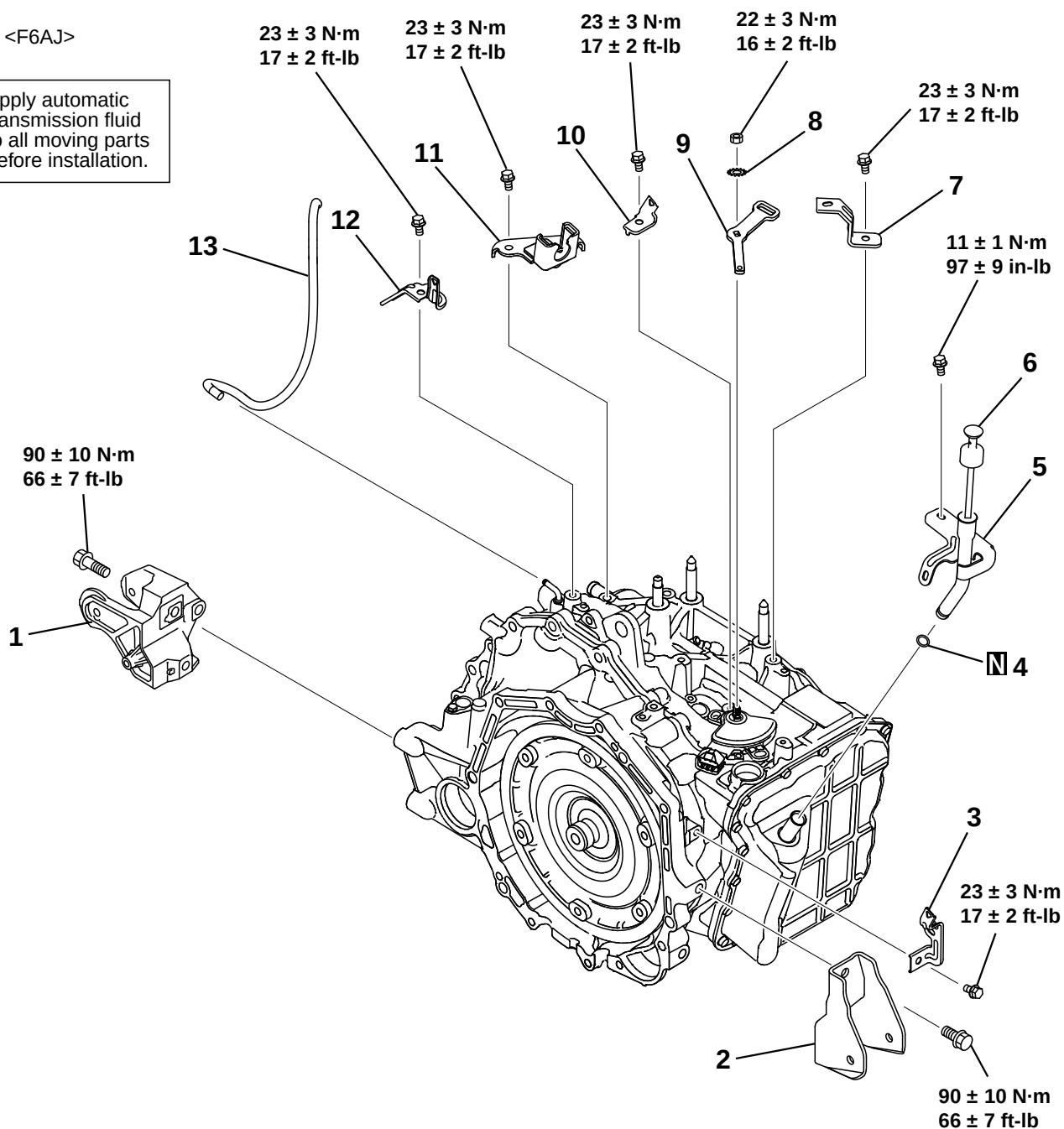
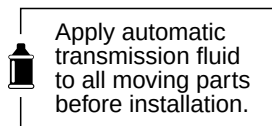
- Use a fluid of the designated brand for ATF (automatic transmission fluid). Use of ATF not specified by the manufacturer can affect drivability and the durability of the automatic transmission, and can even lead to damage to the transmission.
- Perform disassembly work in a clean, dustproof room.
- Wash sand and mud adhering to the outside of the transaxle well using steam or washing oil outside a dustproof room before disassembly to prevent them from entering the inside during disassembly and assembly. (Do not blow steam in the inside of the transaxle or wash rubber-made parts with washing oil.)

- Pull out the torque converter from the transaxle after it is cleaned and drain ATF.
- During the disassembly and assembly work, always use bare hands or vinyl gloves.
- Do not touch internal parts with your hands which touched the outside of the transaxle. (Wash your hands before touching internal parts.)
- Use paper towels instead of cotton gloves and shop towels to prevent entry of lint.
- Check the normal condition before performing disassembly and assembly work.
- Do not reuse drained ATF.
- Refer to "GENERAL DESCRIPTION" for the meanings of the symbols used in the illustration.

AUTOMATIC TRANSAXLE OVERHAUL

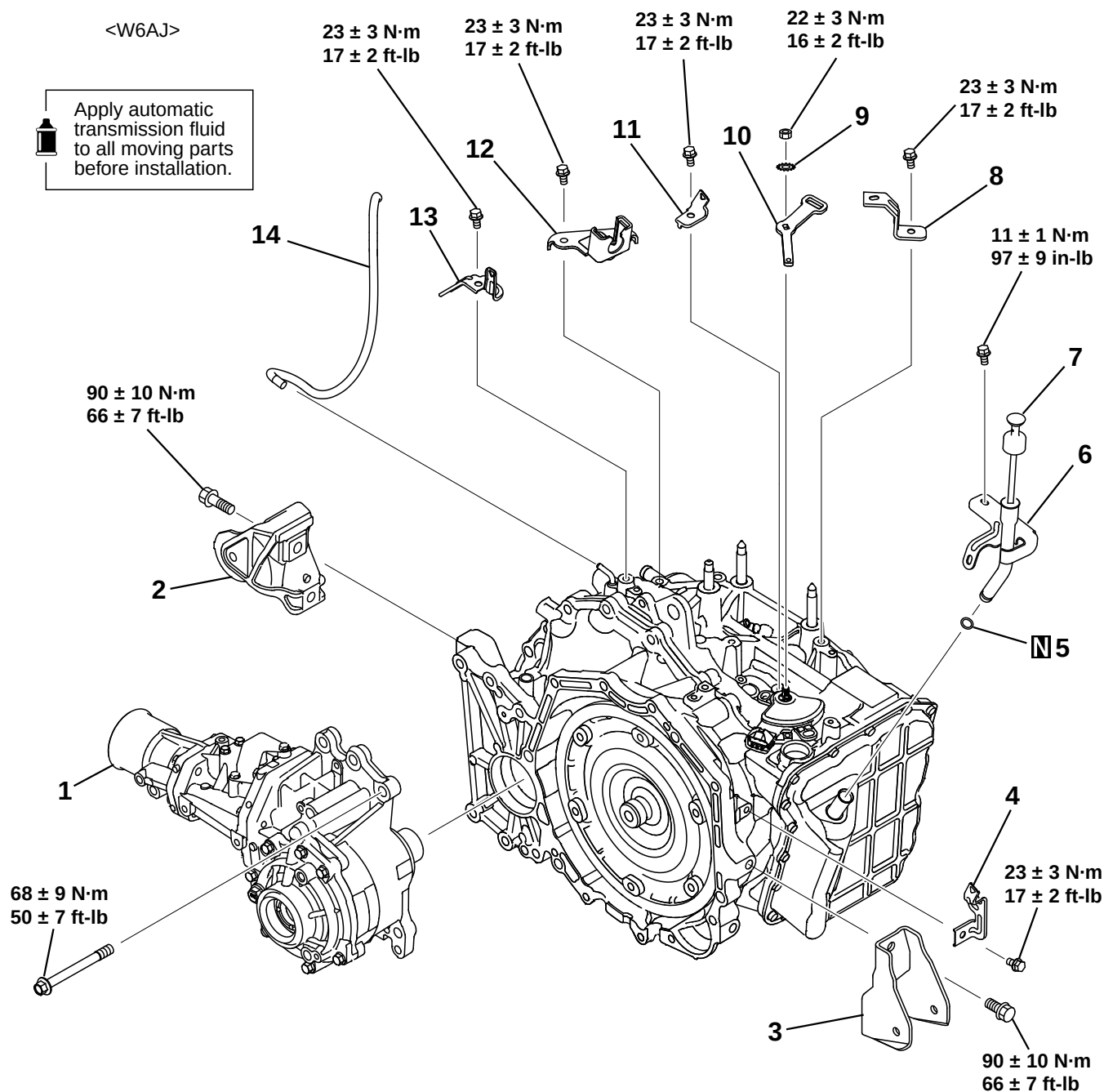
TRANSAXLE

<F6AJ>



ZK603044AA00

- | | |
|----------------------------|-----------------------------|
| 1. FR roll stopper bracket | 8. Spring washer |
| 2. RR roll stopper bracket | 9. Manual control lever |
| 3. Corrugate clamp bracket | 10. Harness bracket |
| 4. O-ring | 11. Control cable bracket |
| 5. Oil filler tube | 12. Corrugate clamp bracket |
| 6. Oil level gauge | 13. Breather hose |
| 7. Corrugate clamp bracket | |

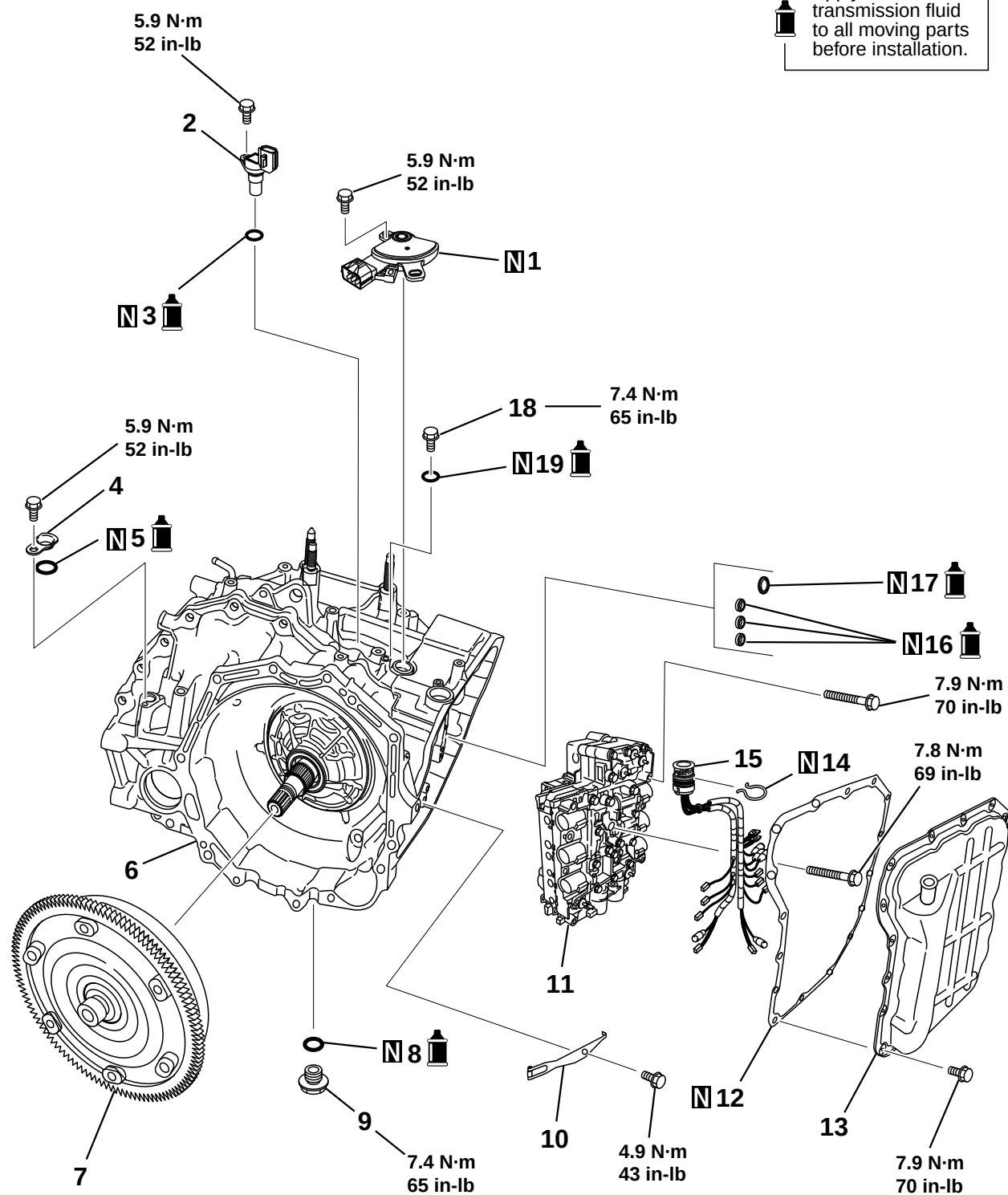


ZK603045AA00

- | | |
|----------------------------|-----------------------------|
| 1. Transfer assembly | 8. Corrugate clamp bracket |
| 2. FR roll stopper bracket | 9. Spring washer |
| 3. RR roll stopper bracket | 10. Manual control lever |
| 4. Corrugate clamp bracket | 11. Harness bracket |
| 5. O-ring | 12. Bracket control cable |
| 6. Oil filler tube | 13. Corrugate clamp bracket |
| 7. Oil level gauge | 14. Breather hose |

<F6AJ>

Apply automatic transmission fluid to all moving parts before installation.



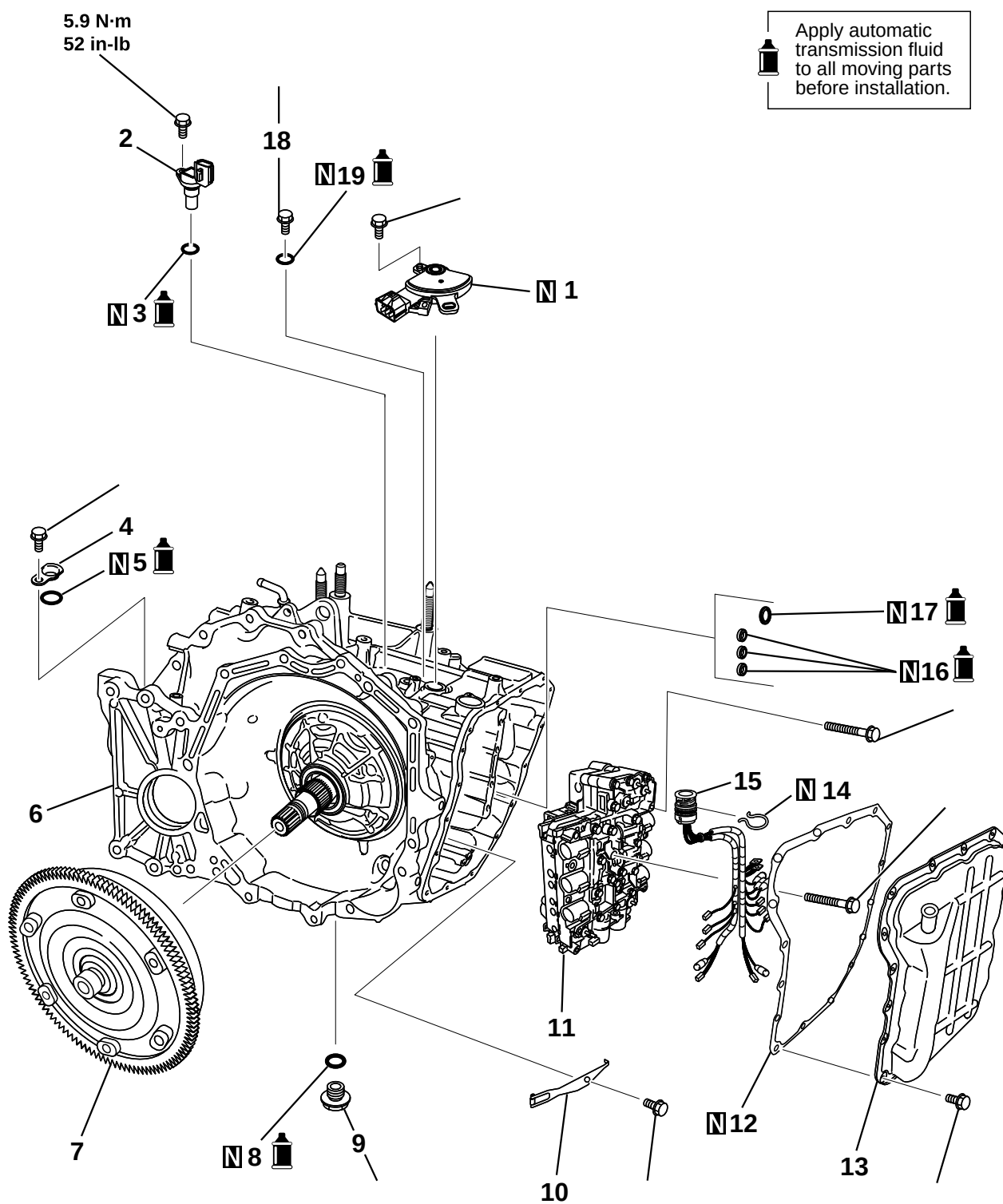
1. Park/neutral position switch

2. Turbine sensor

ZK602952AA00

-
- | | |
|----------------------------|--------------------------------|
| 3. O-ring | 12. Control valve cover gasket |
| 4. Baffle plate | 13. Control valve cover |
| 5. O-ring | 14. Snap ring |
| 6. Transaxle assembly | 15. Terminal assembly |
| 7. Torque converter | 16. Lip seal |
| 8. O-ring | 17. Lip seal |
| 9. ATF adjusting bolt | 18. Pressure test port bolt |
| 10. Detent spring | 19. O-ring |
| 11. Control valve assembly | |

<W6AJ>



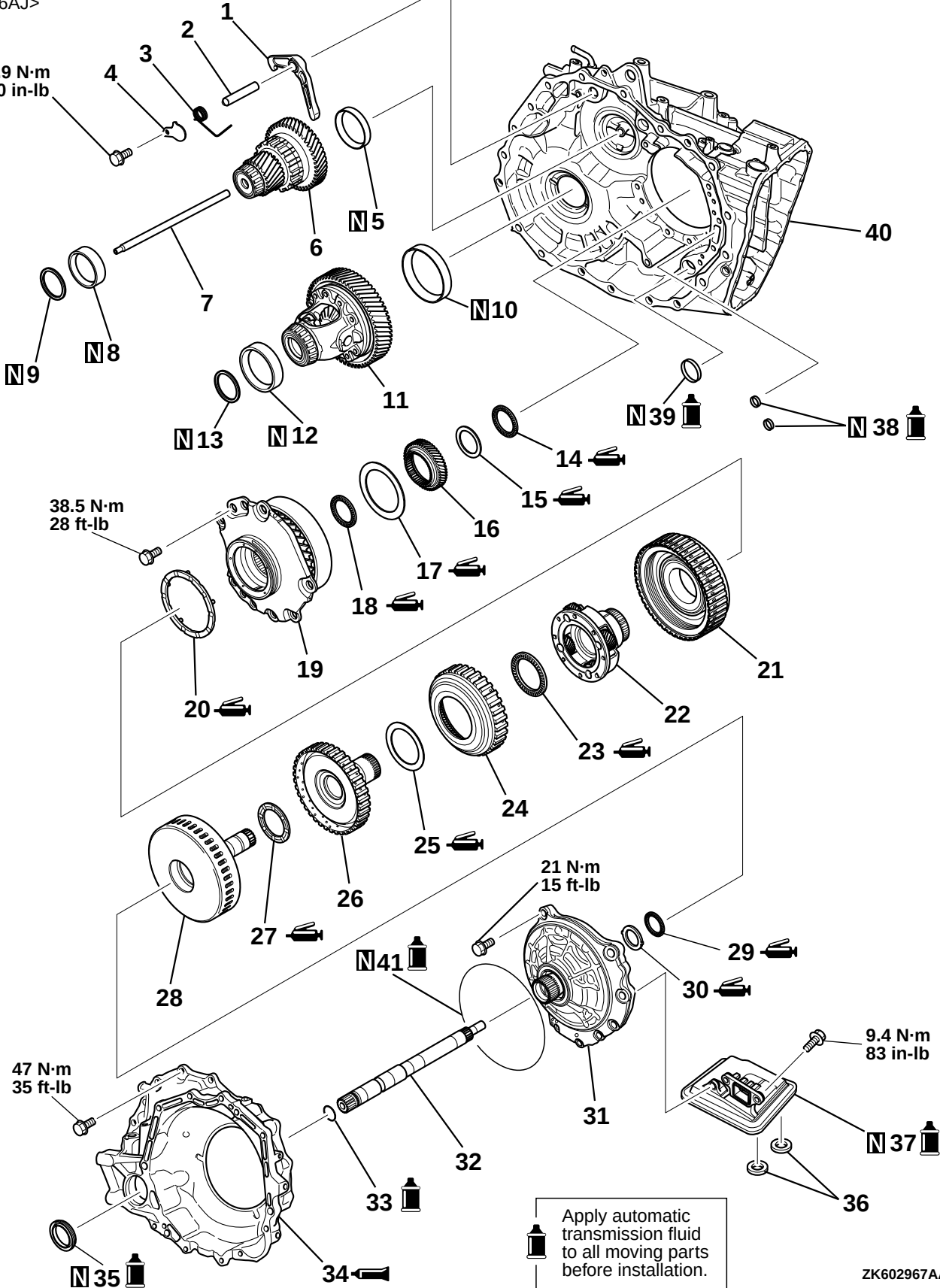
1. Park/neutral position switch
2. Turbine sensor
3. O-ring

4. Baffle plate
5. O-ring
6. Transaxle assembly

ZK602953AA00

-
- | | |
|--------------------------------|-----------------------------|
| 7. Torque converter | 14. Snap ring |
| 8. O-ring | 15. Terminal assembly |
| 9. ATF adjusting bolt | 16. Lip seal |
| 10. Detent spring | 17. Lip seal |
| 11. Control valve assembly | 18. Pressure test port bolt |
| 12. Control valve cover gasket | 19. O-ring |
| 13. Control valve cover | |

<F6AJ>

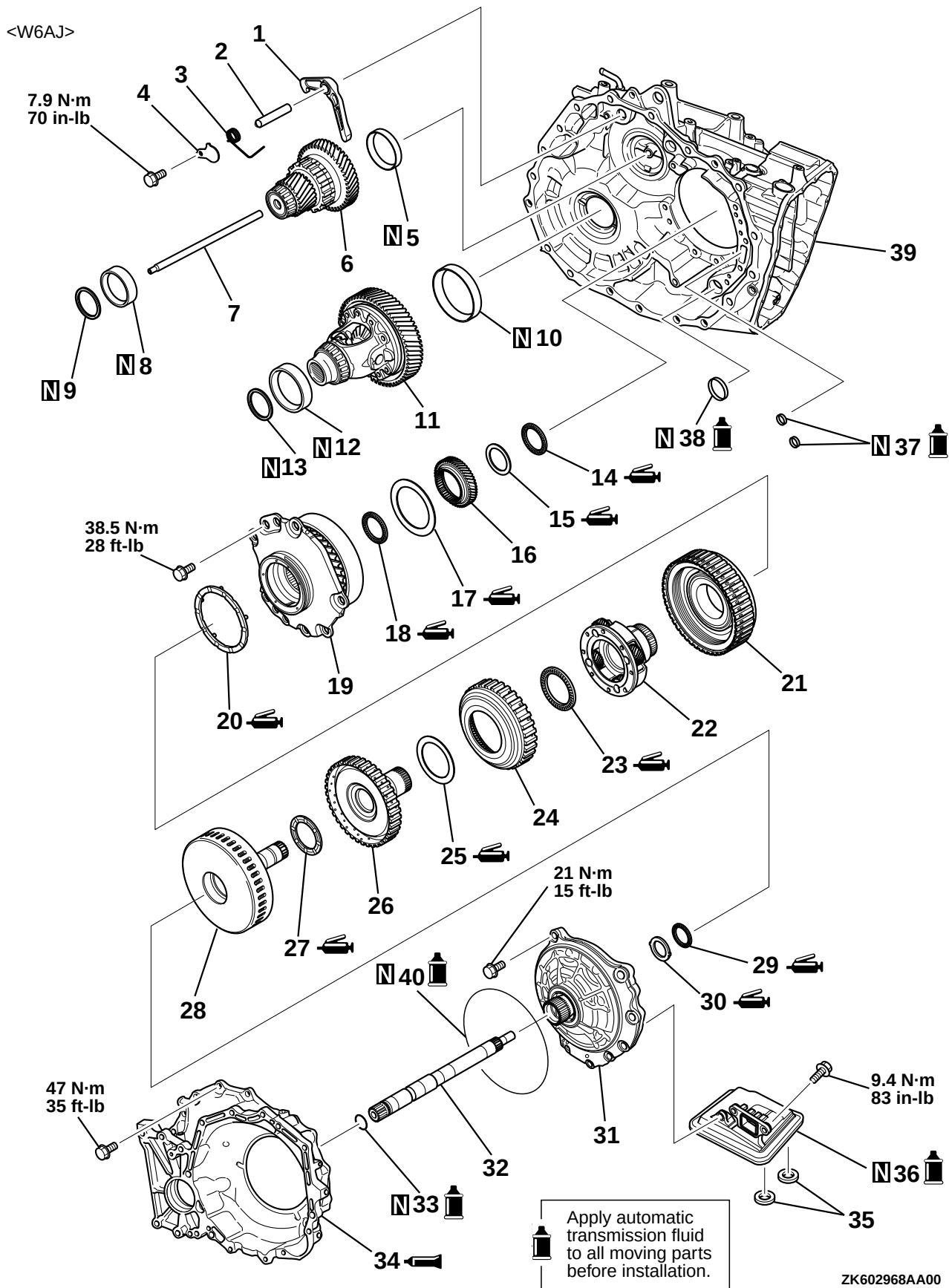
7.9 N·m
70 in-lb

ZK602967AA00

1. Parking pawl

2. Parking shaft

-
- | | |
|--------------------------------------|---------------------------------|
| 3. Return spring | 23. Needle bearing |
| 4. Parking plate | 24. FR internal gear |
| 5. Outer race | 25. Needle bearing |
| 6. Reduction gear assembly | 26. FR sun gear |
| 7. Reduction gear lubrication tube | 27. Needle bearing |
| 8. Outer race | 28. 3-5 Reverse clutch assembly |
| 9. Reduction gear taper bearing shim | 29. Needle bearing |
| 10. Outer race | 30. Bearing race |
| 11. Differential assembly | 31. Oil pump assembly |
| 12. Outer race | 32. Input shaft |
| 13. Differential taper bearing shim | 33. O-ring |
| 14. Needle bearing | 34. Converter housing |
| 15. Bearing race | 35. Side oil seal |
| 16. RR sun gear (front side) | 36. Magnet |
| 17. Bearing race | 37. Oil strainer |
| 18. Needle bearing | 38. O-ring |
| 19. Output gear set | 39. O-ring |
| 20. Thrust washer | 40. Transaxle case |
| 21. Low clutch assembly | 41. O-ring |
| 22. FR carrier | |

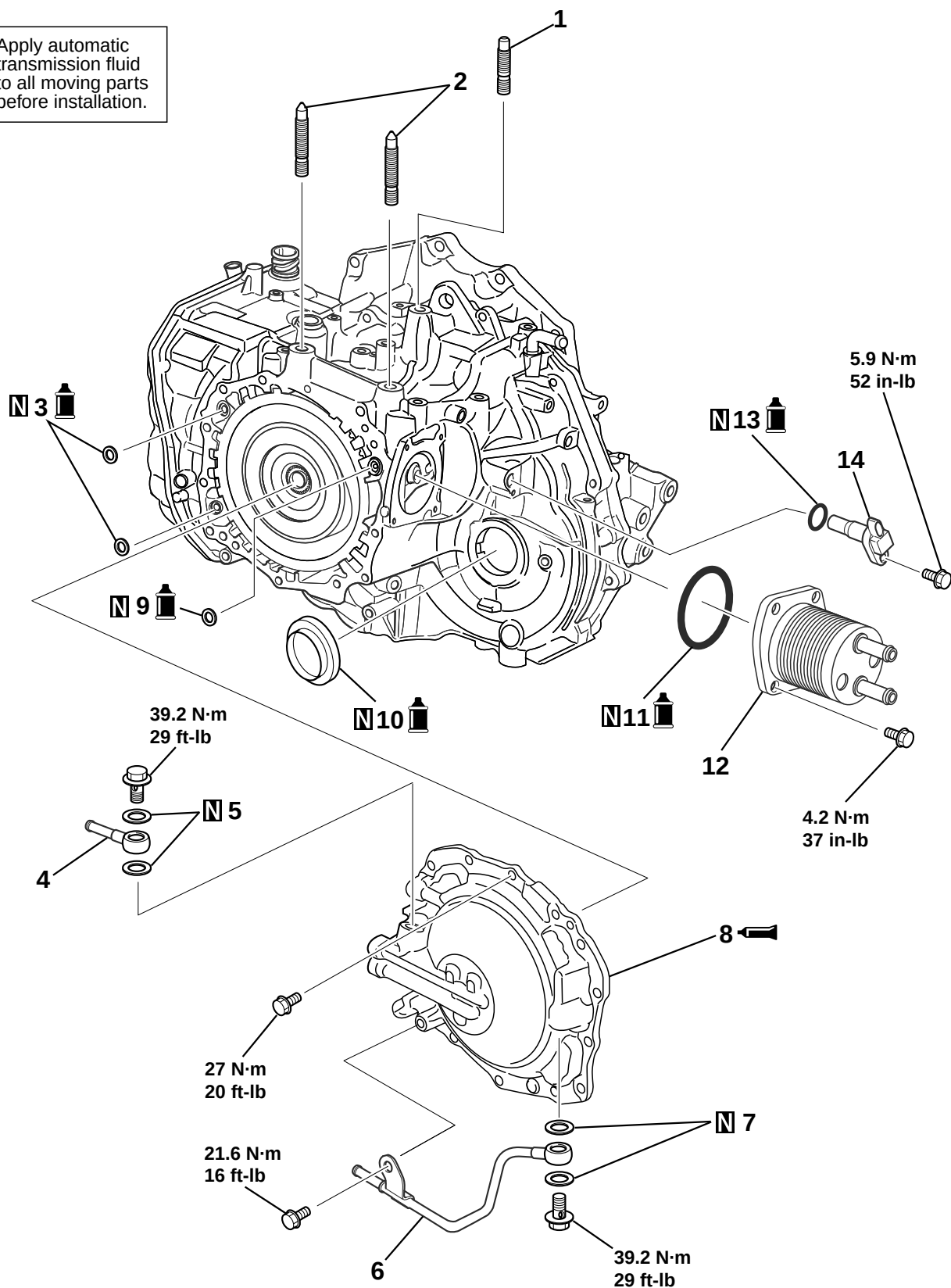


1. Parking pawl

2. Parking shaft

-
- | | |
|--------------------------------------|---------------------------------|
| 3. Return spring | 23. Needle bearing |
| 4. Parking plate | 24. FR internal gear |
| 5. Outer race | 25. Needle bearing |
| 6. Reduction gear assembly | 26. FR sun gear |
| 7. Reduction gear lubrication tube | 27. Needle bearing |
| 8. Outer race | 28. 3-5 Reverse clutch assembly |
| 9. Reduction gear taper bearing shim | 29. Needle bearing |
| 10. Outer race | 30. Bearing race |
| 11. Differential assembly | 31. Oil pump assembly |
| 12. Outer race | 32. Input shaft |
| 13. Differential taper bearing shim | 33. O-ring |
| 14. Needle bearing | 34. Converter housing |
| 15. Bearing race | 35. Magnet |
| 16. RR sun gear (front side) | 36. Oil strainer |
| 17. Bearing race | 37. O-ring |
| 18. Needle bearing | 38. O-ring |
| 19. Output gear set | 39. Transaxle case |
| 20. Thrust washer | 40. O-ring |
| 21. Low clutch assembly | |
| 22. FR carrier | |

Apply automatic transmission fluid to all moving parts before installation.

