

GROUP 23D

AUTOMATIC  
TRANSAXLE  
OVERHAUL

CONTENTS

|  |       |                                |        |
|--|-------|--------------------------------|--------|
| TRANSAXLE MODELS .....   | 23D-2 | SPECIAL TOOLS .....            | 23D-7  |
| GENERAL SPECIFICATIONS.....  | 23D-2 | TRANSAXLE.....                 | 23D-11 |
| SERVICE SPECIFICATIONS.....  | 23D-2 | DISASSEMBLY AND ASSEMBLY ..... | 23D-11 |
| TORQUE SPECIFICATIONS.....   | 23D-3 | SIDE COVER .....               | 23D-83 |
| ADJUSTING PLATE, SNAP RING, SHIM,<br>SPACER, NEEDLE BEARING, THRUST<br>WASHER AND BEARING RACE ... | 23D-4 | DISASSEMBLY AND ASSEMBLY ..... | 23D-83 |
| SEALANTS .....   | 23D-5 | DIFFERENTIAL.....              | 23D-87 |
| LUBRICANTS .....   | 23D-6 | DISASSEMBLY AND ASSEMBLY ..... | 23D-87 |
|  |       | TRANSFER.....                  | 23D-91 |
|  |       | DISASSEMBLY AND ASSEMBLY ..... | 23D-91 |

## TRANSAXLE MODELS

M1233000101332

| Transaxle model | Engine model    | Vehicle model |
|-----------------|-----------------|---------------|
| F6AJA-1-F1Z     | 6B31 SOHC MIVEC | CW6WX         |
| W6AJA-1-F1Z     | 6B31 SOHC MIVEC | CW6WX         |

## GENERAL SPECIFICATIONS

M1233000201232

| Item                 |                    | Specifications                                   |  |
|----------------------|--------------------|--|--|
| Transaxle model      |                    | F6AJA  | W6AJA                                  |
| Transaxle type       |                    | Electronically controlled 6-speed full-automatic |  |
| Torque converter     | Type               | 3-element with torque converter clutch           |  |
|                      | Stall torque ratio | 1.96   |  |
|                      | Lock-up            | Present  |  |
| Transaxle 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

M1233000300872

| Item                        | Standard value mm (in)    |
|-----------------------------|---------------------------|
| Reduction gear preload      | 0.16 –0.22 (0.006 –0.009) |
| Differential preload        | 0.19 –0.25 (0.008 –0.010) |
| Low-reverse brake clearance | 1.9 –2.2 (0.07 –0.09)     |
| 2-6 brake clearance         | 1.9 –2.2 (0.07 –0.09)     |
| Reduction sun gear end play | 0.4 –0.7 (0.02 –0.03)     |
| Side cover end play         | 0.70 –1.05 (0.028 –0.041) |
| Drum support end play       | 0 –0.35 (0 –0.014)        |
| 3-5 reverse clutch end play | 0.55 –0.85 (0.022 –0.034) |

## TORQUE SPECIFICATIONS

M1233023101645

### Transaxle

| Item   | N·m                    |
|--|------------------------|
| Output gear set mounting bolt                        | 41 (30 ft-lb)          |
| Side cover mounting bolt                             | 27 (20 ft-lb)          |
| Parking plate mounting bolt                          | 7.9 (70 in-lb)         |
| Oil strainer mounting bolt                           | 9.4 (83 in-lb)         |
| Oil pump assembly mounting bolt                      | 21 (15 ft-lb)          |
| Converter housing mounting bolt                      | 47 (35 ft-lb)          |
| ATF adjusting bolt                                   | 7.4 (65 in-lb)         |
| Detent spring mounting bolt                          | 4.9 (43 in-lb)         |
| Oil temperature sensor mounting bolt                 | 7.9 (70 in-lb)         |
| Control valve assembly mounting bolt                 | 7.9 (70 in-lb)         |
| Control valve cover mounting bolt                    | 9.0 (80 in-lb)         |
| Cooler tube eye bolt                                 | 39.2 (29 ft-lb)        |
| Cooler tube mounting bolt                            | 21.6 (16 ft-lb)        |
| Baffle plate mounting bolt                           | 6.6 (58 in-lb)         |
| Pressure test port bolt                              | 7.4 (65 in-lb)         |
| Water-cooled transmission fluid cooler mounting bolt | 4.3 (38 in-lb)         |
| Manual control lever mounting nut                    | 22 ± 3 (16 ± 2 ft-lb)  |
| Park/neutral position switch mounting bolt           | 5.9 (52 in-lb)         |
| Turbine sensor mounting bolt                         | 5.9 (52 in-lb)         |
| Speed sensor mounting bolt                           | 5.9 (52 in-lb)         |
| Control cable bracket mounting bolt                  | 23 ± 3 (17 ± 2 ft-lb)  |
| Oil filler tube mounting bolt                        | 11 ± 1 (97 ± 8 in-lb)  |
| Harness bracket mounting bolt                        | 23 ± 3 (17 ± 2 ft-lb)  |
| Corrugate clamp bracket mounting bolt                | 23 ± 3 (17 ± 2 ft-lb)  |
| FR roll stopper bracket mounting bolt                | 90 ± 10 (66 ± 7 ft-lb) |
| RR roll stopper bracket mounting bolt                | 90 ± 10 (66 ± 7 ft-lb) |
| Final gear mounting bolt                             | 144 (106 ft-lb)        |

### Transfer

| Item                   | N·m                     |
|------------------------|-------------------------|
| Transfer mounting bolt | 69 ± 9 (51 ± 6 ft-lb)   |
| Cover mounting bolt    | 12 ± 2 (106 ± 18 in-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, SHIM, SPACER, NEEDLE BEARING, THRUST WASHER AND BEARING RACE

M1233023001068

## 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                  |
| 3.5 (0.14)        | 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 preload)

| 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                  | 0.64 (0.025)      | None                  |
| 0.20 (0.009)      | 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                  |

| Thickness mm (in) | Identification symbol | Thickness mm (in) | Identification symbol |
|-------------------|-----------------------|-------------------|-----------------------|
| 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 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                  |

## SEALANTS

M1233000501169

**Transaxle**

| Item              | Specified sealant |
|-------------------|-------------------|
| Side cover        | Three bond 1216B  |
| Converter housing |                   |

**Transfer**

| Item  | Specified sealant                   |
|-------|-------------------------------------|
| Cover | 3M™ ATD part No. 8660 or equivalent |

**FORM-IN-PLACE GASKET (FIPG)**

This transaxle has several areas where the form-in-place gasket (FIPG) is used for sealing. To ensure that the FIPG fully serves its purpose, it is necessary to observe some precautions when applying it. Bead size, continuity and location are of paramount importance.

Too thin a bead could cause leaks. Too thick a bead, on the other hand, could be squeezed out of location, causing blocking or narrowing of fluid passages. To prevent leaks or blocking of passages, therefore, it is absolutely necessary to apply the FIPG evenly without a break, while observing the correct bead size. FIPG hardens as it reacts with the moisture in the atmospheric air, and it is usually used for sealing metallic flange areas.

**⚠ CAUTION**

**When re-applying liquid gasket (FIPG), be sure that:**

1. **Residues of FIPG are cleared from all the ins and outs of parts;**
2. **Use Mitsubishi genuine parts cleaner (MZ100387) or equivalent to well degrease the FIPG-applied surface.**
3. **FIPG is correctly applied in accordance with FIPG Application.**

**Disassembly**

Parts sealed with a FIPG can be easily removed without need for the use of a special method. In some cases, however, the FIPG in joints may have to be broken by tapping parts with a mallet or similar tool.

**Surface Preparation**

Thoroughly remove all substances deposited on the FIPG application surface, using a gasket scraper. Make sure that the FIPG application surfaces is flat and smooth. Also make sure that the surface is free from oils, greases and foreign substances. Do not fail to remove old FIPG that may remain in the fastener fitting holes.

**FIPG Application**

Applied FIPG bead should be of the specified size and free of any break. FIPG can be wiped away unless it has completely hardened. Install the mating parts in position while the FIPG is still wet. Do not allow FIPG to spread beyond the sealing areas during installation. Avoid operating the transaxle or letting oils or water come in contact with the sealed area before a time sufficient for FIPG to harden (approximately one hour) has passed. FIPG application method may vary from location to location. Follow the instruction for each particular case described later in this manual.

**LUBRICANTS**

M1233000400501

**Transaxle**

| Item               | Specified lubricant |
|--------------------|---------------------|
| Transmission fluid | DiaQueen ATF-J3     |

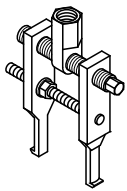
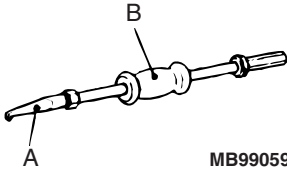
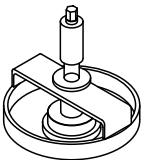
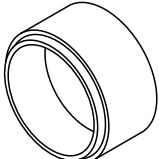
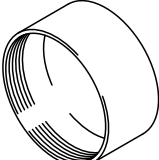
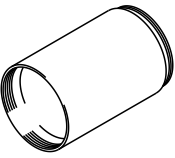
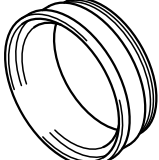
**Transfer**

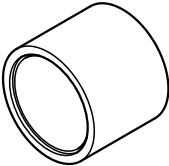
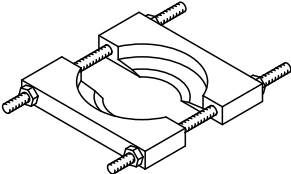
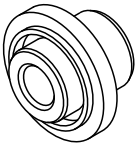
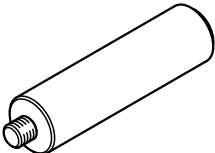

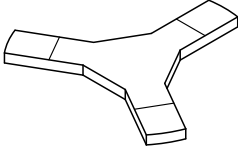
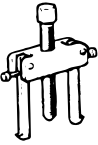

| Item                              | Specified lubricant                            |
|-----------------------------------|--|
| Grease application parts          | Retinax A                                      |
| Hypoid gear oil application parts | Hypoid gear oil API classification GL-5 SAE 80 |



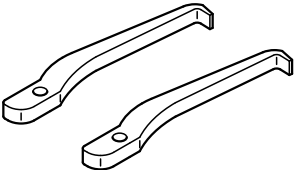
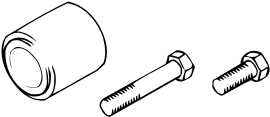
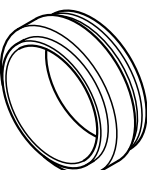

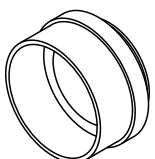
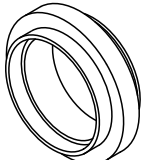
## SPECIAL TOOLS

M1233000601218

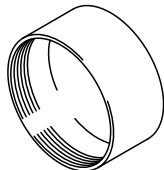
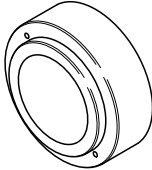
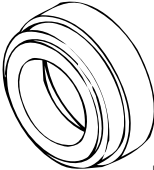
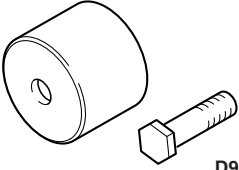
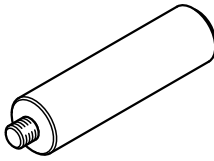

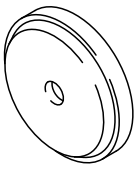
### Transaxle

| Tool  | Tool number and name                         | Supersession                           | Application  |
|---|--|--|--|
|              | MB992039<br>Slid hammer puller               | MB992039-01                            | Remove of bearing outer race                                 |
| <br>MB990590 | MB990590<br>Real axle shaft oil seal remover | MB990211-01                            | Use with slid hammer puller                                  |
|              | MB992195<br>Spring compressor                | –                                      | Removal and installation of low and reverse brake snap ring  |
|             | MB991550<br>Bearing outer race installer     | –                                      | Installation of differential taper roller bearing outer race |
|            | MD998812<br>Installer cap                    | MIT304180-A or<br>General service tool | Use with installer and installer adapter                     |
|            | MD998813<br>Installer-100                    | MIT304180-A or<br>General service tool | Use with installer cap and installer adapter                 |
|            | MD998830<br>Installer adapter                | MD998830-01                            | Installation of bearing outer race                           |

| Tool  | Tool number and name                           | Supersession                        | Application   |
|---|--|-------------------------------------|---|
|                | MB991445<br>Bushing remover and installer base | MB991445-01                         | Installation of differential taper roller bearing outer race <W6AJ> |
|                | MD998917<br>Bearing remover                    | General service tool or MD998348-01 | Removal and installation of bearing                                 |
|                | MB992197<br>Oil seal installer                 | –                                   | Installation of differential side oil seal                          |
|               | MB992075<br>Handle                             | –                                   | Use with oil seal installer   |
|              | MB992198<br>Oil seal installer                 | –                                   | Installation of converter housing oil seal                          |
|              | MB992196<br>Spring compressor                  | –                                   | Removal and installation of 2-6 brake piston snap ring              |
| <br>MB990801 | MB990801<br>Rear axle bearing puller           | –                                   | Remove of tapered roller bearing                                    |
| <br>MB990811 | MB990811<br>Side bearing puller cap            | –                                   | Use with rear axle bearing puller                                   |

| Tool   | Tool number and name                       | Supersession | Application                                   |
|--|--|--------------|---|
| <br>MB990956  | MB990956<br>Needle bearing installer       | –            | Use with rear axle bearing puller             |
| <br>MB990810  | MB990810<br>Side bearing puller            | –            | Remove of tapered roller bearing              |
|               | MD999566<br>Claw                           | –            | Use with side bearing puller                  |
| <br>MD998761  | MD998761<br>Cam oil seal installer         | –            | Use with side bearing puller                  |
|             | MD998826<br>Installer adapter              | –            | Installation of tapered roller bearing <F6AJ> |
| <br>B991559 | MB991559<br>Cam oil seal installer adapter | –            | Installation of tapered roller bearing <F6AJ> |
|             | MB992213<br>Bearing installer              | –            | Installation of tapered roller bearing        |
|             | MB992150<br>Oil seal installer             | –            | Installation of tapered roller bearing        |

## Transfer

| Tool   | Tool number and name                            | Supersession                           | Application   |
|--|---|--|---|
|               | MD998812<br>Installer cap                       | MIT304180-A or<br>General service tool | Installation of reduction gear bearing inner race (converter housing side and transaxle case side), installation of differential side bearing outer race (converter housing side), installation of differential side bearing inner race (converter housing side), installation of reduction pinion gear installation of transfer oil seal |
|               | MB992154<br>Oil seal installer                  | –                                      | Installation of transfer oil seal   |
| <br>MD998777 | MD998777<br>Camshaft oil seal installer adapter | –                                      | Installation of transfer dust seal  |
| <br>D998713 | MD998713<br>Camshaft oil seal installer         | –                                      | Installation of transfer dust seal  |
|             | MB992075<br>Handle                              | –                                      | Installation of oil seal  |
|             | MB992142<br>Oil seal installer                  | –                                      | Installation of transfer oil seal   |
|             | MB990936<br>Oil seal installer                  | –                                      | Installation of transfer oil seal   |

## TRANSAXLE

### DISASSEMBLY AND ASSEMBLY

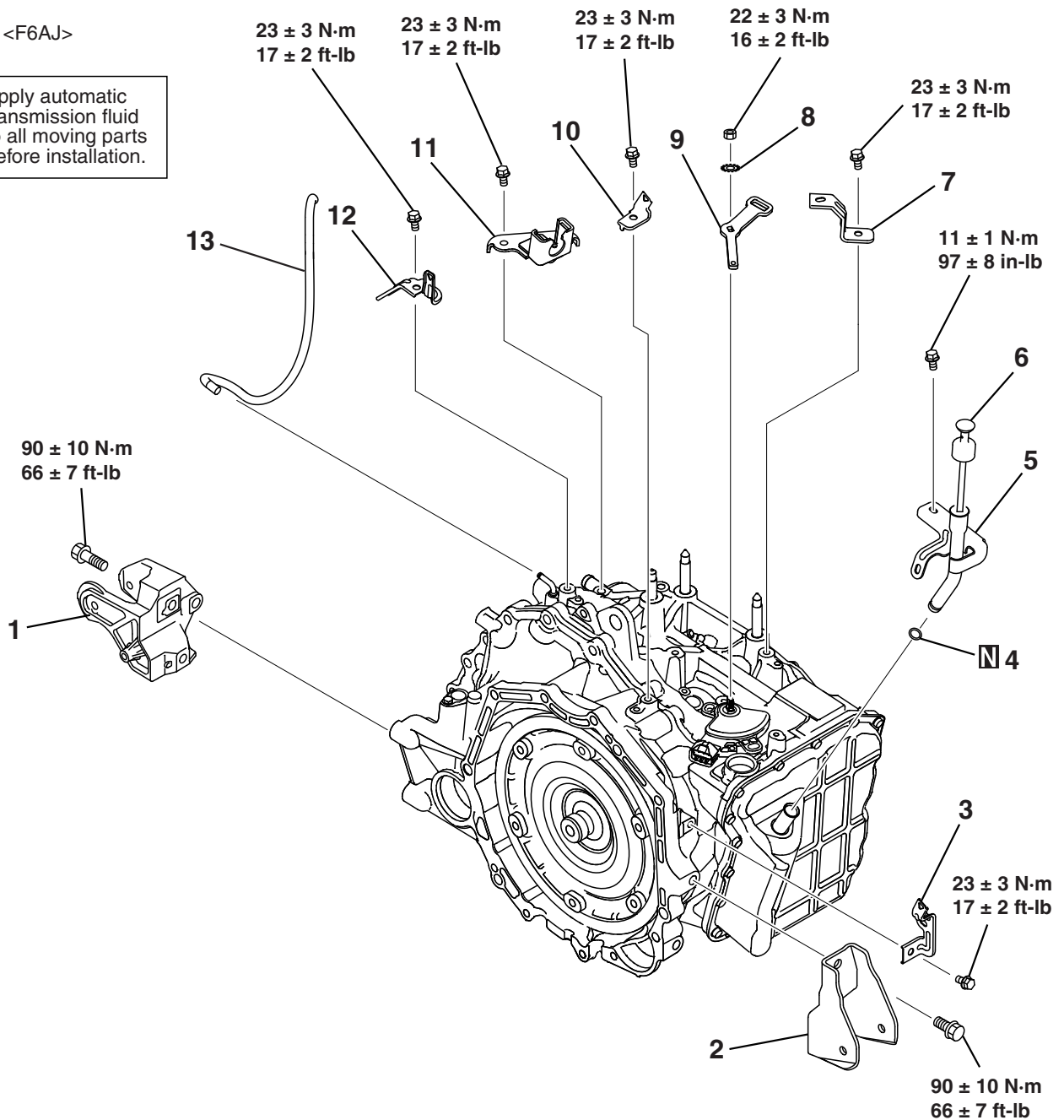
M1233001001941

#### CAUTION

- Use a fluid of the designated brand for transmission fluid. Use of transmission fluid not specified by the manufacturer can affect driveability 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 transmission fluid.
- 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 transmission fluid.

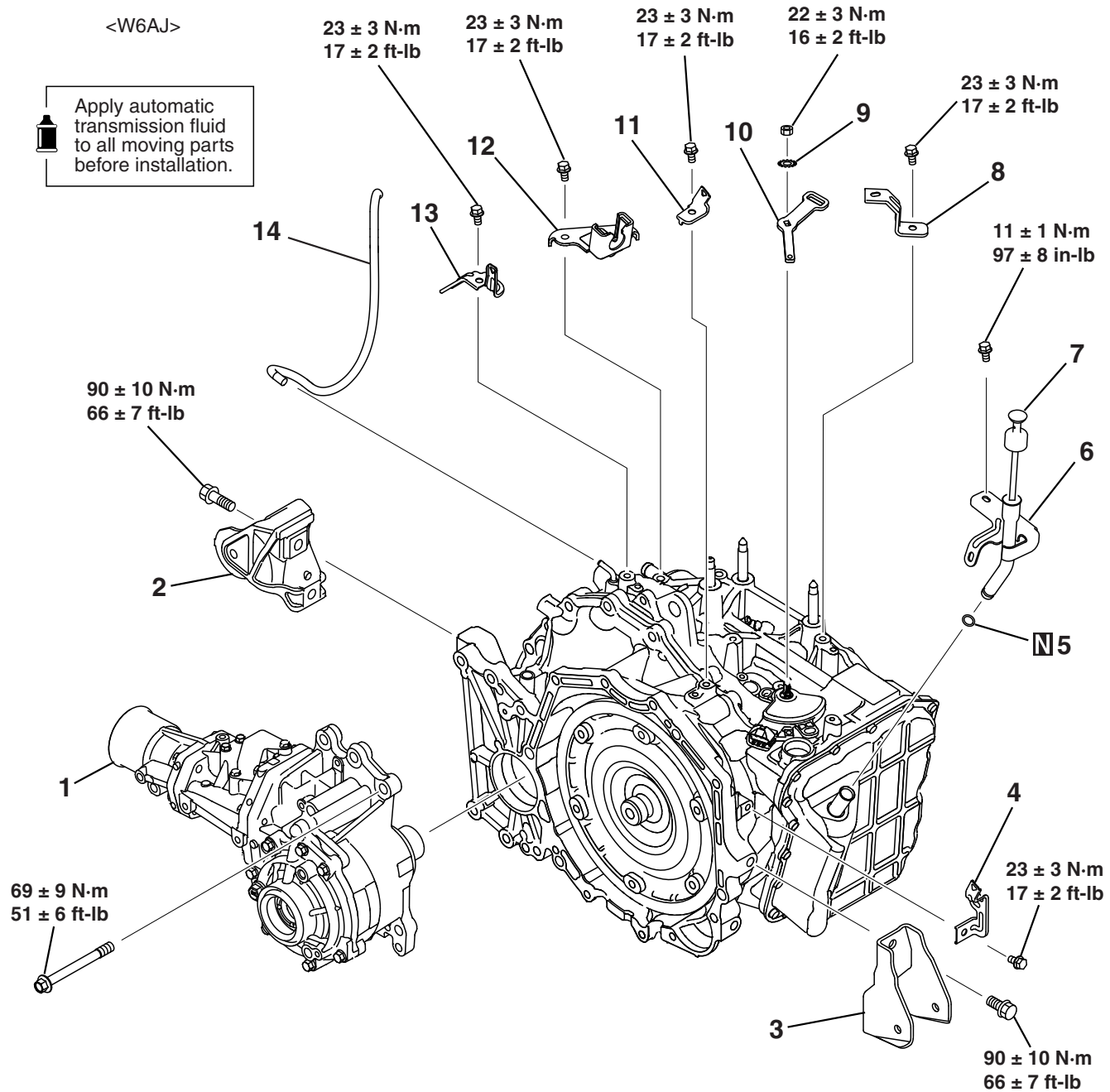
&lt;F6AJ&gt;

Apply automatic transmission fluid to all moving parts before installation.