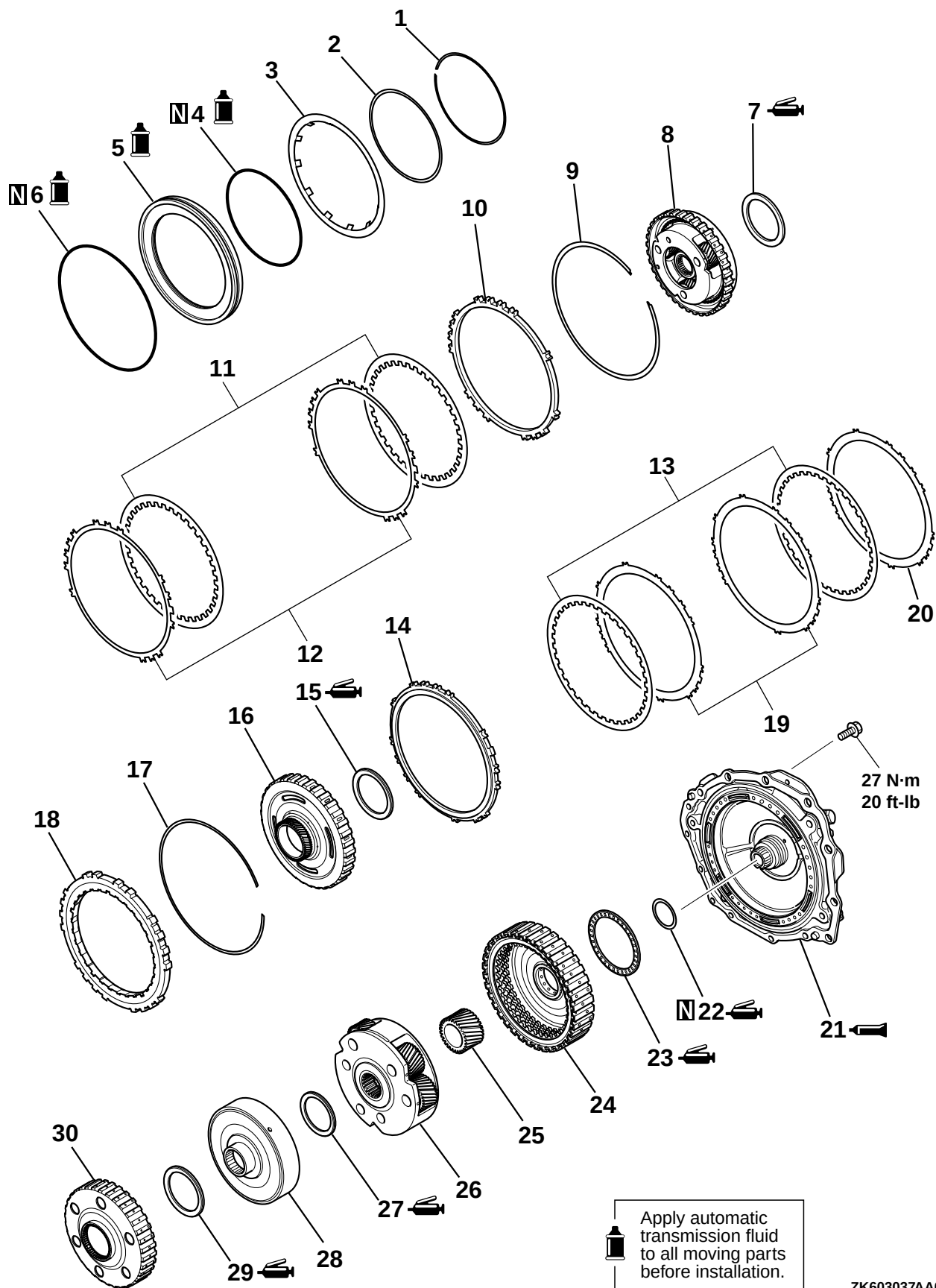


ZK602311AA00

1. Stud bolt

2. Stud bolt

-
- | | |
|----------------------|------------------------|
| 3. O-ring | 11. O-ring |
| 4. Cooler tube (IN) | 12. Fluid water-cooled |
| 5. Washer | 13. O-ring |
| 6. Cooler tube (OUT) | 14. Speed sensor |
| 7. Washer | 15. Bolt |
| 8. Side cover | 16. O-ring |
| 9. O-ring | |
| 10. Side oil seal | |



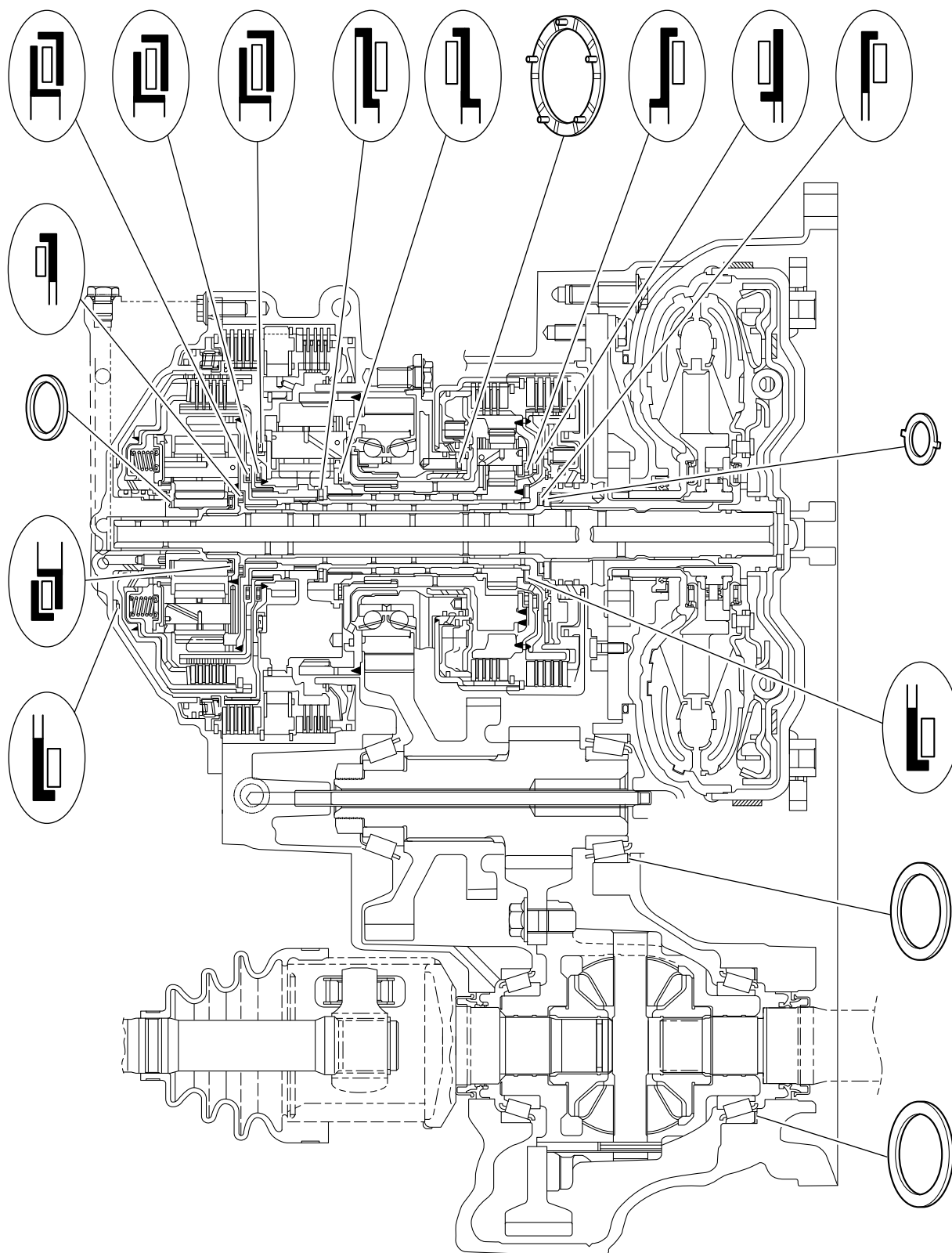
ZK603037AA00

1. Snap ring

2. Diaphragm spring retainer

-
- | | |
|-----------------------------|--------------------------|
| 3. Diaphragm spring | 18. One-way clutch |
| 4. D-ring | 19. Driven plate |
| 5. Low-reverse brake piston | 20. Retaining plate |
| 6. D-ring | 21. Side cover |
| 7. Needle bearing | 22. Spacer |
| 8. RR carrier assembly | 23. Needle bearing |
| 9. Snap ring | 24. High clutch assembly |
| 10. Retaining plate | 25. Reduction sun gear |
| 11. Drive plate | 26. Reduction carrier |
| 12. Driven plate | 27. Needle bearing |
| 13. Drive plate | 28. Reduction carrier |
| 14. Retaining plate | 29. Needle bearing |
| 15. Needle bearing | 30. High clutch hub |
| 16. RR sun gear | |
| 17. Snap ring | |

INSTALLATION LOCATION OF ADJUST SHIM, NEEDLE BEARING AND THRUST WASHER



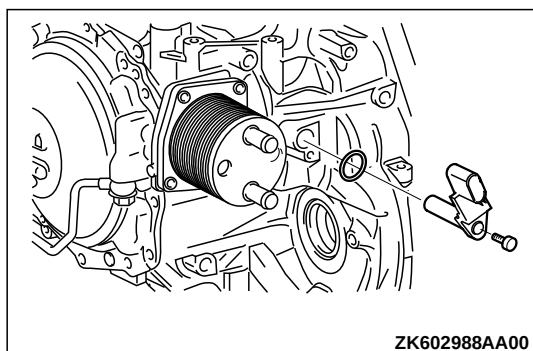
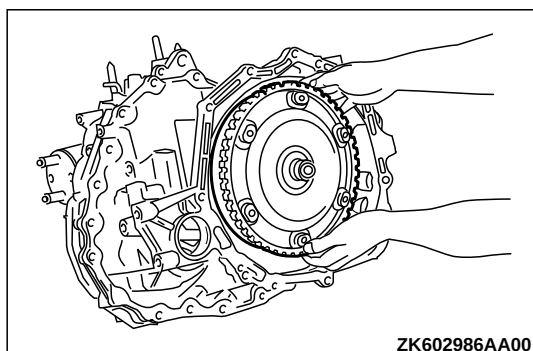
DISASSEMBLY

CAUTION

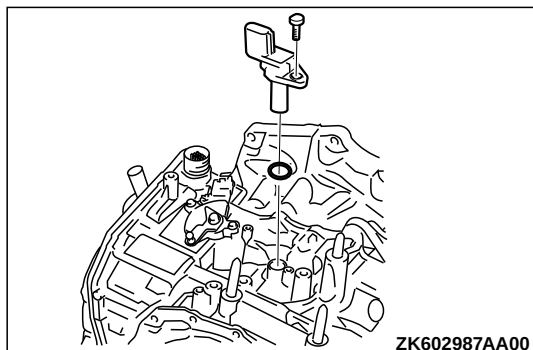
•Do not disassemble parts other than those described in this volume.

•Refer to "GENERAL DESCRIPTION" for the meanings of the symbols used in the illustration.

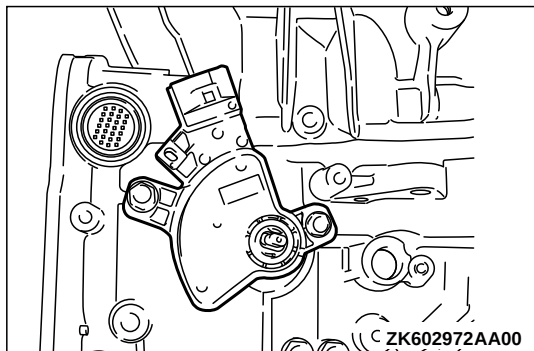
1. Remove the transfer from the transaxle. <W6AJ>
2. Remove the RR roll stopper bracket and FR roll stopper bracket from the transaxle.
3. Remove the harness bracket from the transaxle.
4. Remove the oil filler tube and oil level gage from the transaxle.
5. Remove the control cable bracket and breather hose from the transaxle.
6. Remove the torque converter from the transaxle.



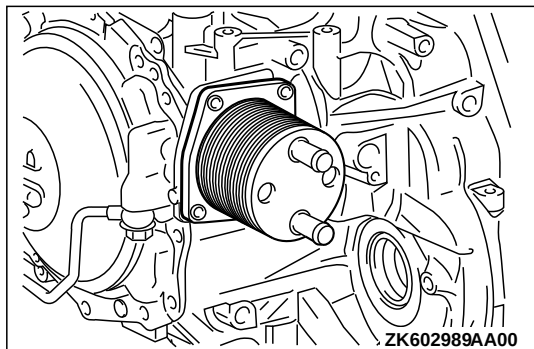
7. Remove the vehicle speed sensor from the transaxle case.
8. Remove the O-ring from the vehicle speed sensor.



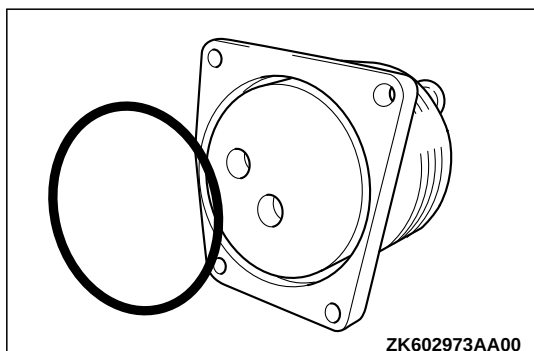
9. Remove the turbine sensor from the transaxle case.
10. Remove the O-ring from the turbine sensor.



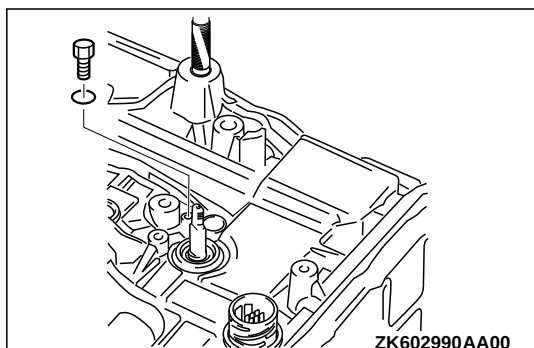
11. Remove the Park/neutral position switch.



12. Remove the fluid water-cooled cooler from the transaxle case.

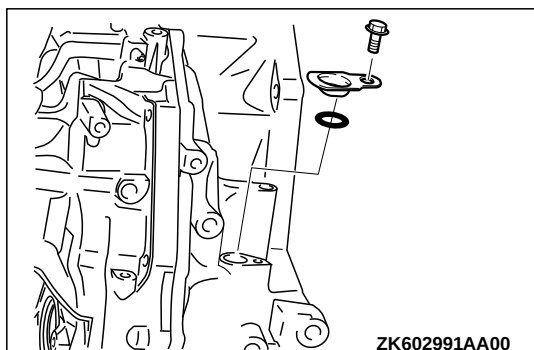


13. Remove the O-ring from the fluid water-cooled cooler.



14. Remove the pressure test port bolt from the transaxle case.

15. Remove the O-ring from the pressure test port bolt.

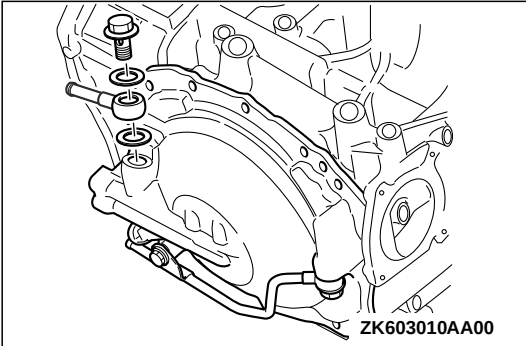


16. Remove the baffle plate from the converter housing.

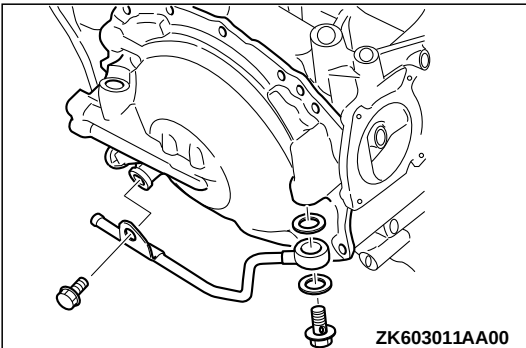
17. Remove the O-ring from the baffle plate.



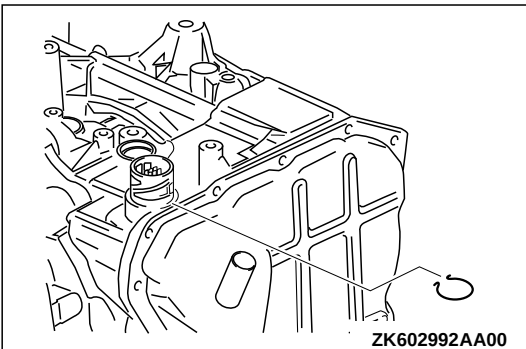
18. Remove stud bolts from the transaxle case.



19. Remove the cooler tube (IN) from the side cover.



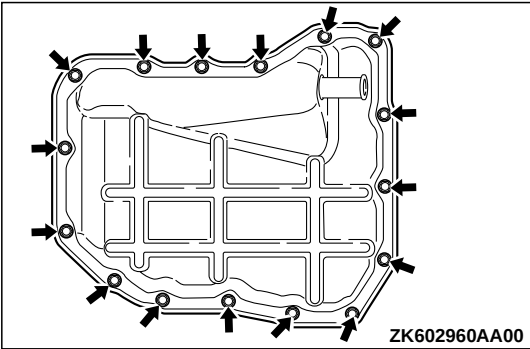
20. Remove the cooler tube (OUT) from the side cover.



⚠ CAUTION

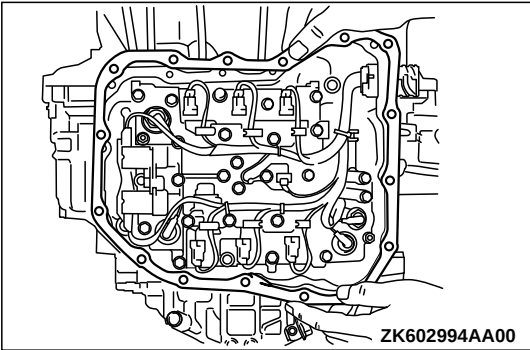
Be careful not to break the terminal body.

21. Remove the snap ring from the terminal body and push the terminal body into the transaxle case.

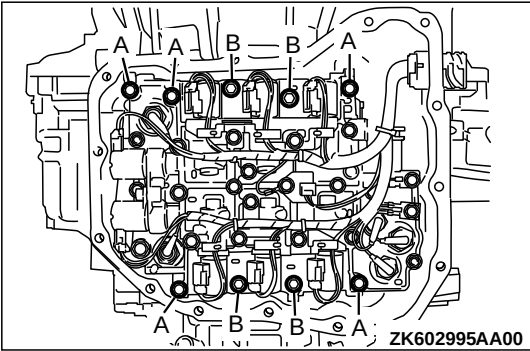


22. Remove the control valve cover from the transaxle case.

No. of bolts	16
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23. Remove the control valve cover gasket from the transaxle case.



CAUTION

- Mounting bolt A is a hexagon head bolt.
- Mounting bolt B is a hexagon socket head bolt.

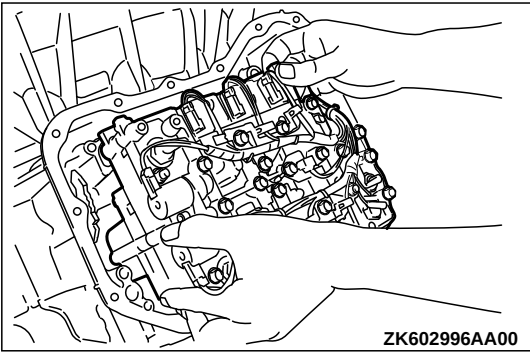
24. Remove control valve assembly mounting bolts A and B.

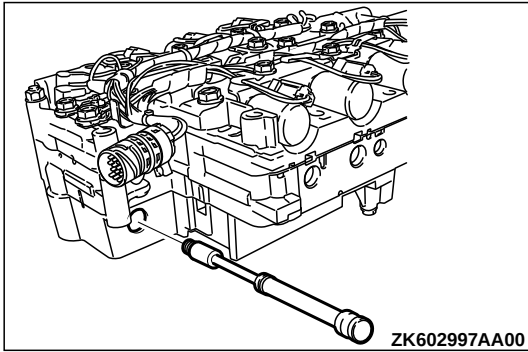
Bolt code	A	B
Shank length mm (in)	70.1 (2.76)	50.8 (2.00)
No. of bolts	5	4

CAUTION

Remove the control valve assembly by pulling it straight.

25. Remove the control valve assembly from the transaxle case.

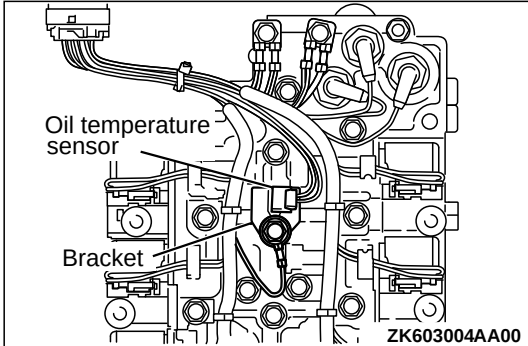




CAUTION

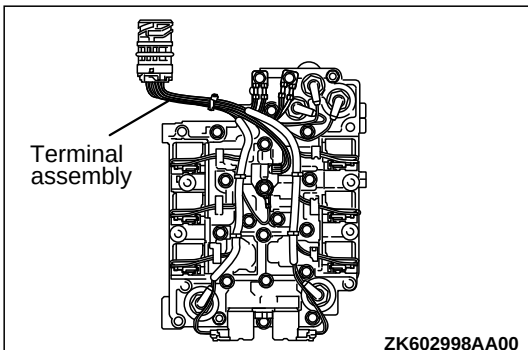
Be careful not to drop the manual valve.

26. Remove the manual valve from the control valve.

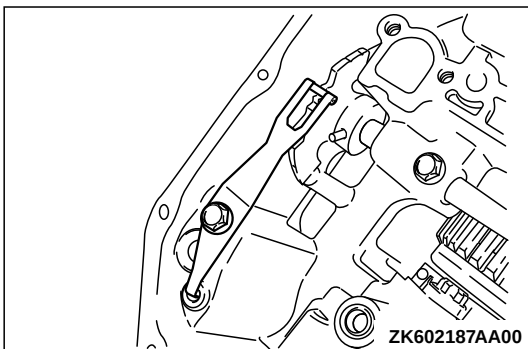


27. Remove the oil temperature sensor and bracket from the control valve.

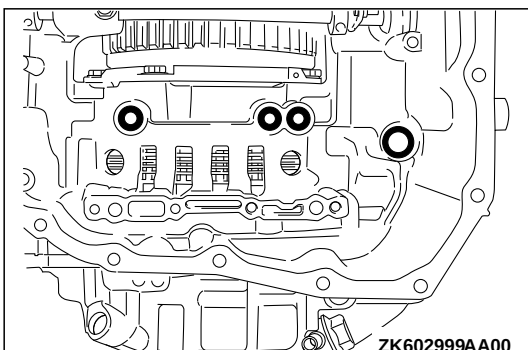
28. Remove the bracket from the oil temperature sensor.



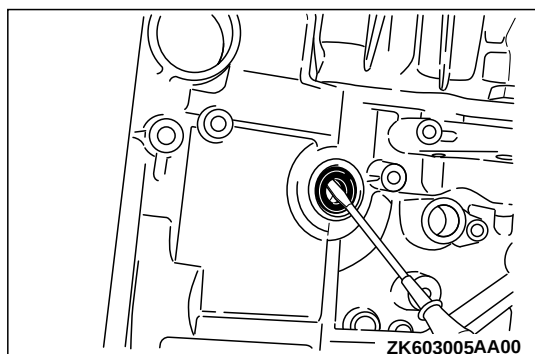
29. Remove the terminal assembly from the control valve.



30. Remove the detent spring.

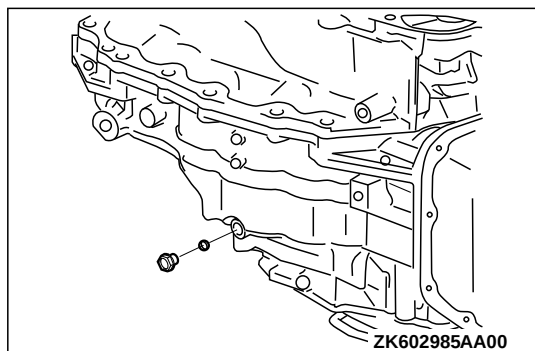


31. Remove lip seals from the transaxle case.

**⚠ CAUTION**

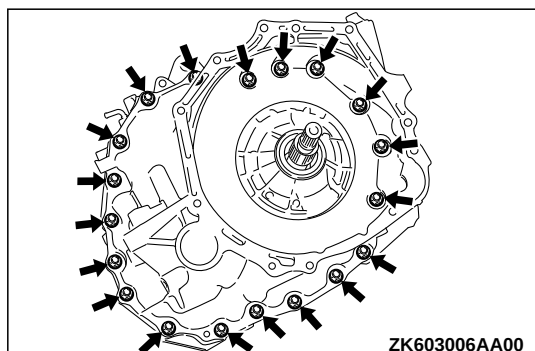
Do not damage the manual shaft oil seal mounting surface of the transaxle case when removing the manual shaft oil seal.

32. Using a flat-head screwdriver or equivalent, remove the manual shaft oil seal from the transaxle case.



33. Remove the ATF adjusting bolt from the transaxle case.

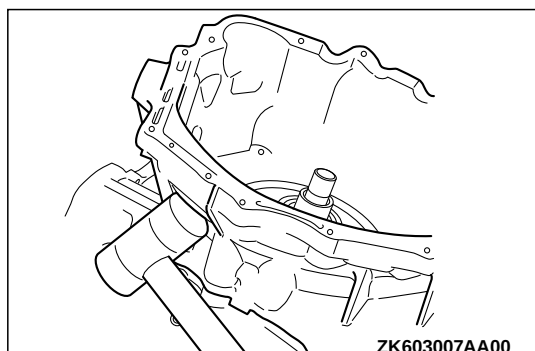
34. Remove the O-ring from the ATF adjusting bolt.

**⚠ CAUTION**

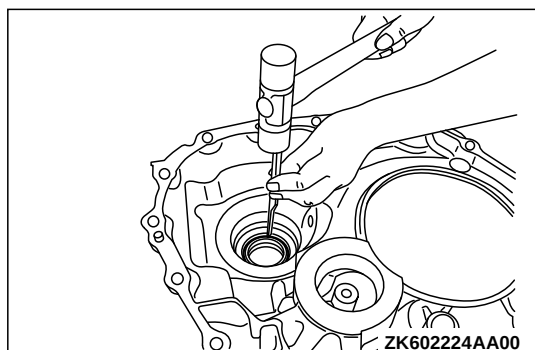
Mounting bolts are Torx E20 bolts.

35. Remove converter housing mounting bolts.

No. of bolts	19
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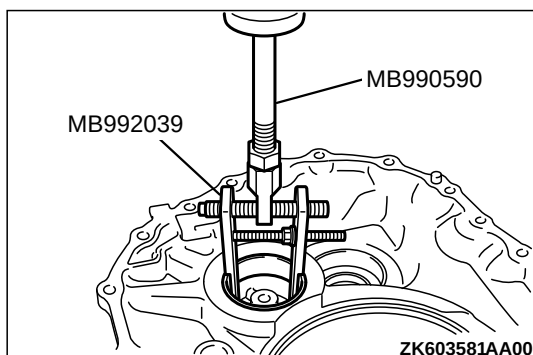


36. Lightly tap the converter housing with a plastic hammer or equivalent to remove.

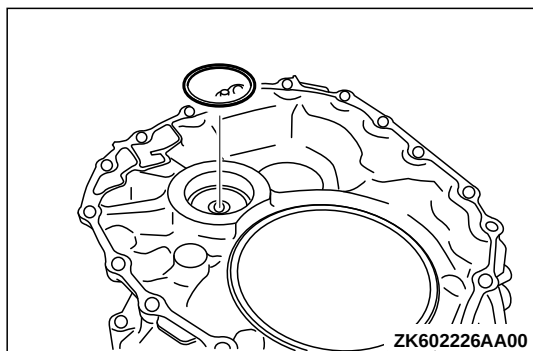
**⚠ CAUTION**

Do not damage the converter housing when removing the side oil seal.

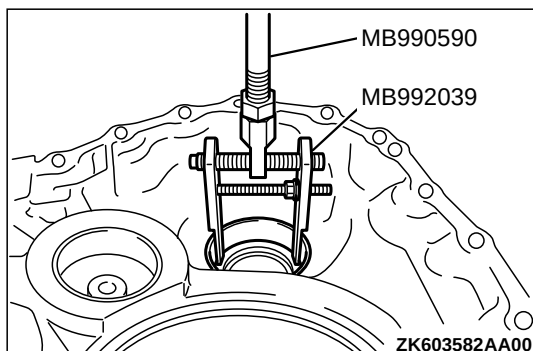
37. Remove the side oil seal from the converter housing using a pin punch or equivalent. <F6AJ>



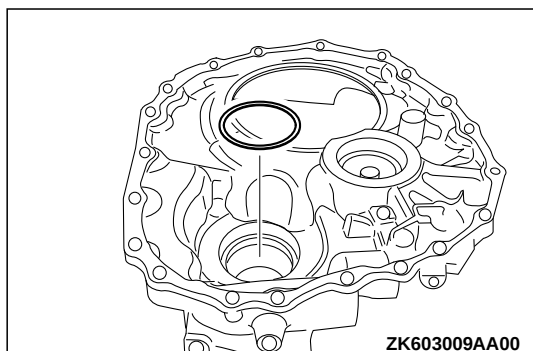
38. (MB992195)remove the outer race of the reduction gear bearing from the converter housing.
- Slid hammer puller (MB992039)
 - Slide hammer (MB990590)



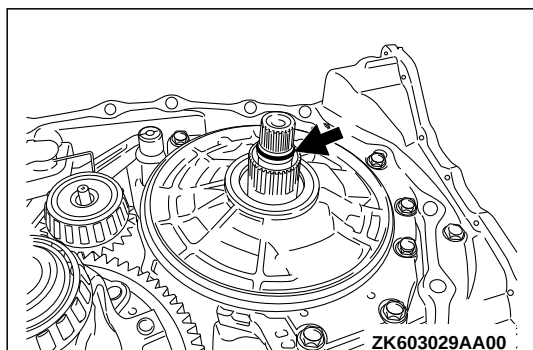
39. Remove the reduction gear taper bearing shim from the converter housing.



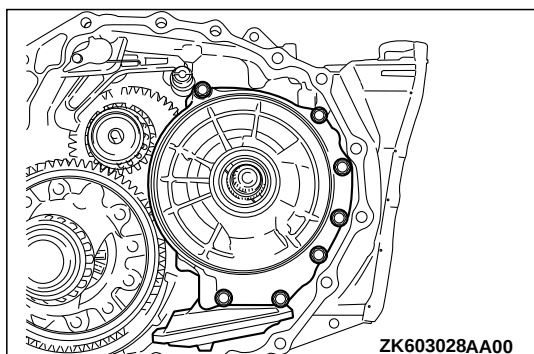
40. Using the Special Tool, remove the outer race of the differential side bearing from the converter housing.
- Slid hammer puller (MB992039)
 - Slide hammer (MB990590)



41. Remove the differential taper bearing shim from the converter housing.

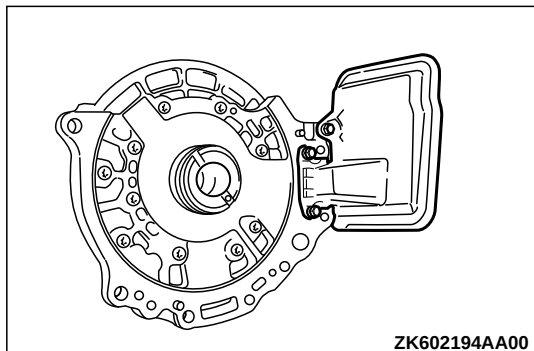


42. Remove the O-ring from the input shaft.



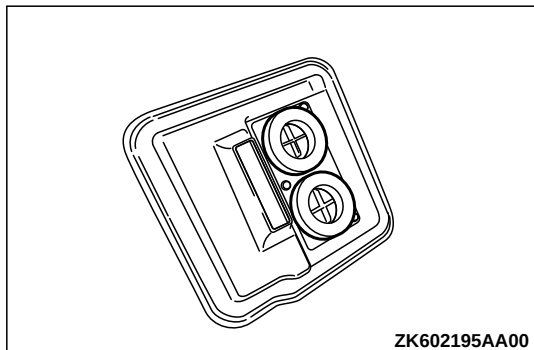
43. Remove the oil pump assembly and oil strainer as one unit.

No. of bolts	7
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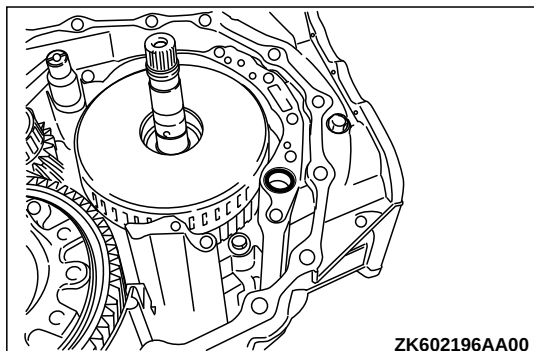


44. Remove the oil strainer from the oil pump assembly.

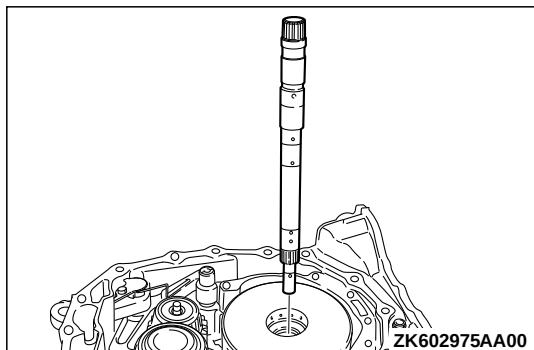
No. of bolts	3
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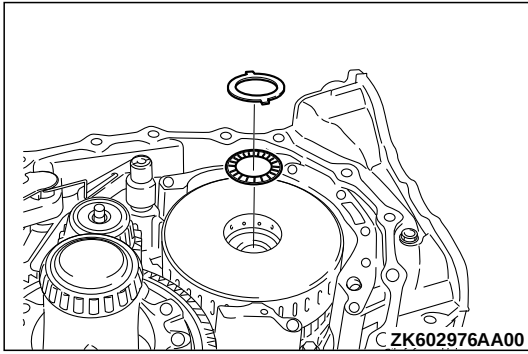
45. Remove the magnet from the oil strainer.



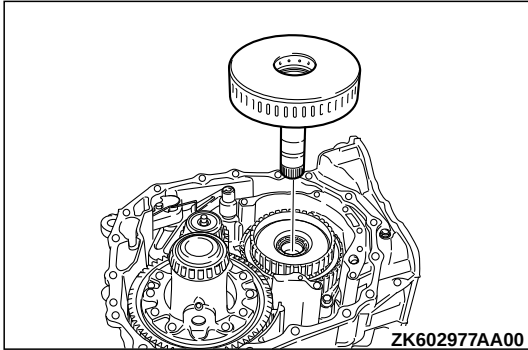
46. Remove the O-ring from the transaxle case.



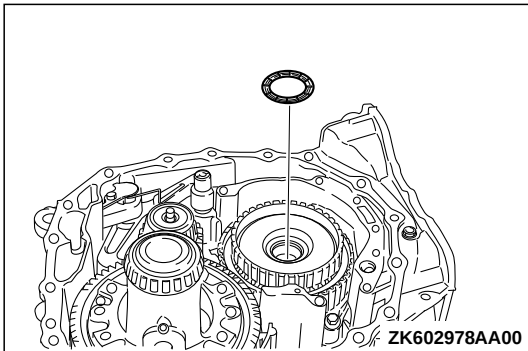
47. Remove the input shaft.



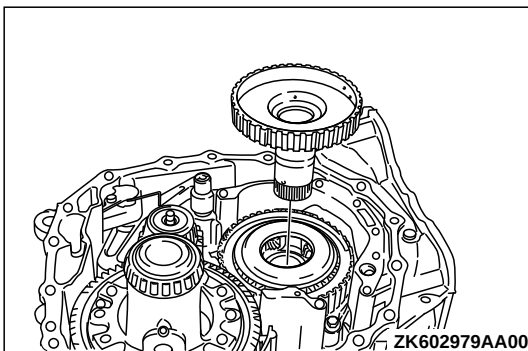
48. Remove the bearing race and needle bearing from the 3-5 reverse clutch drum.



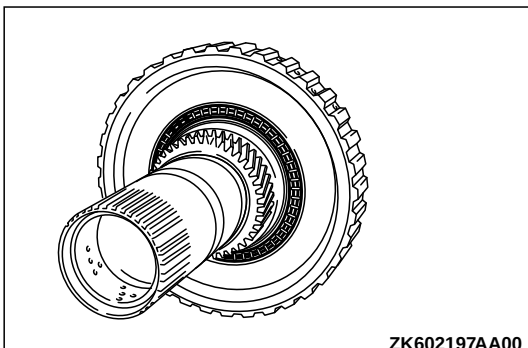
49. Remove the 3-5 reverse clutch assembly.



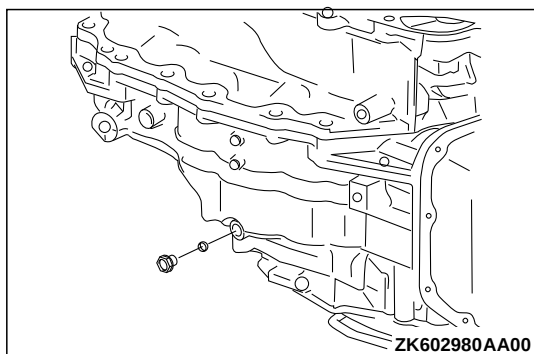
50. Remove the needle bearing from the FR sun gear.



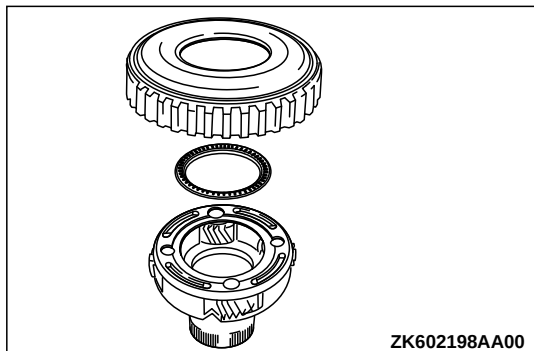
51. Remove the FR sun gear.



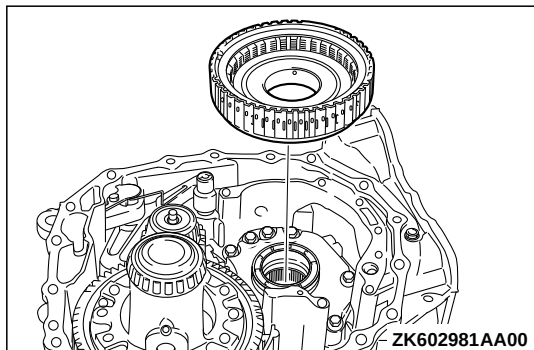
52. Remove the needle bearing from the FR sun gear.



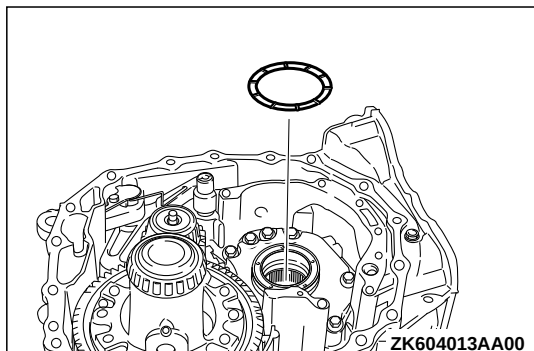
53. Remove the FR internal gear and FR carrier as one unit.



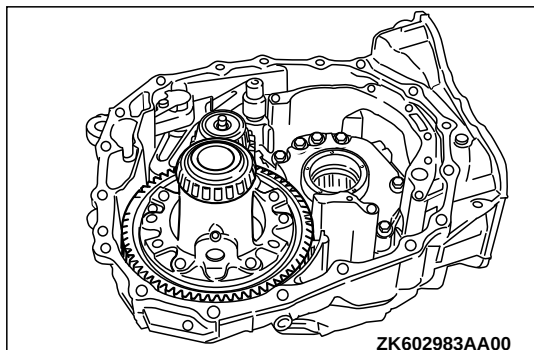
54. Remove the FR internal gear and needle bearing from the FR carrier.



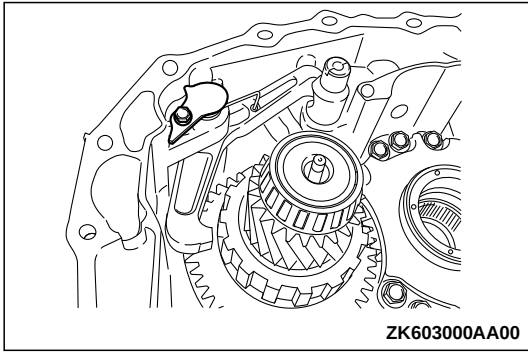
55. Remove the low clutch assembly.



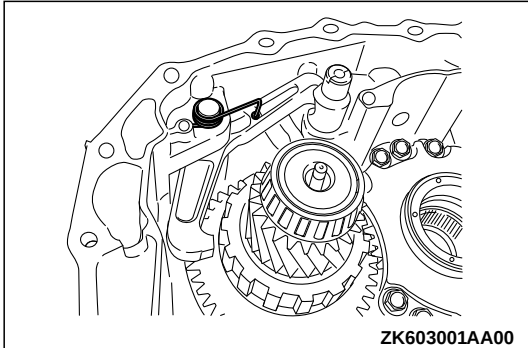
56. Remove the thrust washer from the drum support.



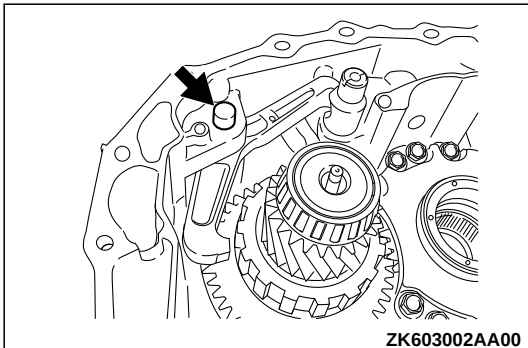
57. Remove the differential assembly.



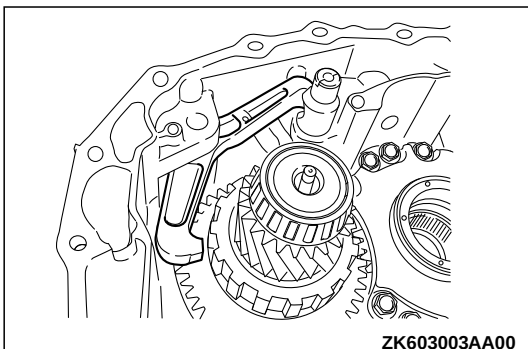
58. Remove the parking plate.



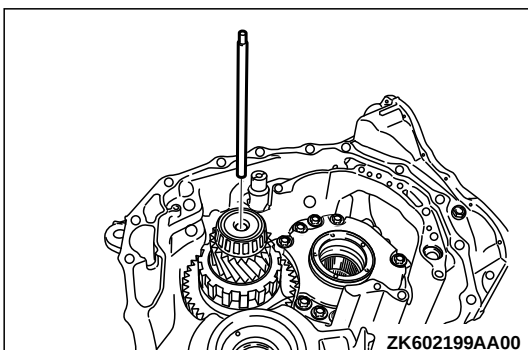
59. Remove the return spring.



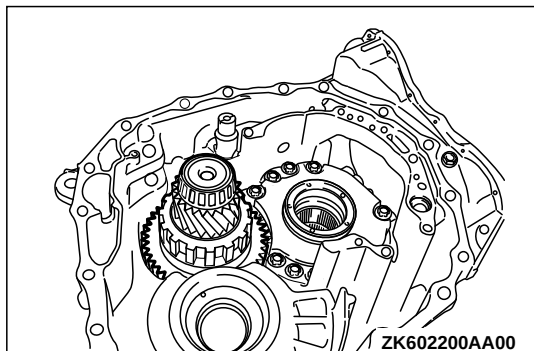
60. Remove the parking shaft.



61. Remove the parking pawl.



62. Remove the reduction gear lubrication tube.



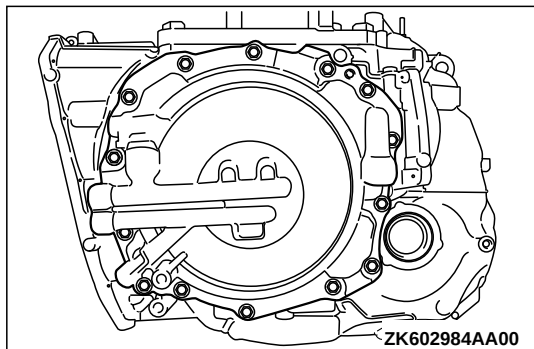
63. Remove the reduction gear assembly.

CAUTION

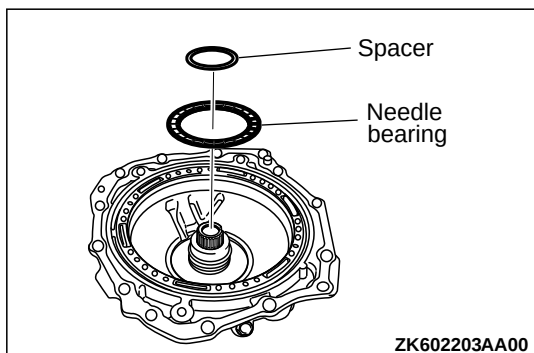
Mounting bolts are Torx E16 bolts.

64. Remove the side cover.

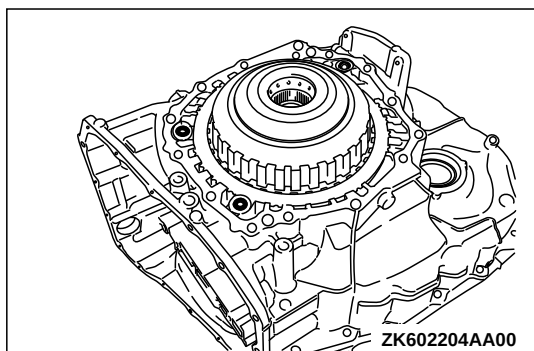
No. of bolts	14
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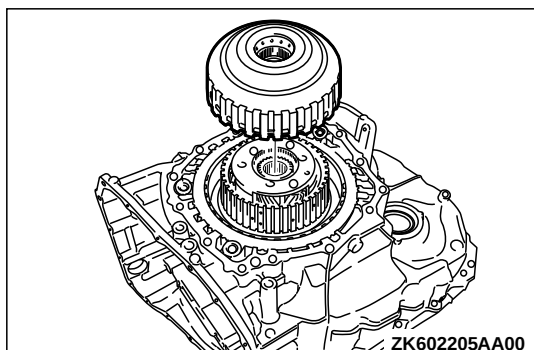
65. Remove the spacer and needle bearing from the side cover.

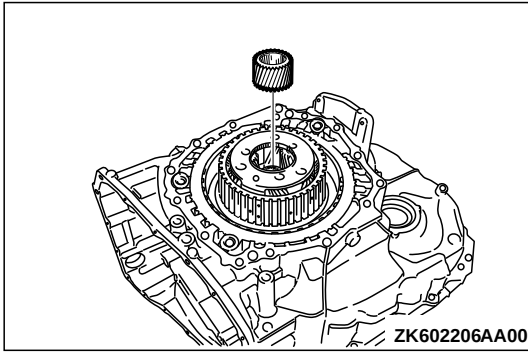


66. Remove the O-ring from the transaxle case.

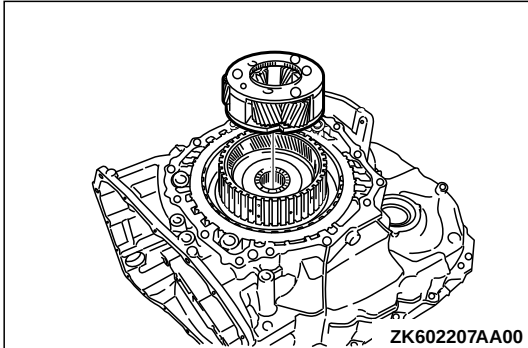


67. Remove the high clutch assembly.

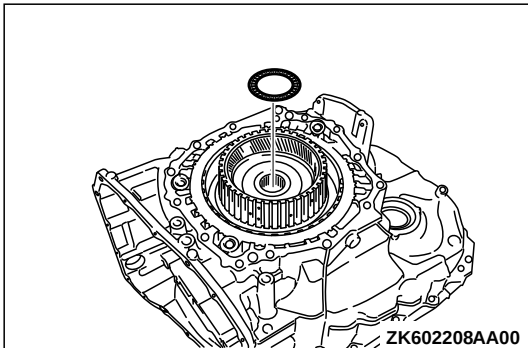




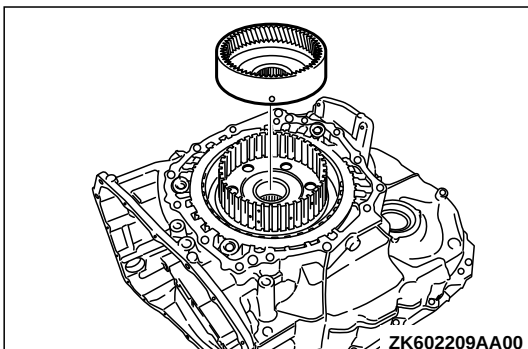
68. Remove the reduction sun gear.



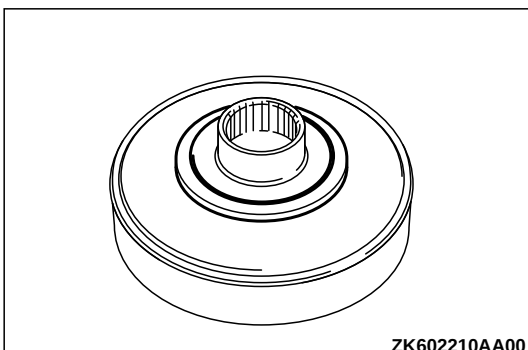
69. Remove the reduction carrier.



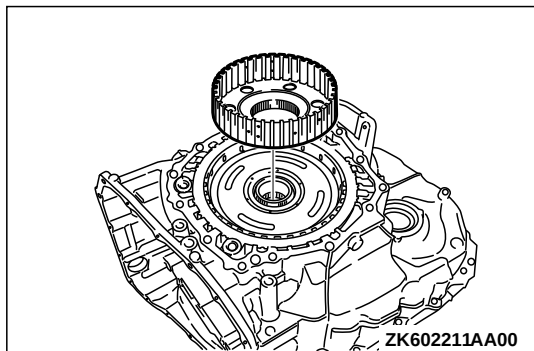
70. Remove the needle bearing from the reduction internal gear.



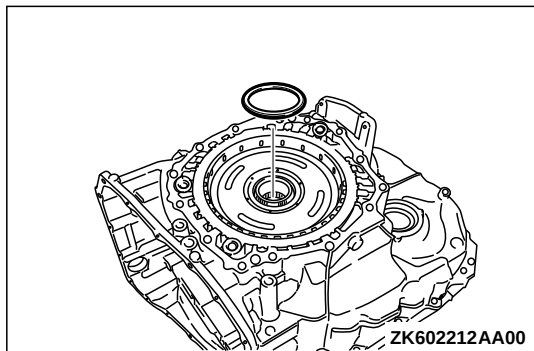
71. Remove the reduction internal gear from the high clutch hub.



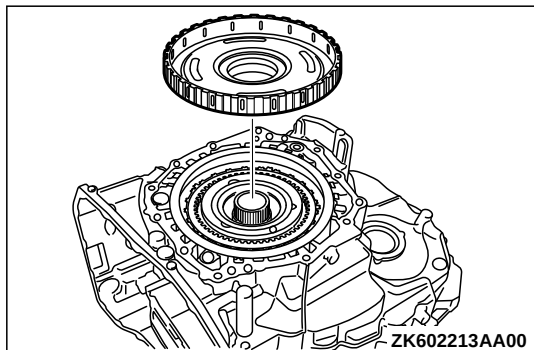
72. Remove the needle bearing from the reduction internal gear.



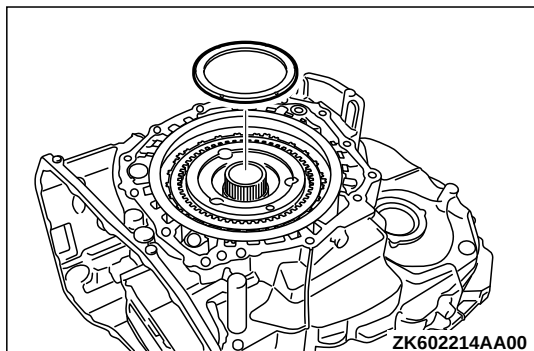
73. Remove the high clutch hub.



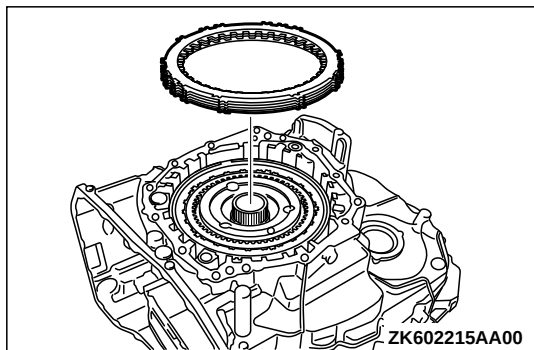
74. Remove the needle bearing from the RR sun gear on the rear side.



75. Remove the RR sun gear on the rear side.



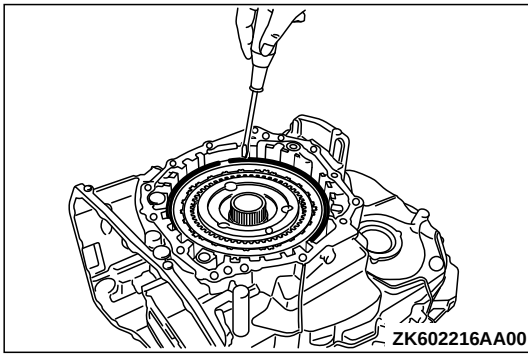
76. Remove the needle bearing from the RR carrier assembly.



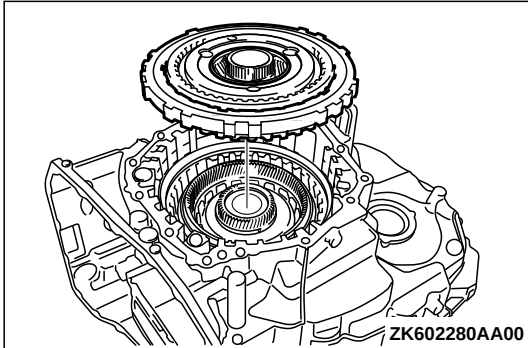
⚠ CAUTION

Check the plates for damage, deformation, surface burn or permanent strain. If faulty, replace.

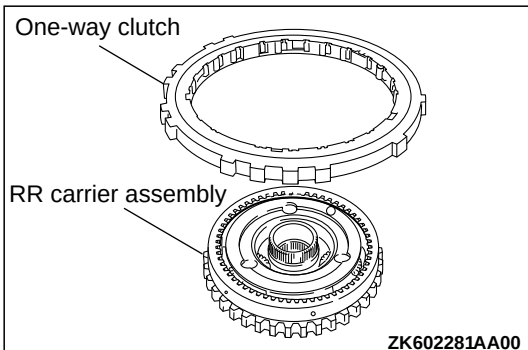
77. Remove the 2-6 brake retaining plate, drive plate and driven plate from the transaxle case.



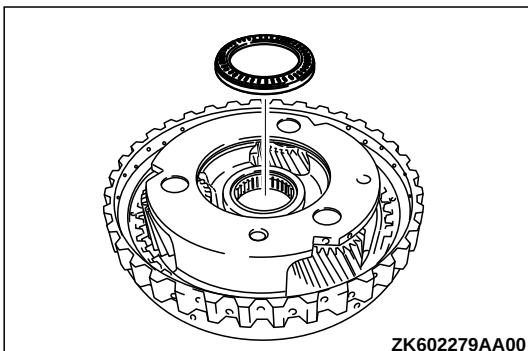
78. Using a flat-head screwdriver or equivalent, remove the snap ring.