AK700763AB

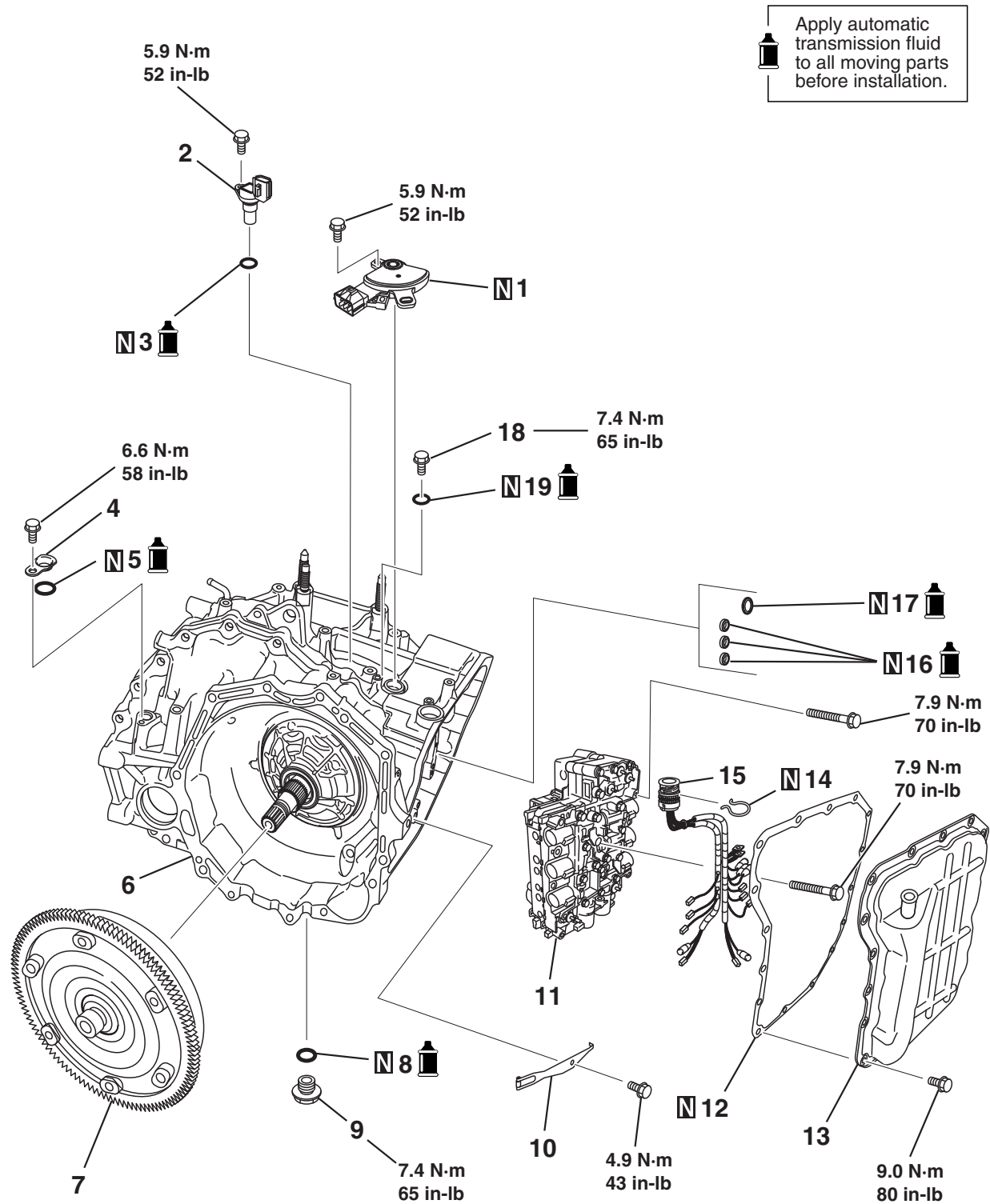
- |                            |                             |
|----------------------------|-----------------------------|
| 1. RR roll stopper bracket | 8. Spring washer            |
| 2. FR roll stopper bracket | 9. Manual control lever     |
| 3. Corrugate clamp bracket | 10. Corrugate clamp bracket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



AK605144AF

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

&lt;F6AJ&gt;

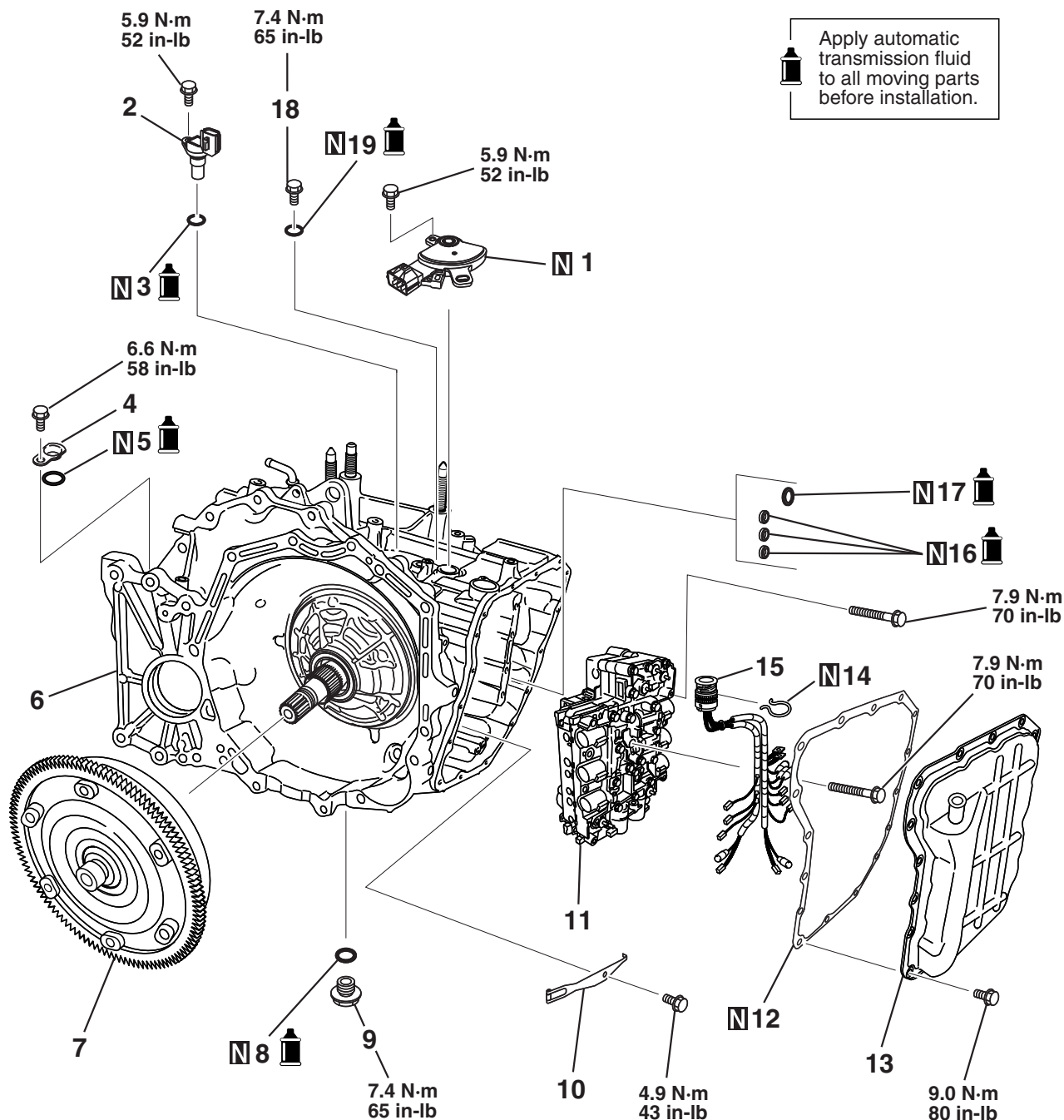


1. Park/neutral position switch
2. Turbine sensor
3. O-ring
4. Baffle plate

5. O-ring
6. Transaxle assembly
7. Torque converter
8. O-ring

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

<W6AJ>

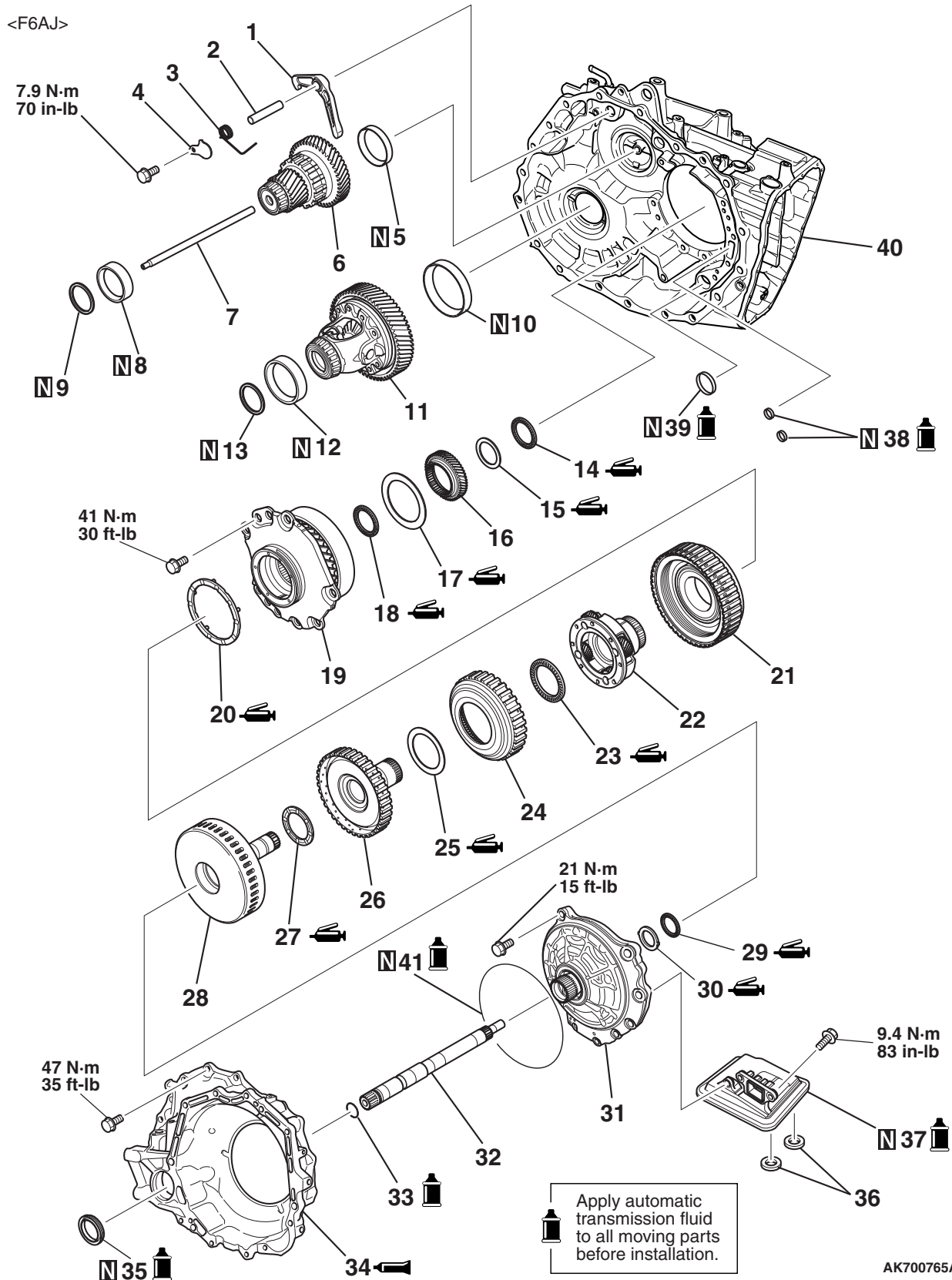


AK603216AG

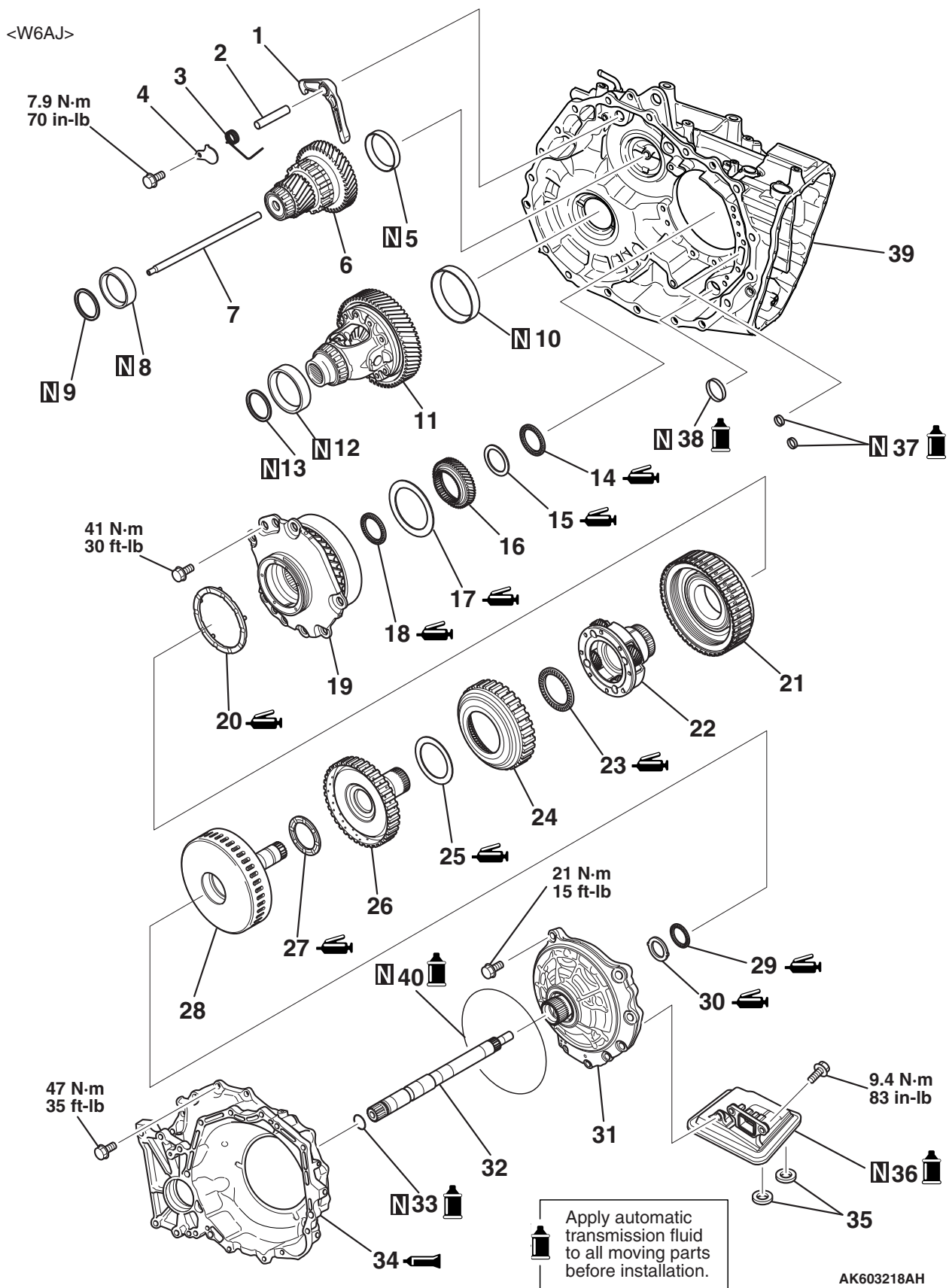
- |                                 |                       |
|---------------------------------|-----------------------|
| 1. Park/neutral position switch | 5. O-ring             |
| 2. Turbine sensor               | 6. Transaxle assembly |
| 3. O-ring                       | 7. Torque converter   |
| 4. Baffle plate                 | 8. O-ring             |
|                                 | 9. ATF adjusting bolt |

**TSB Revision**

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



- |                                      |                                 |
|--------------------------------------|---------------------------------|
| 1. Parking pawl                      | 22. FR carrier                  |
| 2. Parking shaft                     | 23. Needle bearing              |
| 3. Return spring                     | 24. FR internal gear            |
| 4. Parking plate                     | 25. Needle bearing              |
| 5. Outer race                        | 26. FR sun gear                 |
| 6. Reduction gear assembly           | 27. Needle bearing              |
| 7. Reduction gear lubrication tube   | 28. 3-5 Reverse clutch assembly |
| 8. Outer race                        | 29. Needle bearing              |
| 9. Reduction gear taper bearing shim | 30. Bearing race                |
| 10. Outer race                       | 31. Oil pump assembly           |
| 11. Differential assembly            | 32. Input shaft                 |
| 12. Outer race                       | 33. O-ring                      |
| 13. Differential taper bearing shim  | 34. Converter housing           |
| 14. Needle bearing                   | 35. Side oil seal               |
| 15. Bearing race                     | 36. Magnet                      |
| 16. RR sun gear (front side)         | 37. Oil strainer                |
| 17. Bearing race                     | 38. O-ring                      |
| 18. Needle bearing                   | 39. O-ring                      |
| 19. Output gear set                  | 40. Transaxle case              |
| 20. Thrust washer                    | 41. O-ring                      |
| 21. Low clutch assembly              |                                 |

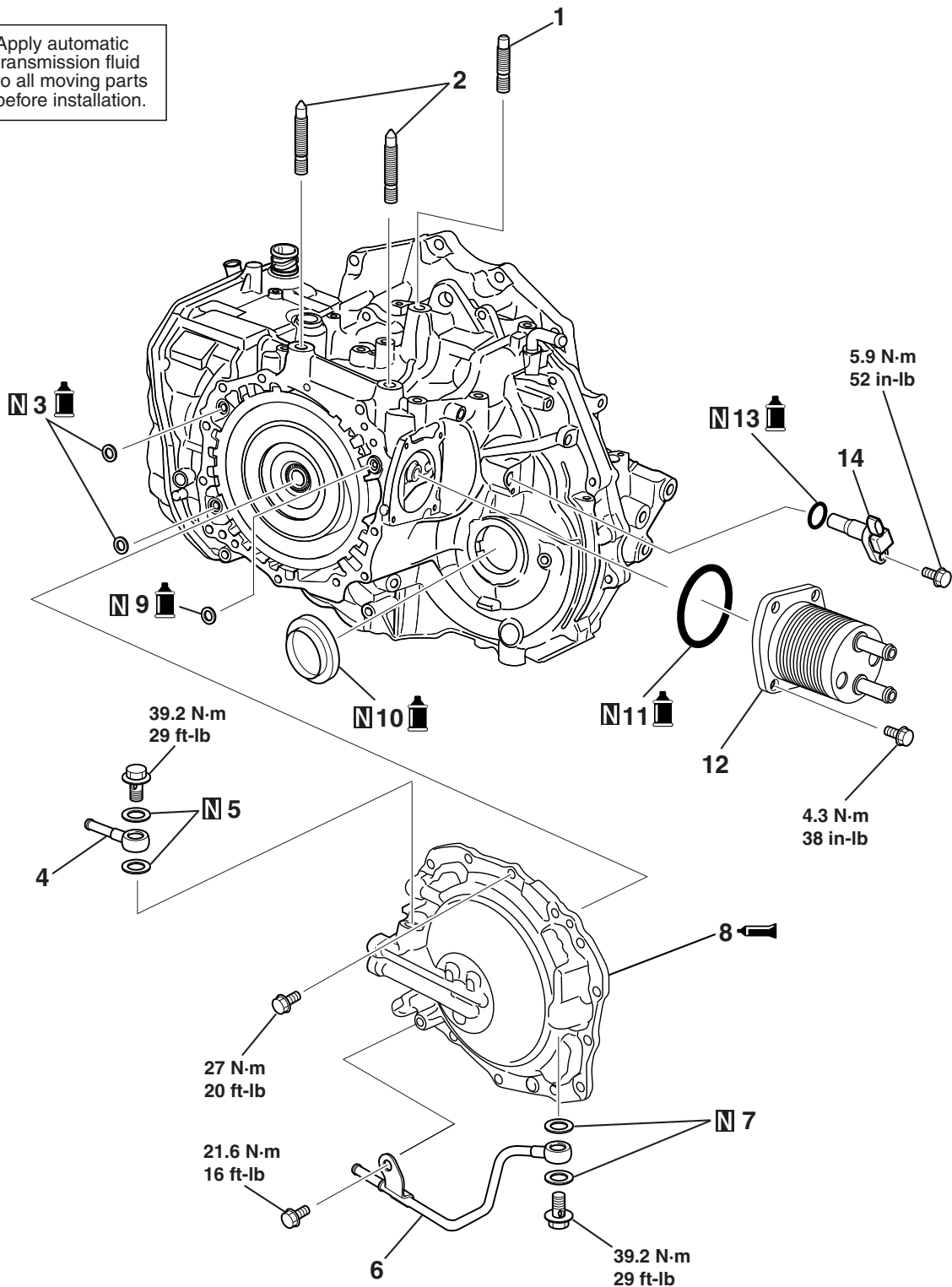


1. Parking pawl
2. Parking shaft
3. Return spring
4. Parking plate

5. Outer race
6. Reduction gear assembly
7. Reduction gear lubrication tube
8. Outer race

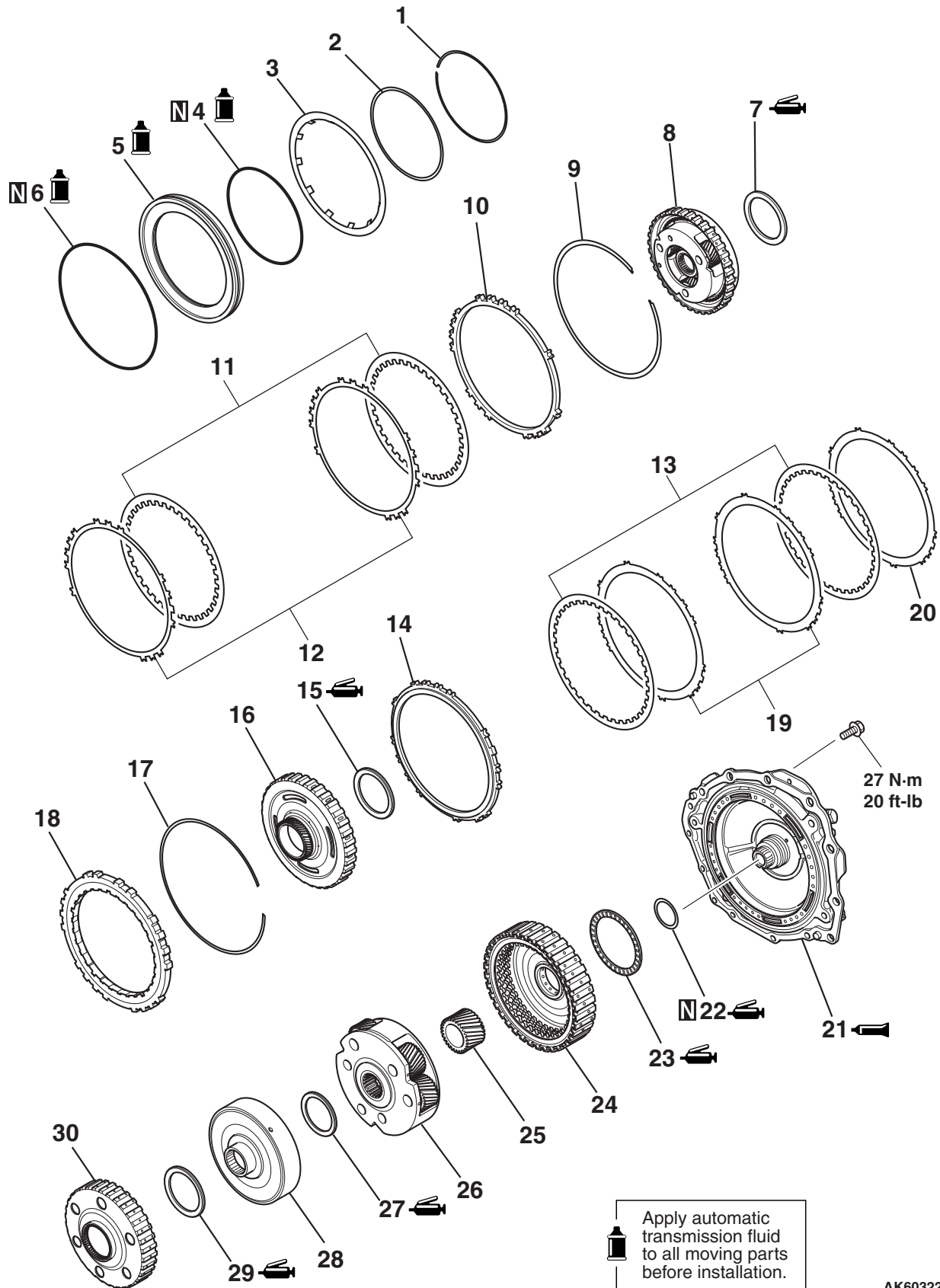
- |                                      |                                 |
|--------------------------------------|---------------------------------|
| 9. Reduction gear taper bearing shim | 25. Needle bearing              |
| 10. Outer race                       | 26. FR sun gear                 |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

Apply automatic transmission fluid to all moving parts before installation.