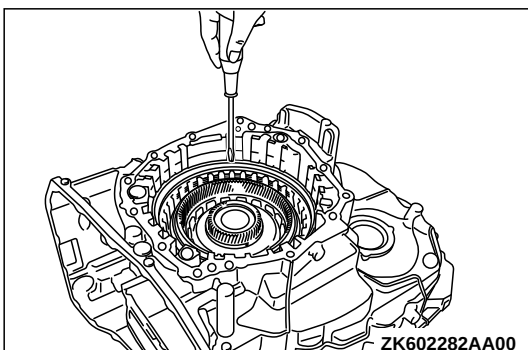
79. Remove the one-way clutch and RR carrier assembly as one unit.



80. Separate the one-way clutch and RR carrier assembly.



81. Remove the needle bearing from the RR carrier assembly.

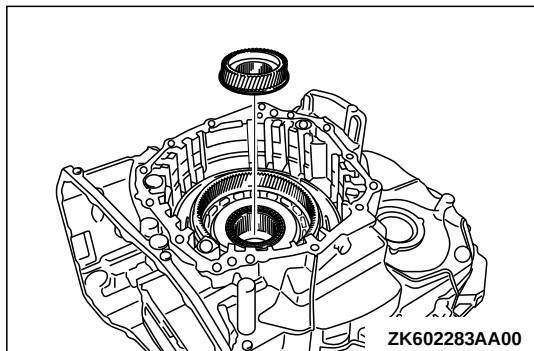
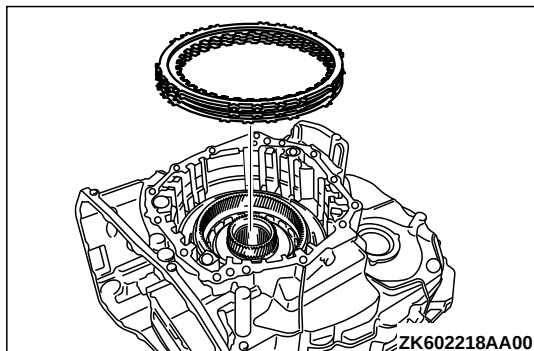


82. Using a flat-head screwdriver or equivalent, remove the snap ring.

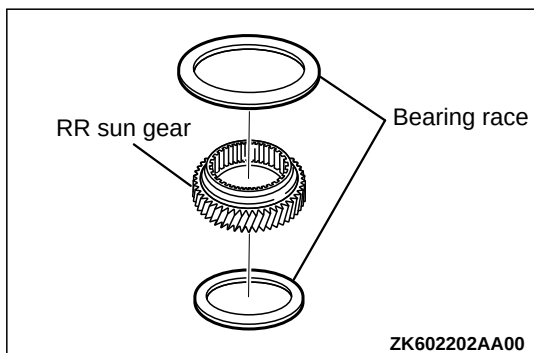
⚠ CAUTION

Check the plates for damage, deformation, surface burn or permanent strain. If faulty, replace.

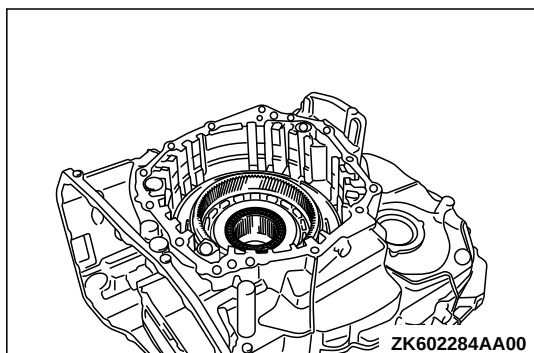
83. Remove the low-reverse brake retaining plate, drive plate and driven plate.



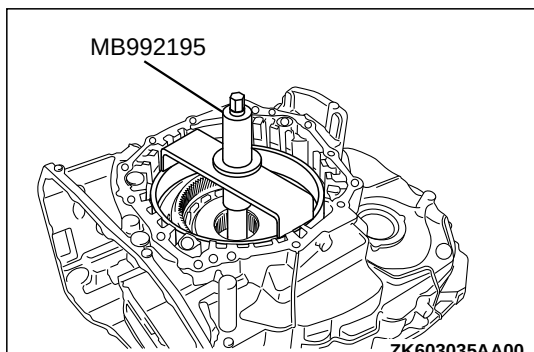
84. Remove the RR sun gear on the front side.



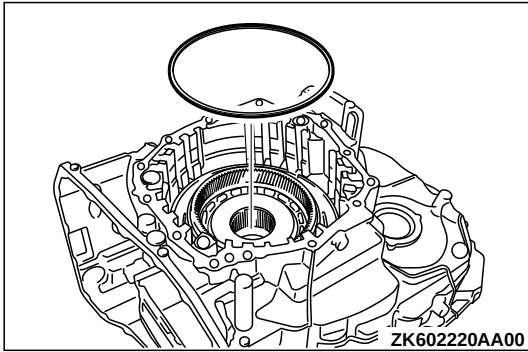
85. Remove the bearing race from the RR sun gear on the front side.



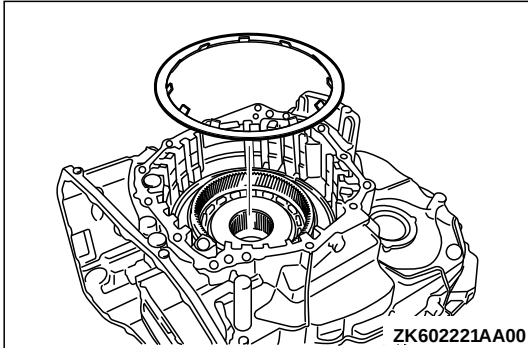
86. Remove the needle bearing.



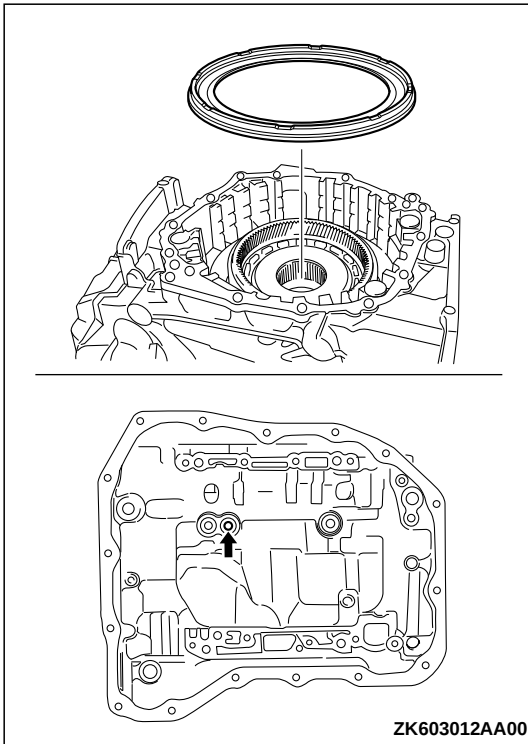
87. Using the Special Tool, spring compressor (MB992195) remove the snap ring.



88. Remove the diaphragm spring retainer.



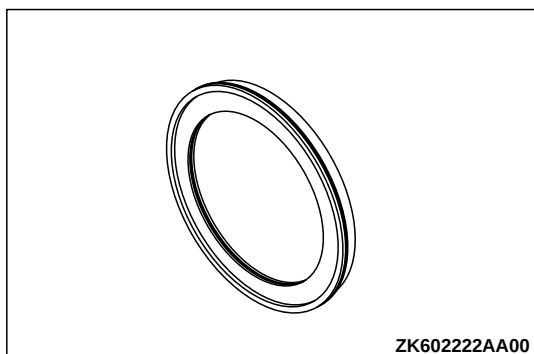
89. Remove the diaphragm spring.



CAUTION

Do not feed air abruptly. Otherwise, the low-reverse brake piston may become stuck in the clutch drum.

90. Feed air through the oil hole as indicated in the illustration to remove the low-reverse brake piston from the transaxle case.



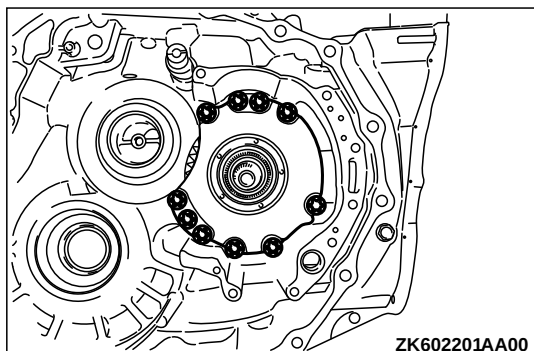
91. Remove D-rings from the low-reverse brake piston.

CAUTION

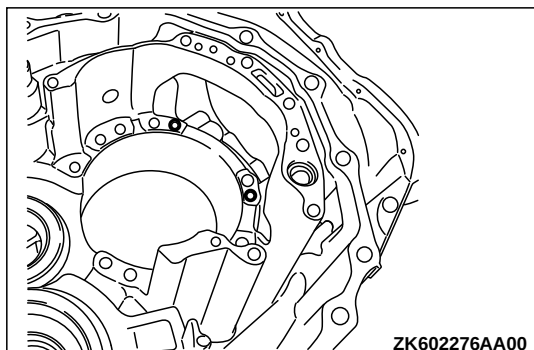
Mounting bolts are Torx E18 bolts.

92. Remove the Output gear set.

No. of bolts	10
--------------	----



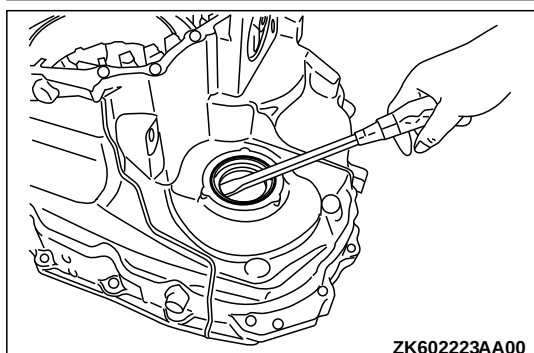
93. Remove the O-ring from the transaxle case.



CAUTION

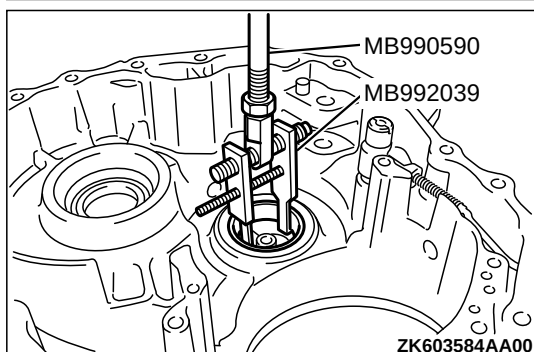
Do not damage the transaxle case when removing the side oil seal.

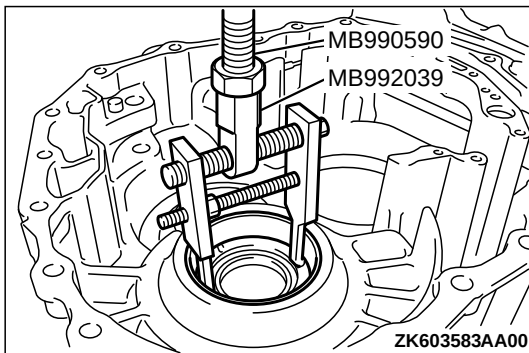
94. Using a flat-head screwdriver or equivalent, remove the side oil seal from the transaxle case.



95. Using the Special Tool, remove the outer race of the reduction gear bearing from the transaxle case equivalent.

- Slid hammer puller (MB992039)
- Slide hammer (MB990590)





96. Using the Special Tool, remove the outer race of the differential side bearing from the transaxle case.

- Slid hammer puller (MB992039)
- Slide hammer (MB990590)

ASSEMBLY

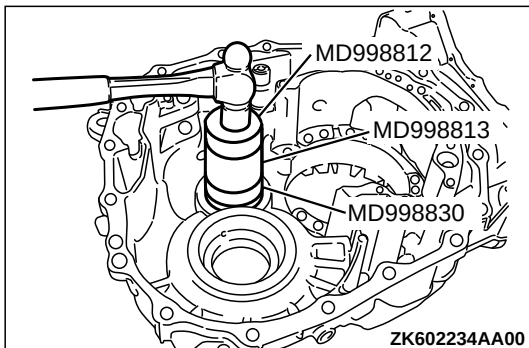
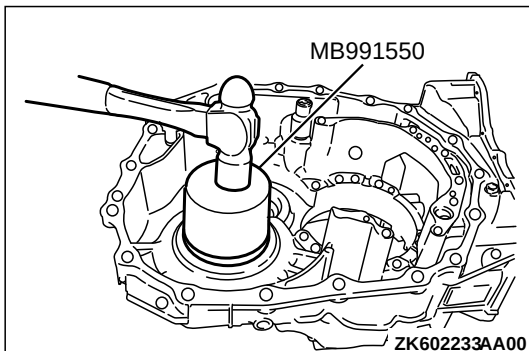
⚠ CAUTION

• Refer to "GENERAL DESCRIPTION" for the meanings of the symbols used in the illustration.

⚠ CAUTION

Never reuse the outer race.

1. Using the Special Tool Bearing outer race installer (MB991550), install the outer race of the differential side bearing on the transaxle case.



⚠ CAUTION

Never reuse the outer race.

2. Using the Special Tool, install the outer race of the reduction gear bearing on the transaxle case.
 - Installer cap (MD998812)
 - Installer 100 (MD998813)
 - Installer adapter (MD998830)

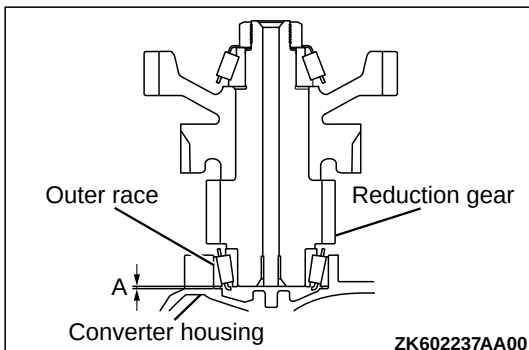
⚠ CAUTION

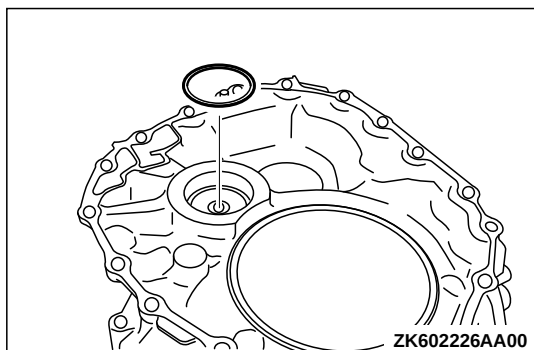
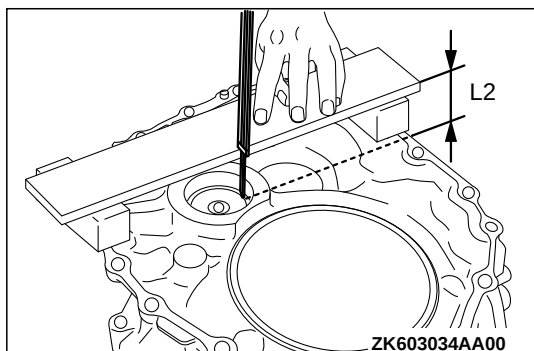
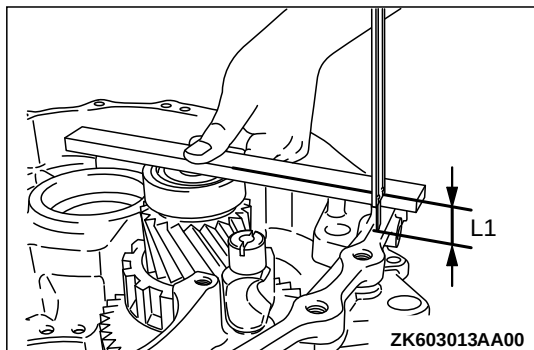
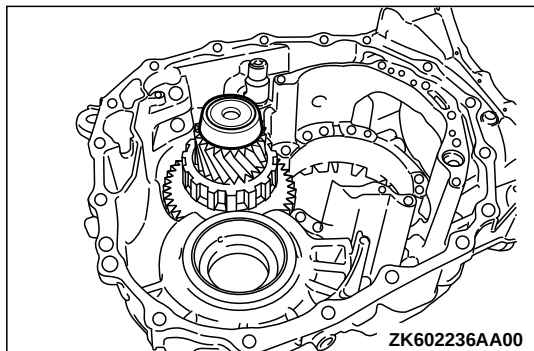
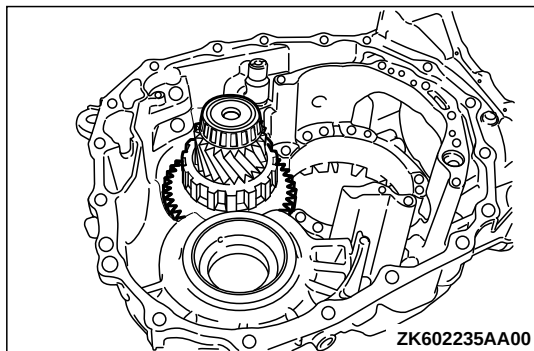
• Apply ATF to the bearing so that the interference can be adjusted in a smooth condition. Square bolt

• Measure the end play at more than two locations and obtain the average of the measurements.

3. Measure an interference (A) of the reduction gear assembly in the following procedure. Refer to "SERVICE DATA" for the interference of the reduction gear assembly.

- (1) Install the reduction gear assembly on the transaxle case.
- (2) Set the outer race on the reduction gear bearing.
- (3) Measure distance L1 from the outer race to the end face of the transaxle case.





(4) Place a block on the end face of the converter housing and measure distance L2 to the reduction gear taper bearing shim mounting surface.

(5) Calculate distance L3 from the end face of the converter housing to the outer race of the reduction gear assembly from the following formula.

$$L3 = L2 - \text{Height of block}$$

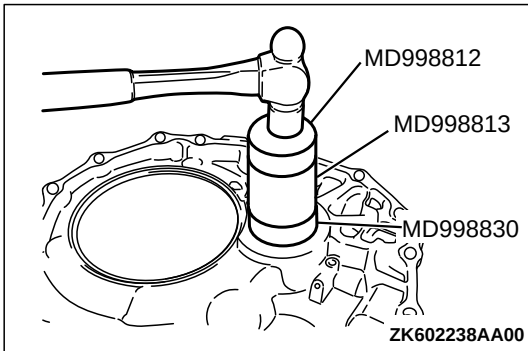
(6) Calculate the thickness of the reduction gear taper bearing shim from the following formula.

$$\text{Thickness of reduction gear taper bearing shim} = L3 - L1 + \text{Interference}$$

CAUTION

Never reuse the reduction gear taper bearing shim.

4. Install a selected reduction gear taper bearing shim on the converter housing. Refer to "SERVICE DATA" for selecting the reduction gear taper bearing shim.

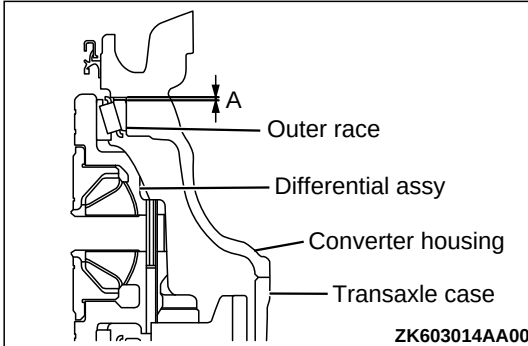


⚠ CAUTION

Never reuse the outer race.

5. Using the Special Tool, install the outer race of the reduction gear bearing on the converter housing.

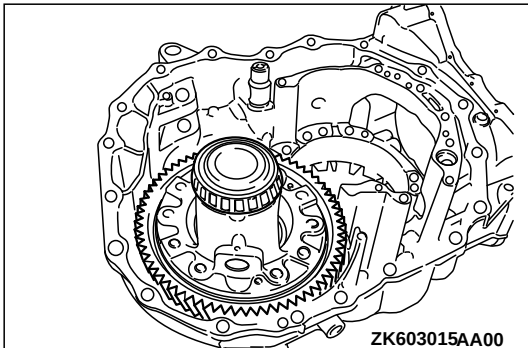
- Installer cap (MD998812)
- Installer 100 (MD998813)
- Installer adapter (MD998830)



⚠ CAUTION

▪ Apply ATF to the bearing so that the interference can be adjusted in a smooth condition.

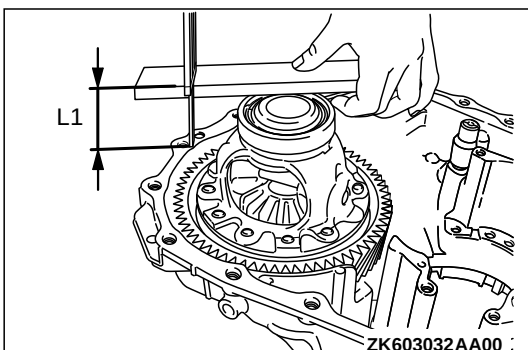
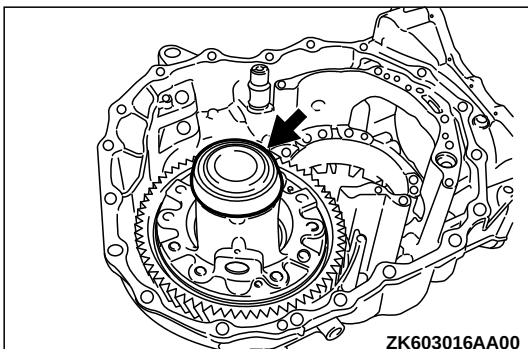
▪ Measure the end play at more than two locations and obtain the average of the measurements.

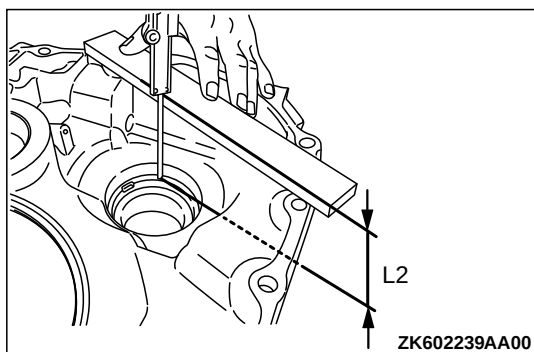


6. Measure an interference (A) of the differential assembly in the following procedure. Refer to "SERVICE DATA" for the interference of the differential assembly.

- (1) Install the differential assembly on the transaxle case.
- (2) Set the outer race on the differential side bearing.
- (3) Measure distance L1 from the outer race to the end face of the transaxle case.
- (4) Measure distance L2 from the end face of the converter housing to the differential taper bearing shim mounting surface of the converter housing.
- (5) Calculate the thickness of the differential taper bearing shim from the following formula.

$$\text{Thickness of differential taper bearing shim} = L2 - L1 + \text{Interference}$$

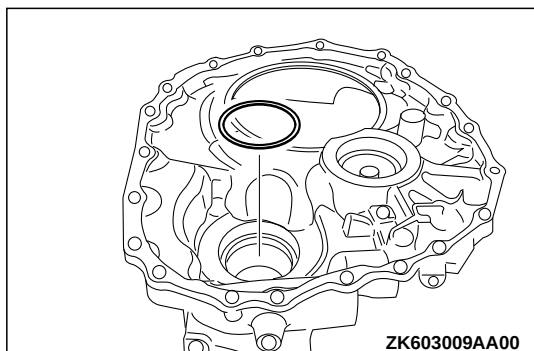




⚠ CAUTION

Never reuse the differential taper bearing shim.

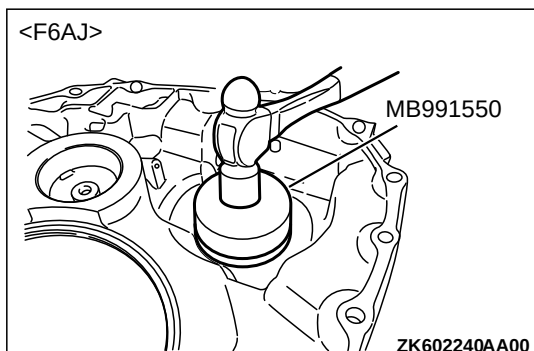
7. Install a selected differential taper bearing shim on the converter housing. Refer to "SERVICE DATA" for selecting the differential taper bearing shim.



⚠ CAUTION

Never reuse the outer race.

8. Using the Special Tool Bearing outer race Installer (MB991550), Install the outer race of the differential side bearing on the converter housing.

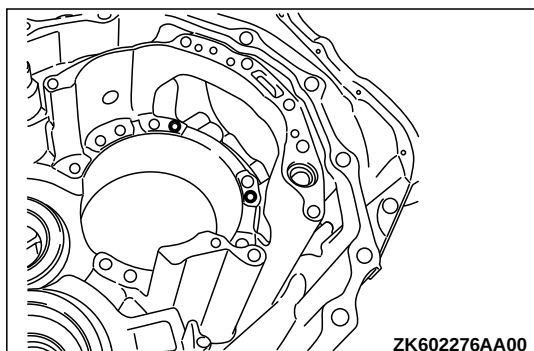


⚠ CAUTION

• **Never reuse the O-rings.**

• **Apply ATF to the O-rings before installation.**

9. Install an O-ring on the transaxle case.



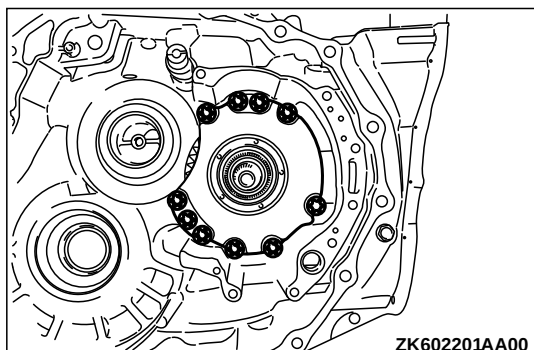
⚠ CAUTION

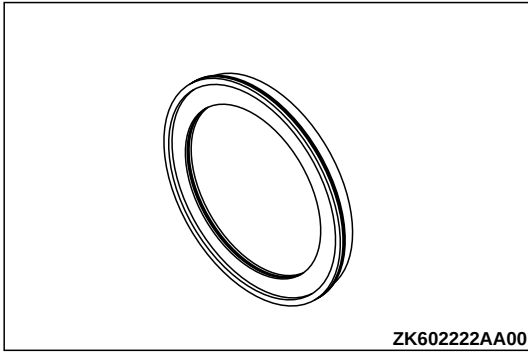
Mounting bolts are Torx E18 bolts.

10. Install the Output gear set. Refer to the table below or the exploded view for tightening torque.

No. of bolts	10
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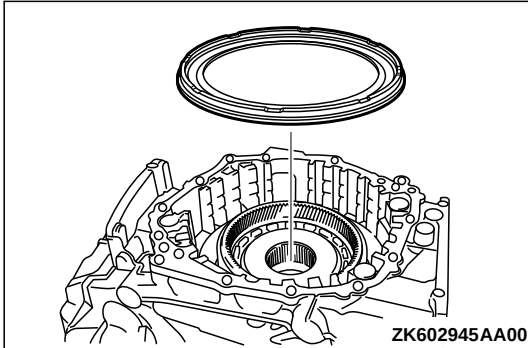
Tightening torque: 38.5 N·m (28 ft-lb)





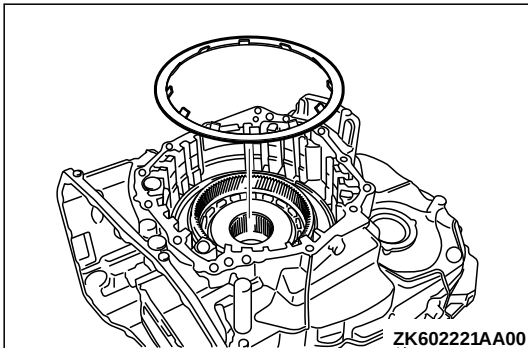
⚠ CAUTION

- Never reuse the D-rings.
 - Apply ATF to the D-rings before installation.
11. Install D-rings on the low-reverse brake piston.

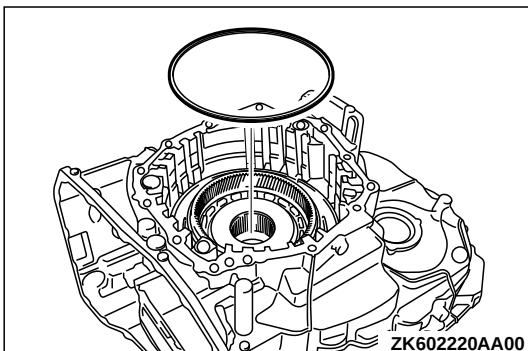


⚠ CAUTION

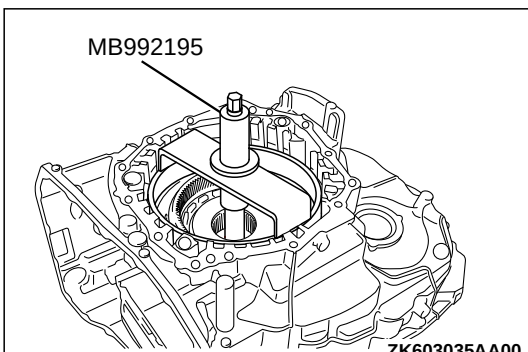
- Apply ATF to the low-reverse brake piston before installation.
12. Install the low-reverse brake piston on the transaxle case.



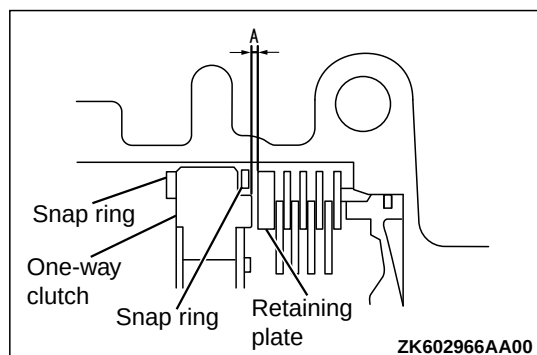
13. Install the diaphragm spring.



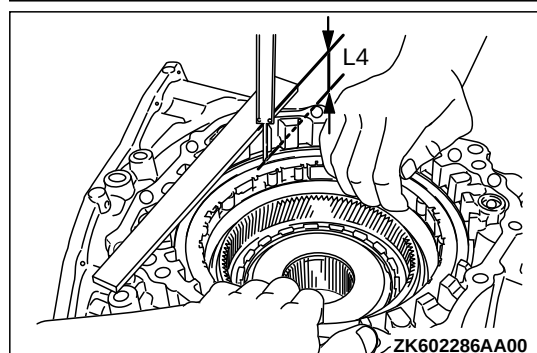
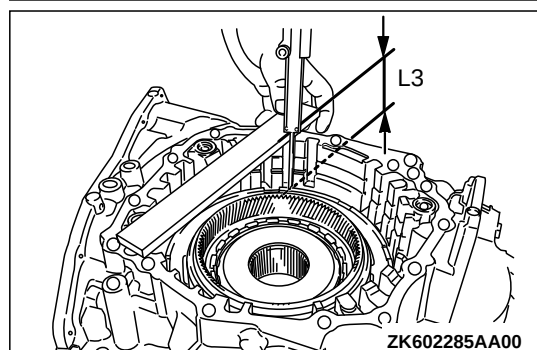
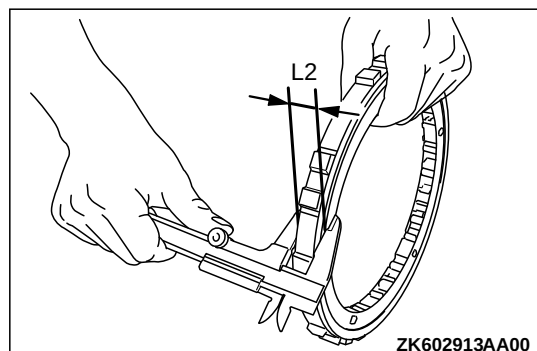
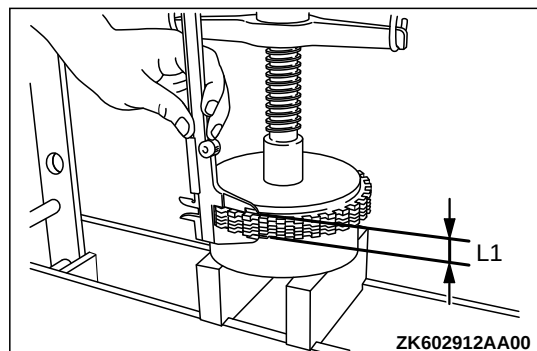
14. Install the diaphragm spring retainer.



15. Using the Special Tool spring compressor (MB992195), install the snap ring.

**CAUTION**

Measure the end play at more than two locations and obtain the average of the measurements.

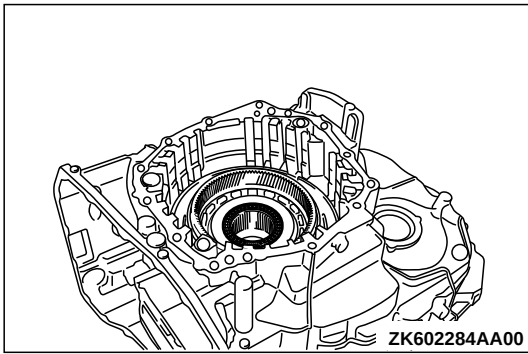


16. Measure the clearance (A) of the low-reverse brake using the following procedure. Refer to "SERVICE DATA" for the specified low-reverse brake clearance.

- (1) While compressing the drive plates, driven plates and retaining plate, measure the thickness L1 of the pack.

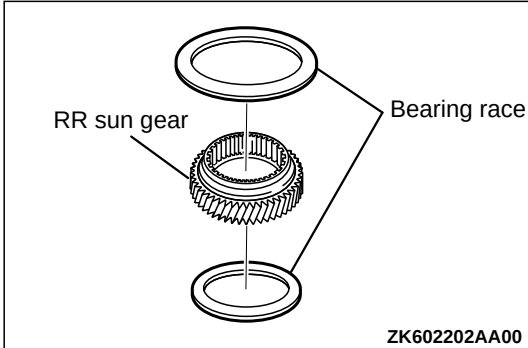
Compression load [N (kg/cm ²)]	7056 - 8056 (720 - 822)
---	-------------------------

- (2) Measure thickness L2 of the one-way clutch.
 (3) Measure distance L3 from the end face of the transaxle case to the low-reverse brake piston.
 (4) Temporarily assemble the snap ring, one-way clutch and snap ring to the transaxle case.
 (5) Measure distance L4 from the end face of the transaxle case to the one-way clutch, while pulling up the one-way clutch.
 (6) Remove the temporarily assembled snap ring, one-way clutch and snap ring from the transaxle case.
 (7) Calculate the clearance using the following formula. $\text{Clearance} = L3 - (L1 + L2 + L4)$
 (8) Select an appropriate retaining plate so that the specified clearance is obtained. Refer to "SERVICE DATA" for selecting the retaining plate.



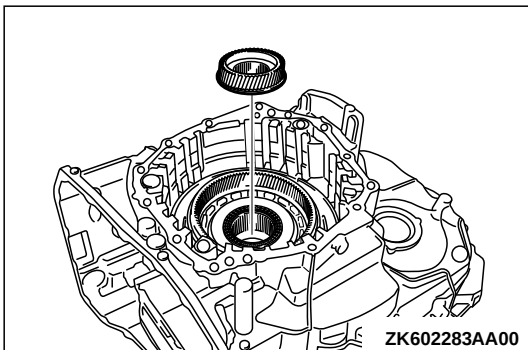
⚠ CAUTION

- Apply Vaseline to the needle bearing before installation.
 - Ensure that the needle bearing faces the correct direction.
17. Install the needle bearing.

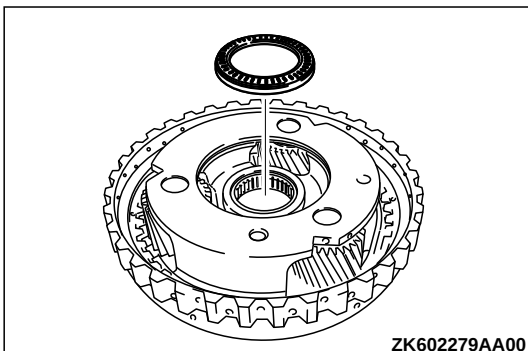


⚠ CAUTION

- Apply Vaseline to the bearing race before installation.
18. Install the bearing race on the RR sun gear on the front side.

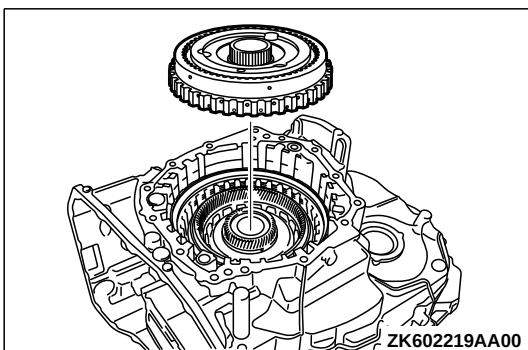


19. Install the RR sun gear on the front side.

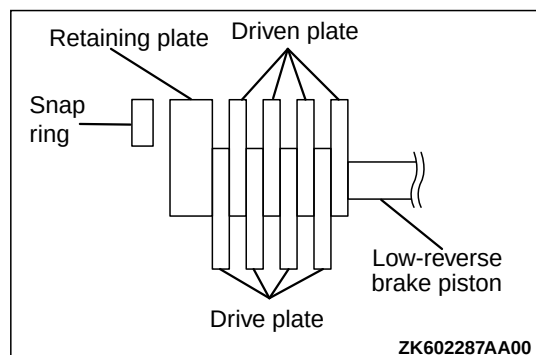


⚠ CAUTION

- Apply Vaseline to the needle bearing before installation.
 - Ensure that the needle bearing faces the correct direction.
20. Install the needle bearing on the RR carrier assembly.

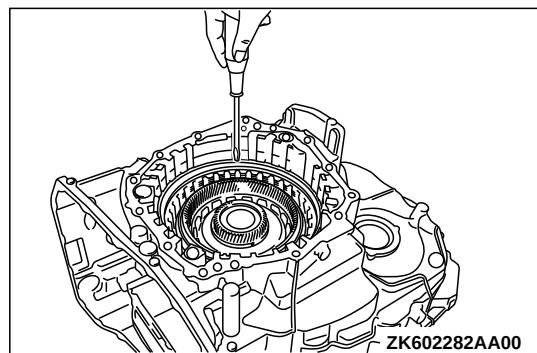


21. Install the RR carrier assembly.

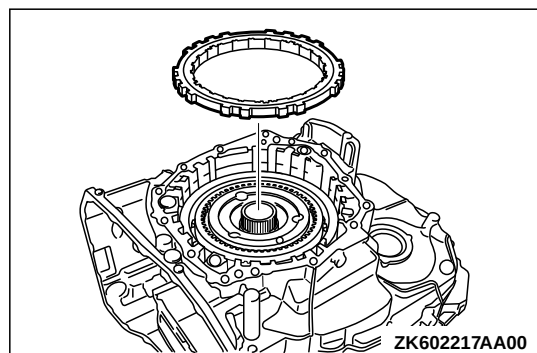
**CAUTION**

Ensure that the various plates are installed in the correct order.

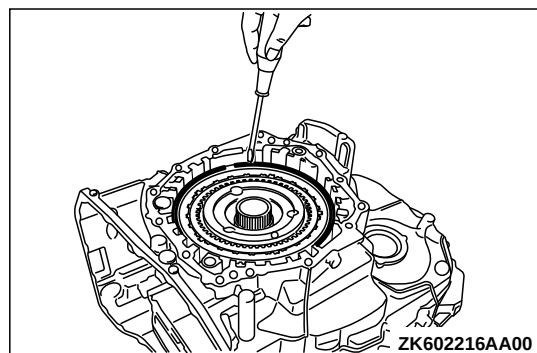
22. Install the low-reverse brake drive plate, driven plate and selected retaining plate on the transaxle case.



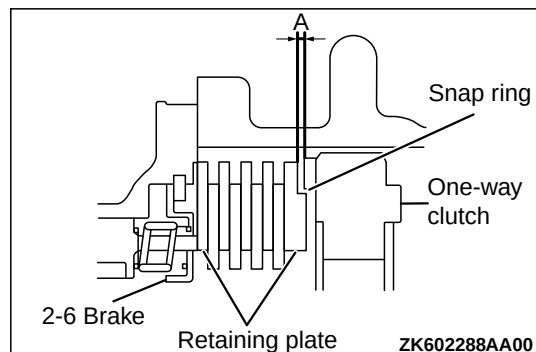
23. Using a flat-head screwdriver or equivalent, install the snap ring.



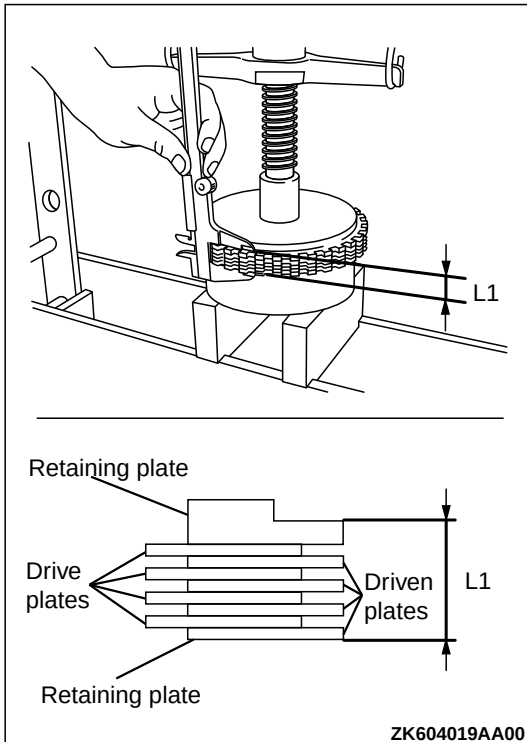
24. Install the one-way clutch.



25. Using a flat-head screwdriver or equivalent, install the snap ring.

**CAUTION**

Measure the end play at more than two locations and obtain the average of the measurements.



26. Measure the clearance (A) of the 2-6 brake using the following procedure. Refer to "SERVICE DATA" for the specified 2-6 brake clearance.

- (1) While compressing the drive plates, driven plates and retaining plate, measure thickness L1 of the pack.
- (2) Measure distance L2 from the end face of the transaxle case to the snap ring.

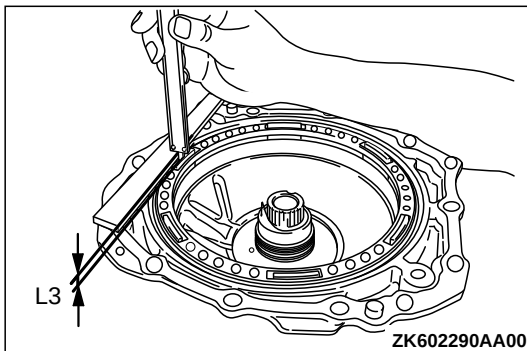
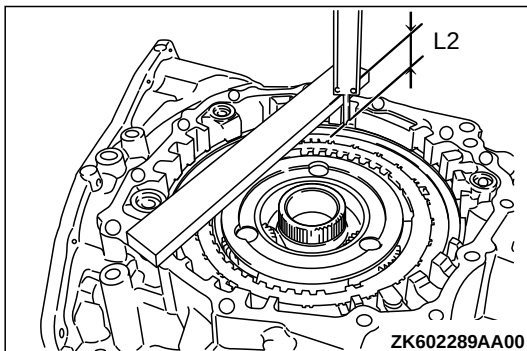
⚠ CAUTION

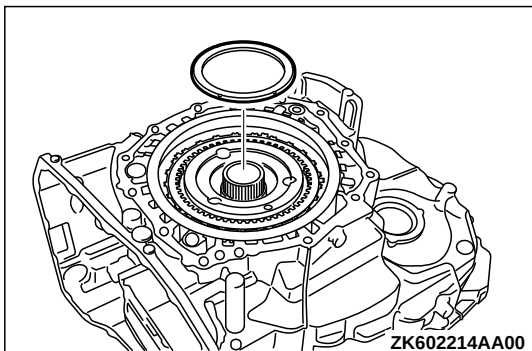
When measuring L3, use the same straight bar as used when L2 is measured.

- (3) Measure distance L3 from the end face of the side cover to the 2-6 brake piston.
- (4) Calculate the clearance using the following formula.

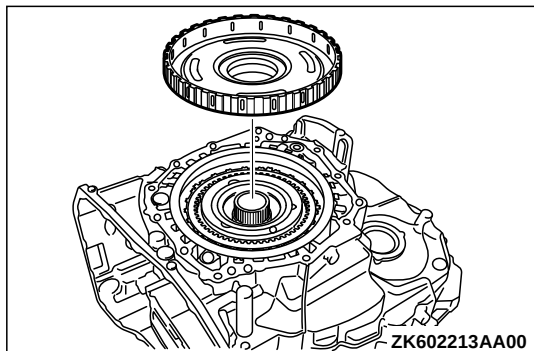
$$\text{Clearance} = L2 - (L1 + L3)$$

- (5) Select an appropriate retaining plate so that the specified clearance is obtained. Refer to "SERVICE DATA" for selecting the retaining plate.

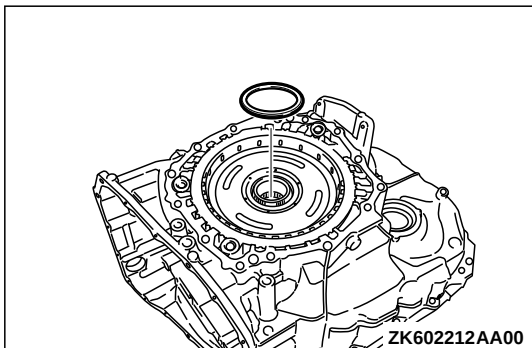


**⚠ CAUTION**

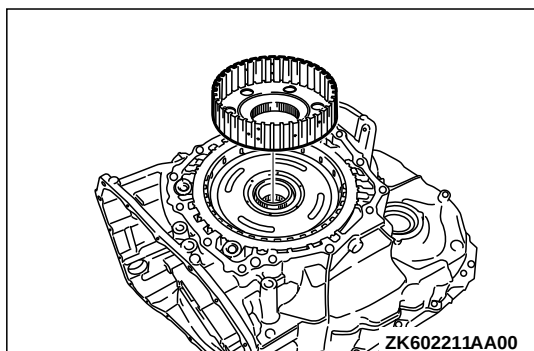
- Apply Vaseline to the needle bearing before installation.
 - Ensure that the needle bearing faces the correct direction.
27. Install the needle bearing on the RR carrier assembly.



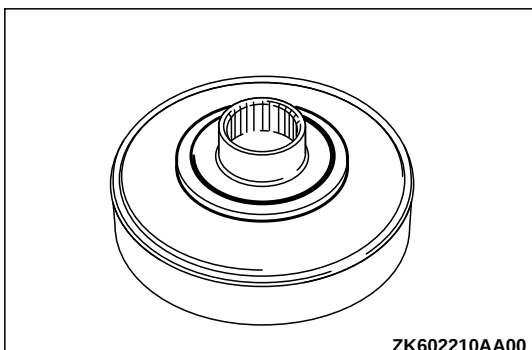
28. Install the RR sun gear on the rear side.

**⚠ CAUTION**

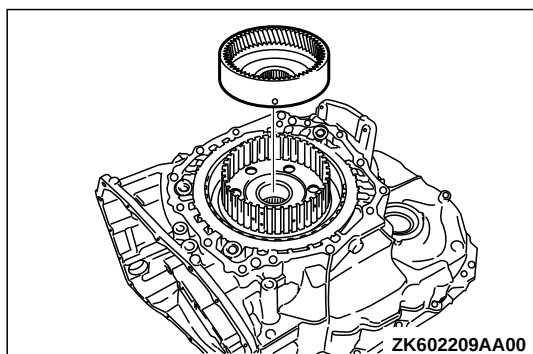
- Apply Vaseline to the needle bearing before installation.
 - Ensure that the needle bearing faces the correct direction.
29. Install the needle bearing on the RR sun gear on the rear side.



30. Install the high clutch hub.

**⚠ CAUTION**

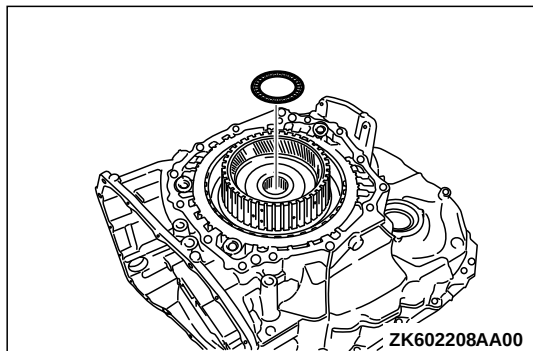
- Apply Vaseline to the needle bearing before installation.
 - Ensure that the needle bearing faces the correct direction.
31. Install the needle bearing on the reduction internal gear.



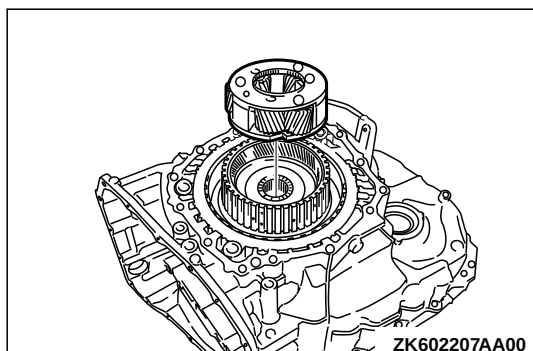
32. Install the reduction internal gear on the high clutch hub.

CAUTION

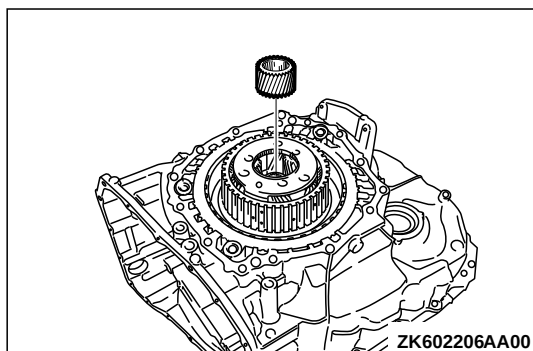
- Apply Vaseline to the needle bearing before installation.
- Ensure that the needle bearing faces the correct direction.



33. Install the needle bearing on the reduction internal gear.



34. Install the reduction carrier.



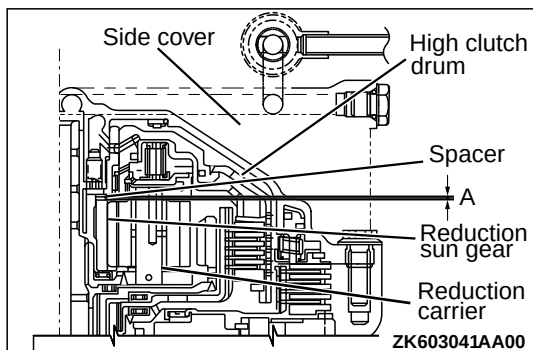
35. Install the reduction sun gear.

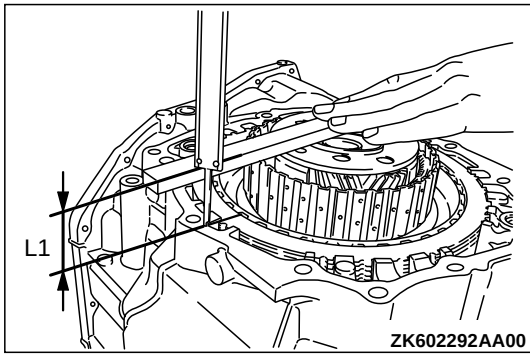
CAUTION

Measure the end play at more than two locations and obtain the average of the measurements.

36. Measure the reduction sun gear end play (A) using the following procedure. Refer to "SERVICE DATA" for the specified reduction sun gear end play (A).

- (1) Measure distance L1 from the reduction carrier to the end face of the transaxle case.
- (2) Measure distance L2 from the reduction carrier to the reduction sun gear.



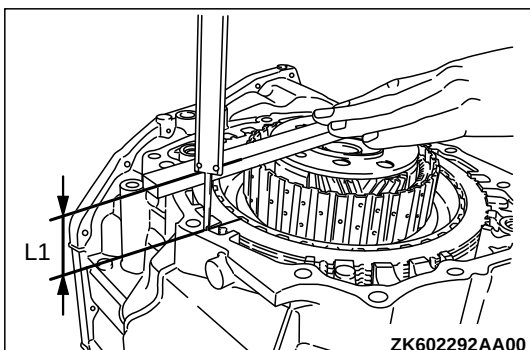
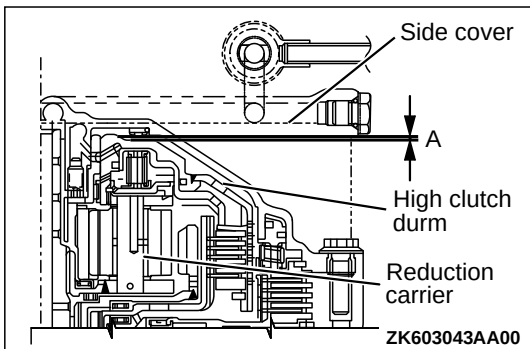
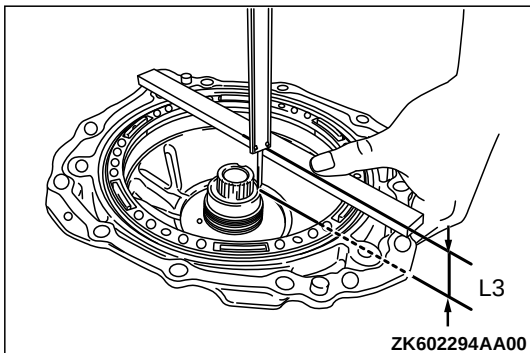
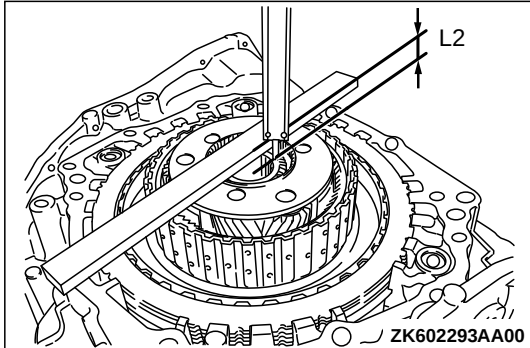


(3) Measure distance L3 from the end face of the side cover to the end face of the high clutch support area.

(4) Calculate the end play using the following formula.

$$\text{End play} = L3 - (L1 - L2) - \text{Thickness of straight bar} - \text{Thickness of spacer}$$

(5) Select an appropriate spacer so that the specified end play is obtained. Refer to "SERVICE DATA" for selecting the spacer.

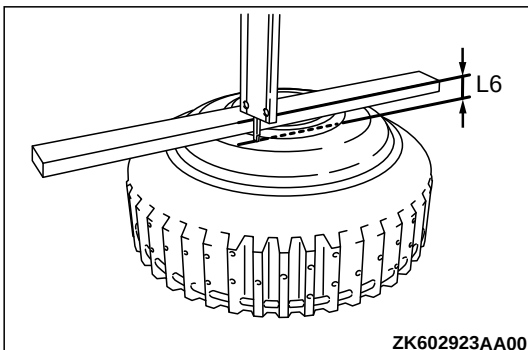
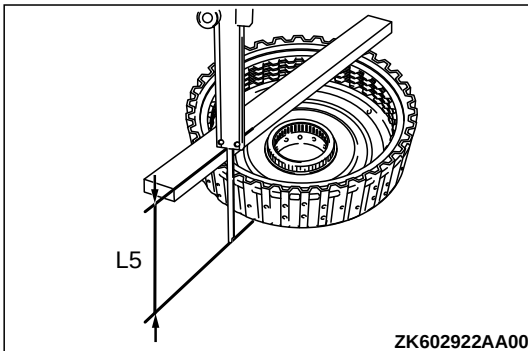
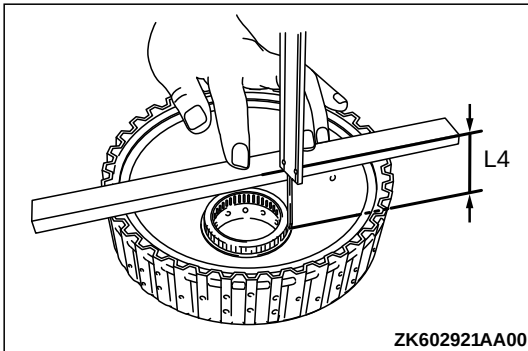
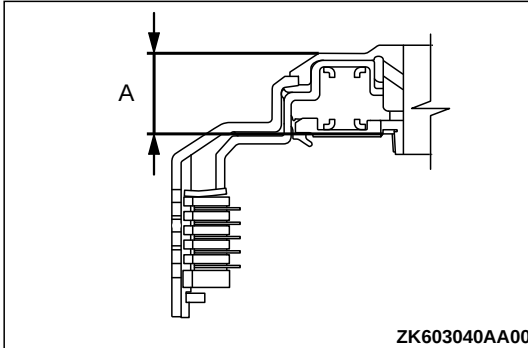
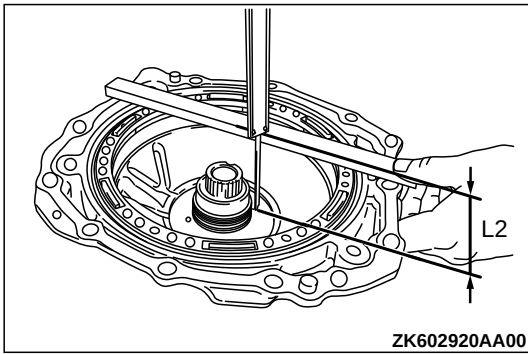


CAUTION

Measure the end play at more than two locations and obtain the average of the measurements.

37. Measure the side cover end play (A) in the following procedure. Refer to "SERVICE DATA" for the specified side cover end play (A).

- (1) Measure distance L1 from the reduction carrier to the end face of the transaxle case.
- (2) Measure distance L2 from the end face of the side cover to the needle bearing mounting surface.
- (3) Measure distance L3 from the contact surface with the needle bearing of the high clutch drum to the snap ring of the cancel cover in the following procedure.
 - a. Measure distance L4 from the high clutch drum edge to the snap ring of the cancel cover.
 - b. Measure height L5 of the high clutch drum.
 - c. Measure distance L6 from the underside of the high clutch drum to the contact surface with the needle bearing.
 - d. Calculate L3 using the following formula.

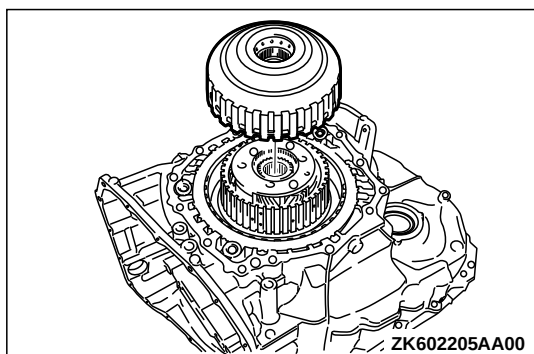


$L3 = L5 - (L4 + L6)$ - Thickness of straight bar

(4) Calculate the end play using the following formula.