AK704240AC

- |                      |  |
|----------------------|--|
| 1. Stud bolt         | 8. Side cover                              |
| 2. Stud bolt         | 9. O-ring                                  |
| 3. O-ring            | 10. Side oil seal                          |
| 4. Cooler tube (IN)  | 11. O-ring                                 |
| 5. Washer            | 12. Water-cooled transmission fluid cooler |
| 6. Cooler tube (OUT) | 13. O-ring                                 |
| 7. Washer            | 14. Speed sensor                           |

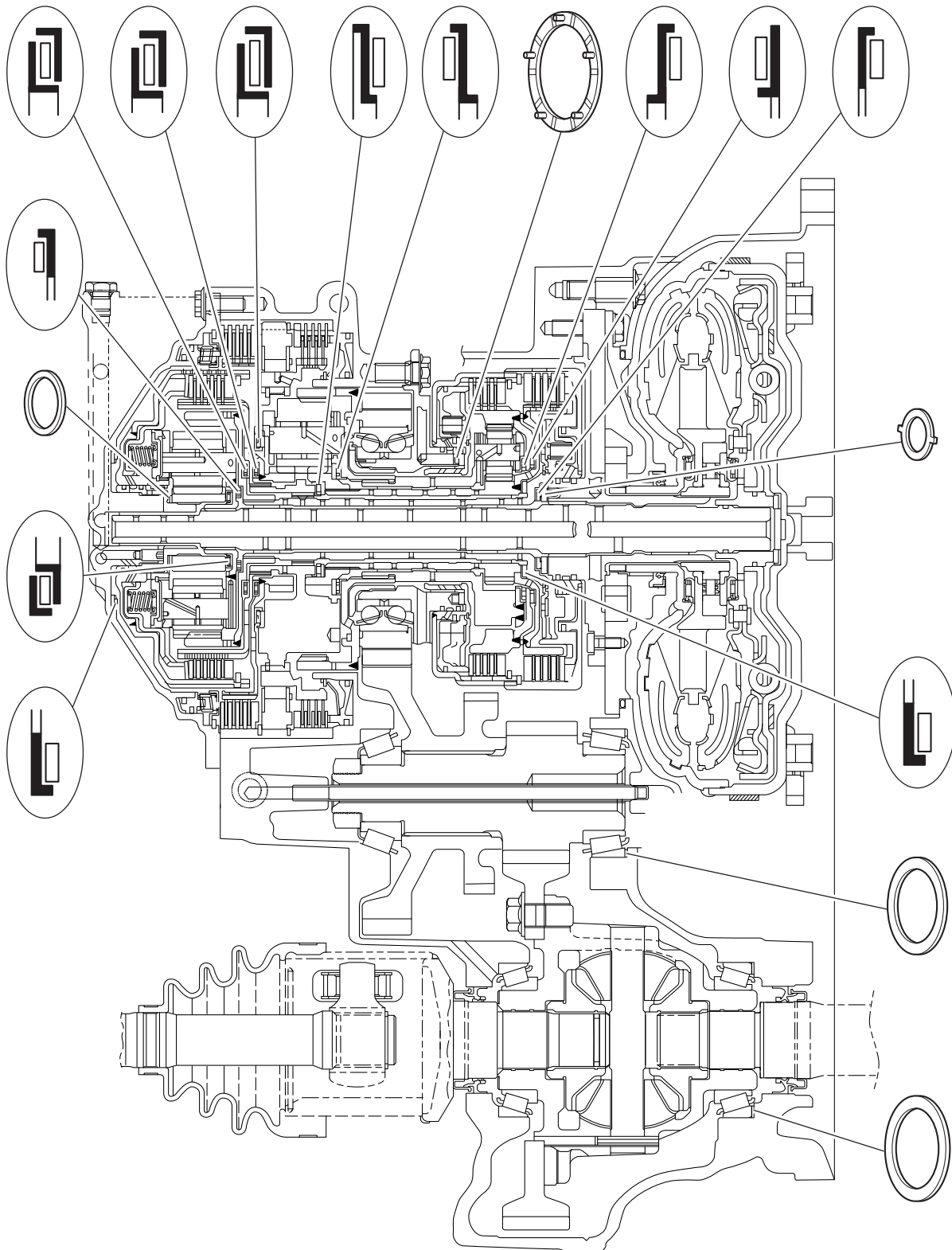


1. Snap ring
2. Diaphragm spring retainer
3. Diaphragm spring
4. D-ring

5. Low-reverse brake piston
6. D-ring
7. Needle bearing
8. RR carrier assembly

9. Snap ring
10. Retaining plate
11. Drive plate
12. Driven plate
13. Drive plate
14. Retaining plate
15. Needle bearing
16. RR sun gear (rear side)
17. Snap ring
18. One-way clutch
19. Driven plate
20. Retaining plate
21. Side cover
22. Spacer
23. Needle bearing
24. High clutch assembly
25. Reduction sun gear
26. Reduction carrier
27. Needle bearing
28. Reduction internal gear
29. Needle bearing
30. High clutch hub

INSTALLATION LOCATION OF ADJUST SHIM, NEEDLE BEARING AND THRUST WASHER



AK603221AC

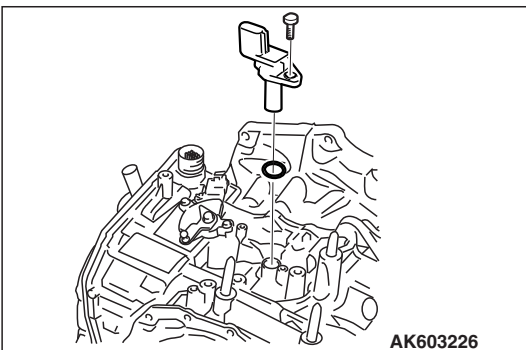
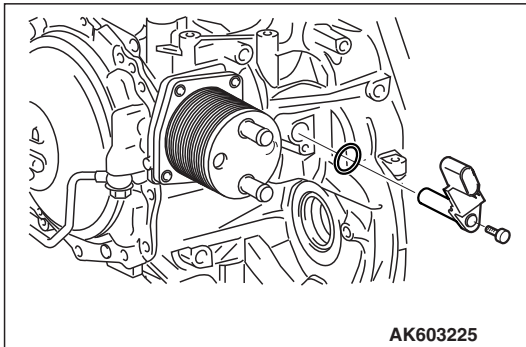
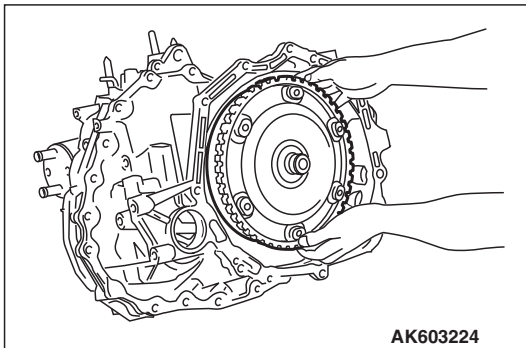
**Required special tools:**

- MB992039: Slide hammer puller
- MB990590: Rear axle shaft oil seal remover
- MB992195: Spring compressor
- MB991550: Bearing outer race installer
- MD998812: Installer cap
- MD998813: Installer-100
- MD998830: Installer adapter
- MB991445: Busing remover and installer base
- MB992198: Oil seal installer
- MB992197: Oil seal installer
- MB992075: Handle

**DISASSEMBLY****⚠ CAUTION**

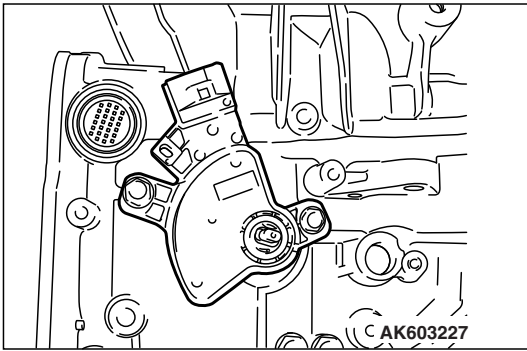
**Do not disassemble parts other than those described in this volume.**

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.

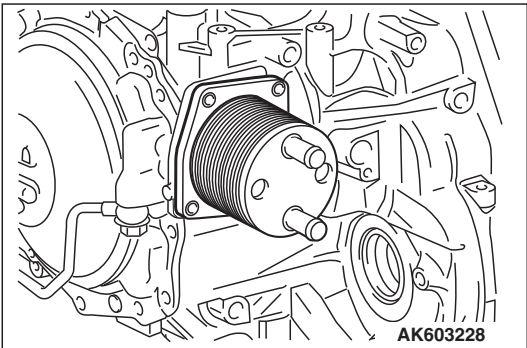


7. Remove the vehicle speed sensor from the transaxle case.
8. Remove the O-ring from the vehicle speed sensor.

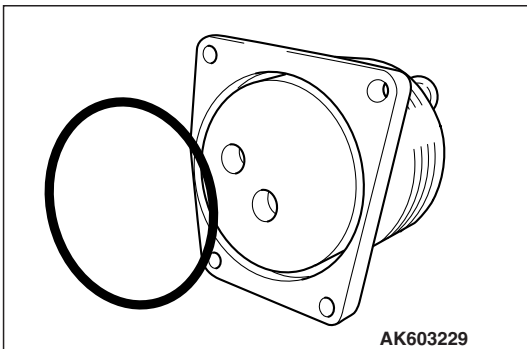
9. Remove the turbine sensor from the transaxle case.
10. Remove the O-ring from the turbine sensor.



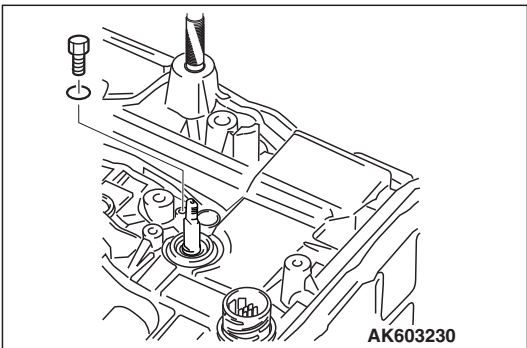
11.Remove the park/neutral position switch.



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

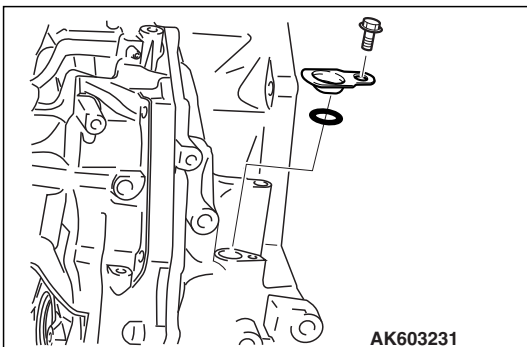


13.Remove the O-ring from the water-cooled transmission fluid cooler.



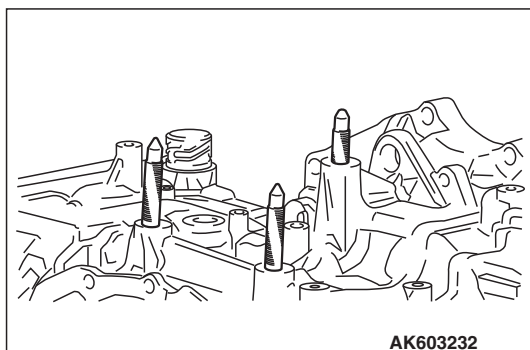
14.Remove the pressure test port bolt from the transaxle case.

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

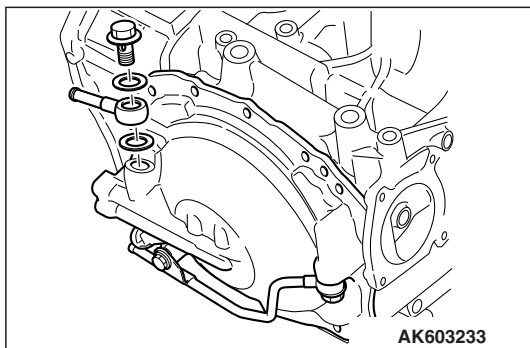


16.Remove the baffle plate from the converter housing.

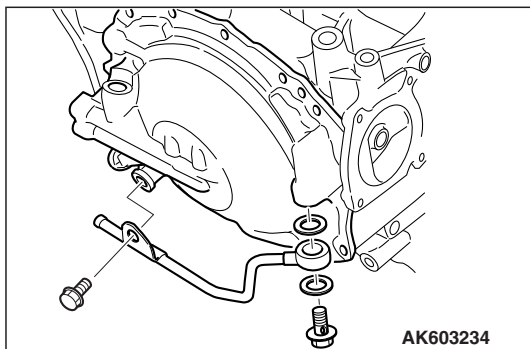
17.Remove the O-ring from the baffle plate.



18. Remove stud bolts from the transaxle case.



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

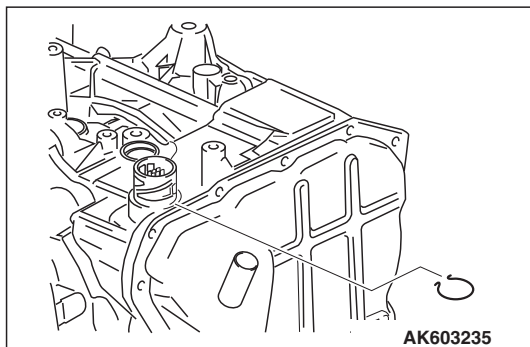


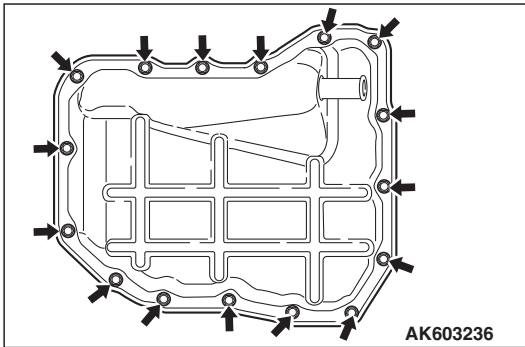
20. Remove the cooler tube (OUT) from the side cover.

**⚠ CAUTION**

**Be careful not to break the terminal body.**

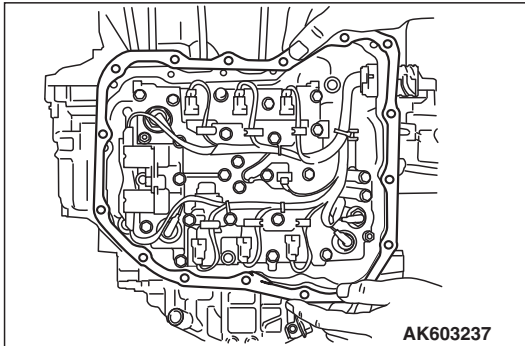
21. Remove the snap ring from the terminal body and push the terminal body into the transaxle case.





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

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

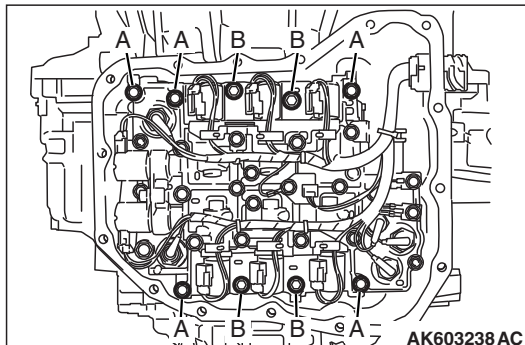


23.Remove the control valve cover gasket from the transaxle case.

**⚠ 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.

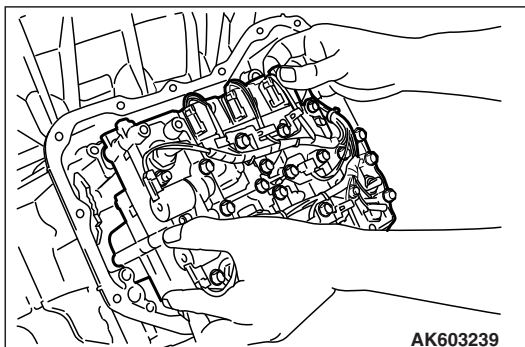


| Bolt code               | A           | B           |
|-------------------------|-------------|-------------|
| Shank length<br>mm (in) | 71.5 (2.82) | 58.0 (2.28) |
| No. of bolts            | 5           | 4           |

**⚠ CAUTION**

**Remove the control valve assembly by pulling it straight.**

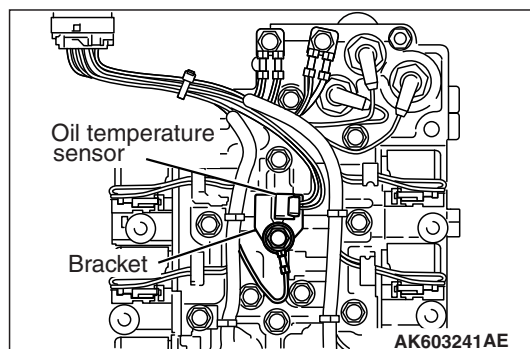
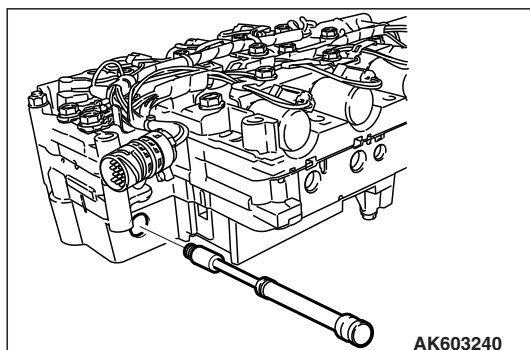
25.Remove the control valve assembly from the transaxle case.



**⚠ CAUTION**

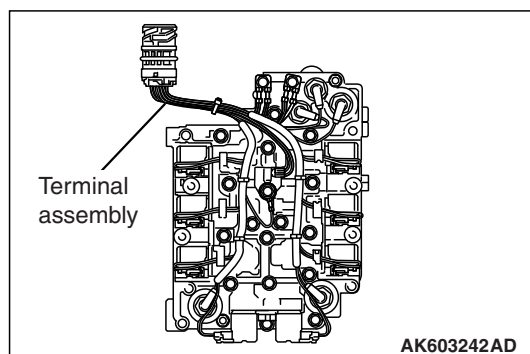
**Be careful not to drop the manual valve.**

26. Remove the manual valve from the control valve.

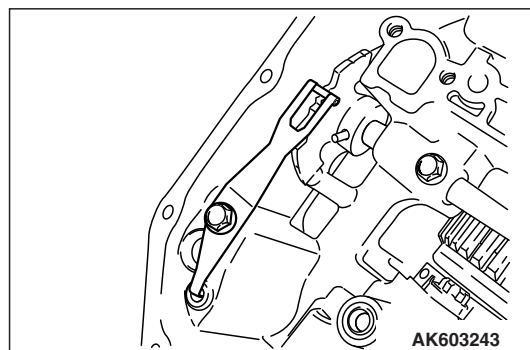


27. Remove the oil temperature sensor and bracket from the control valve.

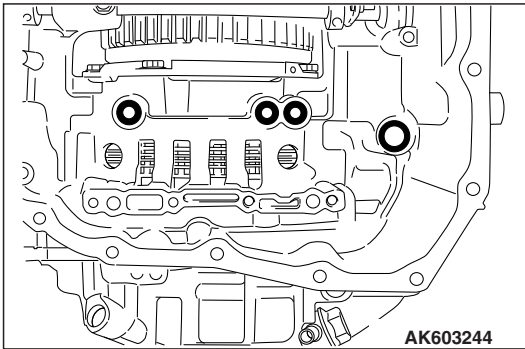
28. Remove the bracket from the oil temperature sensor.



29. Remove the terminal assembly from the control valve.



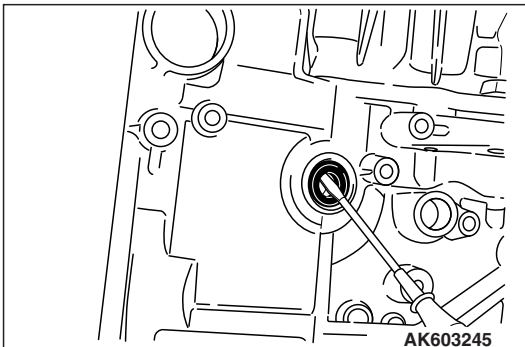
30. Remove the detent spring.



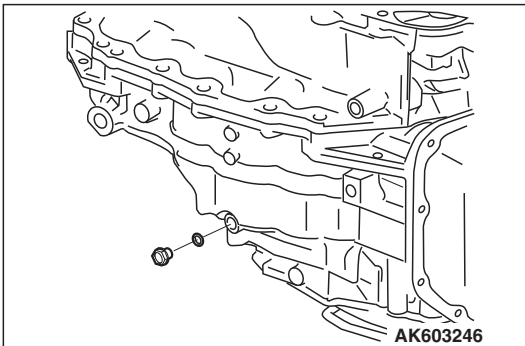
31.Remove lip seals from the transaxle case.

**⚠ 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.



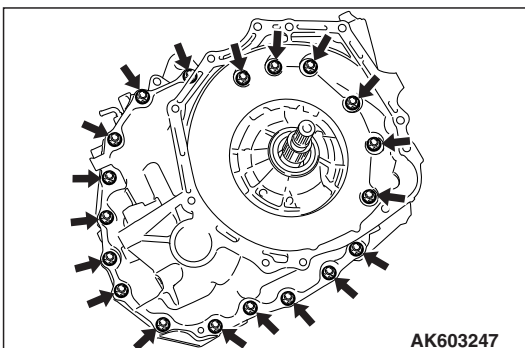
33.Remove the transmission fluid adjusting bolt from the transaxle case.

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

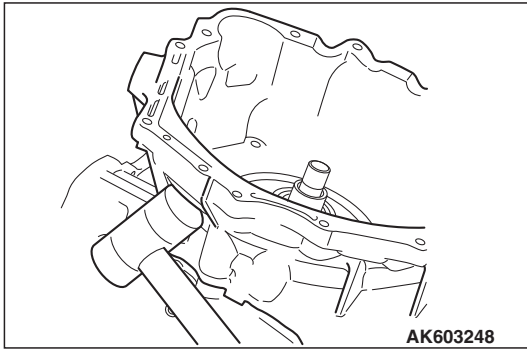
**⚠ CAUTION**

**Mounting bolts are Torx E20 bolts.**

35.Remove converter housing mounting bolts.



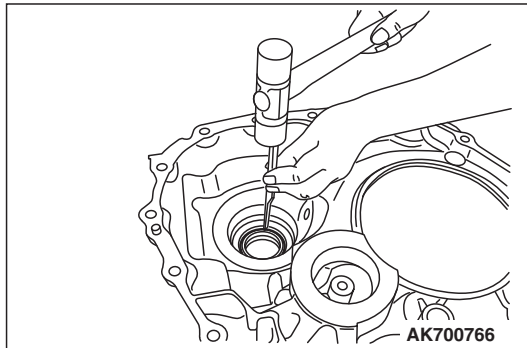
|              |    |
|--------------|----|
| No. of bolts | 19 |
|--------------|----|



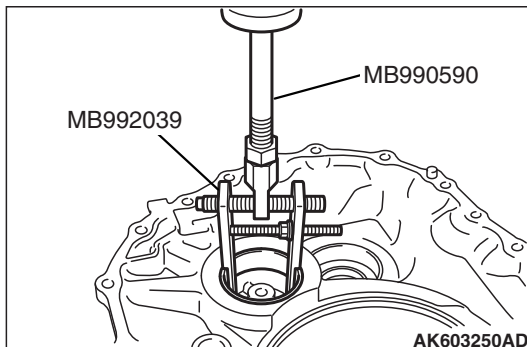
36. Lightly tap the converter housing with a plastic hammer or equivalent to remove.

**⚠ CAUTION**

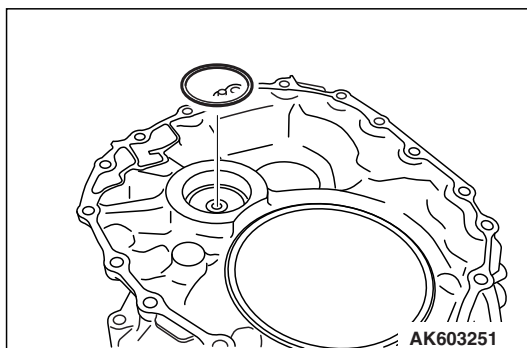
**Do not damage the converter housing when removing the side oil seal.**



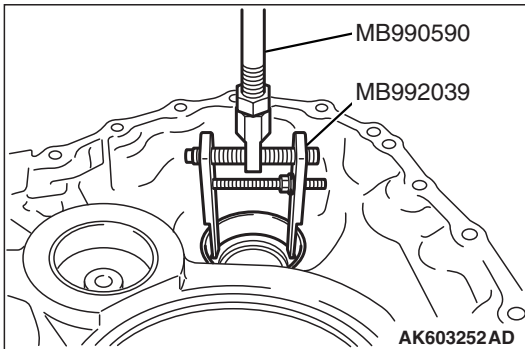
37. Remove the side oil seal from the converter housing using a pin punch or equivalent. <F6AJ>



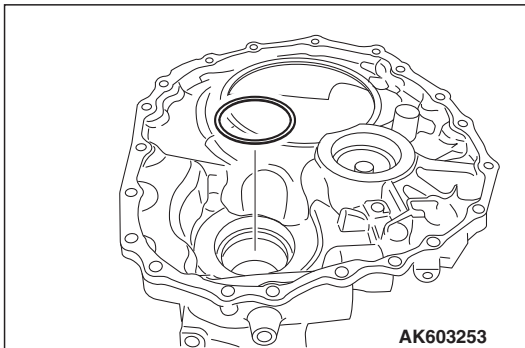
38. Using the special tools MB992039 and MB990590, remove the outer race of the reduction gear bearing from the converter housing.



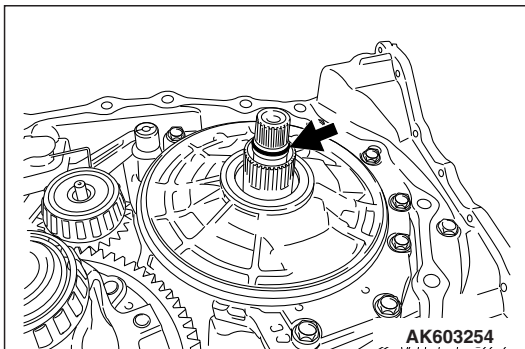
39. Remove the reduction gear taper bearing shim from the converter housing.



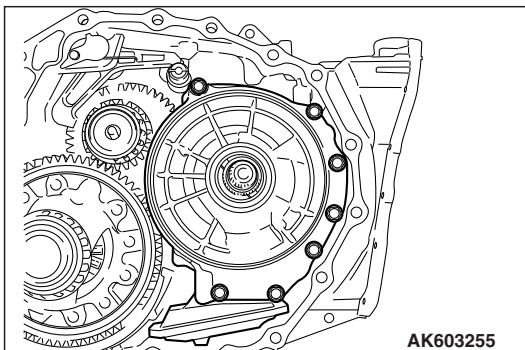
40. Using the special tools MB992039 and MB990590, remove the outer race of the differential side bearing from the converter housing.



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

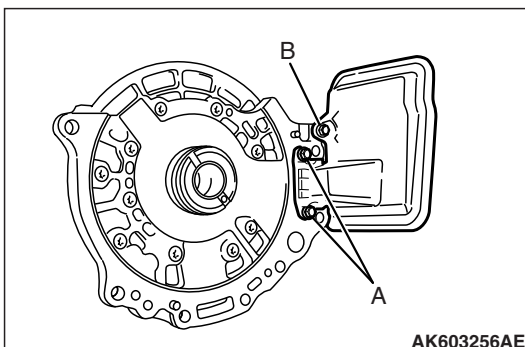


42. Remove the O-ring from the input shaft.



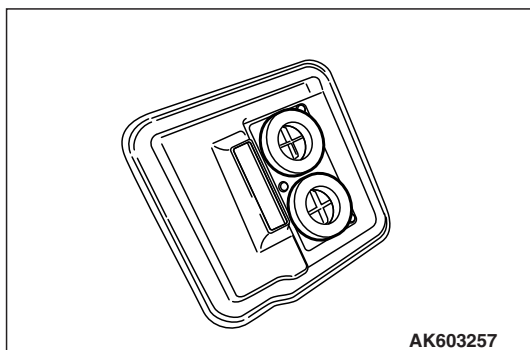
43. Remove the oil pump assembly and oil strainer as one unit.

|              |   |
|--------------|---|
| No. of bolts | 7 |
|--------------|---|

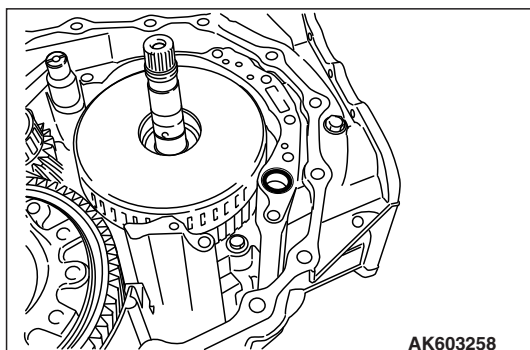


44. Remove the oil strainer from the oil pump assembly.

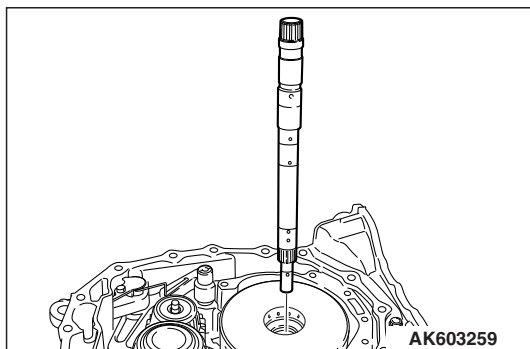
|                         |          |          |
|-------------------------|----------|----------|
| Bolt code               | A        | B        |
| Shank length<br>mm (in) | 25 (1.0) | 16 (0.6) |
| No. of bolts            | 2        | 1        |



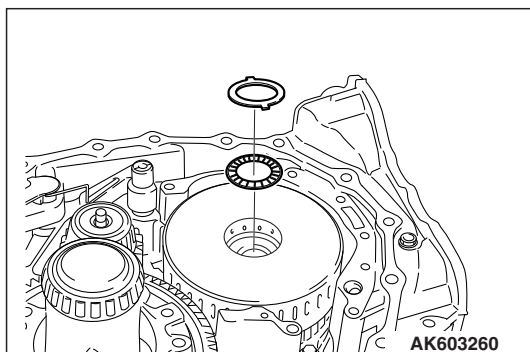
45. Remove the magnet from the oil strainer.



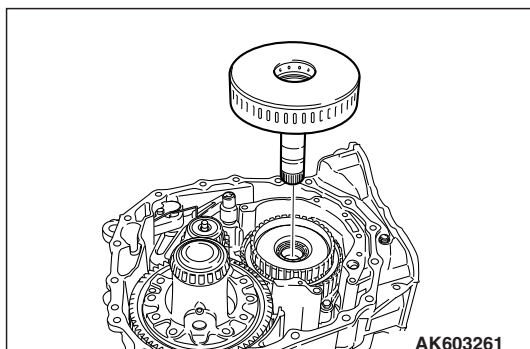
46. Remove the O-ring from the transaxle case.



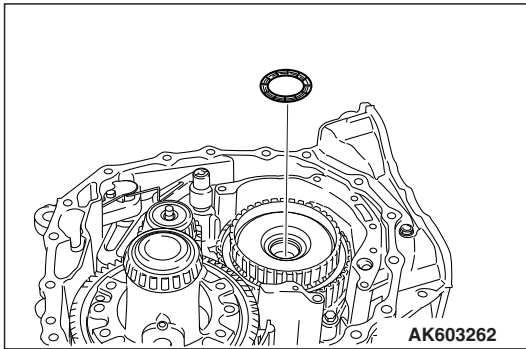
47. Remove the input shaft.



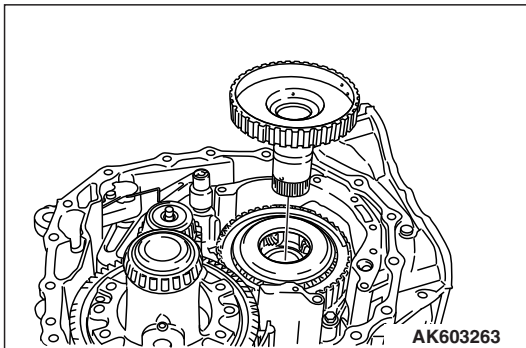
48. Remove the bearing race and needle bearing from the 3-5 reverse clutch drum.



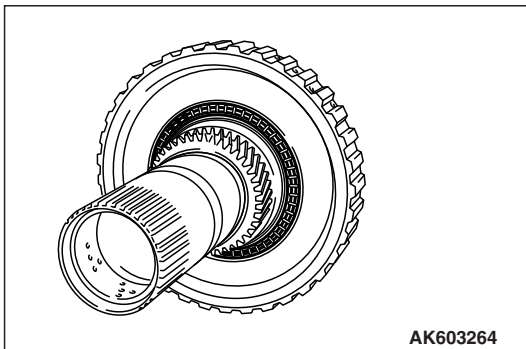
49. Remove the 3-5 reverse clutch assembly.



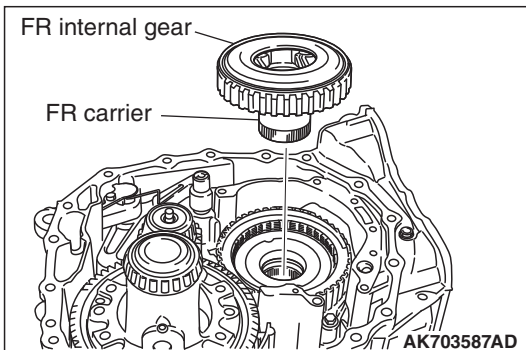
50.Remove the needle bearing from the FR sun gear.



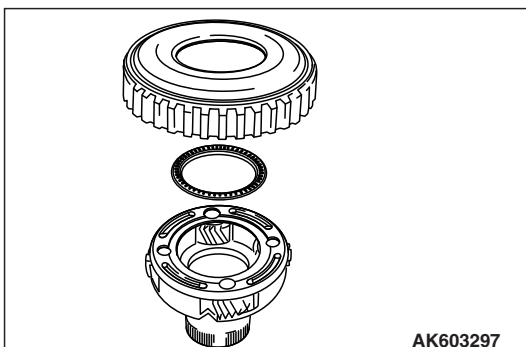
51.Remove the FR sun gear.



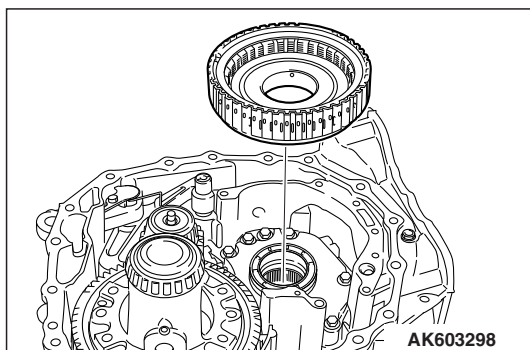
52.Remove the needle bearing from the FR sun gear.



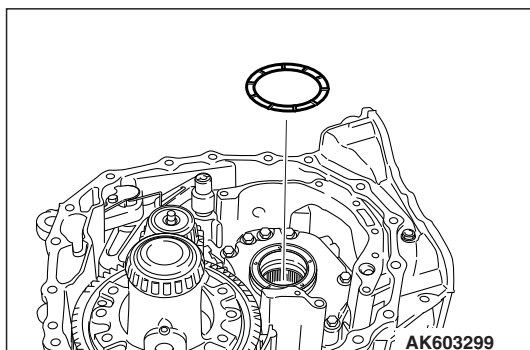
53.Remove the FR internal gear and FR carrier as one unit.



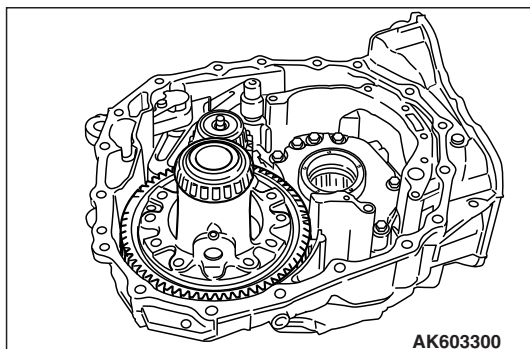
54.Remove the FR internal gear and needle bearing from the FR carrier.



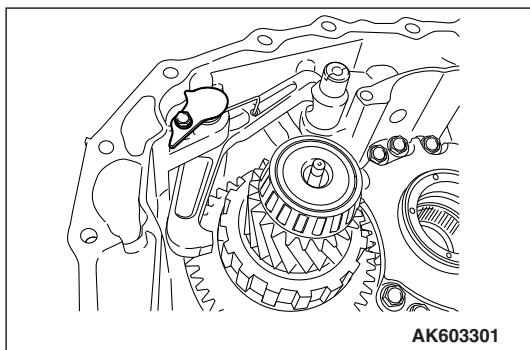
55.Remove the low clutch assembly.



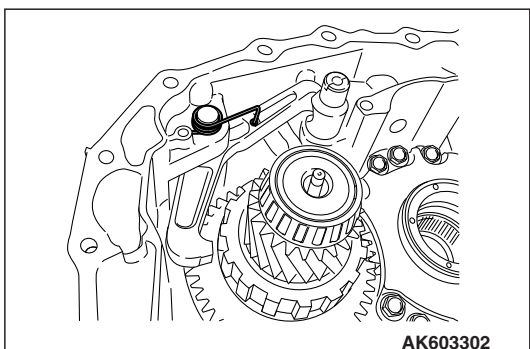
56.Remove the thrust washer from the drum support.



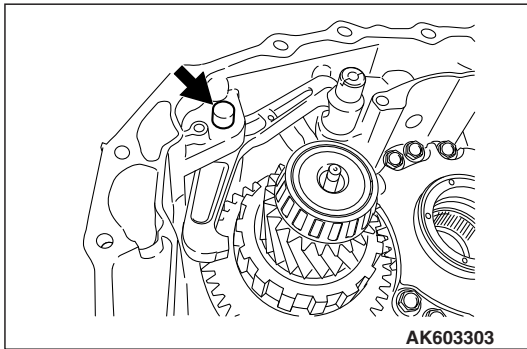
57.Remove the differential assembly.



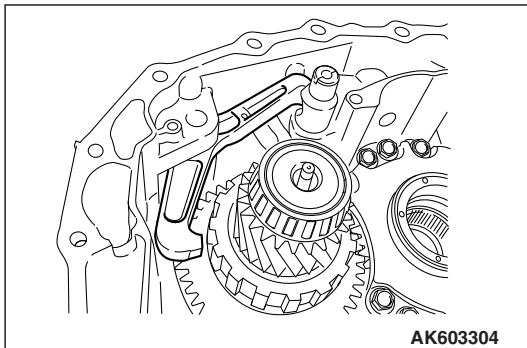
58.Remove the parking plate.



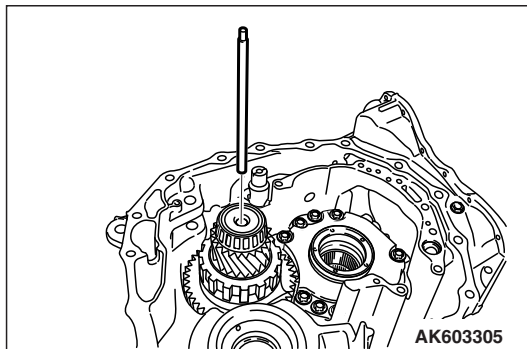
59.Remove the return spring.



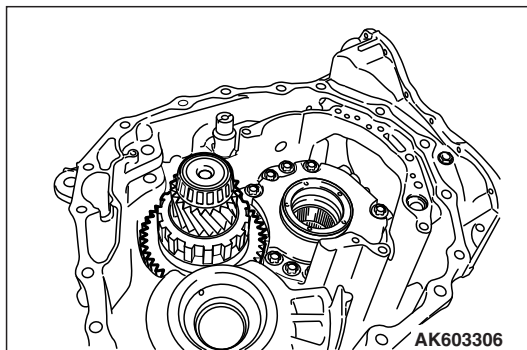
60.Remove the parking shaft.



61.Remove the parking pawl.



62.Remove the reduction gear lubrication tube.



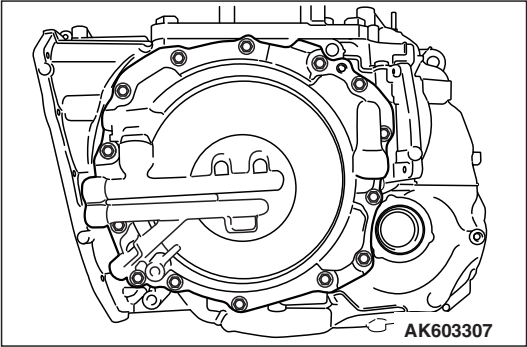
63.Remove the reduction gear assembly.

**⚠ CAUTION**

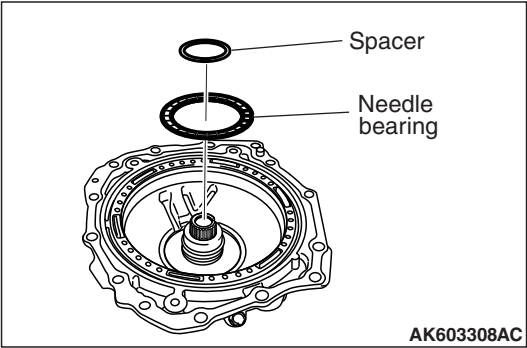
**Mounting bolts are Torx E16 bolts.**

64.Remove the side cover.

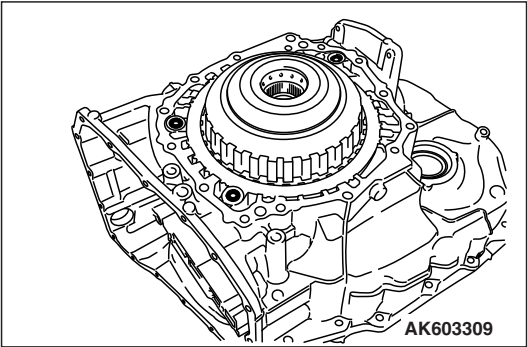
|              |    |
|--------------|----|
| No. of bolts | 14 |
|--------------|----|



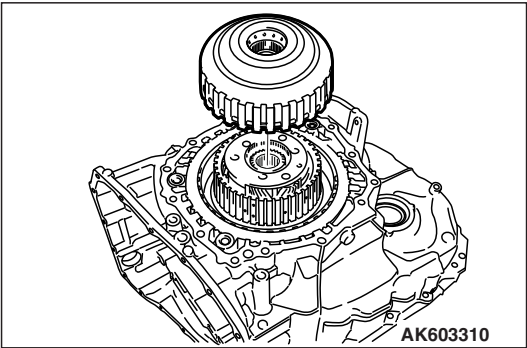
65.Remove the spacer and needle bearing from the side cover.

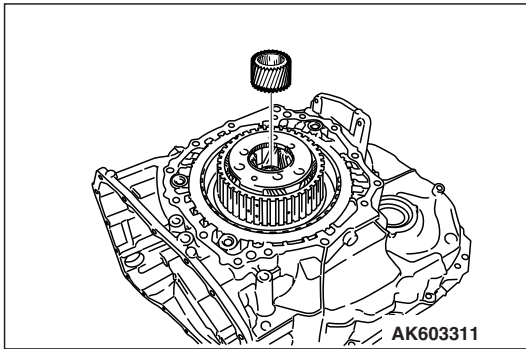


66.Remove the O-ring from the transaxle case.

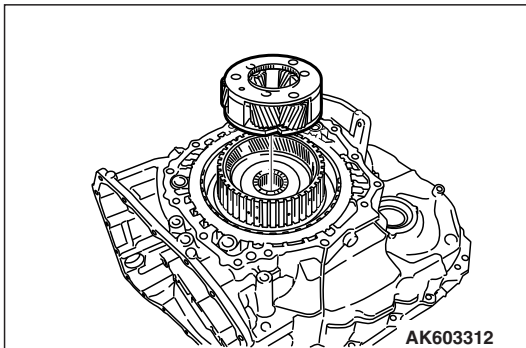


67.Remove the high clutch assembly.

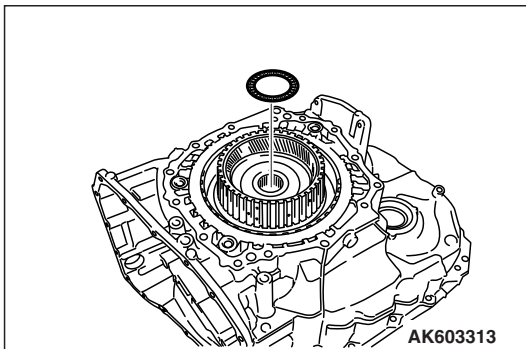




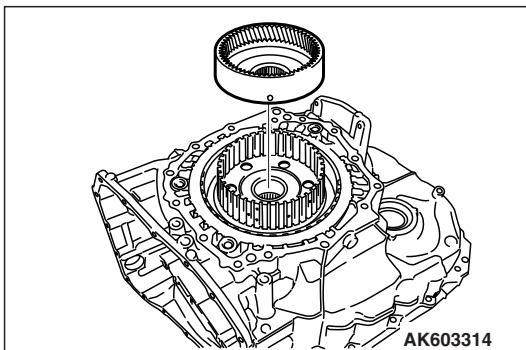
68.Remove the reduction sun gear.



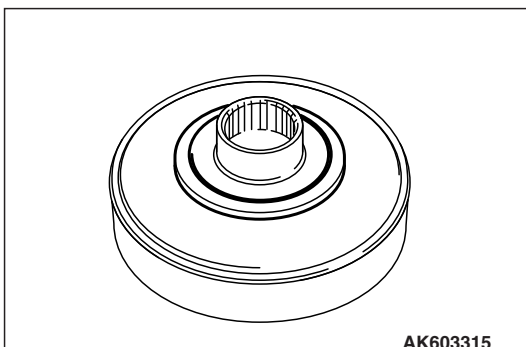
69.Remove the reduction carrier.



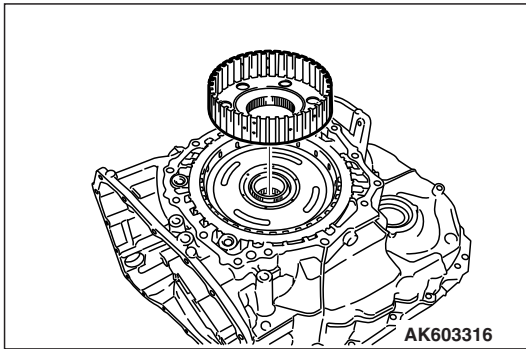
70.Remove the needle bearing from the reduction internal gear.



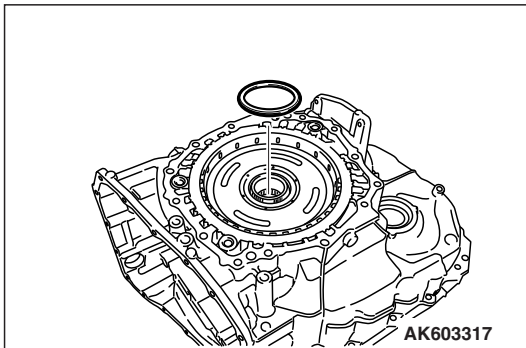
71.Remove the reduction internal gear from the high clutch hub.



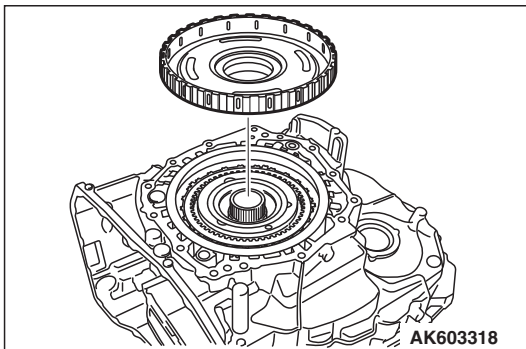
72.Remove the needle bearing from the reduction internal gear.



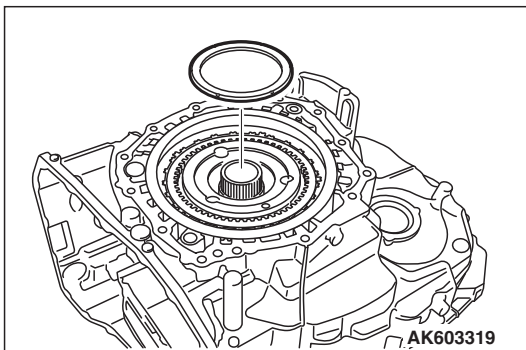
73.Remove the high clutch hub.



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



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

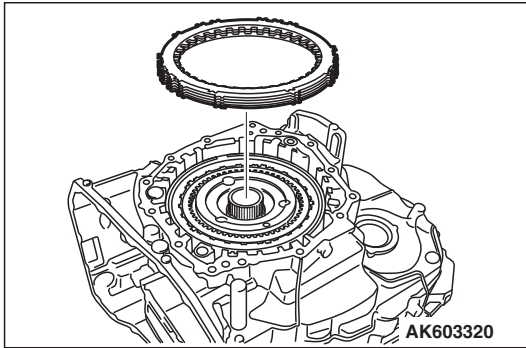


76.Remove the needle bearing from the RR carrier assembly.

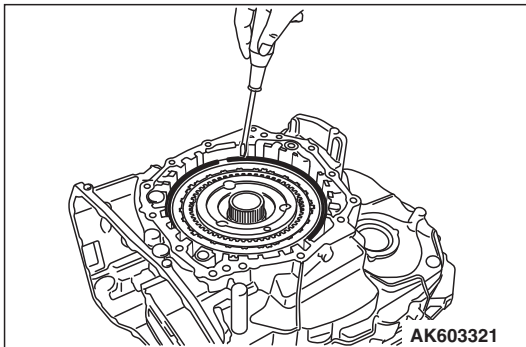
**⚠ CAUTION**

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

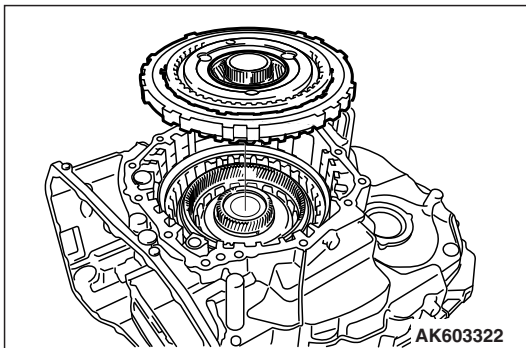
77. Remove the 2-6 brake retaining plate, drive plate and driven plate from the transaxle case.



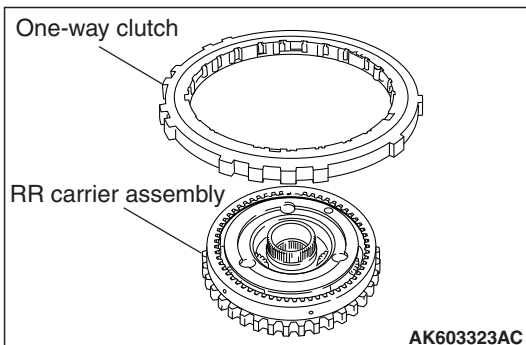
78. Using a flat-head screwdriver or equivalent, remove the snap ring.

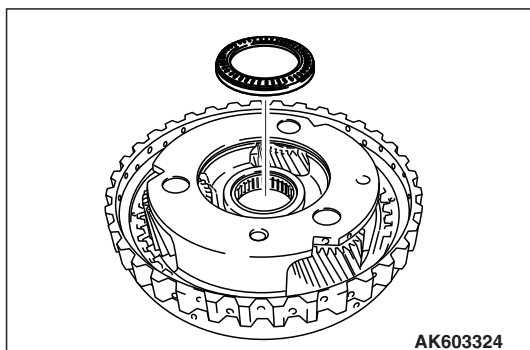


79. Remove the one-way clutch and RR carrier assembly as one unit.

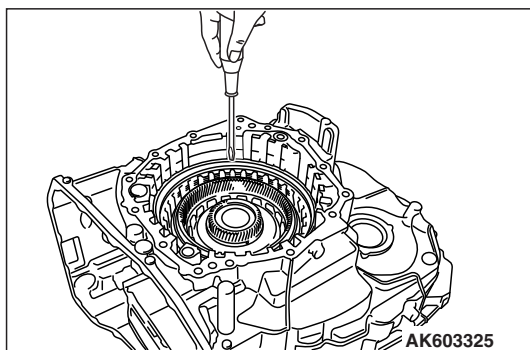


80. Separate the one-way clutch and RR carrier assembly.





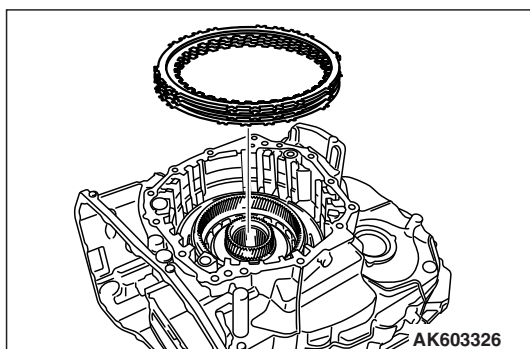
81. Remove the needle bearing from the RR carrier assembly.