End play = $L3 - (L1 - L2)$ - Thickness of straight bar - Thickness of spacer

(5) Select an appropriate needle bearing so that the specified end play is obtained. Refer to "SERVICE DATA" for selecting the needle bearing.

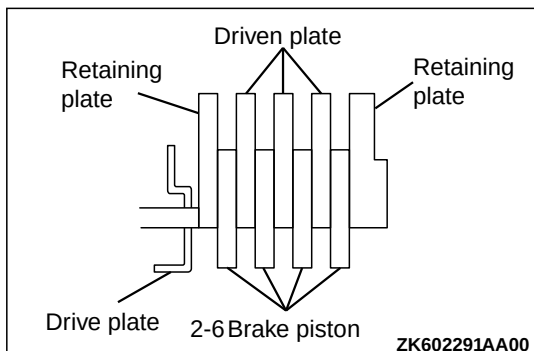


38. Install the high clutch assembly.

CAUTION

Ensure that the various plates are installed in the correct order.

39. Install the 2-6 brake drive plate, driven plate and selected retaining plate on the transaxle case.

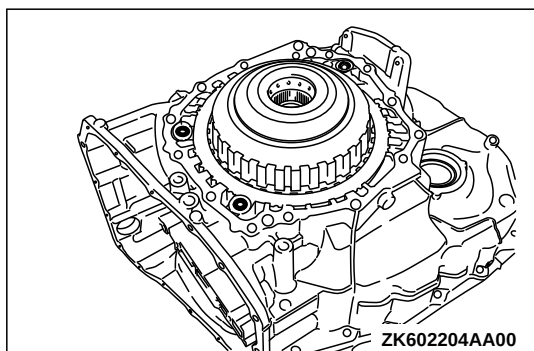


CAUTION

• Never reuse the O-rings.

• Apply ATF to the O-rings before installation.

40. Install an O-ring on the transaxle case.



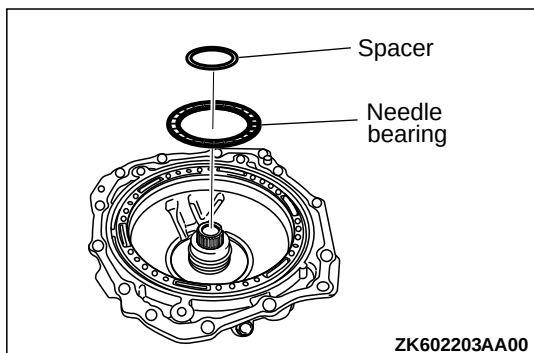
CAUTION

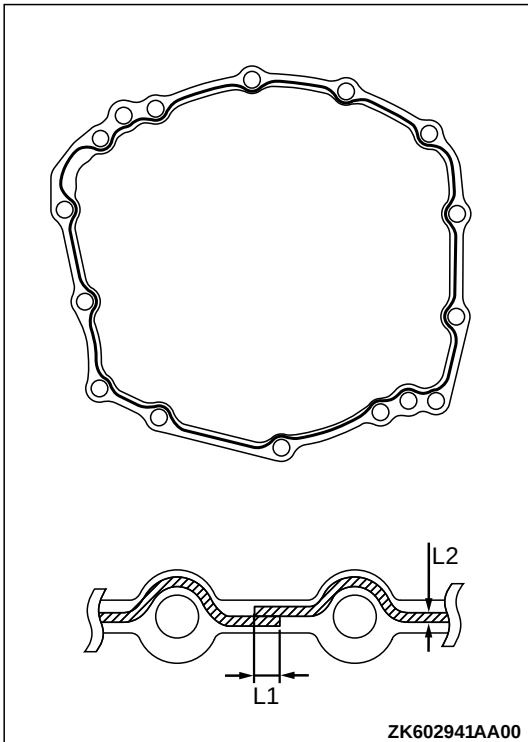
• Never reuse the spacer.

• Apply Vaseline to the spacer and needle bearing before installation.

• Ensure that the needle bearing faces the correct direction.

41. Install an appropriate spacer and the needle bearing on the side cover.

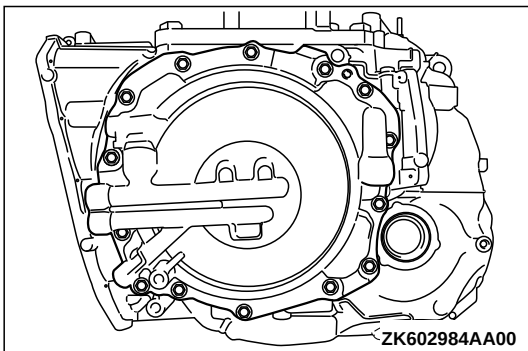




⚠ CAUTION

- Before applying the sealant, thoroughly clean the mounting surface so that it is completely free of moisture, lubricant and the old sealant.
 - The start and finish of the bead should be close to the middle of any pair of the adjoining bolt holes.
42. Apply Three Bond 1216B to the transaxle case mounting surface of the side cover (almost the center line of the surface).

L1 mm (in)	3 - 5 (0.1 - 0.2)	L2 mm (in)	2.3 (0.09)
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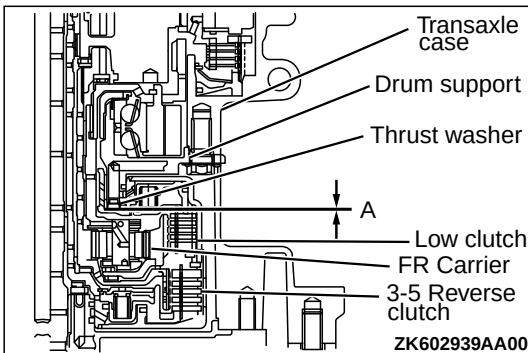


⚠ CAUTION

- Mounting bolts are Torx E16 bolts.**
43. Install the side cover on the transaxle case. Refer to the table below or the exploded view for tightening torque.

No. of bolts	14
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Tightening torque: 27 N·m (20 ft-lb)



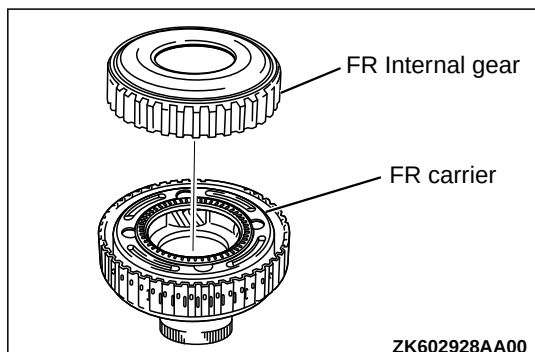
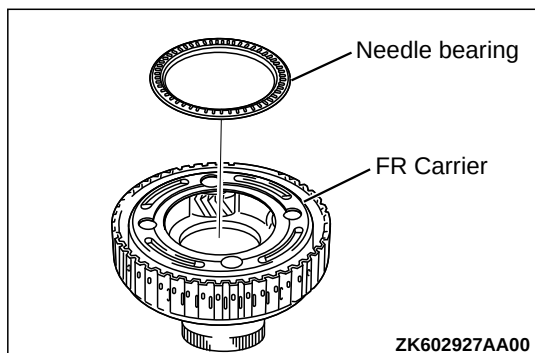
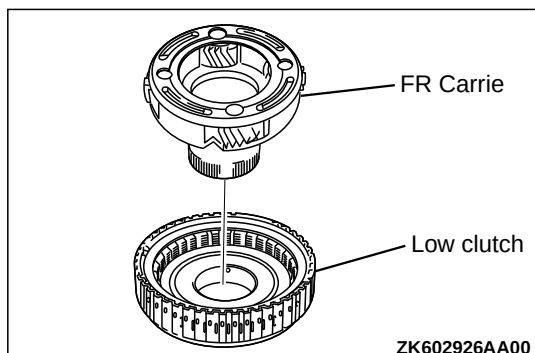
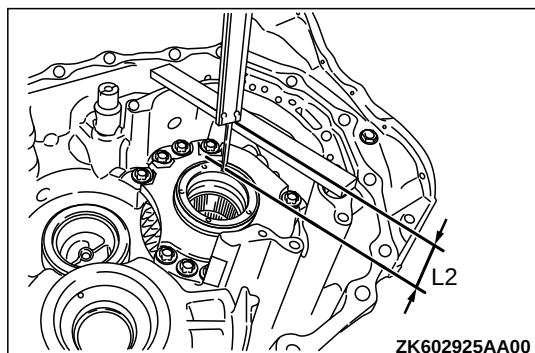
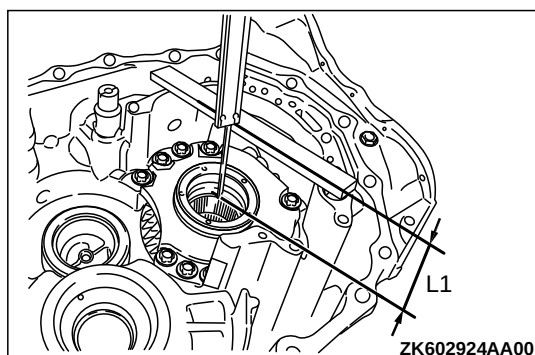
⚠ CAUTION

Measure the end play at more than two locations and obtain the average of the measurements.

44. Measure the drum support end play (A) using the following procedure. Refer to "SERVICE DATA" for the specified drum support end play (A).
- (1) Measure distance L1 between the end face of the RR internal gear splines and the oil pump mounting surface of the transaxle case.
 - (2) Measure distance L2 between the thrust washer mounting surface of the drum support and the oil pump mounting surface of the transaxle case.
 - (3) Measure distance L3 using the following procedure.
 - a. Install the FR carrier on the low clutch assembly.

⚠ CAUTION

- Apply Vaseline to the needle bearing before installation.
- Ensure that the needle bearing faces the correct direction.



- b. Install the needle bearing on the FR carrier.
- c. Install the FR internal gear on the FR carrier.

⚠ CAUTION

• Apply Vaseline to the needle bearing before installation.

• Ensure that the needle bearing faces the correct direction.

- d. Install the needle bearing on the FR sun gear.
- e. Install the FR sun gear.

⚠ CAUTION

• Apply Vaseline to the needle bearing before installation.

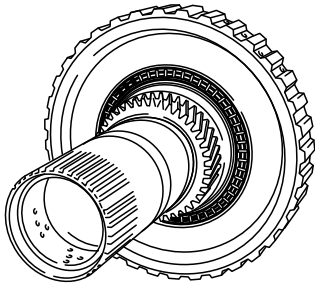
• Ensure that the needle bearing faces the correct direction.

- f. Install the needle bearing on the FR sun gear.
- g. Install the 3-5 reverse clutch assembly.
- h. Measure distance L3 between A and B.

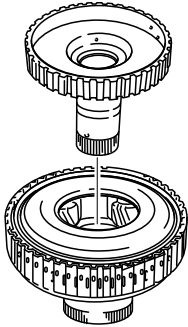
- (4) Calculate the end play using the following formula.

End play = L3 - (L1 - L2) - Thrust washer thickness

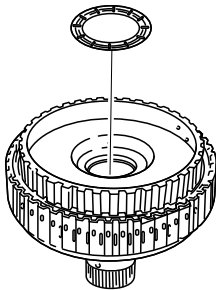
- (5) Select an appropriate thrust washer so that the specified end play is obtained. Refer to "SERVICE DATA" for selecting the thrust washer.



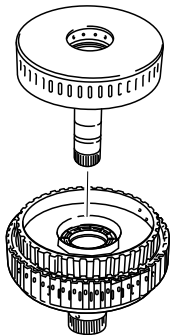
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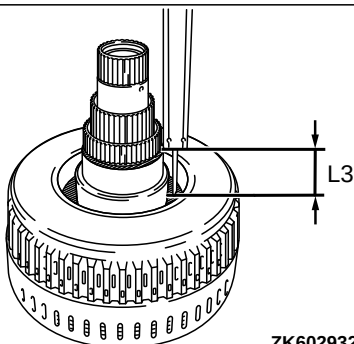
ZK602929AA00



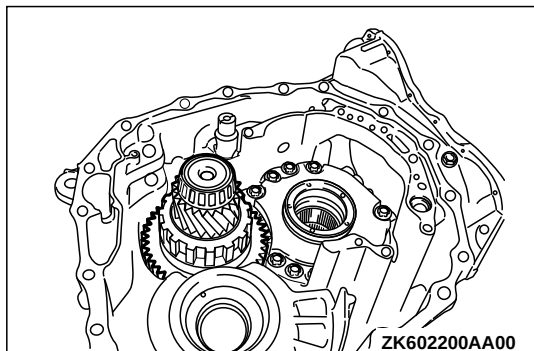
ZK602930AA00



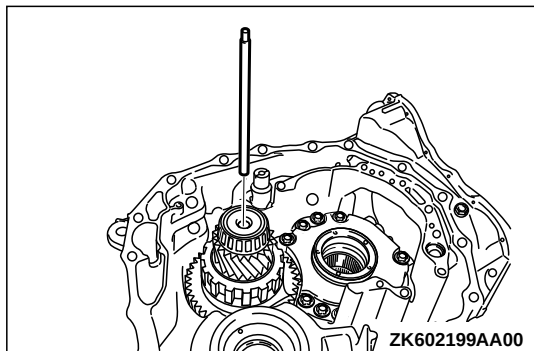
ZK602931AA00



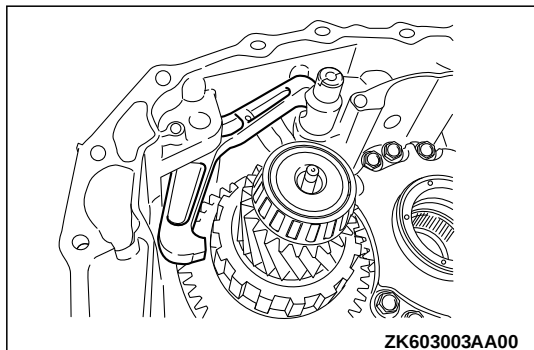
ZK602932AA00



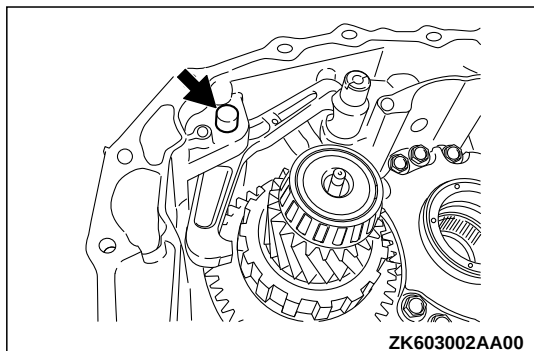
45. Install the reduction gear assembly.



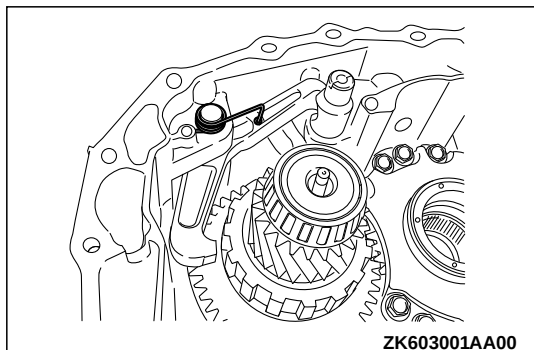
46. Install the reduction gear lubrication tube.



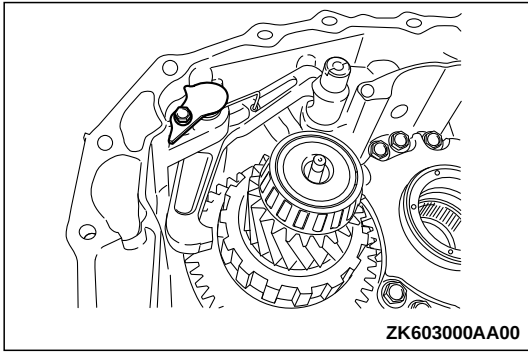
47. Install the parking pawl.



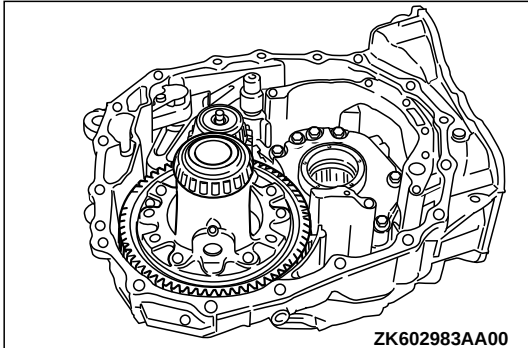
48. Install the parking shaft.



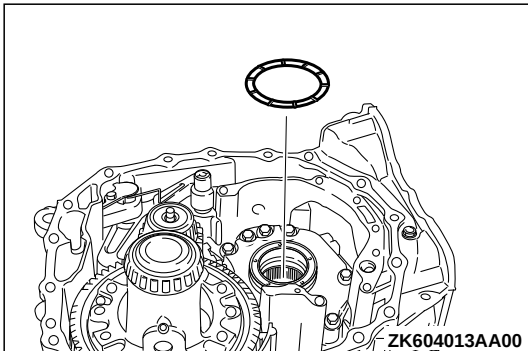
49. Install the return spring.



50. Install the parking plate. Refer to the table below or the exploded view for tightening torque.
Tightening torque: 7.9 N·m (70 in-lb)

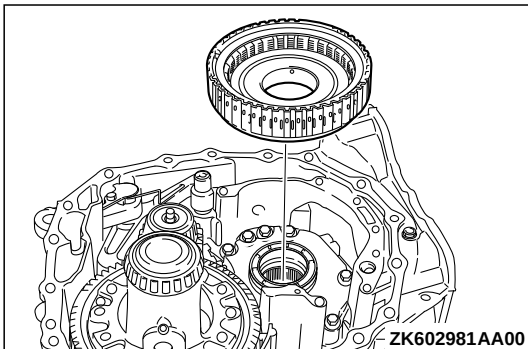


51. Install the differential gear assembly.

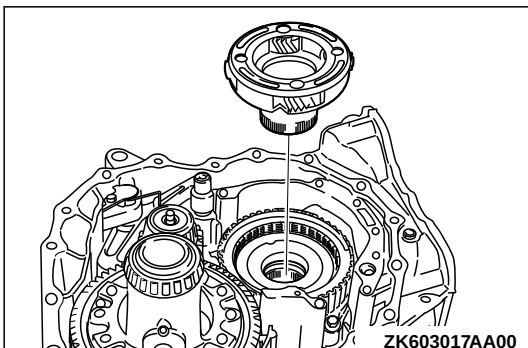


CAUTION

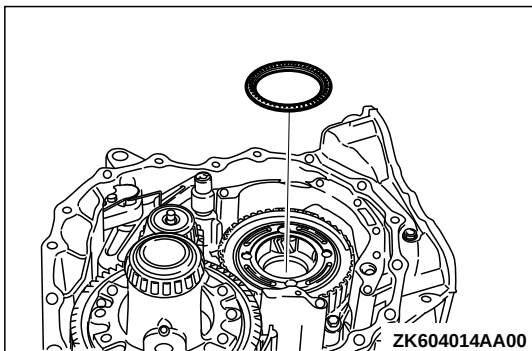
- Ensure that the claws on the thrust washer are correctly engaged with the holes in the drum support.
 - Apply Vaseline to the thrust washer before installation.
52. Install an appropriate thrust washer on the drum support.



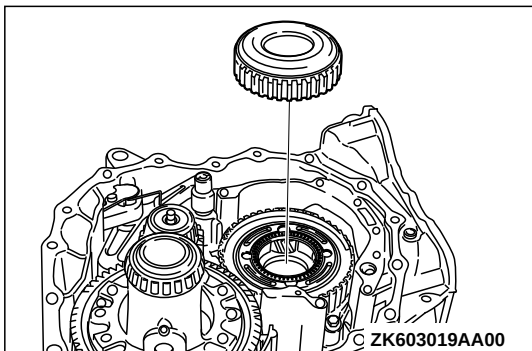
53. Install the low clutch assembly.



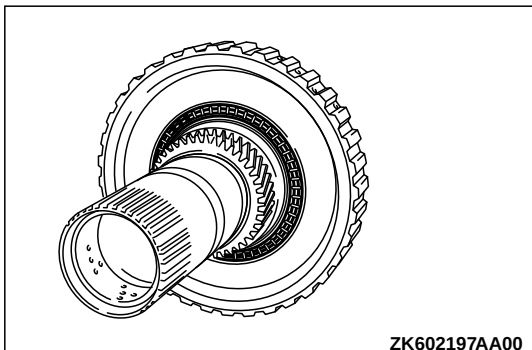
54. Install the FR carrier on the low clutch assembly.

**⚠ CAUTION**

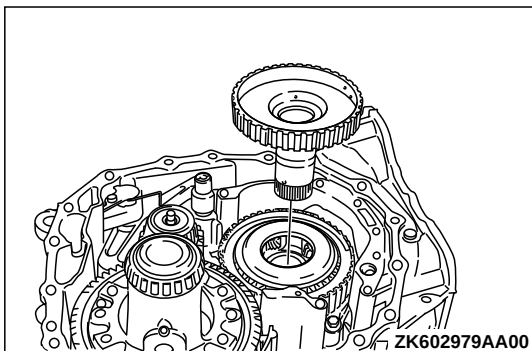
- Apply Vaseline to the needle bearing before installation.
 - Ensure that the needle bearing faces the correct direction.
55. Install the needle bearing on the FR carrier.



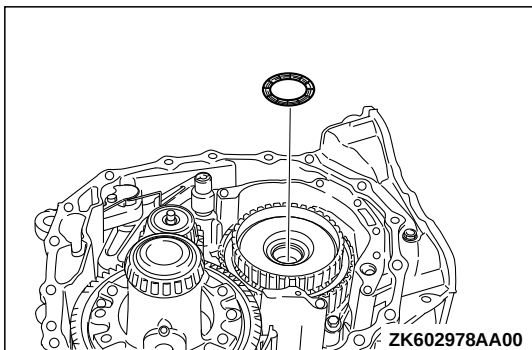
56. Install the FR internal gear on the FR carrier.

**⚠ CAUTION**

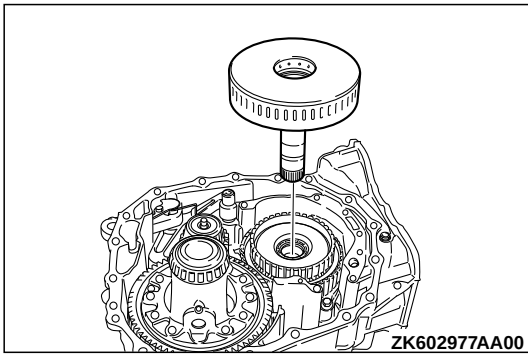
- Apply Vaseline to the needle bearing before installation.
 - Ensure that the needle bearing faces the correct direction.
57. Install the needle bearing on the FR sun gear.



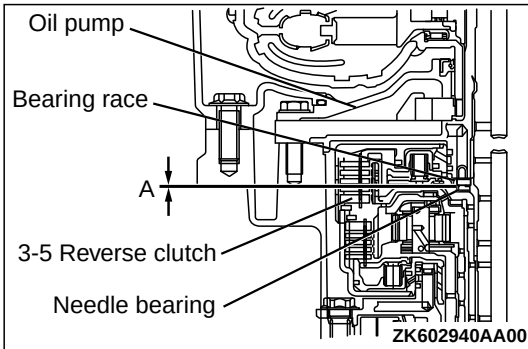
58. Install the FR sun gear.

**⚠ CAUTION**

- Apply Vaseline to the needle bearing before installation.
 - Ensure that the needle bearing faces the correct direction.
59. Install the needle bearing on the FR sun gear.



60. Install the 3-5 reverse clutch assembly.



⚠ CAUTION

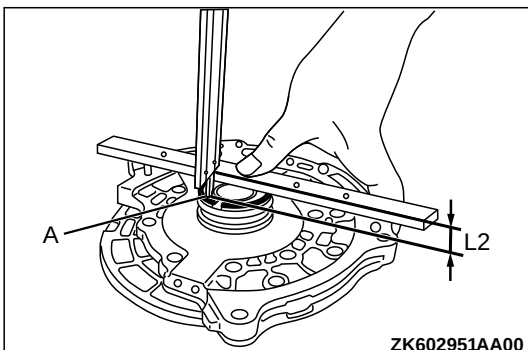
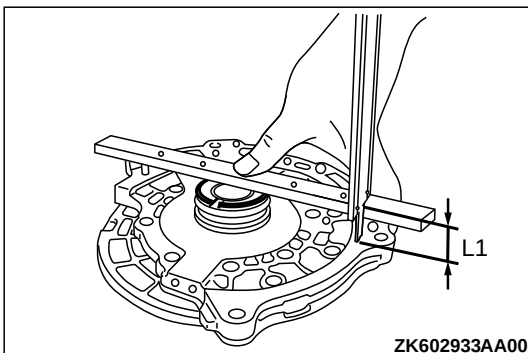
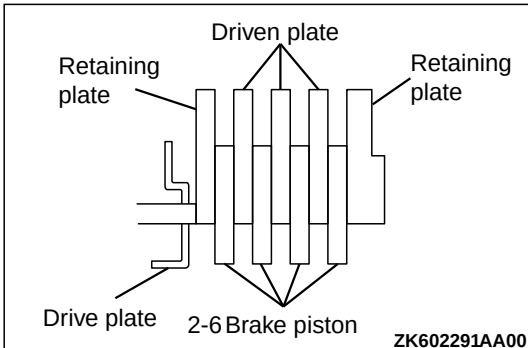
Measure the end play at more than two locations and obtain the average of the measurements.

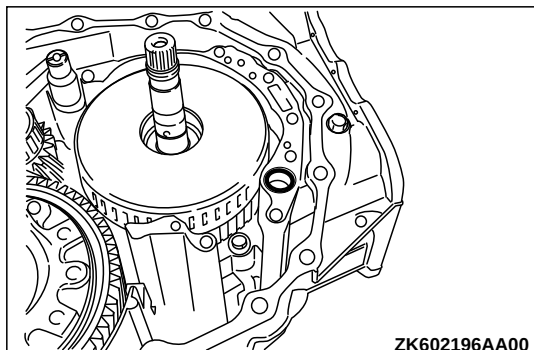
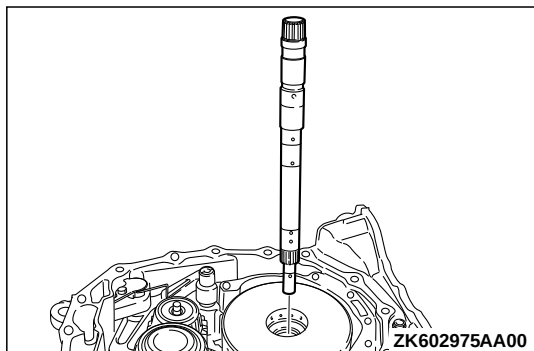
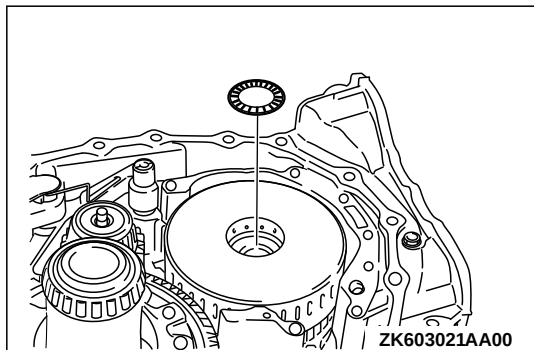
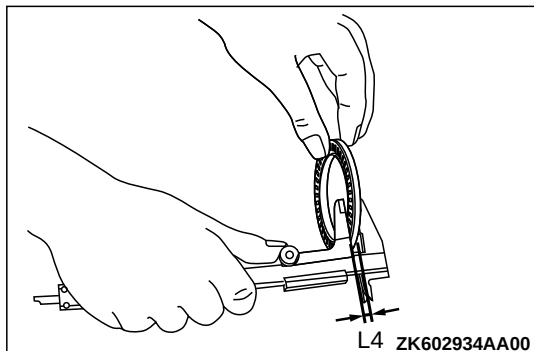
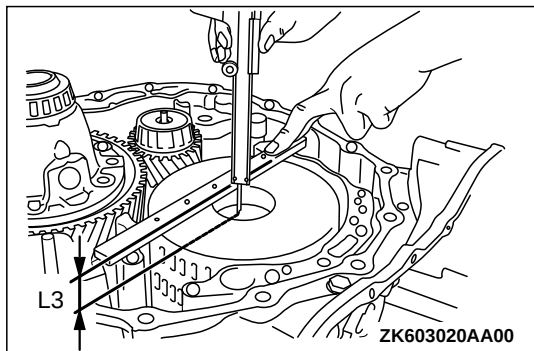
61. Measure the 3-5 reverse clutch end play (A) using the following procedure. Refer to "SERVICE DATA" for the specified 3-5 reverse clutch end play (A).

- (1) Measure distance L1 between the oil pump assembly end face and A.
- (2) Measure distance L2 between A and the bearing race mounting surface.
- (3) Measure distance L3 between the oil pump mounting surface of the transaxle case and the needle bearing mounting surface of the 3-5 reverse clutch drum.
- (4) Measure thickness L4 of the needle bearing.
- (5) Calculate the end play using the following formula.

End play = L3 - (L1 - L2) - L4 - Bearing race thickness

- (6) Select an appropriate bearing race so that the specified end play is obtained. Refer to "SERVICE DATA" for selecting the bearing race.