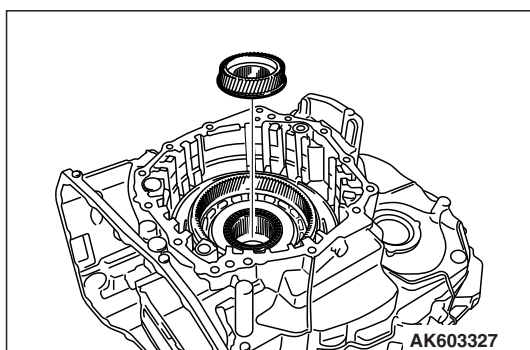
82. Using a flat-head screwdriver or equivalent, remove the snap ring.

**⚠ CAUTION**

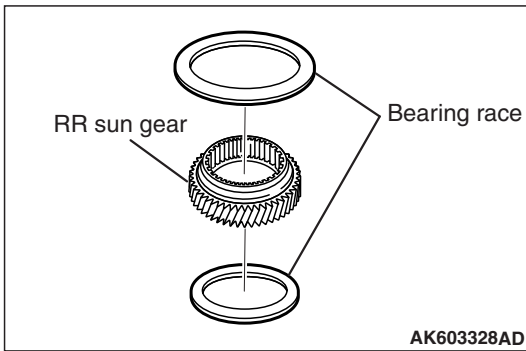
**Check the plates for damage, deformation, surface burn or permanent strain. If faulty, replace.**



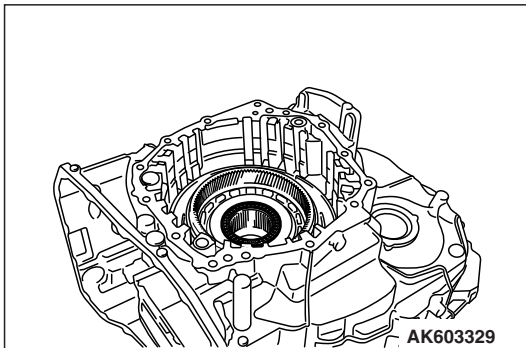
83. Remove the low-reverse brake retaining plate, drive plate and driven plate.



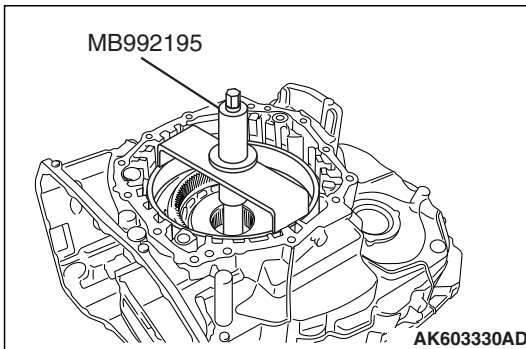
84. Remove the RR sun gear on the front side.



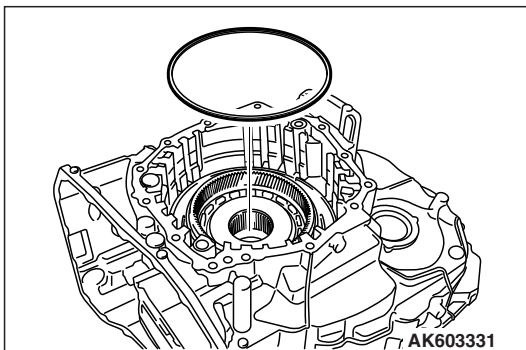
85. Remove the bearing race from the RR sun gear on the front side.



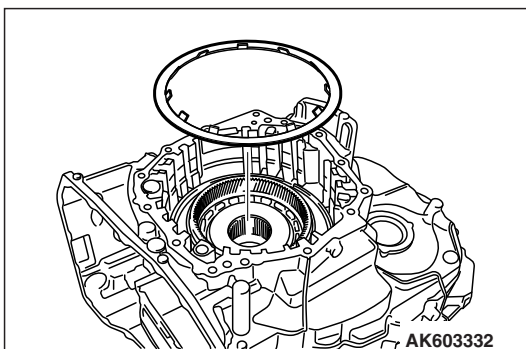
86. Remove the needle bearing.



87. Using the special tool MB992195, remove the snap ring.



88. Remove the diaphragm spring retainer.

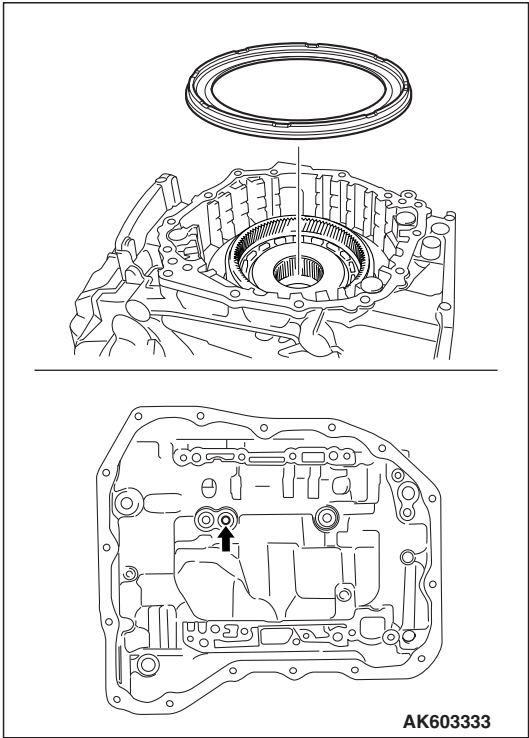


89. Remove the diaphragm spring.

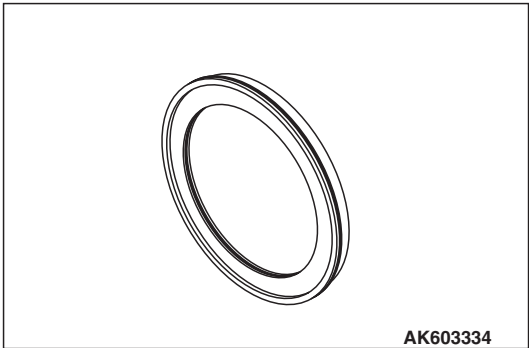
**⚠ CAUTION**

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.

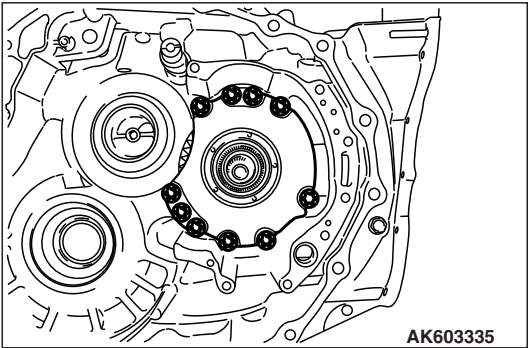


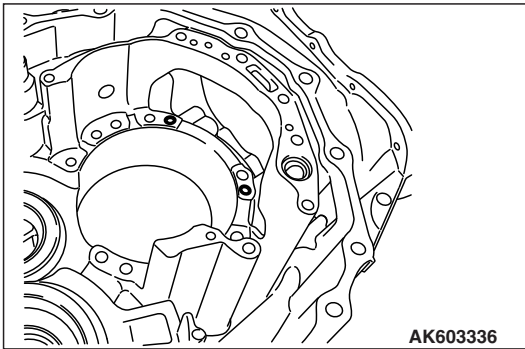
**⚠ CAUTION**

Mounting bolts are Torx E18 bolts.

92.Remove the Output gear set.

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

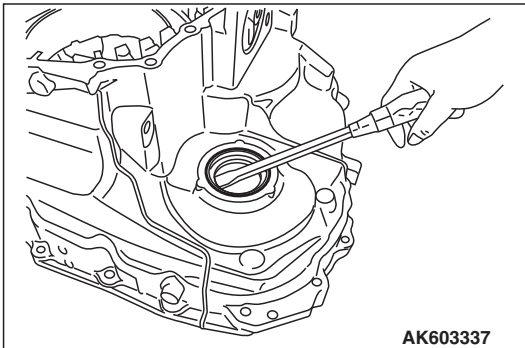




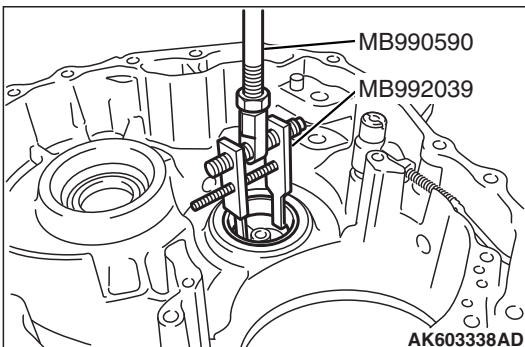
93. Remove the O-ring from the transaxle case.

**⚠ CAUTION**

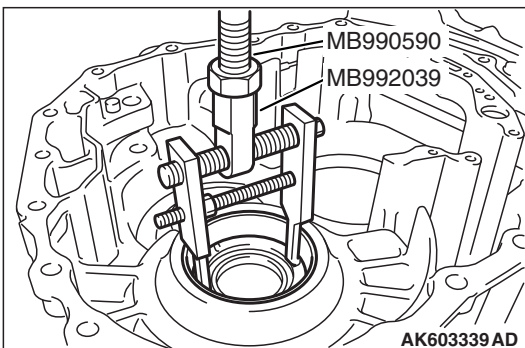
**Do not damage the transaxle case when removing the side oil seal.**



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



95. Using the special tools MB992039 and MB990590, remove the outer race of the reduction gear bearing from the transaxle case equivalent.

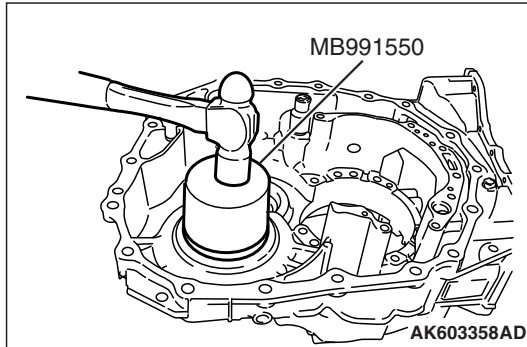


96. Using the special tools MB992039 and MB990590, remove the outer race of the differential side bearing from the transaxle case.

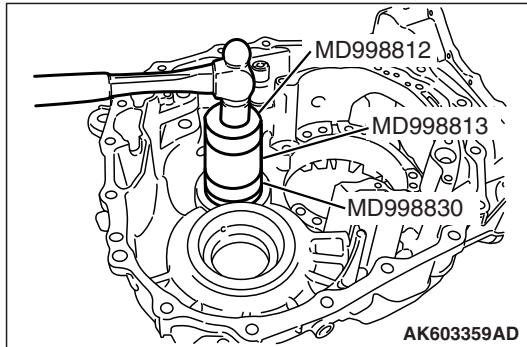
## ASSEMBLY

**⚠ CAUTION****Never reuse the outer race.**

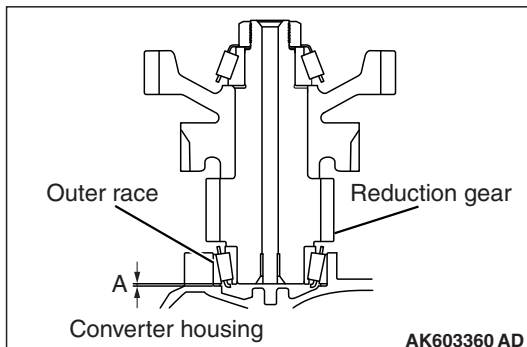
1. Using the special tool MB991550, Install the outer race of the differential side bearing on the transaxle case.

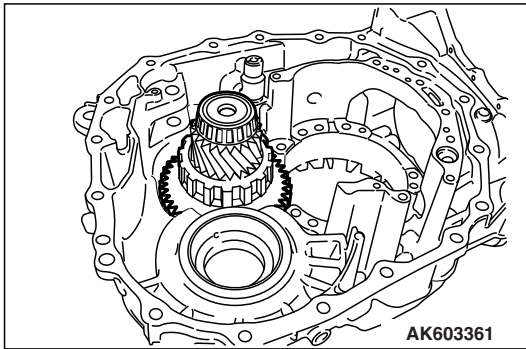
**⚠ CAUTION****Never reuse the outer race.**

2. Using the special tools MD998812, MD998813 and MD998830, install the outer race of the reduction gear bearing on the transaxle case.

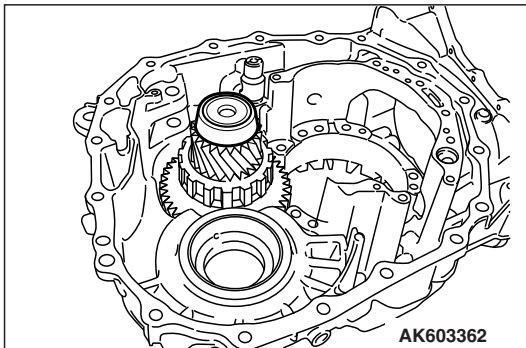
**⚠ CAUTION**

- Apply transmission fluid 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.
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.

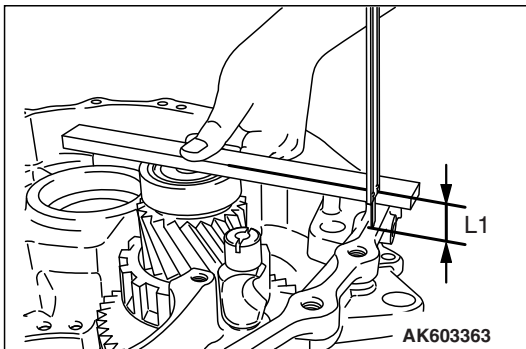




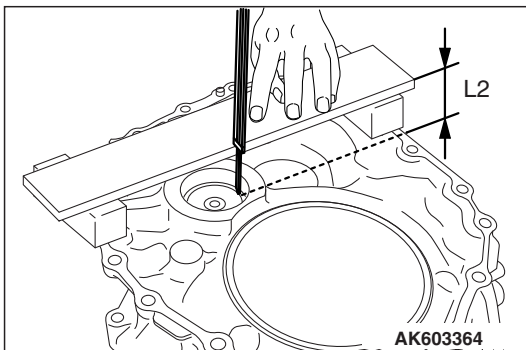
- (1) Install the reduction gear assembly on the transaxle case.



- (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.



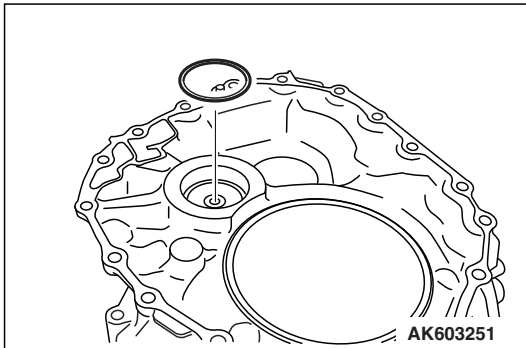
- (4) Place a block on the end face of the converter housing and measure distance L2 to the reduction gear taper bearing shim mounting surface.  
(5) Calculate distance L3 from the end face of the converter housing to the outer race of the reduction gear assembly from the following formula.

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

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

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

**Standard value: 0.16 –0.22 mm (0.006 –0.009 in)**  
**(For reduction gear preload)**



**⚠ CAUTION**

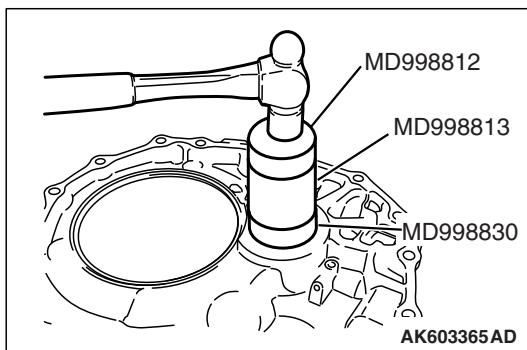
**Never reuse the reduction gear taper bearing shim.**

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**

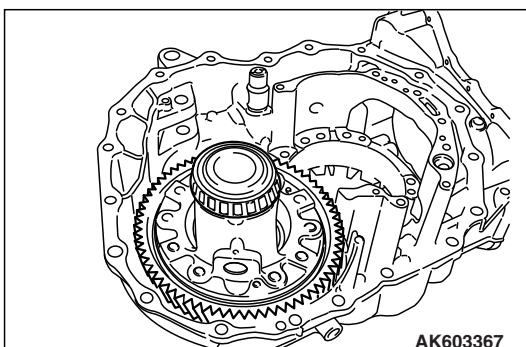
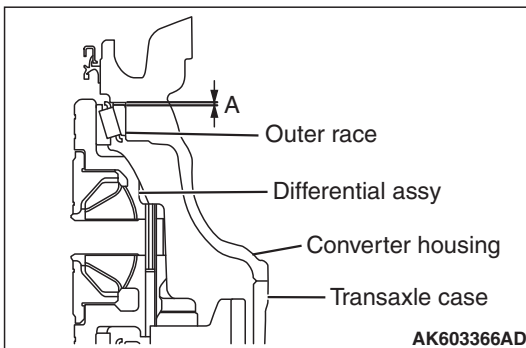
**Never reuse the outer race.**

5. Using the special tools MD998812, MD998813 and MD998830, install the outer race of the reduction gear bearing on the converter housing.

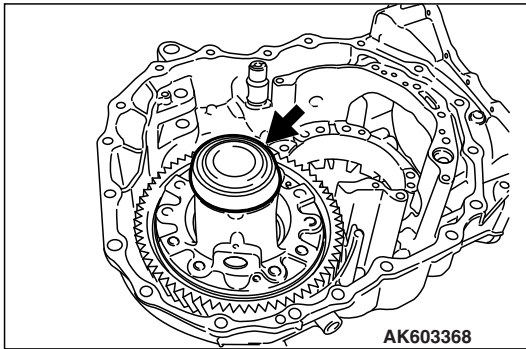


**⚠ CAUTION**

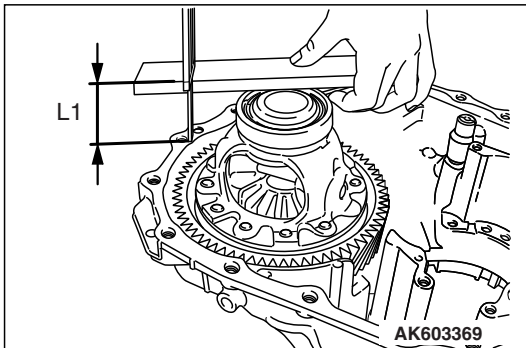
- Apply transmission fluid to the bearing so that the interference can be adjusted in a smooth condition.
  - Measure the end play at more than two locations and obtain the average of the measurements.
6. Measure an interference (A) of the differential assembly in the following procedure. Refer to "SERVICE DATA" for the interference of the differential assembly.



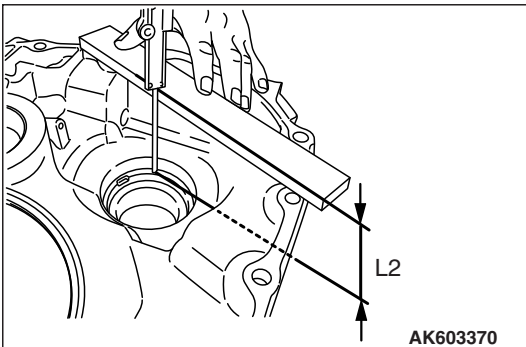
- (1) Install the differential assembly on the transaxle case.



(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.

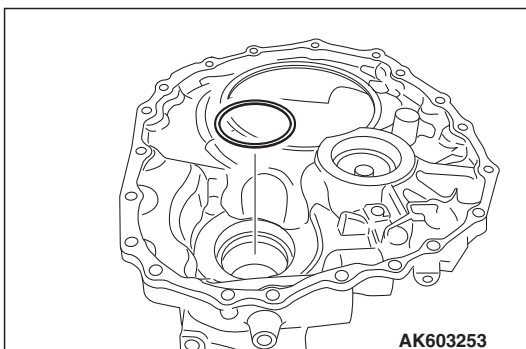
**Thickness of differential taper bearing shim = L2 - L1 + Interference**

**Standard value: 0.19 –0.25 mm (0.008 –0.010 in)  
(For differential preload)**

**⚠ CAUTION**

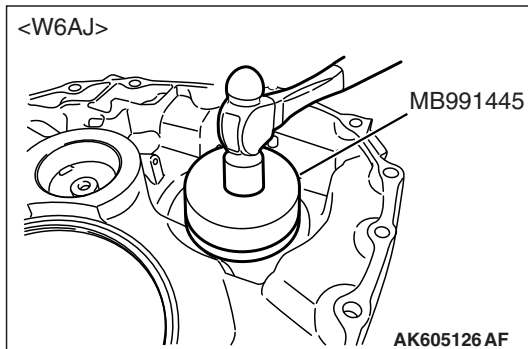
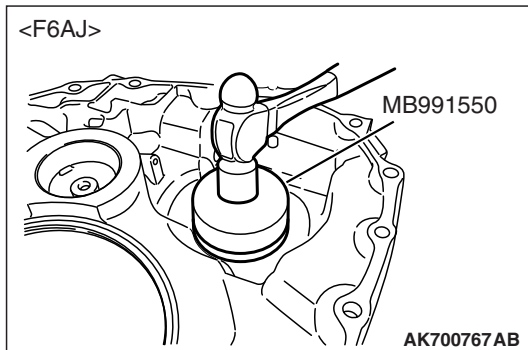
**Never reuse the differential taper bearing shim.**

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



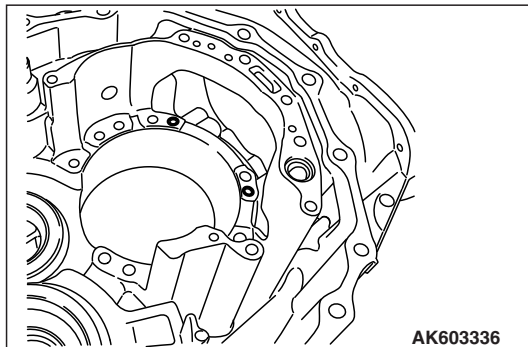
**⚠ CAUTION****Never reuse the outer race.**

8. Using the special tool MB991550 <F1CJA> or MB991445 <W1CJA>, install the outer race of the differential side bearing on the converter housing.

**⚠ CAUTION**

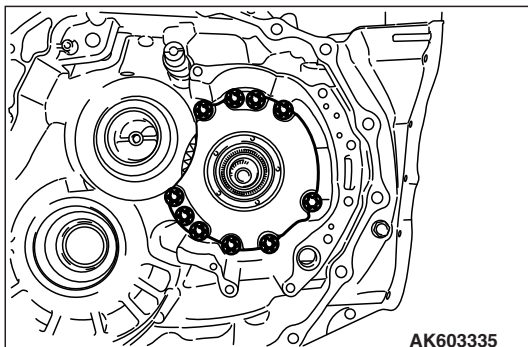
- Never reuse the O-rings.
- Apply transmission fluid to the O-rings before installation.

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 following or the exploded view for the tightening torque.

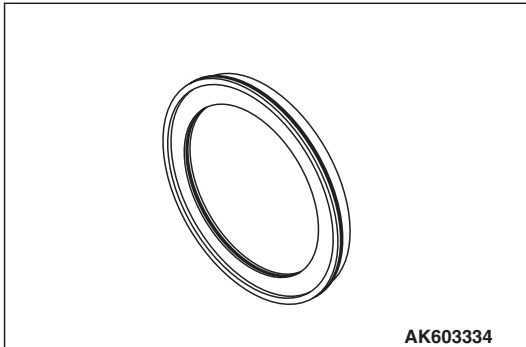
|              |    |
|--------------|----|
| No. of bolts | 10 |
|--------------|----|

**Tightening torque: 41 N·m (30 ft-lb)**

**⚠ CAUTION**

- Never reuse the D-rings.
- Apply transmission fluid to the D-rings before installation.

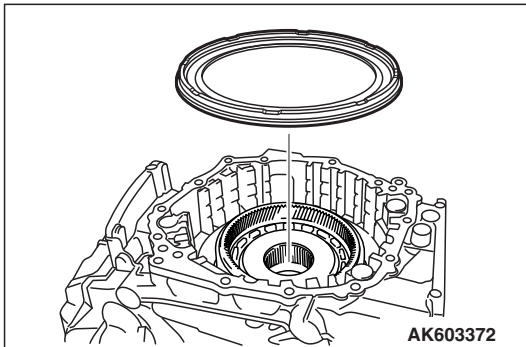
11. Install D-rings on the low-reverse brake piston.



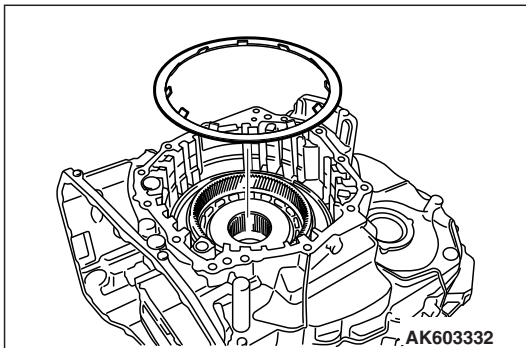
**⚠ CAUTION**

**Apply transmission fluid to the low-reverse brake piston before installation.**

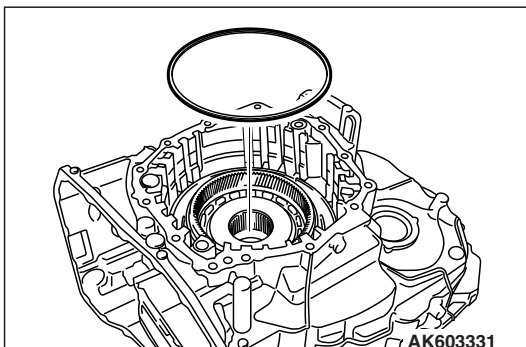
12. Install the low-reverse brake piston on the transaxle case.

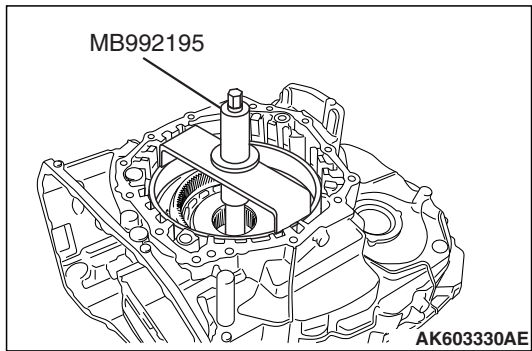


13. Install the diaphragm spring.



14. Install the diaphragm spring retainer.



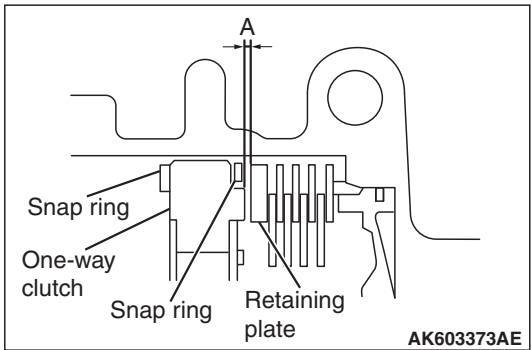


15. Using the special tool MB992195, install the snap ring.

**CAUTION**

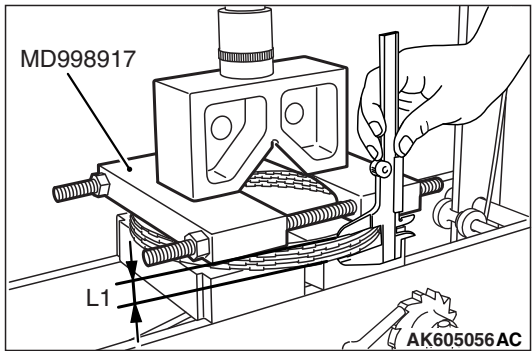
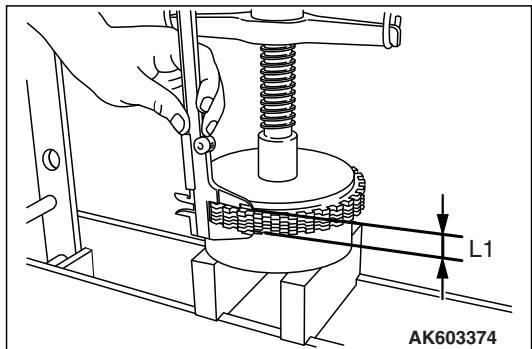
Measure the end play at more than two locations and obtain the average of the measurements.

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.

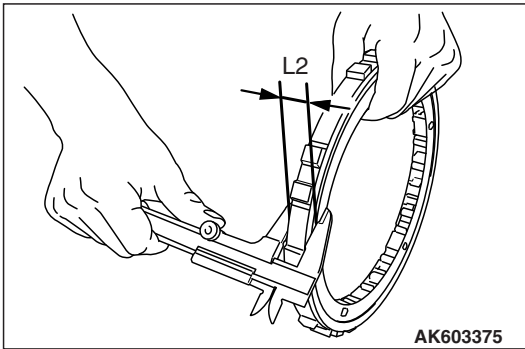


(1) While compressing the drive plates, driven plates and retaining plate, measure the thickness L1 of the pack.

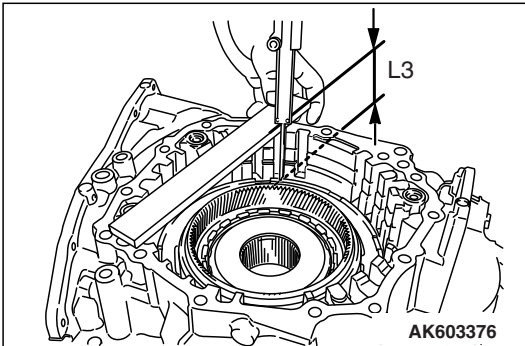
|                               |                       |
|-------------------------------|-----------------------|
| Compression load<br>[N (kgf)] | 7056 –8056 (720 –822) |
|-------------------------------|-----------------------|



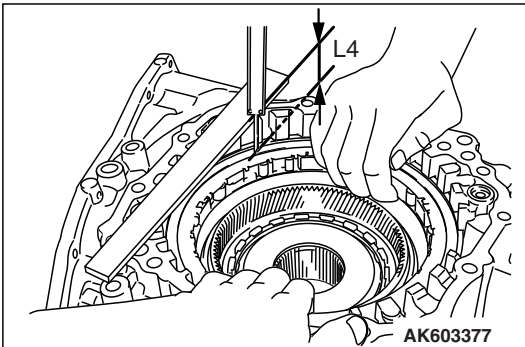
*NOTE: If there is no appropriate plate, use the special tool, MD998917*



(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.  $\text{Clearance} = L3 - (L1 + L2 + L4)$

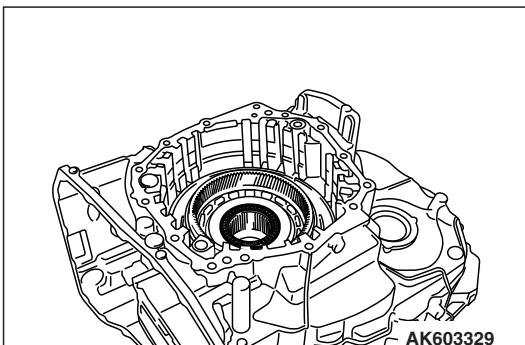
(8) Select an appropriate retaining plate so that the specified clearance is obtained. Refer to "SERVICE DATA" for selecting the retaining plate.

**Standard value: 1.9 –2.2 mm (0.07 –0.09 in)**  
**(For low-reverse brake clearance)**

**⚠ CAUTION**

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

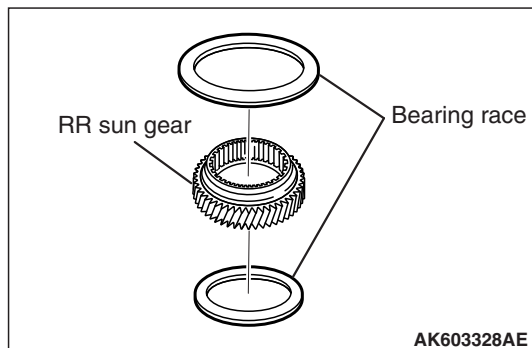
17. Install the needle bearing.



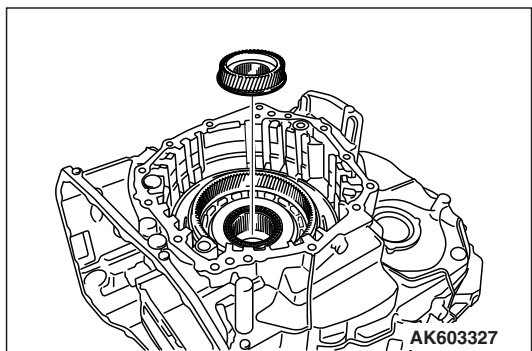
**⚠ CAUTION**

**Apply vaseline to the bearing race before installation.**

18. Install the bearing race on the RR sun gear on the front side.

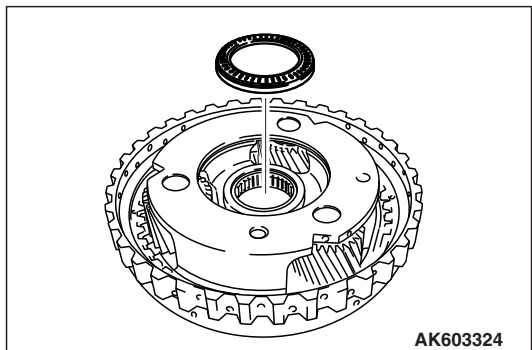


19. Install the RR sun gear on the front side.

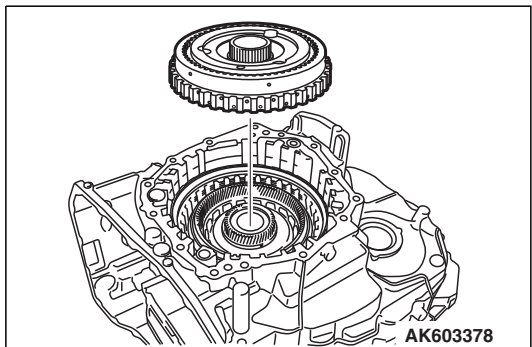
**⚠ CAUTION**

- 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.



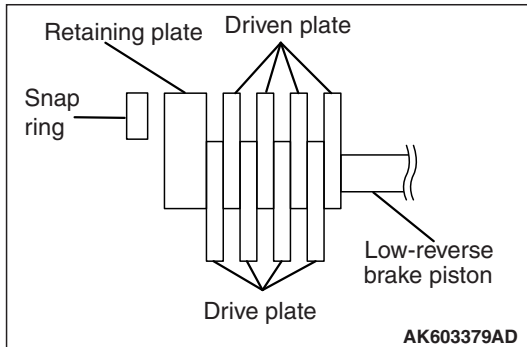
21. Install the RR carrier assembly.



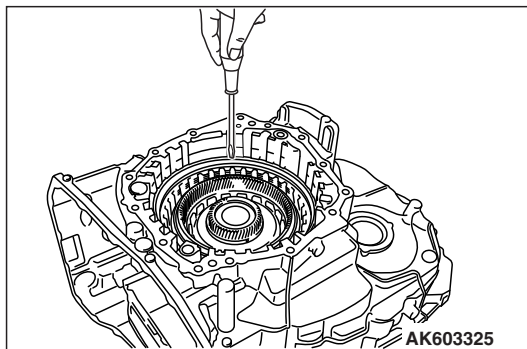
**⚠ CAUTION**

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

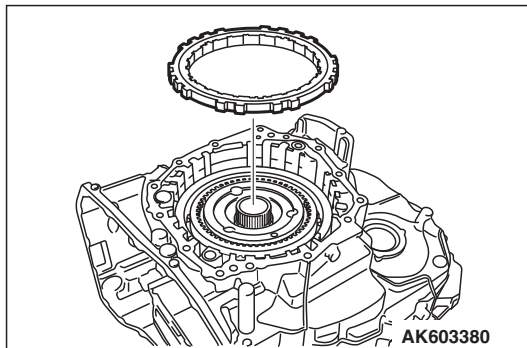
22. Install the low-reverse brake drive plate, driven plate and selected retaining plate on the transaxle case.



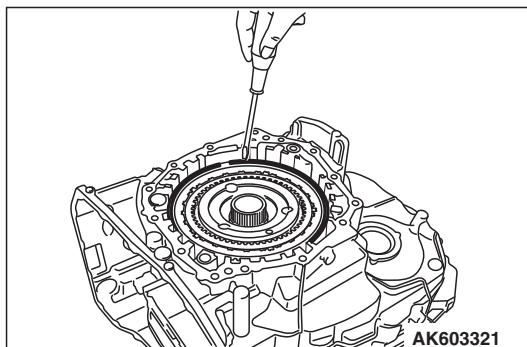
23. Using a flat-head screwdriver or equivalent, install the snap ring.



24. Install the one-way clutch.



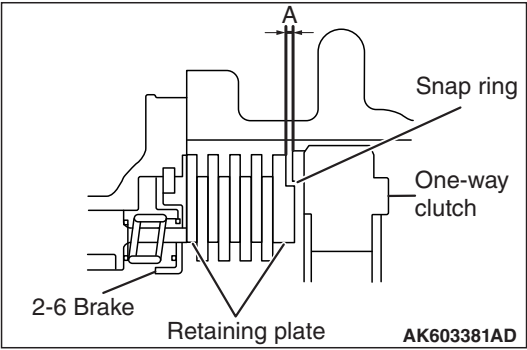
25. Using a flat-head screwdriver or equivalent, install the snap ring.



**⚠ CAUTION**

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

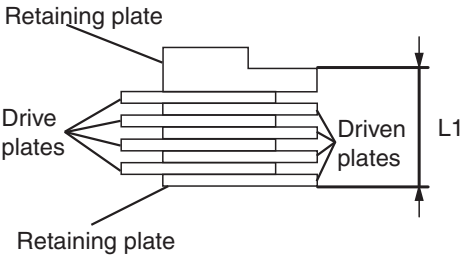
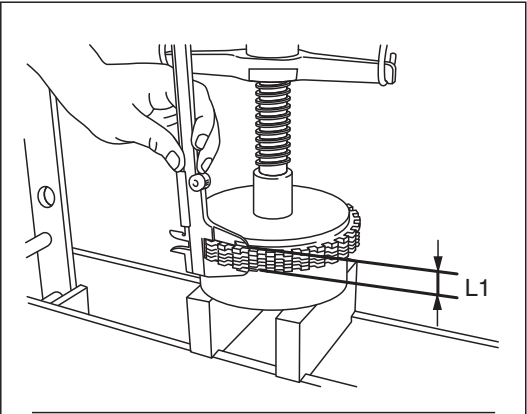
26. Measure the clearance (A) of the 2-6 brake using the following procedure. Refer to "SERVICE DATA" for the specified 2-6 brake clearance.



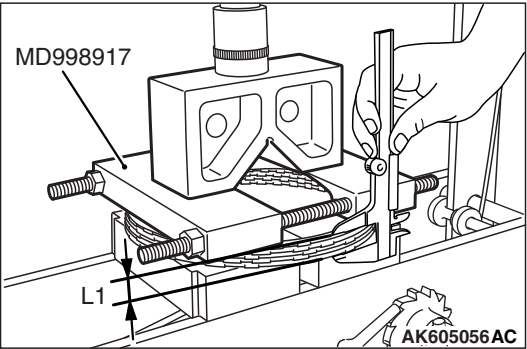
AK603381AD

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

|                               |                     |
|-------------------------------|---------------------|
| Compression load<br>[N (kgf)] | 800 –1800 (82 –184) |
|-------------------------------|---------------------|

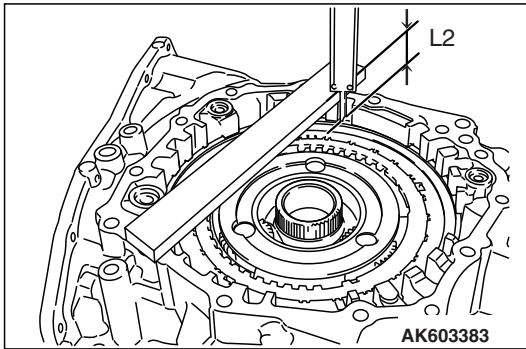


AK603382AD



AK605056AC

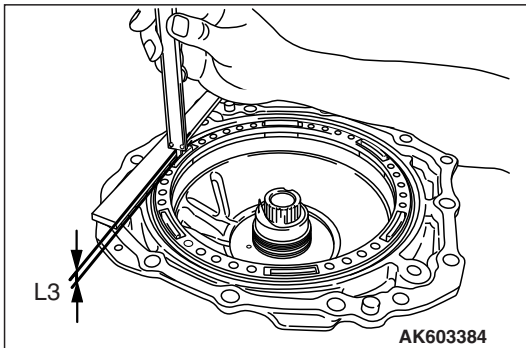
**NOTE:** If there is no appropriate plate, use the special tool, MD998917



- (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.

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

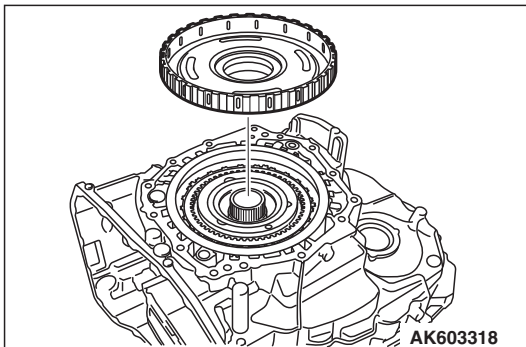
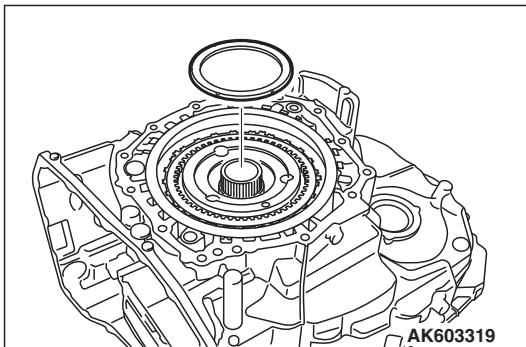
- (5) Select an appropriate retaining plate so that the specified clearance is obtained. Refer to "SERVICE DATA" for selecting the retaining plate.

**Standard value: 1.9 –2.2 mm (0.07 –0.09 in)  
(For 2-6 brake clearance)**

**⚠ 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.

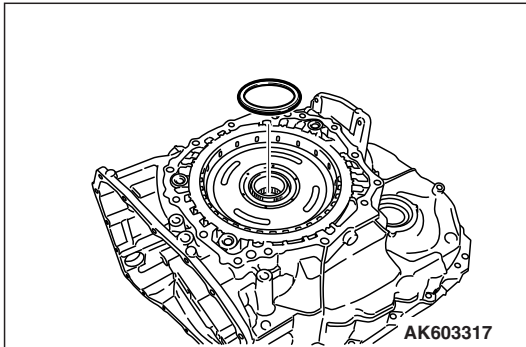


28. Install the RR sun gear on the rear side.

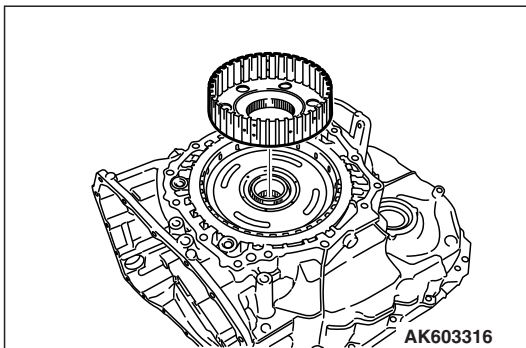
**⚠ CAUTION**

- 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.

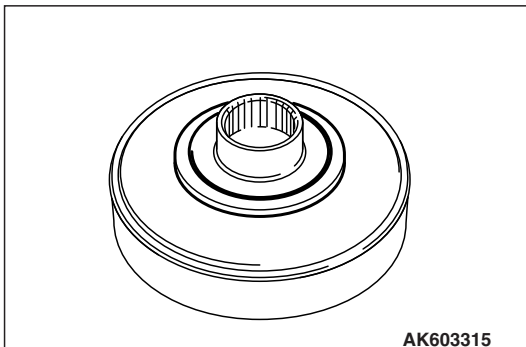


30. Install the high clutch hub.

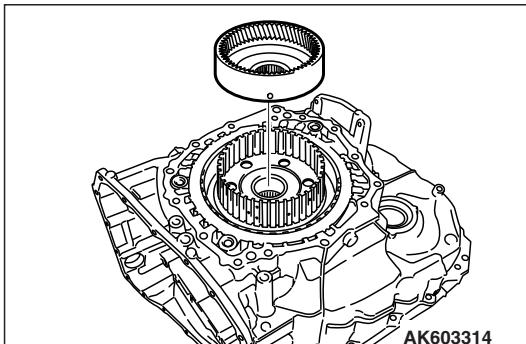
**⚠ CAUTION**

- 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.



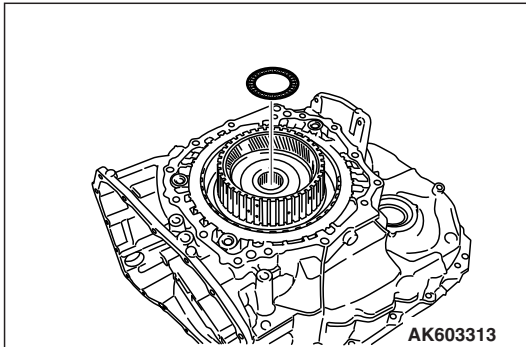
32. Install the reduction internal gear on the high clutch hub.



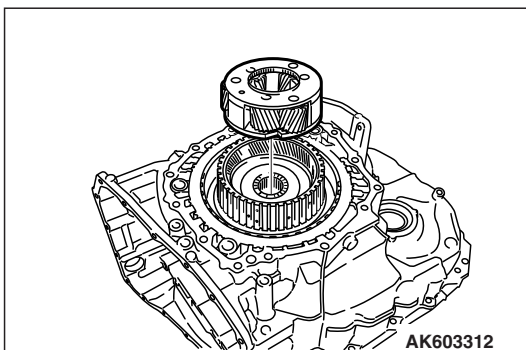
**⚠ CAUTION**

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

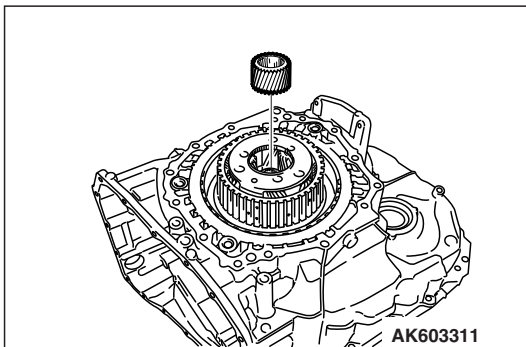
33. Install the needle bearing on the reduction internal gear.



34. Install the reduction carrier.



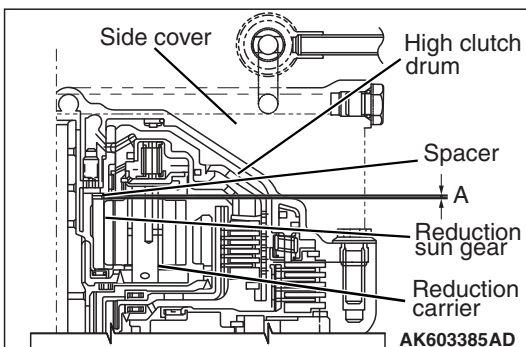
35. Install the reduction sun gear.

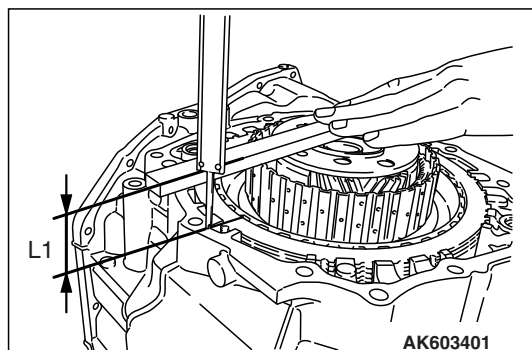


**⚠ CAUTION**

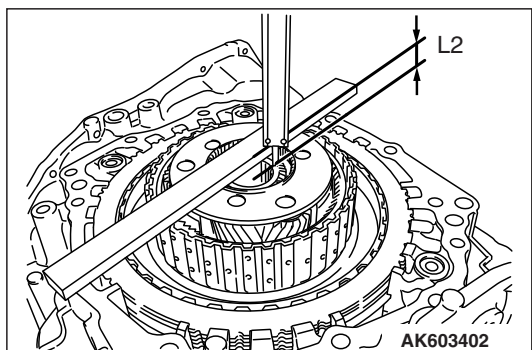
**Measure the end play at more than two locations and obtain the average of the measurements.**

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).

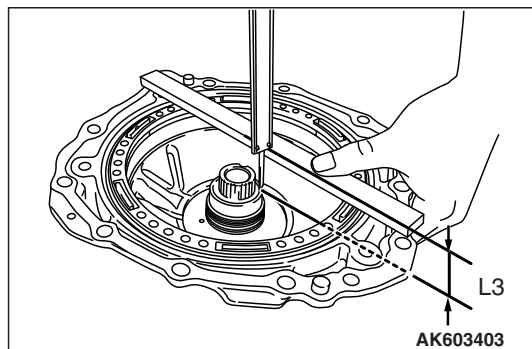




- (1) Measure distance L1 from the reduction carrier to the end face of the transaxle case.