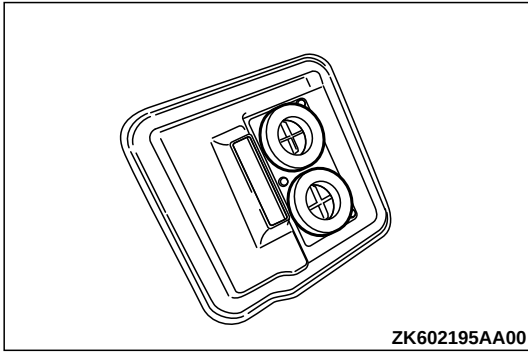
**CAUTION**

- Apply Vaseline to the needle bearing before installation.
 - Ensure that the needle bearing faces the correct direction.
62. Install the needle bearing on the 3-5 reverse clutch drum.

63. Install the input shaft.

CAUTION

- Never reuse the O-rings.
 - Apply ATF to the O-rings before installation.
64. Install an O-ring on the transaxle case.



65. Install the magnets on the oil strainer.

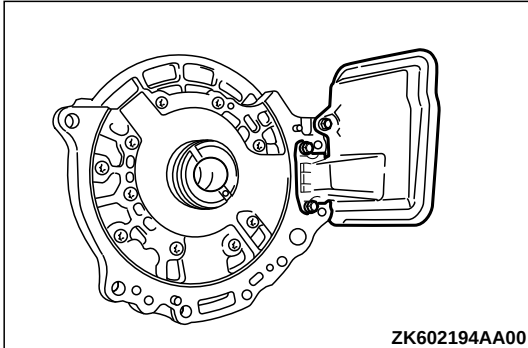
⚠ CAUTION

- Never reuse the oil strainer.
- Apply ATF to the O-ring of the oil strainer.

66. Install the oil strainer on the oil pump assembly. Refer to the table below or the exploded view for tightening torque.

No. of bolts	3
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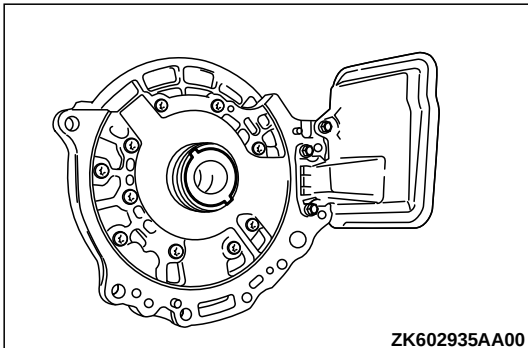
Tightening torque: 9.4 N·m (83 in-lb)



⚠ CAUTION

Apply Vaseline to the bearing race before installation.

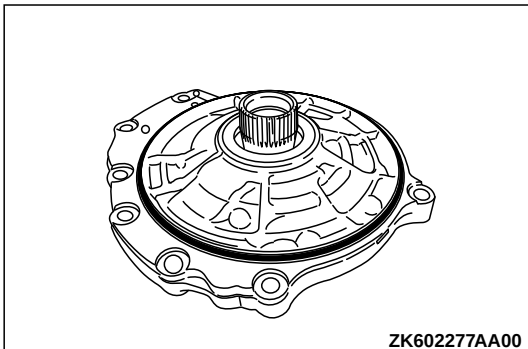
67. Install an appropriate bearing race on the oil pump assembly.



⚠ CAUTION

- Never reuse the O-rings.
- Apply ATF to the O-rings before installation.
- Apply the ATF as little as possible because too much ATF applied to the o-ring, could cause some confusion over oil leakage

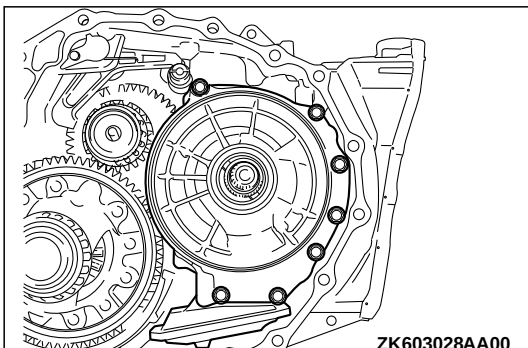
68. Install an O-ring on the oil pump.

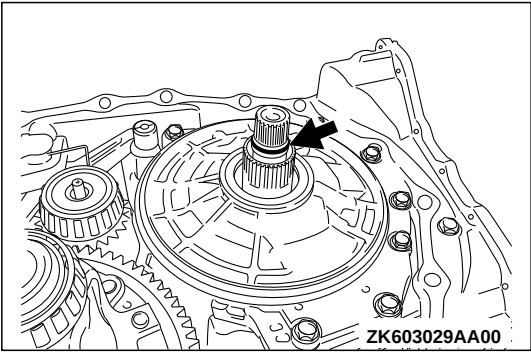


69. Install the oil pump assembly and oil strainer as one unit. Refer to the table below or the exploded view for tightening torque.

No. of bolts	7
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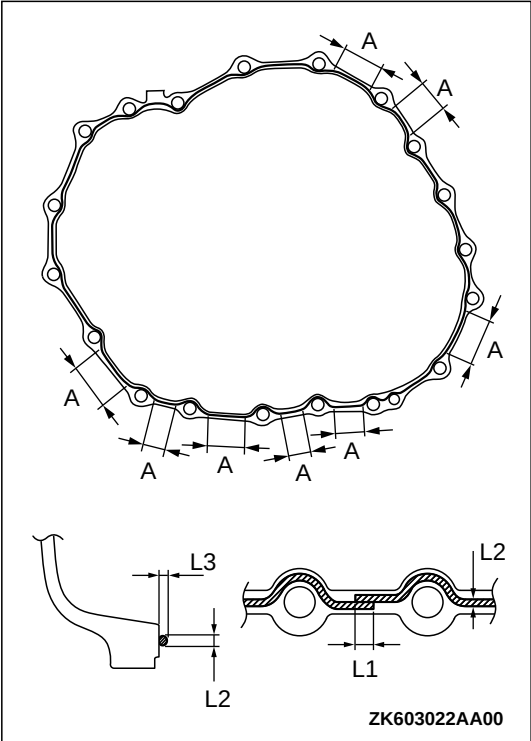
Tightening torque: 21 N·m (15 ft-lb)





⚠ CAUTION

- Never reuse the O-rings.
 - Apply ATF to the O-rings before installation.
70. Install an O-ring on the input shaft.

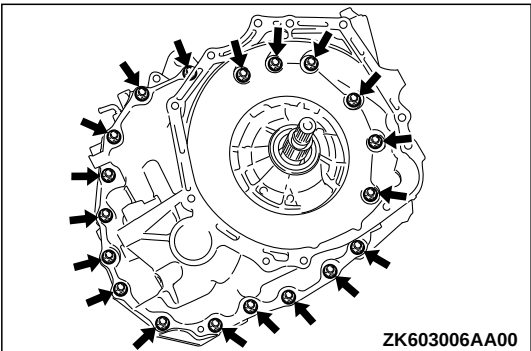


⚠ CAUTION

- Before applying the sealant, thoroughly clean the mounting surface so that it is completely free of moisture, lubricant and the old sealant.
- The start and finish of the bead should be close to the middle of any pair of the adjoining bolt holes.
- Apply a double bead of sealant in sections A.

71. Apply Three Bond 1216B to the transaxle case mounting surface of the converter housing (almost the center line of the surface).

L1 mm (in)	3 - 5 (0.1 - 0.2)
L2 mm (in)	2.3 (0.09)
L3 mm (in)	1.8 (0.07)



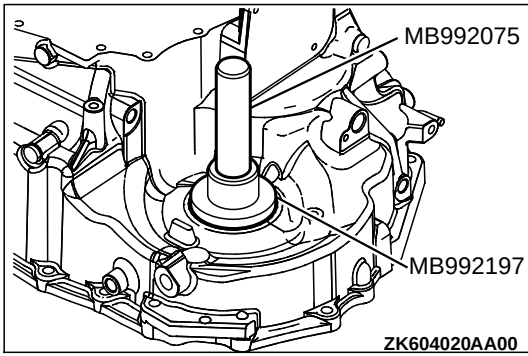
⚠ CAUTION

Mounting bolts are Torx E20 bolts.

72. Install the converter housing on the transaxle case. Refer to the exploded view for tightening torque.

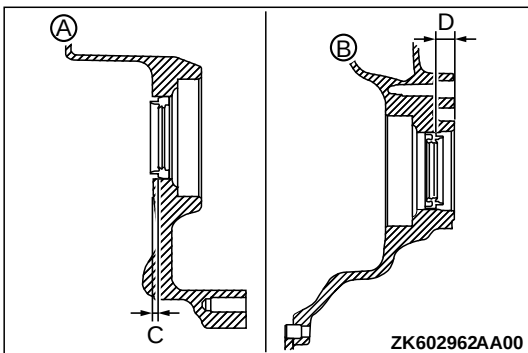
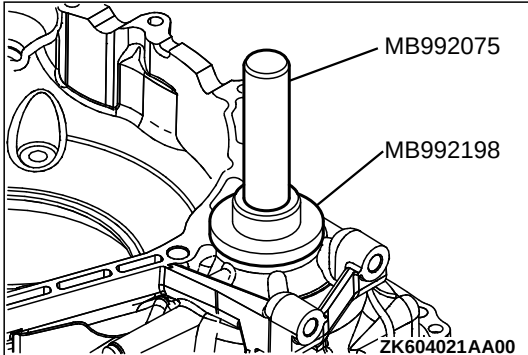
No. of bolts	19
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Tightening torque: 47 N·m (35 ft-lb)



CAUTION

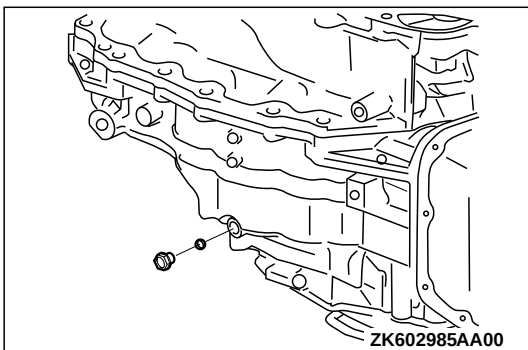
- Never reuse the side oil seal.
 - Apply ATF to the side oil seal before installation.
73. Using the Special Tool, install a side oil seal.
- Oil seal installer (MB992197)
 - Handle (MB992075)



CAUTION

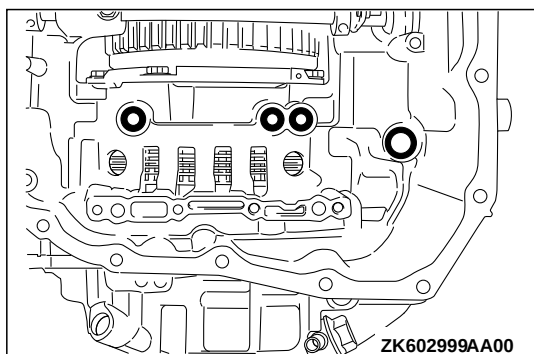
- Ensure that the side oil seal is installed to the specified depth shown in the table below.
- Measure the installed depth of the seal at four locations diagonally. Any difference between the measurements should be no more than 0.3 mm.

On the transaxle case side (A) MB992197	Seal depth (C) from case end face: 4.0 ± 0.1 mm (0.2 ± 0.004 in) or less
On the converter housing side (B) MB992198 <F6AJ>	Seal depth (D) from housing end face: 14.0 ± 0.1 mm (0.6 ± 0.004 in) or less

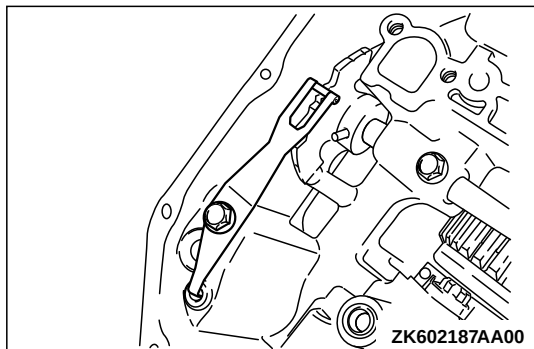


CAUTION

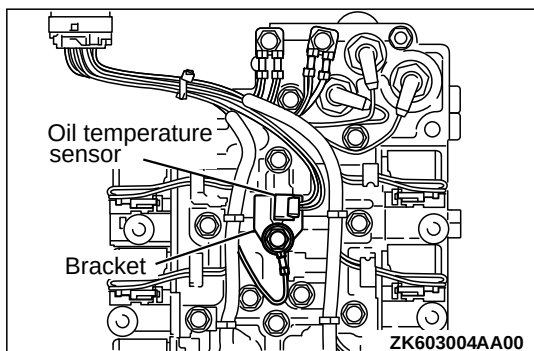
- Never reuse the O-rings.
 - Apply ATF to the O-rings before installation.
74. Install an O-ring on the ATF adjusting bolt.
75. Install the ATF adjusting bolt on the transaxle case. Refer to the table below or the exploded view for tightening torque.
- Tightening torque: 7.4 N·m (65 in-lb)**

**CAUTION**

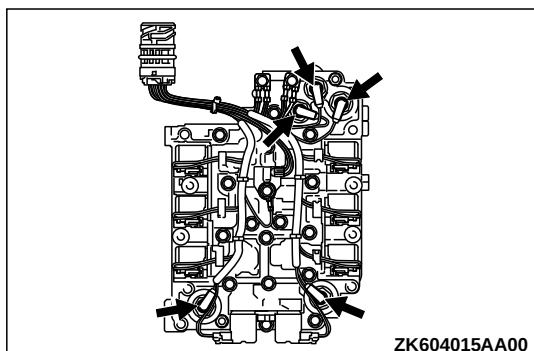
- Never reuse the lip seals.
 - Apply ATF to the lip seals before installation.
76. Install the lip seals on the transaxle case.



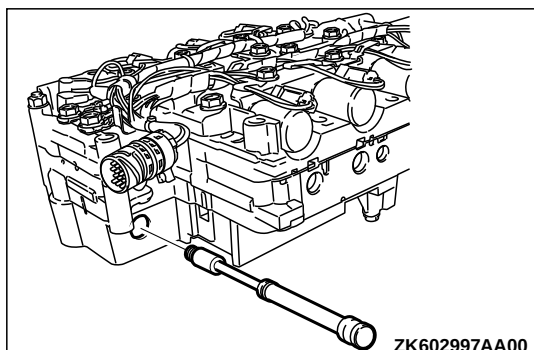
77. Install the detent spring. Refer to the table below or the exploded view for tightening torque.
78. Install the bracket on the oil temperature sensor.
Tightening torque: 4.9 N·m (43 in-lb)



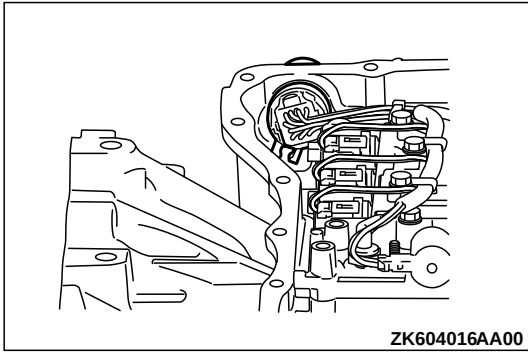
79. Install the oil temperature sensor on the control valve. Refer to the table below view for tightening torque.
Tightening torque: 7.8 N·m (69 in-lb)

**CAUTION**

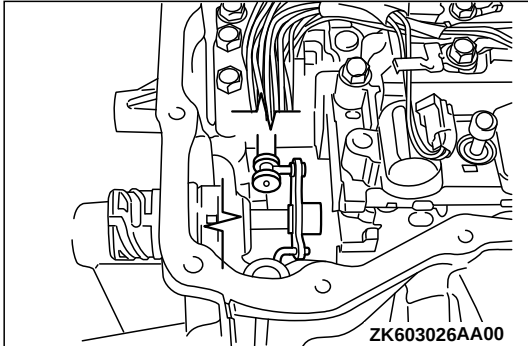
- Check the oil pressure switch connectors (each indicated with an arrow) for correct fit.
80. Install the terminal assembly on the control valve.

**CAUTION**

- Apply ATF to the manual valve before installation.
81. Install the manual valve on the control valve.

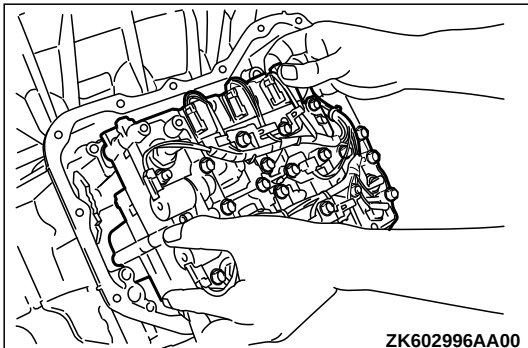


82. Press the terminal body into the transaxle case.

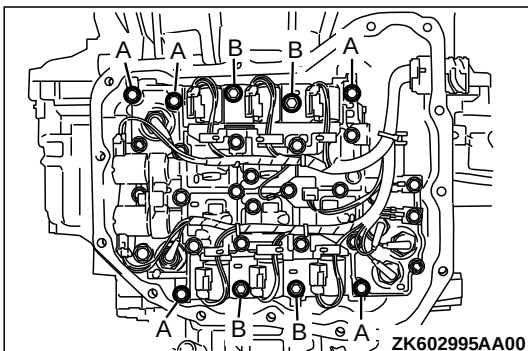


⚠ CAUTION

Ensure that the notch in the manual valve is engaged with the lug on the manual plate.



83. Install the control valve assembly on the transaxle case.



⚠ CAUTION

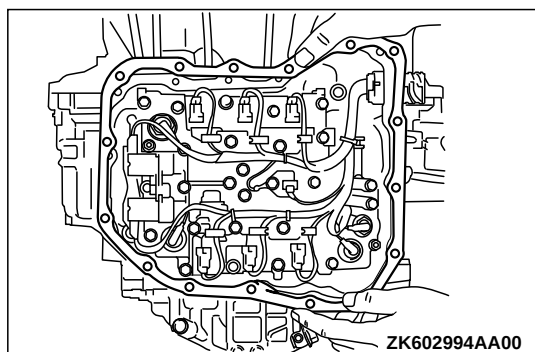
• Mounting bolt A is a hexagon head bolt.

• Mounting bolt B is a hexagon socket head bolt.

84. Install the control valve assembly mounting bolts A and B. Refer to the table below or the exploded view for tightening torque.

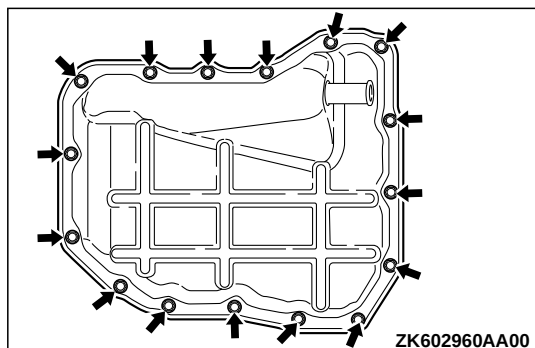
Bolt code	A	B
Shank length mm (in)	70.1 (2.76)	50.8 (2.00)
No. of bolts	5	4

Tightening torque: 7.9 N·m (70 in-lb)

**⚠ CAUTION**

- Never reuse the control valve cover gasket.
- Thoroughly clean the control valve cover gasket mounting surface of the case so that it is completely free of moisture, lubricant and the old gasket.

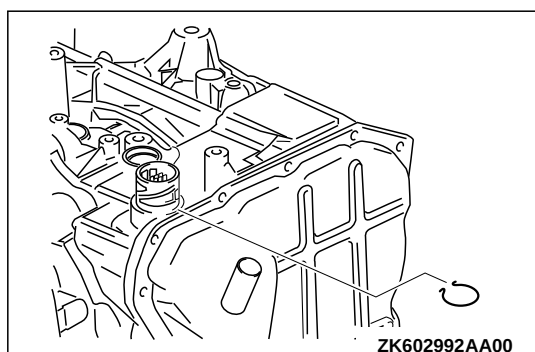
85. Install the control valve cover gasket on the transaxle case.



86. Install the control valve cover on the transaxle case. Refer to the table below or the exploded view for tightening torque.

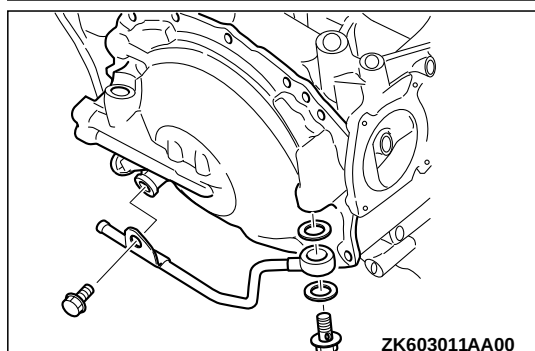
No. of bolts	16
--------------	----

Tightening torque: 7.9 N·m (70 in-lb)

**⚠ CAUTION**

Never reuse the snap ring.

87. Install a snap ring on the terminal body.

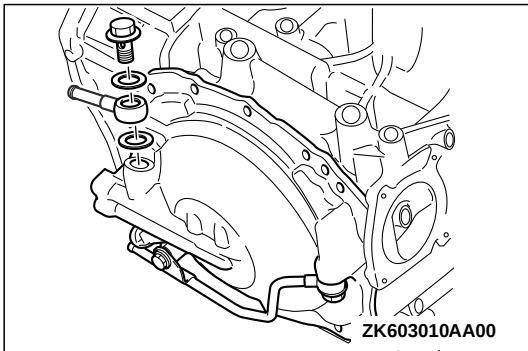
**⚠ CAUTION**

Never reuse the copper washers.

88. Refer to the table below or the exploded view for the tightening torque to install the cooler tube (OUT) onto the side cover.

Eye bolt Tightening torque: 39.2 N·m (29 ft-lb)

Bracket Tightening torque: 21.6 N·m (16 ft-lb)

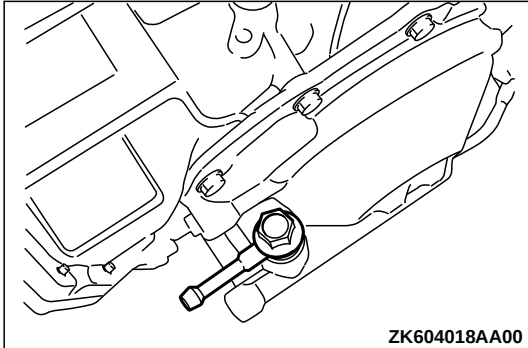


⚠ CAUTION

Never reuse the copper washers.

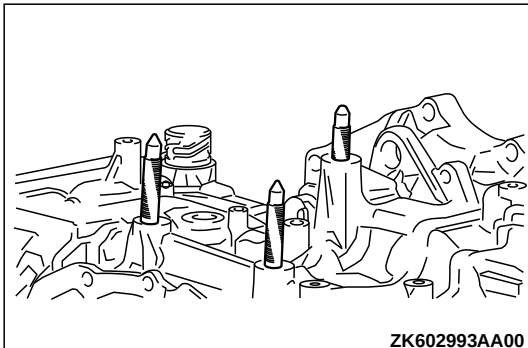
89. Refer to the table below or the exploded view for the tightening torque to install the cooler tube (IN) on the side cover.

Tightening torque: 39.2 N·m (29 ft-lb)



⚠ CAUTION

Ensure that the cooler tube (IN) is against the stop on the side cover.

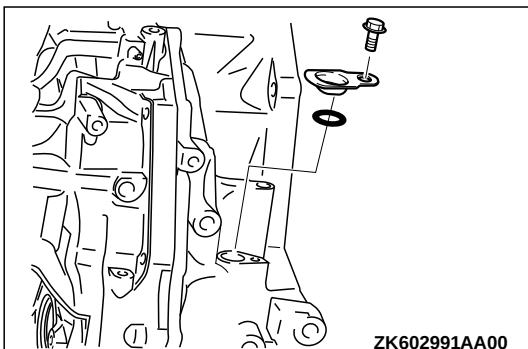


⚠ CAUTION

Ensure that the stud bolts protrude from the case as much as indicated in the table below.

Stud bolt 1 mm (in)	40 (1.6)
Stud bolt 2 mm (in)	61.5 (2.4)

90. Install stud bolt 1 and 2 on the transaxle case.



⚠ CAUTION

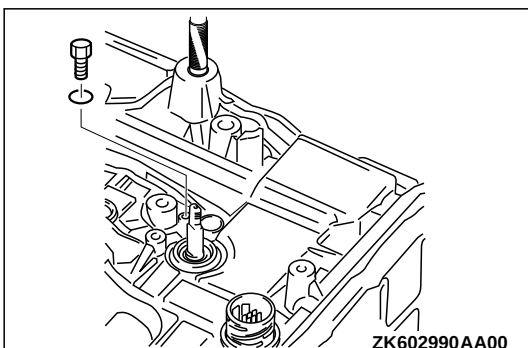
•Never reuse the O-rings.

•Apply ATF to the O-rings before installation.

91. Install an O-ring on the baffle plate.

92. Install the baffle plate on the converter housing. Refer to the table below or the exploded view for tightening torque.

Tightening torque: 5.9 N·m (52 in-lb)



⚠ CAUTION

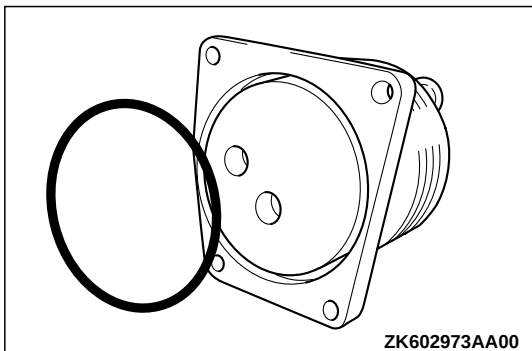
•Never reuse the O-rings.

•Apply ATF to the O-rings before installation.

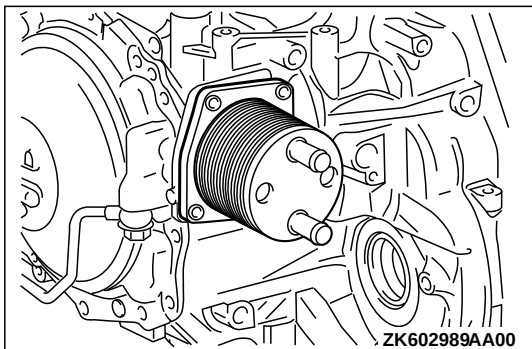
93. Install an O-ring on the pressure test port bolt.

94. Install the pressure test port bolt on the transaxle case. Refer to the table below or the exploded view for tightening torque.

Tightening torque: 7.4 N·m (65 in-lb)

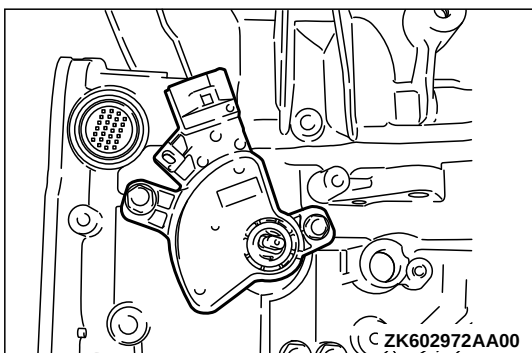
**⚠ CAUTION**

- Never reuse the O-rings.
 - Apply ATF to the O-rings before installation.
95. Install an O-ring on the water-cooled fluid cooler.



96. Install the water-cooled fluid cooler on the transaxle case. Refer to the table below or the exploded view for tightening torque.

Tightening torque: 4.2 N·m (37 in-lb)

**⚠ CAUTION**

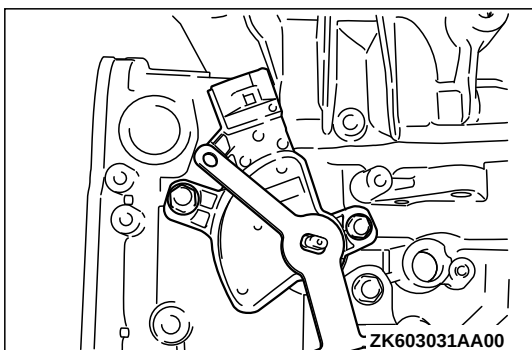
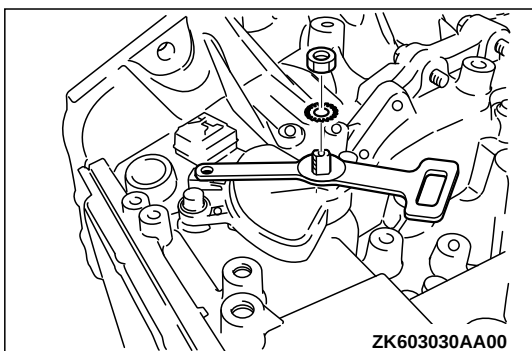
- Never reuse the Park/neutral position switch.
 - When loosely installing the switch, insert it squarely onto the manual shaft. (Do not hold the switch at an angle.)
97. Install an Park/neutral position switch using the following procedure.

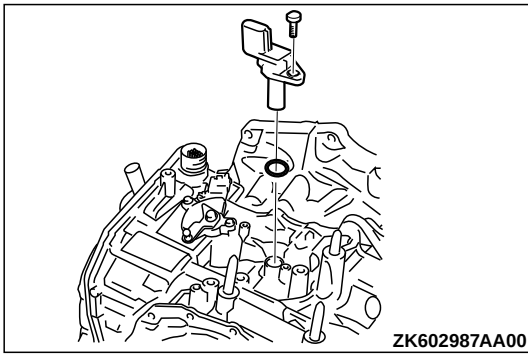
- (1) Loosely install an Park/neutral position switch on the manual shaft.
- (2) Install the shift plate on the manual shaft.