- (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.

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

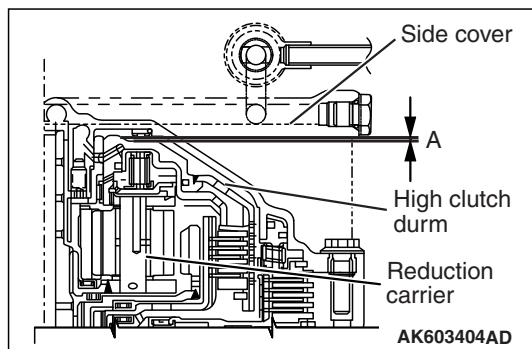
- (5) Select an appropriate spacer so that the specified end play is obtained. Refer to "SERVICE DATA" for selecting the spacer.

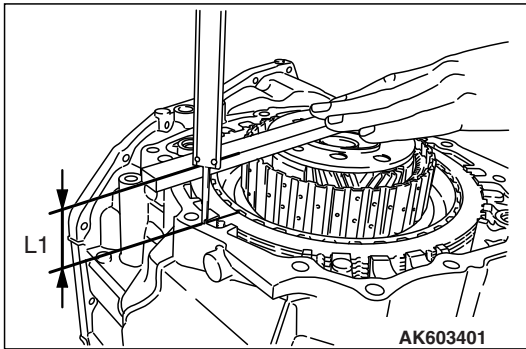
**Standard value: 0.4 –0.7 mm (0.02 –0.03 in)**  
**(For reduction sun gear end play)**

**⚠ CAUTION**

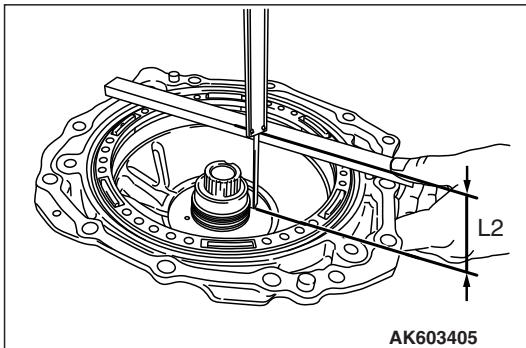
**Measure the end play at more than two locations and obtain the average of the measurements.**

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

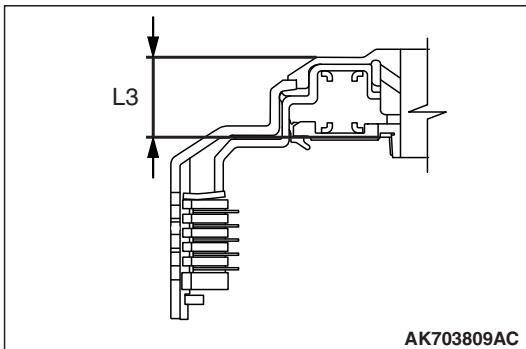




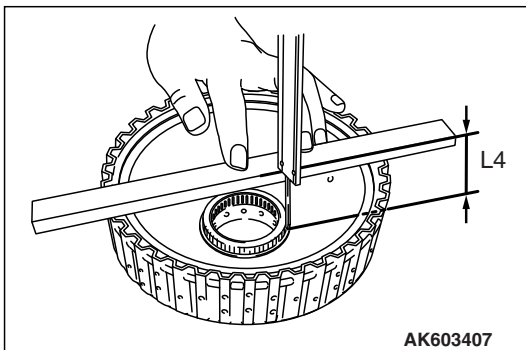
- (1) Measure distance L1 from the reduction carrier to the end face of the transaxle case.



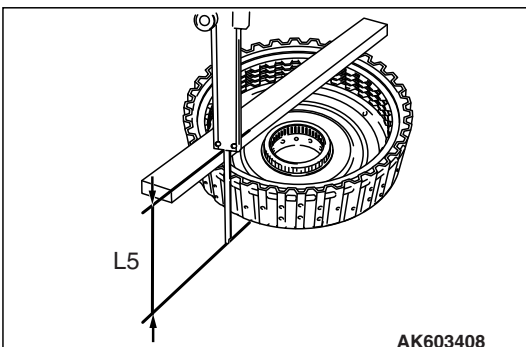
- (2) Measure distance L2 from the end face of the side cover to the needle bearing mounting surface.



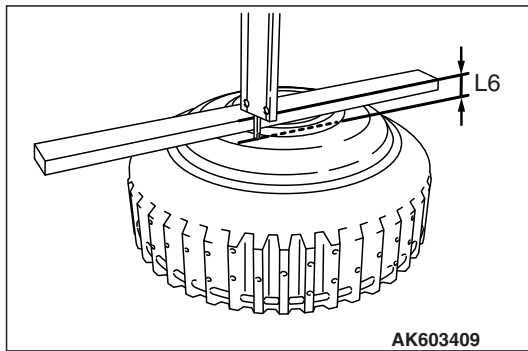
- (3) Measure distance L3 from the contact surface with the needle bearing of the high clutch drum to the snap ring of the cancel cover in the following procedure.



- 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.

$$L3 = L5 - (L4 + L6) + \text{Thickness of straight bar}$$

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

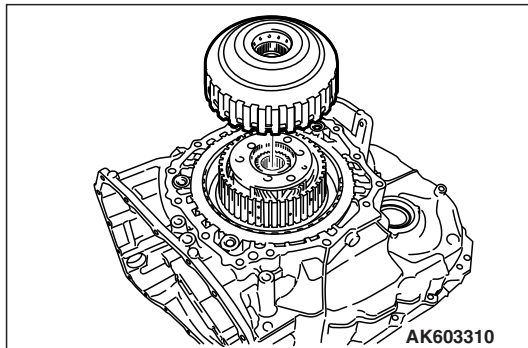
$$\text{End play} = L2 - (L1 + L3) - \text{Thickness of needle bearing}$$

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

**Standard value: 0.70 –1.05 mm (0.028 –0.041 in)**

**(For side cover end play)**

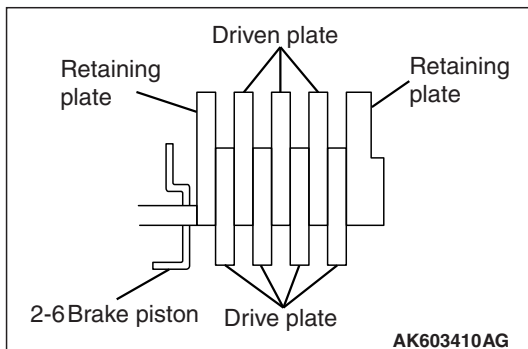
38. Install the high clutch assembly.



#### **CAUTION**

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

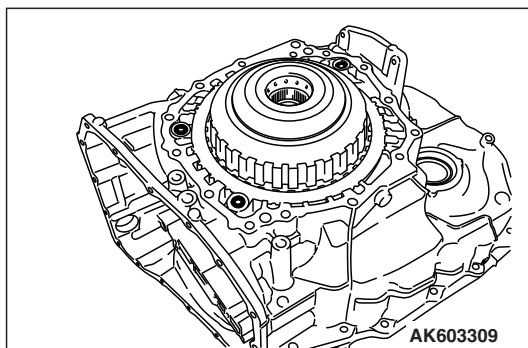
39. Install the 2-6 brake drive plate, driven plate and selected retaining plate on the transaxle case.



#### **CAUTION**

- Never reuse the O-rings.
- Apply transmission fluid to the O-rings before installation.

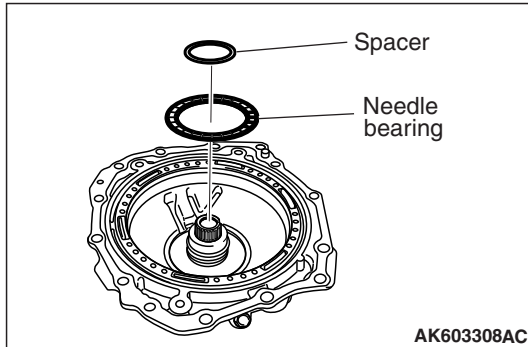
40. Install an O-ring on the transaxle case.



**⚠ 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.



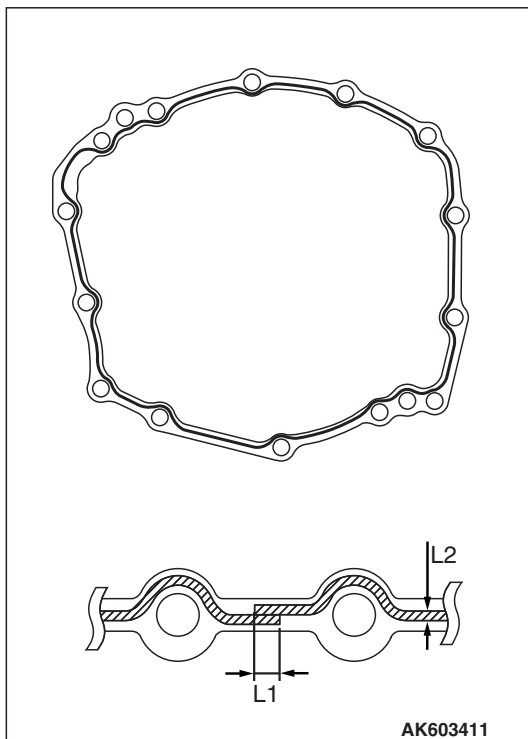
**⚠ CAUTION**

- **Completely degrease the FIPG-applied surface so that water and oil including the old sealant cannot adhere to the surface coated with the sealant. Never touch the degreased surface by hand.**
- **Make sure the starting point and the ending point are about the middle between the bolts.**

42. Apply the sealant to the transaxle case mounting surface of the side cover (almost the center line of the surface).

**Specified sealant: Three Bond 1216B**

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



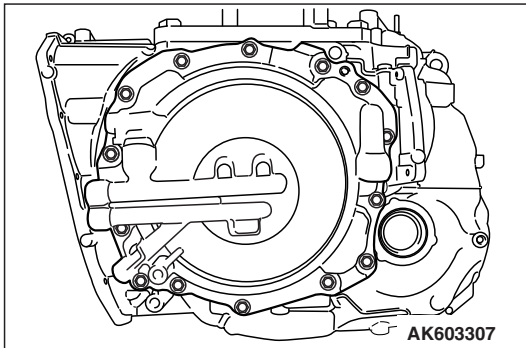
**⚠ CAUTION**

**Mounting bolts are Torx E16 bolts.**

43. Install the side cover on the transaxle case. Refer to the following or the exploded view for the tightening torque.

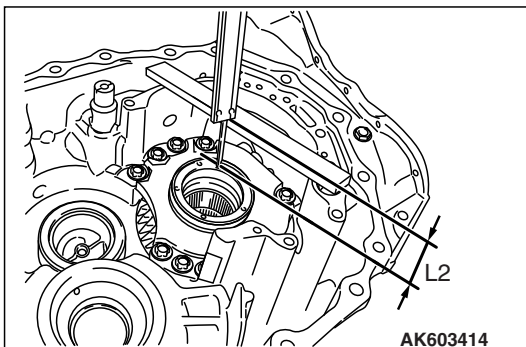
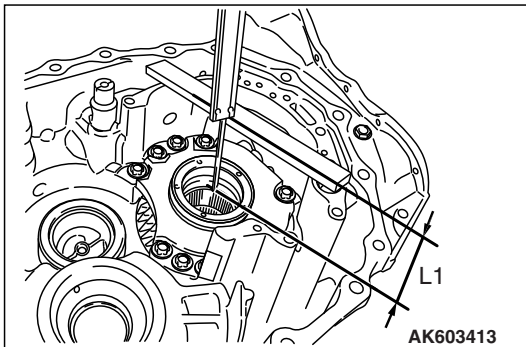
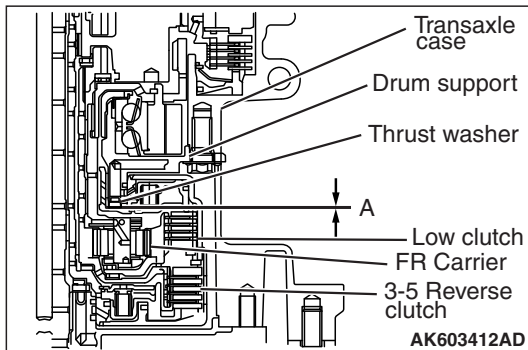
|              |    |
|--------------|----|
| No. of bolts | 14 |
|--------------|----|

**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.**

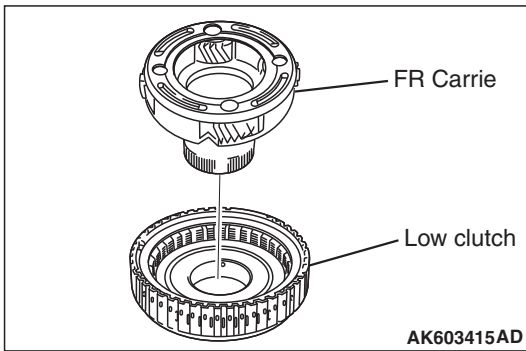
44. Measure the drum support end play (A) using the following procedure. Refer to "SERVICE DATA" for the specified drum support end play (A).



(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.

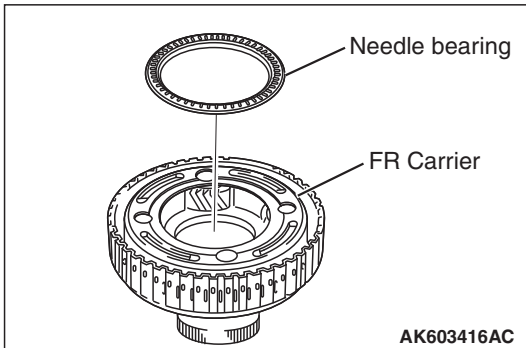


a. Install the FR carrier on the low clutch assembly.

**⚠ CAUTION**

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

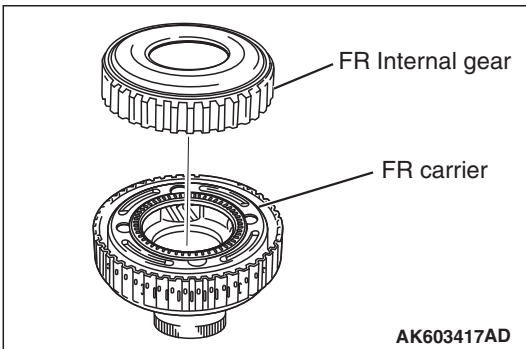
b. Install the needle bearing on the FR carrier.



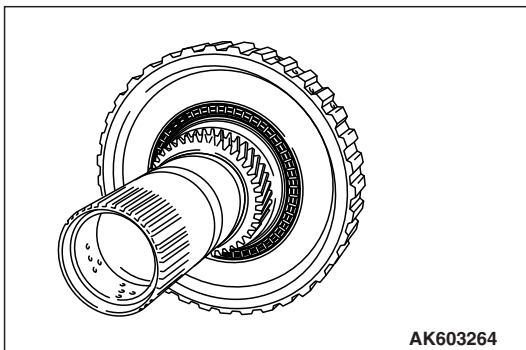
c. Install the FR internal gear on the FR carrier.

**⚠ CAUTION**

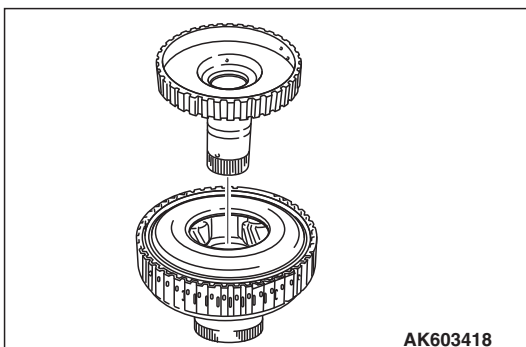
- Apply vaseline to the needle bearing before installation.
- Ensure that the needle bearing faces the correct direction.



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

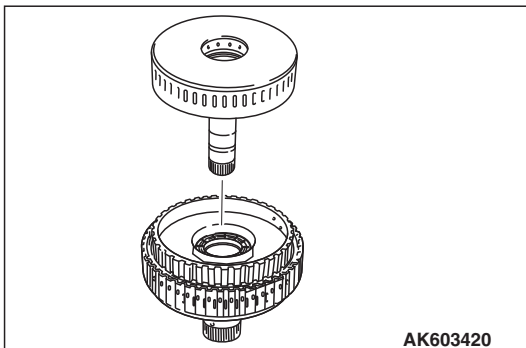
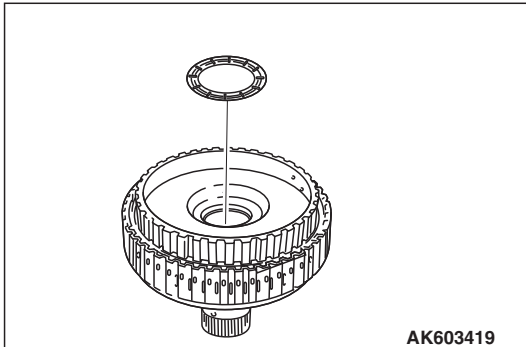


e. Install the FR sun gear.

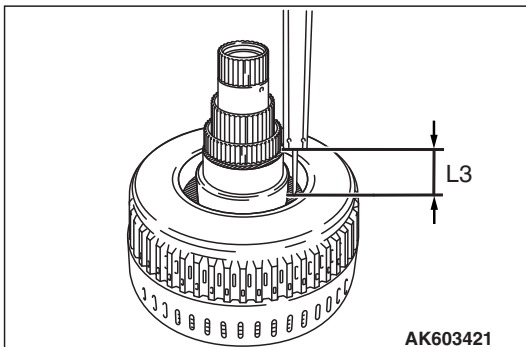


**⚠ CAUTION**

- 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.

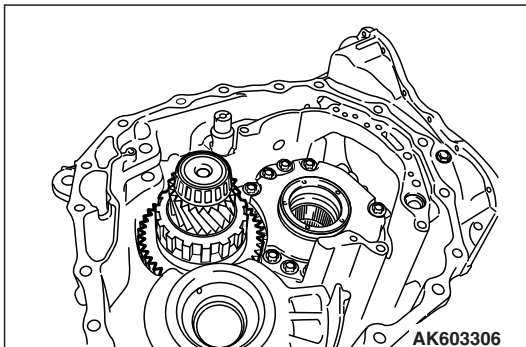
(4) Calculate the end play using the following formula.

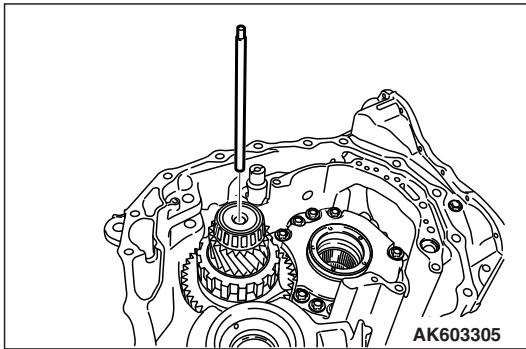
$$\text{End play} = L3 - (L1 - L2) - \text{Thrust washer thickness}$$

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

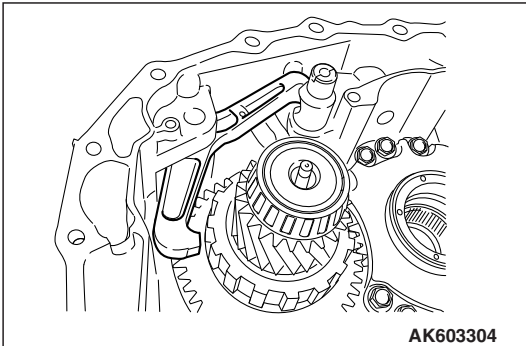
**Standard value: 0 –0.35 mm (0 –0.014 in)**  
**(For drum support end play)**

45. Install the reduction gear assembly.

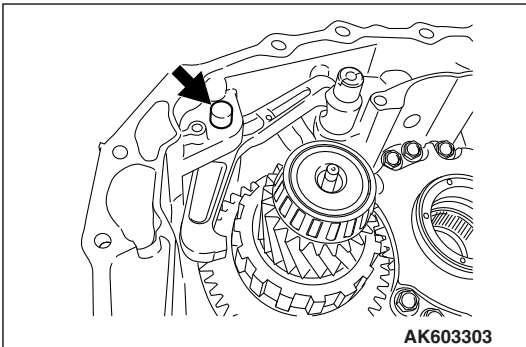




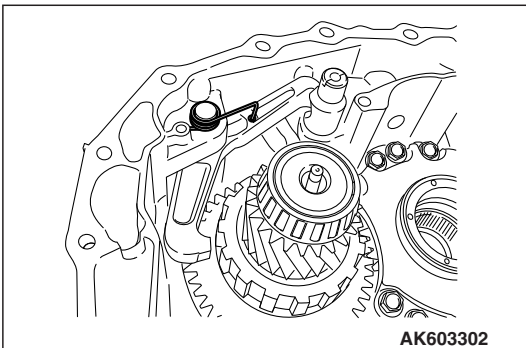
46. Install the reduction gear lubrication tube.



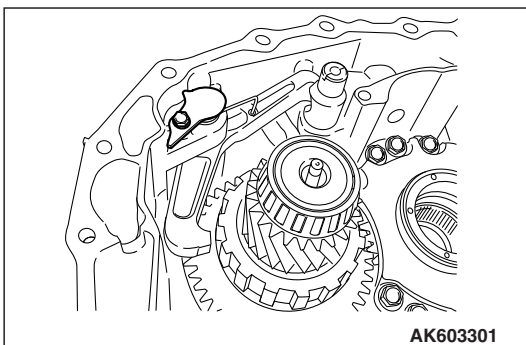
47. Install the parking pawl.



48. Install the parking shaft.

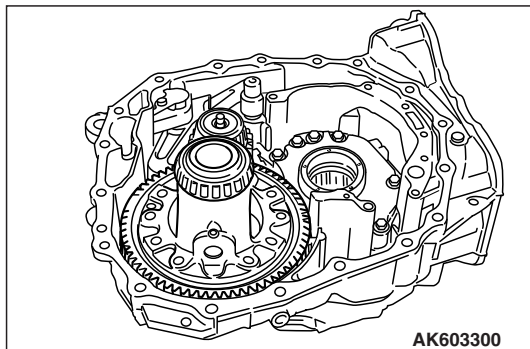


49. Install the return spring.



50. Install the parking plate. Refer to the following or the exploded view for the tightening torque.

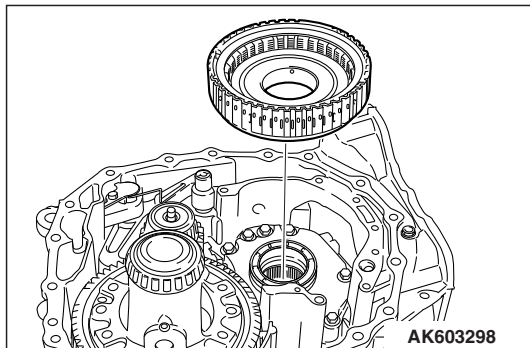
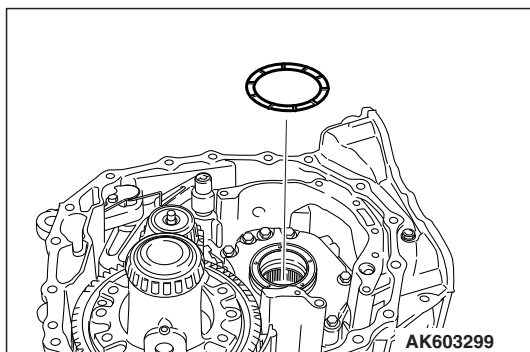
**Tightening torque: 7.9 N·m (70 in-lb)**



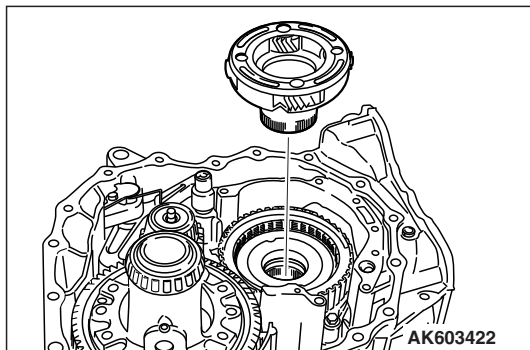
51. Install the differential gear assembly.

**⚠ 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.

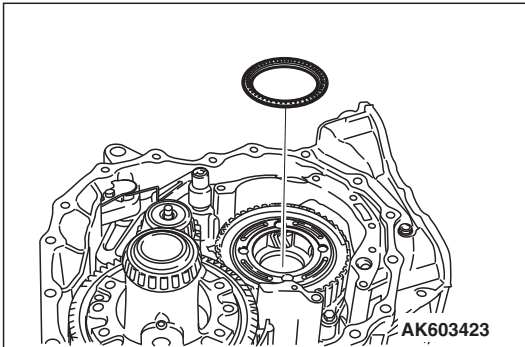


54. Install the FR carrier on the low clutch assembly.

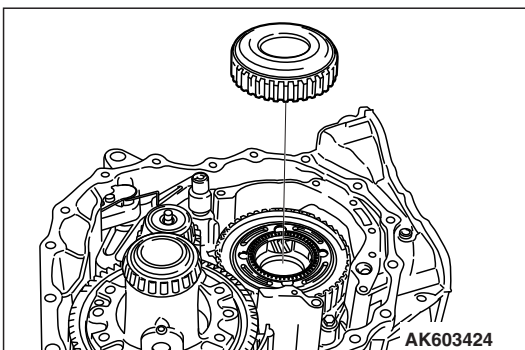
**⚠ CAUTION**

- 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.