Tightening torque: 23 ± 3 Nm (17 ± 2 ft-lb)

- (3) Set the manual shaft to Range N.
- (4) Align the hole in the Park/neutral position switch with the hole in the shift plate. With the holes aligned, insert a pin ($\Phi 5$ mm) or equivalent through the holes. Now, tighten the bolt to the specified torque shown in the table below or in the exploded view. Refer to the table below or the exploded view for tightening torque.

Tightening torque: 5.9 N·m (52 in-lb)





CAUTION

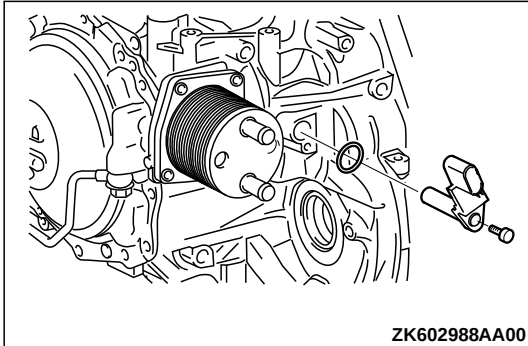
•Never reuse the O-rings.

•Apply ATF to the O-rings before installation.

98. Install an O-ring on the turbine sensor.

99. Install the turbine sensor on the transaxle case. Refer to the table below or the exploded view for tightening torque.

Tightening torque: 5.9 N·m (52 in-lb)



CAUTION

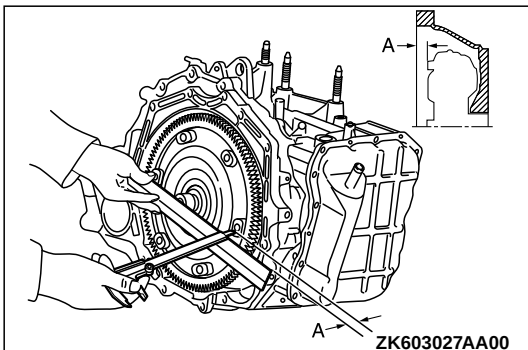
•Never reuse the O-rings.

•Apply ATF to the O-rings before installation.

100. Install an O-ring on the vehicle speed sensor.

101. Install the vehicle speed sensor on the transaxle case. Refer to the table below or the exploded view for tightening torque.

Tightening torque: 5.9 N·m (52 in-lb)



CAUTION

Measure the end play at more than two locations and obtain the average of the measurements.

102. Install the torque converter on the transaxle. Ensure that the dimension A is to the specification.

Dimension A mm (in)	11.6 (0.46)
---------------------	-------------

103. Install the control cable bracket and breather hose on the transaxle.

Tightening torque: 23 ± 3 Nm (17 ± 2 ft-lb)

104. Install the oil filler tube and oil level gage on the transaxle.

Tightening torque: 11 ± 1 Nm (97 ± 9 in-lb)

105. Install the harness bracket on the transaxle.

Tightening torque: 23 ± 3 Nm (17 ± 2 ft-lb)

106. Install the RR roll stopper bracket and FR roll stopper bracket on the transaxle.

Tightening torque: 90 ± 10 Nm (66 ± 7 ft-lb)

107. Install the transfer on the transaxle. <W6AJ>

Tightening torque: 68 ± 9 Nm (50 ± 7 ft-lb)

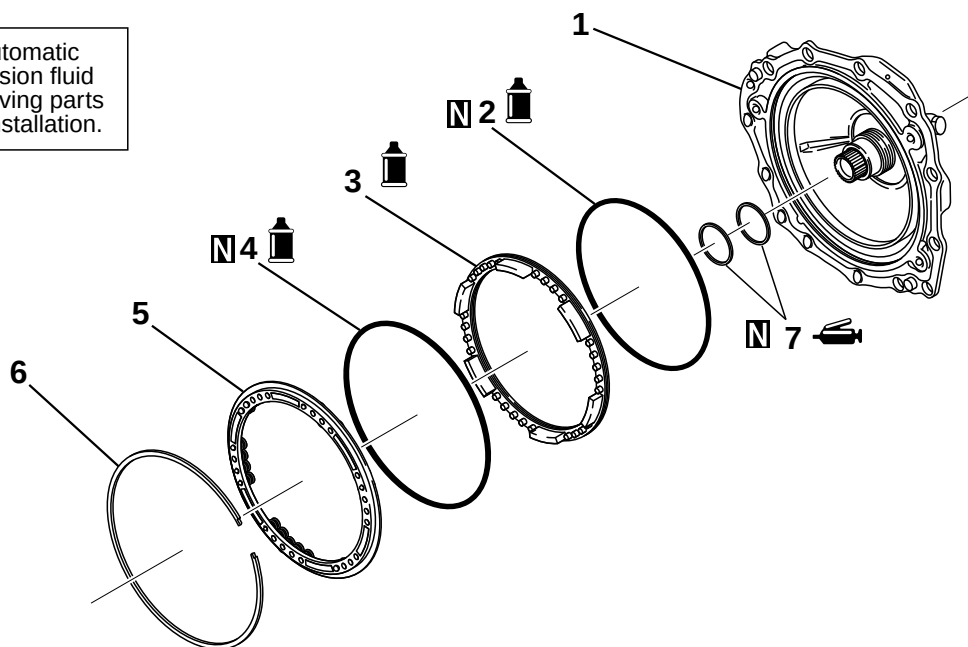
SIDE COVER

DISASSEMBLY AND ASSEMBLY

CAUTION

Refer to "GENERAL DESCRIPTION" for the meanings of the symbols used in the illustration.

 Apply automatic transmission fluid to all moving parts before installation.

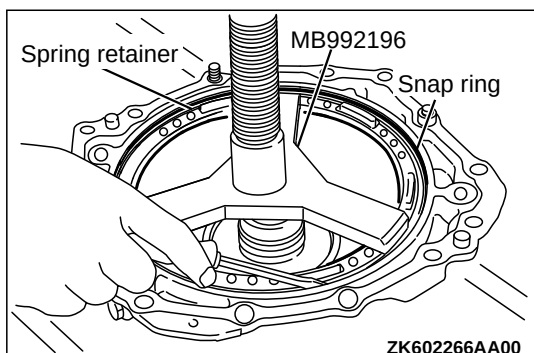
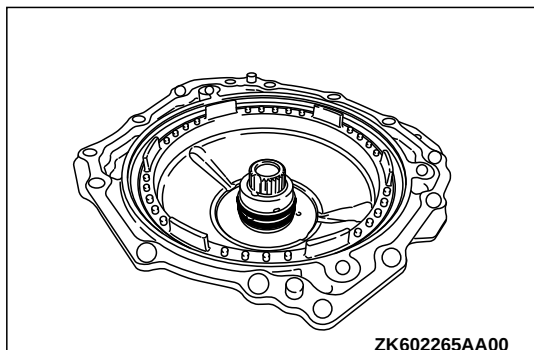


ZK602264AA00

- | | |
|---------------------|--------------------|
| 1. Side cover | 5. Spring retainer |
| 2. D-ring | 6. Snap ring |
| 3. 2-6 brake piston | 7. Seal ring |
| 4. D-ring | |

DISASSEMBLY

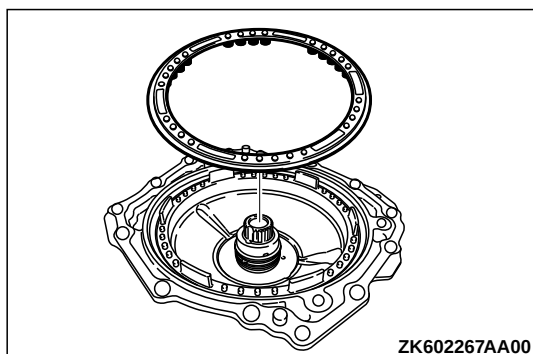
1. Remove the seal rings from the side cover.



CAUTION

Ensure that the spring compressor (Special Tool: MB992196) is correctly set, directly above the return springs of the spring retainer assembly.

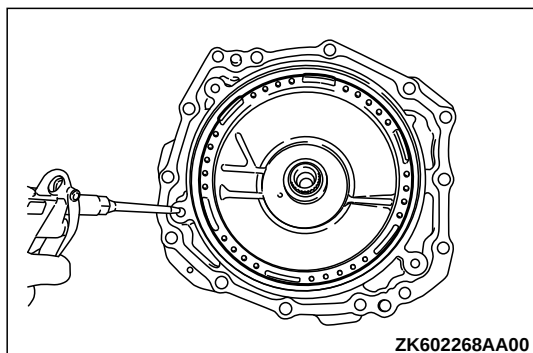
2. While pushing the spring retainer assembly using a spring compressor (Special Tool: MB992196), remove the snap ring.



⚠ CAUTION

Do not remove the return springs from the spring retainer assembly.

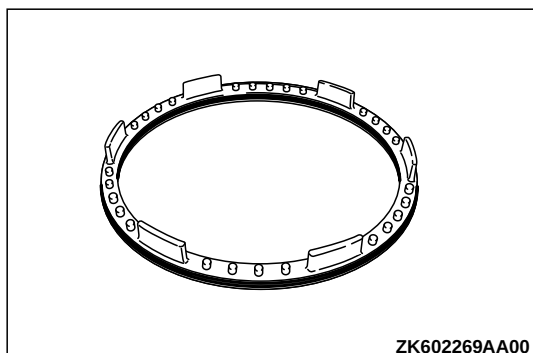
3. Remove the spring retainer assembly from the 2-6 brake piston.



⚠ CAUTION

Do not feed air abruptly. Otherwise, the 2-6 brake piston may become stuck in the side cover.

4. Feed air through the oil hole as indicated in the illustration to remove the 2-6 brake piston from the side cover.
Remove the D-rings from the 2-6 reverse brake piston.

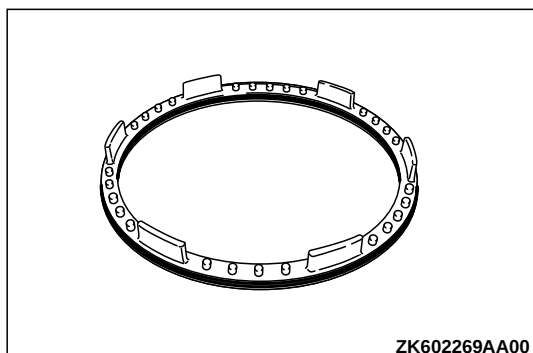


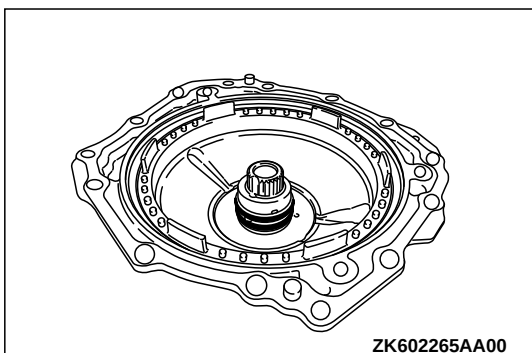
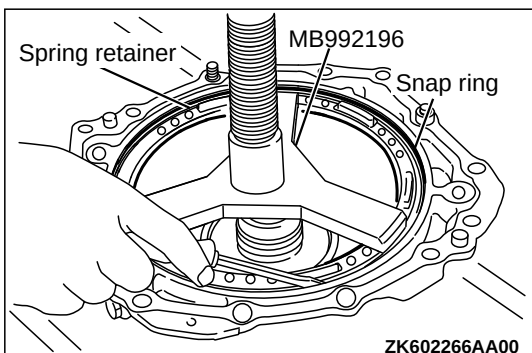
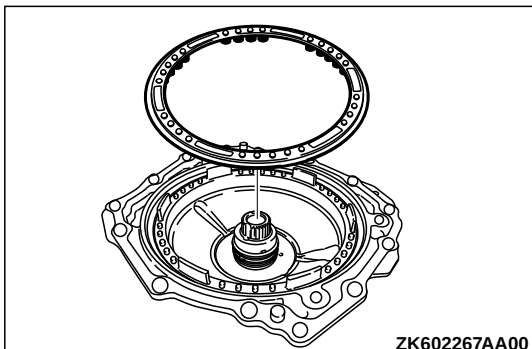
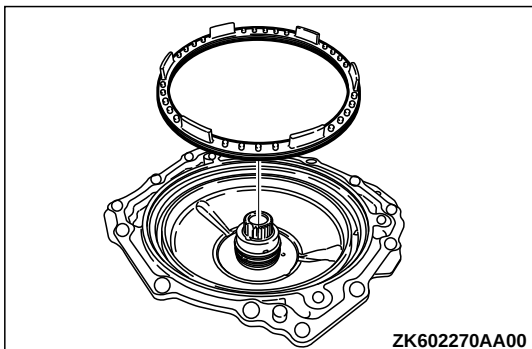
ASSEMBLY

⚠ CAUTION

- Never reuse the D-rings.
- Apply ATF to the D-rings before installation.

1. Install D-rings onto the 2-6 brake piston.



**⚠ CAUTION**

Apply ATF to the 2-6 brake piston before installation.

2. Install the 2-6 brake piston onto the side cover.

3. Install the spring retainer assembly onto the 2-6 brake piston.

⚠ CAUTION

Ensure that the spring compressor (Special Tool: A) is correctly set, directly above the return springs of the spring retainer assembly.

4. While pushing the spring retainer assembly using a spring compressor (Special Tool: MB992196), install the snap ring.

⚠ CAUTION

• Never reuse the seal rings.

• Apply Vaseline to the seal rings before installation.

5. Install seal rings onto the side cover.

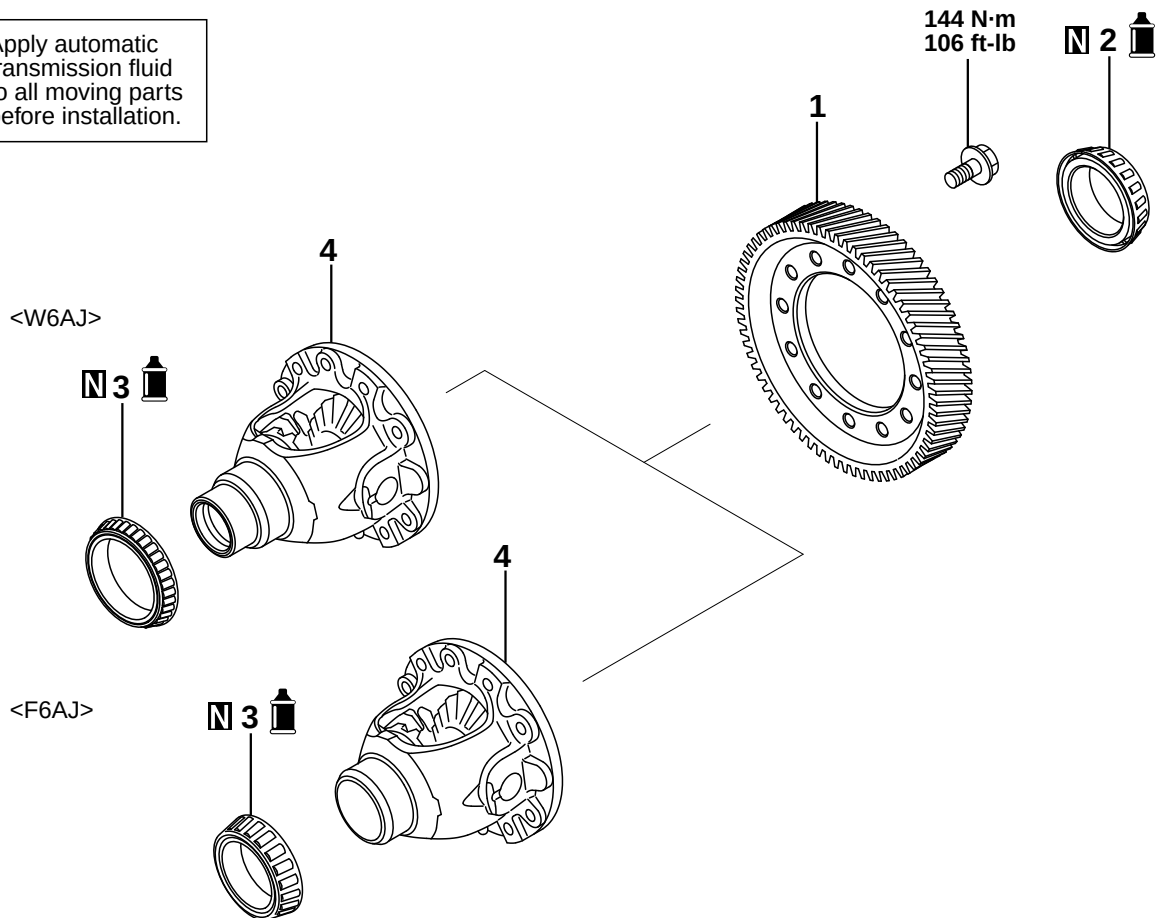
DIFFERENTIAL

DISASSEMBLY AND REASSEMBLY

⚠ CAUTION

Refer to "HOW TO USE THIS MANUAL" for the symbols in the schematic.

Apply automatic transmission fluid to all moving parts before installation.



ZK604022AA00

Disassembly steps

- | | | |
|-------|-------|---|
| >>C<< | 3. | Final gear |
| <<A>> | >>B<< | 1. Differential side bearing (transmission case side) |
| <> | >>A<< | 2. Differential side bearing (converter housing side) |

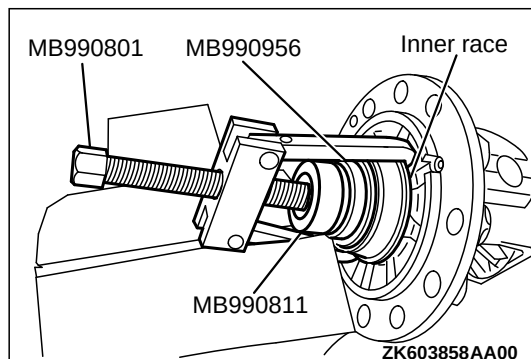
Disassembly steps

4. Differential sub-assembly

DISASSEMBLY SERVICE POINT

<<A>>DIFFERENTIAL SIDE BEARING REMOVAL

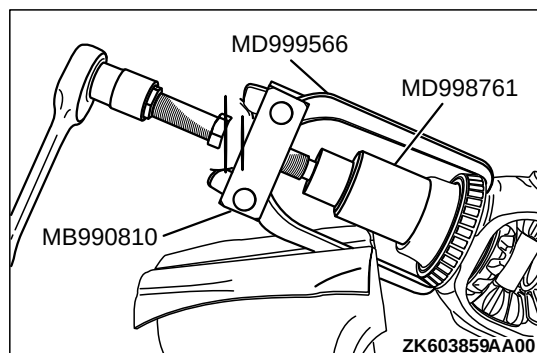
1. Break and remove the roller of the tapered roller bearing.



2. Using the Special Tool, remove the inner race of differential side bearing (transmission case side) from the differential sub-assembly.

- Rear Axle Bearing Puller (MB990801)
- Side Bearing Puller Cap (MB990811)
- Needle Bearing Installer (MB990956)

<> DIFFERENTIAL SIDE BEARING REMOVAL

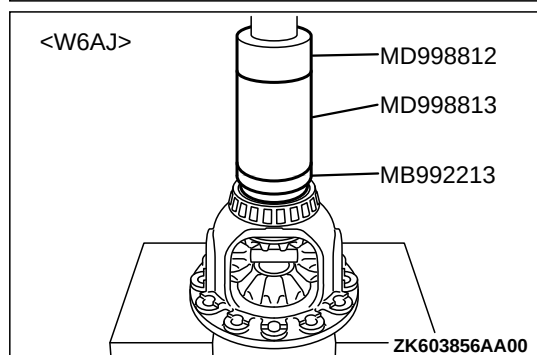
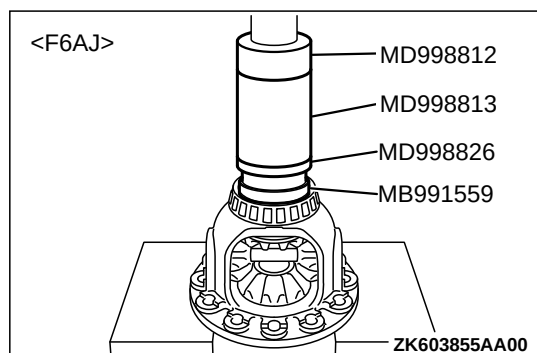


Using the Special Tool, remove the inner race of differential side bearing (converter housing side) from the differential sub-assembly.

- Side Bearing Puller (MB990810)
- Claw (MD999566)
- Cam Oil Seal Installer (MD998761)

REASSEMBLY SERVICE POINT

>>A<< DIFFERENTIAL GEAR BEARING INSTALLATION

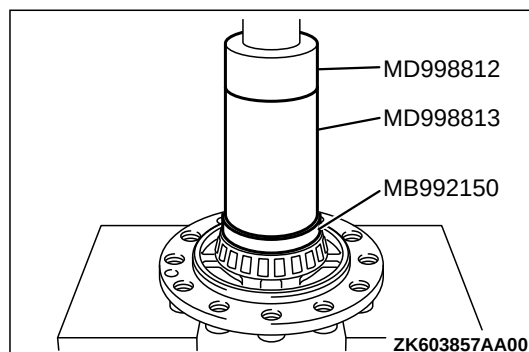
**CAUTION**

- Do not re-use the inner race.
- Replace the inner race together with the outer race.

Using the Special Tool, Bearing Installer (MB992213), install the inner race of reduction gear bearing (converter housing side) on the reduction gear sub-assembly.

- Installer Cap (MD998812)
- Installer-100 (MD998813)
- Installer Adapter (MD998826) <F6AJ>
- Cam Oil Seal Installer Adapter (MB991559) <F6AJ>
- Bearing Installer (MB992213) <W6AJ>

>>B<< DIFFERENTIAL GEAR BEARING INSTALLATION

**CAUTION**

- Do not re-use the inner race.
- Replace the inner race together with the outer race.

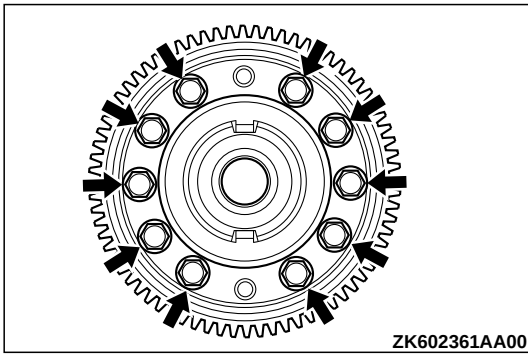
Using the Special Tools, install the inner race of reduction gear bearing (transmission case side) on the reduction gear sub-assembly.

- Installer Cap (MD998812)
- Installer-100 (MD998813)
- Oil Seal Installer (MB992150)

>>C<< DIFFERENTIAL FINAL GEAR INSTALLATION

CAUTION

- The differential sub-assembly can be only assembled, but not disassembled.
- Assemble the final gear to the differential assembly in the chamfer direction in the inside diameter of the final gear.
- Tighten bolts diagonally.



Install the final gear on the differential assembly. Refer to the table below or the exploded view for tightening torque.

No. of bolts	10
Tightening torque [N·m (ft-lb)]	144 (106)

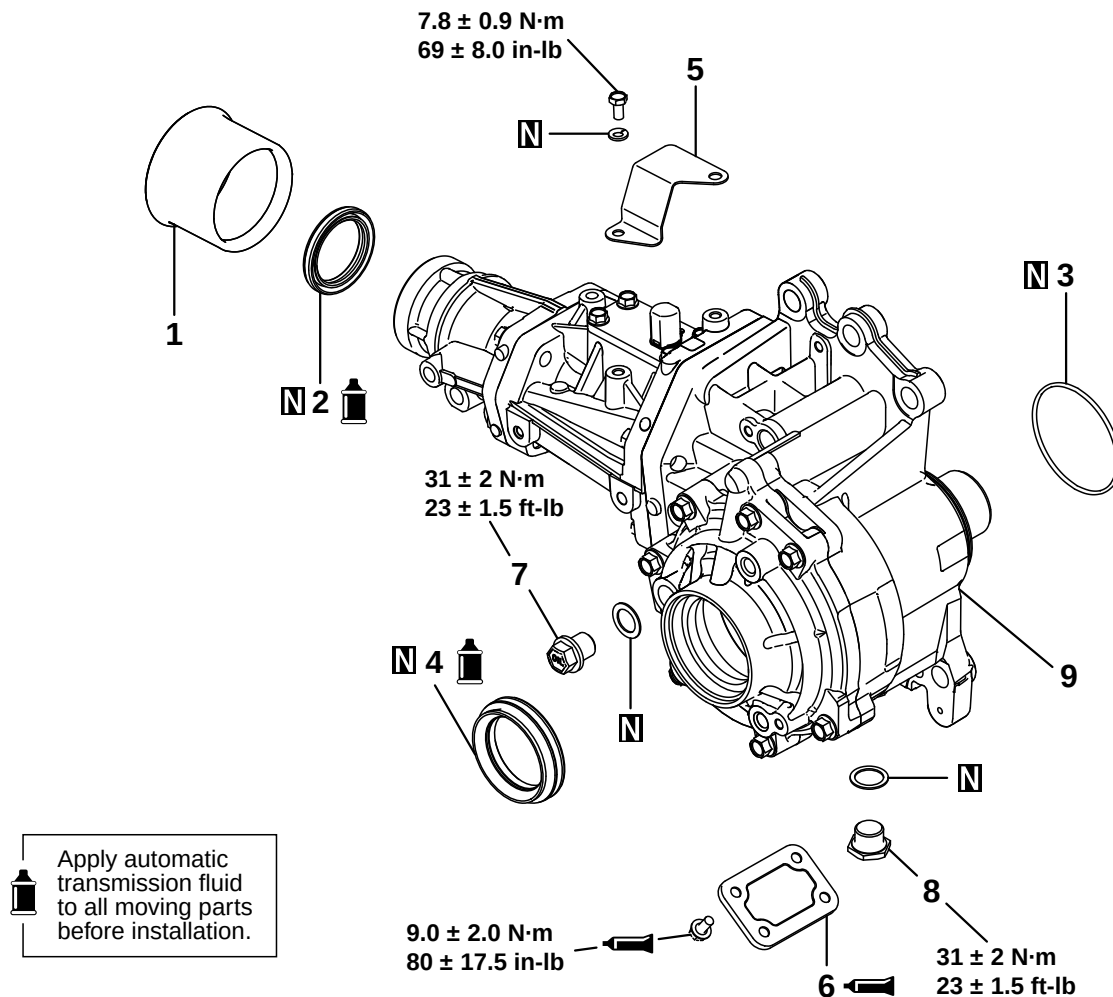
TRANSFER

DISASSEMBLY AND REASSEMBLY

M12303000133USA0000010000

⚠ CAUTION

Refer to "HOW TO USE THIS MANUAL" for the symbols in the schematic.



ZK604043AA00

Disassembly steps

1. Dust seal guard

Disassembly steps

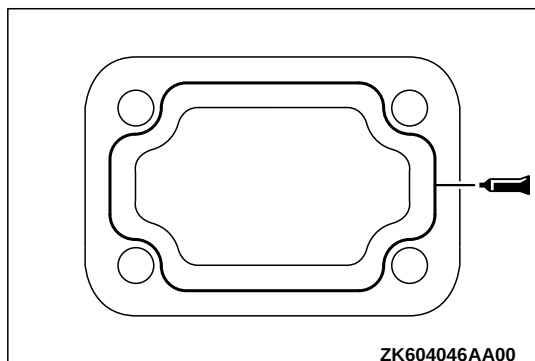
- >>C<<
2. Oil seal

Disassembly steps

3. O-ring
- >>B<< 4. Oil seal
5. Heat protector
- >>A<< 6. Cover

Disassembly steps

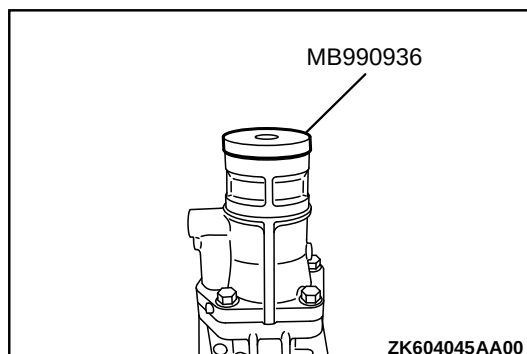
7. Magnet plug
8. Plug
9. Transfer

REASSEMBLY SERVICE POINT**>>A<<COVER INSTALLATION**

1. Apply the sealant to the threaded portion of fastening bolts.
2. Apply a 1.5 mm diameter bead of sealant as illustrated onto the cover, and attach the cover to the transfer.

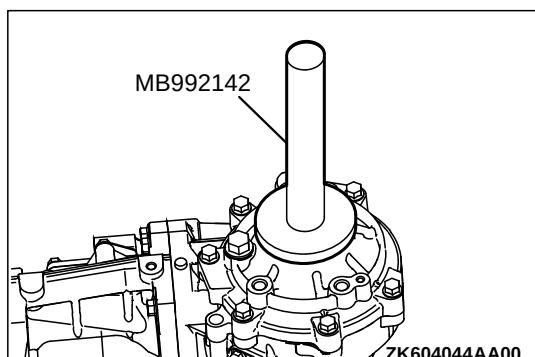
Tightening torque: 9.0 ± 2.0 N·m (80 ± 17.5 in-lb)

Specified sealant: 3M 8660 or equivalent



Using the Special Tool, Installer Adapter (MB990936), install the oil seal.

NOTE: Apply Hypoid gear oil to the lip of oil seal.

>>B<<OIL SEAL INSTALLATION

Using the Special Tool, Oil Seal Installer (MB991242), install the oil seal.

NOTE: Apply Hypoid gear oil to the lip of oil seal.

>>C<<OIL SEAL INSTALLATION