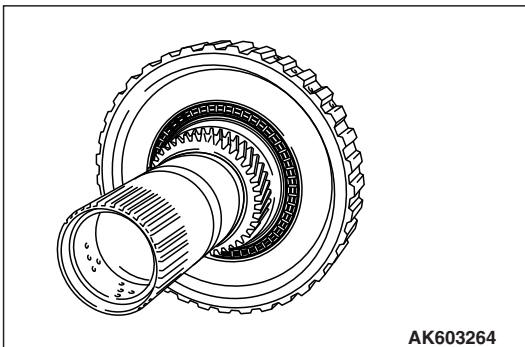
56. Install the FR internal gear on the FR carrier.



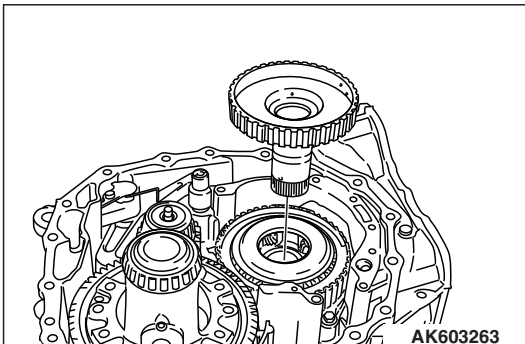
**⚠ CAUTION**

- 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.



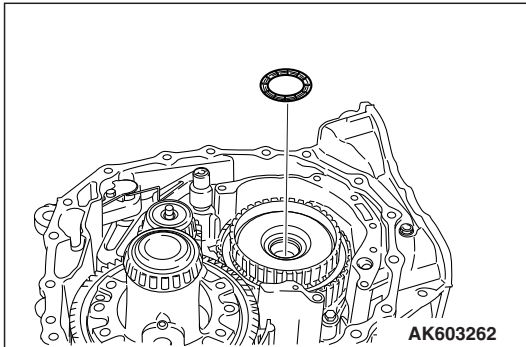
58. Install the FR sun gear.



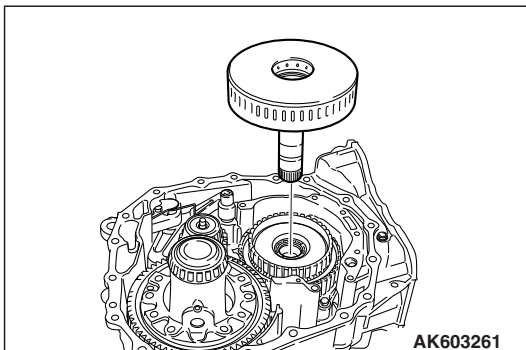
**⚠ CAUTION**

- 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.

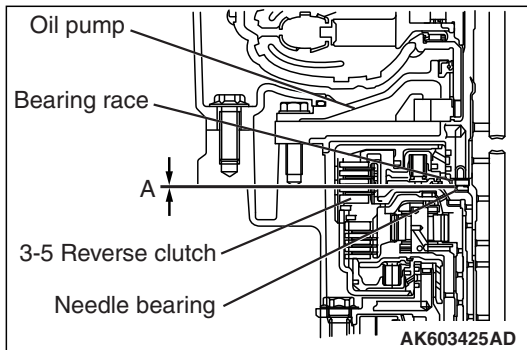


60. Install the 3-5 reverse clutch assembly.

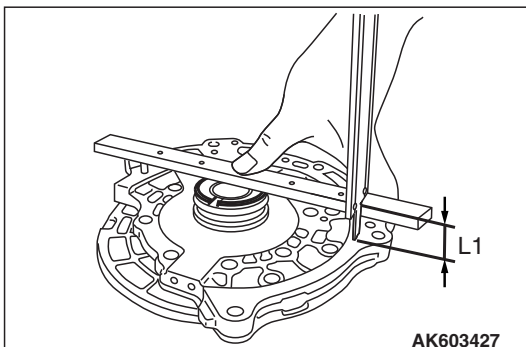
**⚠ CAUTION**

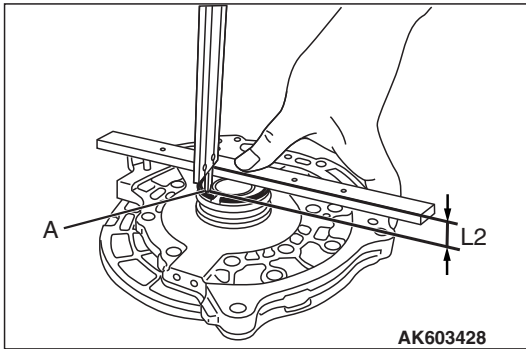
**Measure the end play at more than two locations and obtain the average of the measurements.**

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).

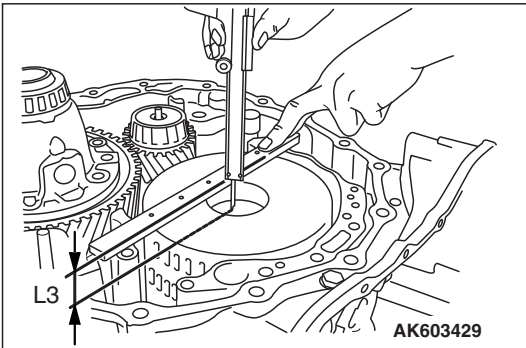


- (1) Measure distance L1 between the oil pump assembly end face and A.

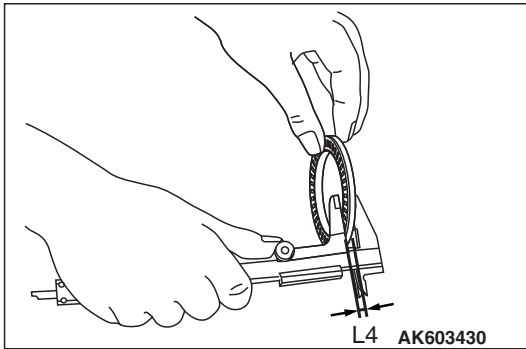




- (2) Measure distance L2 between A and the bearing race mounting surface.



- (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.

$$\text{End play} = L3 - (L1 - L2) - L4 - \text{Bearing race thickness}$$

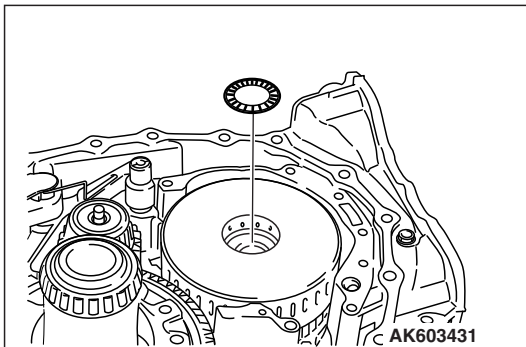
- (6) Select an appropriate bearing race so that the specified end play is obtained. Refer to "SERVICE DATA" for selecting the bearing race.

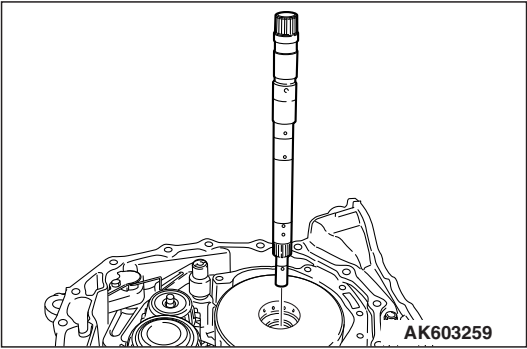
**Standard value: 0.55 – 0.85 mm (0.022 – 0.034 in)**  
**(For 3-5 reverse clutch end play)**

**⚠ 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.

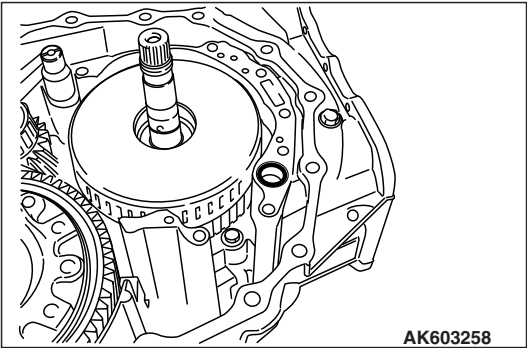




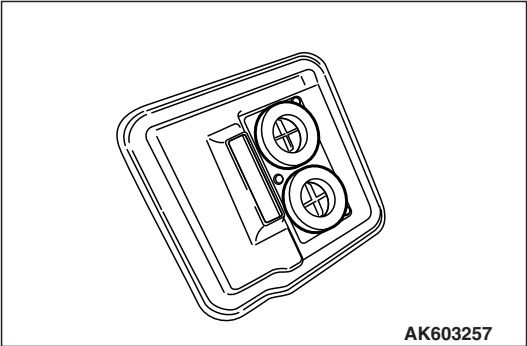
63.Install the input shaft.

**⚠ CAUTION**

- **Never reuse the O-rings.**
- **Apply transmission fluid to the O-rings before installation.**



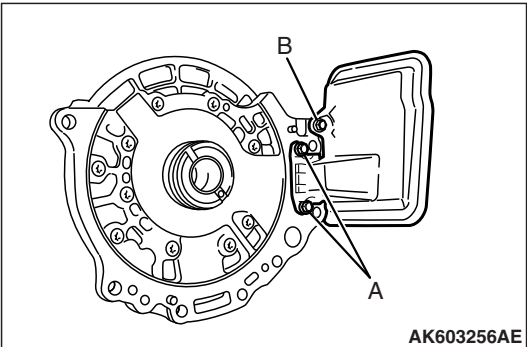
64.Install an O-ring on the transaxle case.



65.Install the magnets on the oil strainer.

**⚠ CAUTION**

- **Never reuse the oil strainer.**
- **Apply transmission fluid to the O-ring of the oil strainer.**



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

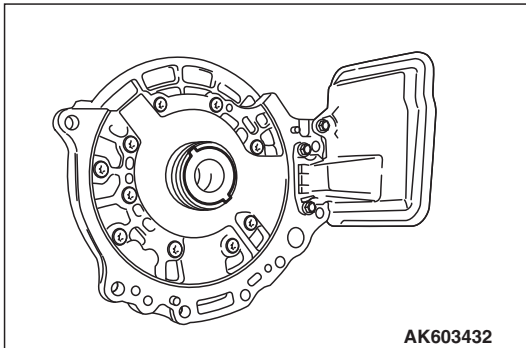
| Bolt code               | A        | B        |
|-------------------------|----------|----------|
| Shank length<br>mm (in) | 25 (1.0) | 16 (0.6) |
| No. of bolts            | 2        | 1        |

**Tightening torque: 9.4 N· m (83 in-lb)**

**⚠ CAUTION**

**Apply vaseline to the bearing race before installation.**

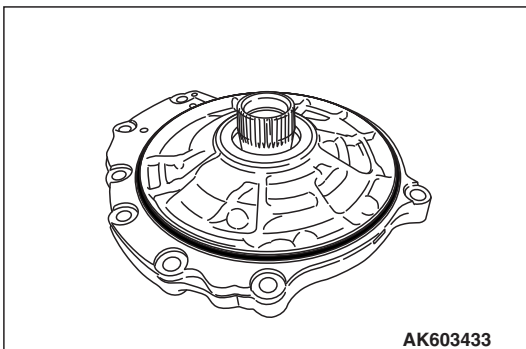
67. Install an appropriate bearing race on the oil pump assembly.



**⚠ CAUTION**

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

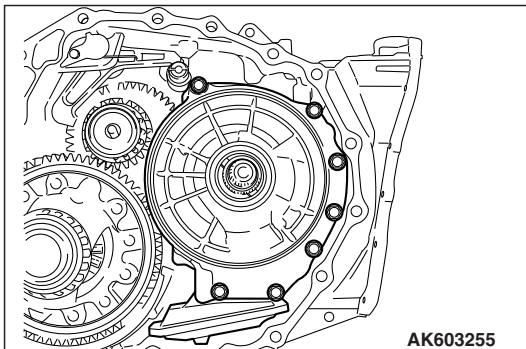
68. Install an O-ring on the oil pump.



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

|              |   |
|--------------|---|
| No. of bolts | 7 |
|--------------|---|

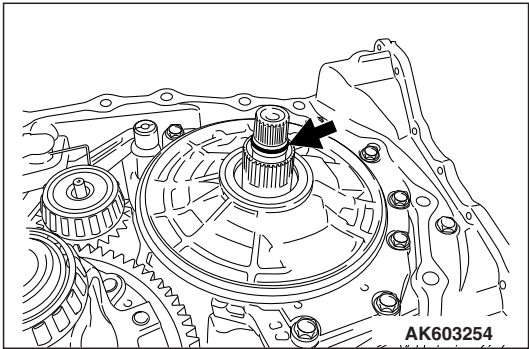
**Tightening torque: 21 N·m (15 ft-lb)**



**⚠ CAUTION**

- Never reuse the O-rings.
- Apply transmission fluid to the O-rings before installation.

70. Install an O-ring on the input shaft.



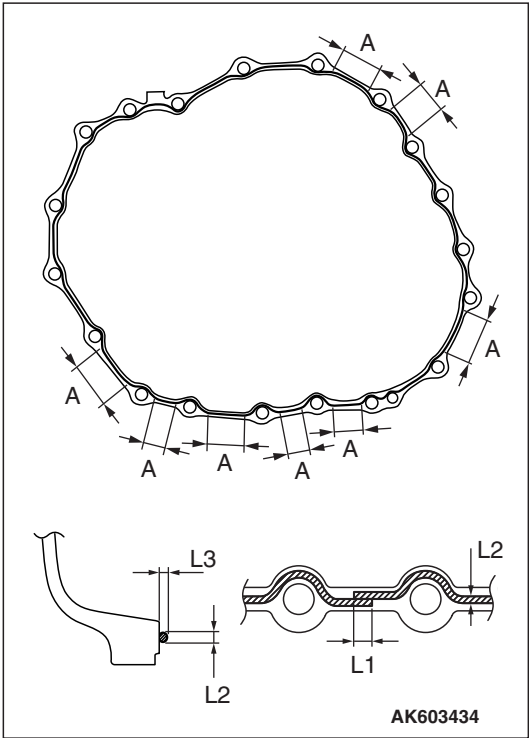
**⚠ CAUTION**

- Completely degrease the FIPG-applied surface so that water and oil including the old sealant cannot adhere to the surface coated with the sealant. Never touch the degreased surface by hand.
- Make sure the starting point and the ending point are about the middle between the bolts.
- Apply a double bead of sealant in sections A.

71. Apply the sealant to the transaxle case mounting surface of the converter housing (almost the center line of the surface).

**Specified sealant: Three Bond 1216B**

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



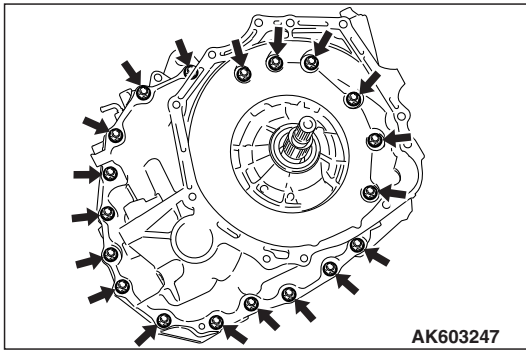
**⚠ CAUTION**

**Mounting bolts are Torx E20 bolts.**

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

|              |    |
|--------------|----|
| No. of bolts | 19 |
|--------------|----|

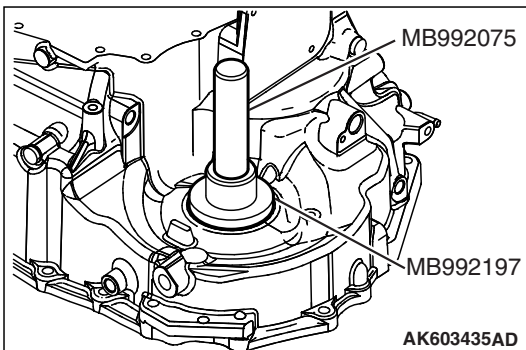
**Tightening torque: 47 N·m (35 ft-lb)**

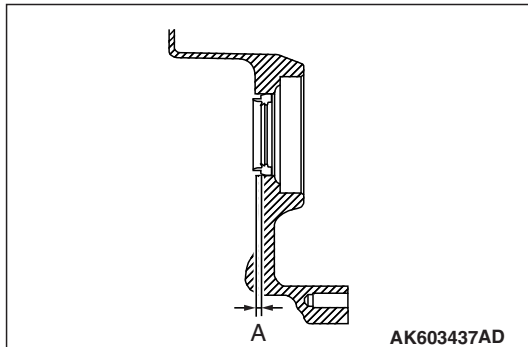


**⚠ CAUTION**

- **Never reuse the side oil seal.**
- **Apply transmission fluid to the side oil seal before installation.**

73. Using the special tools MB992197 and MB992075, install a side oil seal.



**⚠ CAUTION**

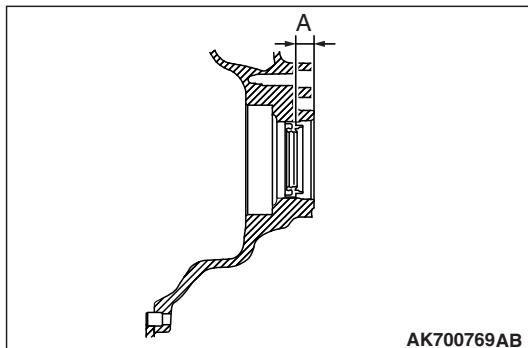
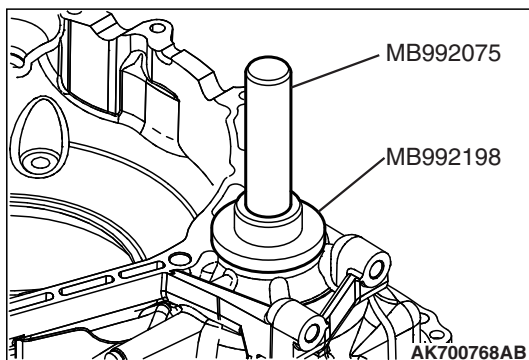
- Ensure that the side oil seal is installed to the specified depth shown in the table below.
- Measure the installed depth of the seal at four locations diagonally. Any difference between the measurements should be no more than 0.3 mm.

|                            |  |
|----------------------------|--|
| On the transaxle case side | Seal depth (A) from case end face: $4.0 \pm 0.5$ mm ( $0.2 \pm 0.02$ in) or less |
|----------------------------|--|

**⚠ CAUTION**

- Never reuse the side oil seal.
- Apply transmission fluid to the side oil seal before installation.

74. Using the special tools MB992198 and MB992075, install a side oil seal. <F6AJ>

**⚠ 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 converter housing case side | Seal depth (A) from housing end face: $14.0 \pm 0.5$ mm ( $0.6 \pm 0.02$ in) or less |
|------------------------------------|--|

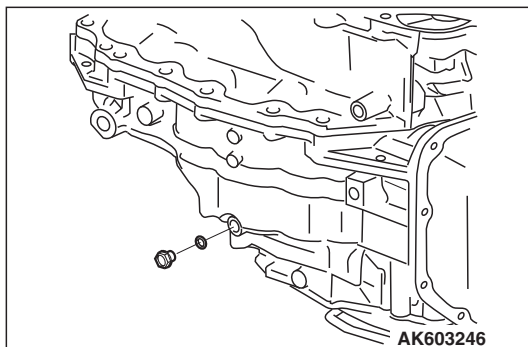
**⚠ CAUTION**

- Never reuse the O-rings.
- Apply transmission fluid to the O-rings before installation.

75. Install an O-ring on the ATF adjusting bolt.

76. Install the ATF adjusting bolt on the transaxle case. Refer to the following or the exploded view for the tightening torque.

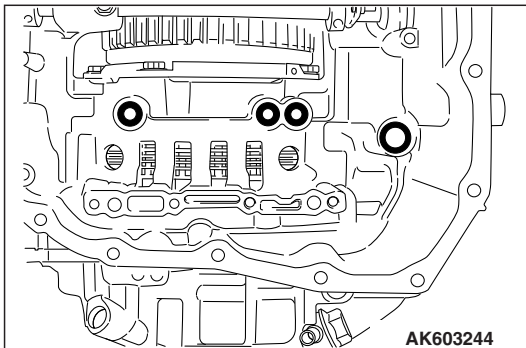
**Tightening torque: 7.4 N·m (65 in-lb)**



**⚠ CAUTION**

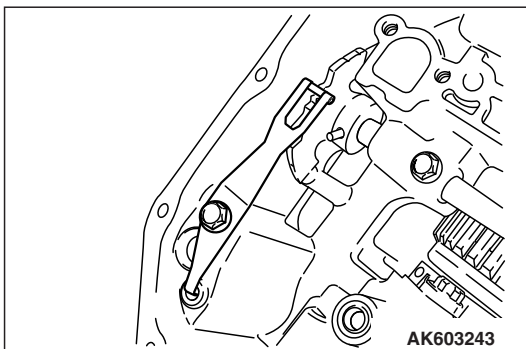
- Never reuse the lip seals.
- Apply transmission fluid to the lip seals before installation.

77. Install the lip seals on the transaxle case.



78. Install the detent spring. Refer to the following or the exploded view for the tightening torque.

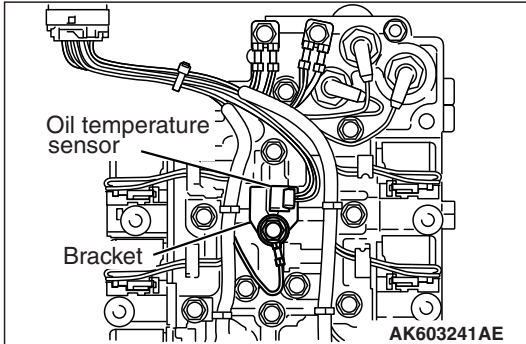
**Tightening torque: 4.9 N·m (43 in-lb)**



79. Install the bracket on the oil temperature sensor.

80. Install the oil temperature sensor on the control valve. Refer to the following view for the tightening torque.

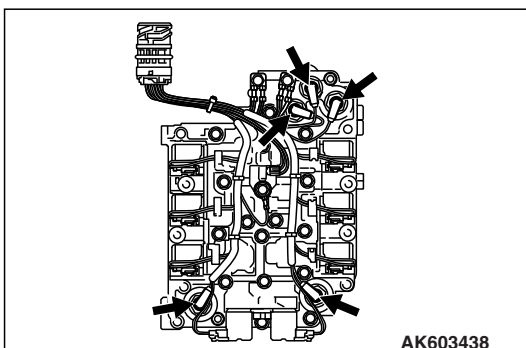
**Tightening torque: 7.9 N·m (70 in-lb)**



**⚠ CAUTION**

**Check the oil pressure switch connectors (each indicated with an arrow) for correct fit.**

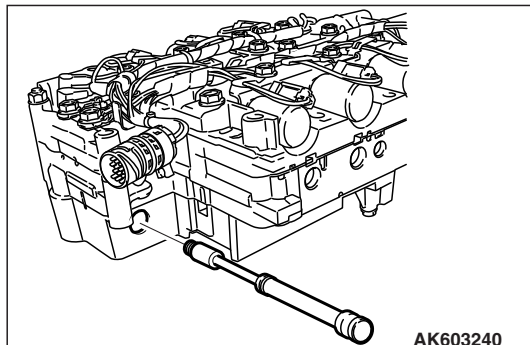
81. Install the terminal assembly on the control valve.



**⚠ CAUTION**

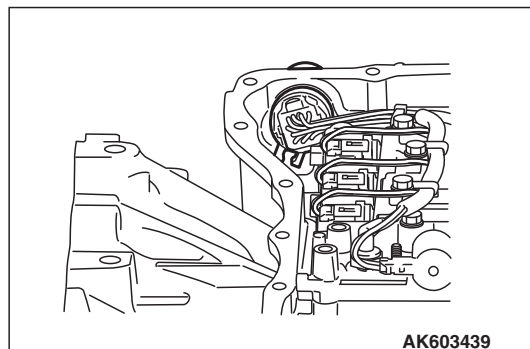
Apply transmission fluid to the manual valve before installation.

82. Install the manual valve on the control valve.



AK603240

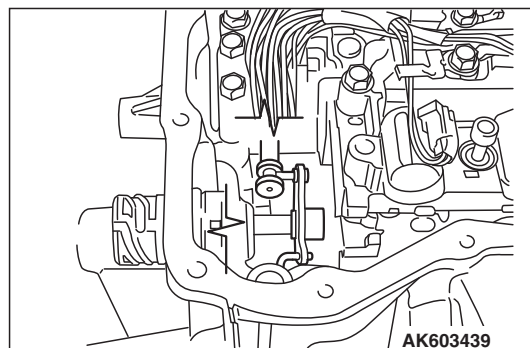
83. Press the terminal body into the transaxle case.



AK603439

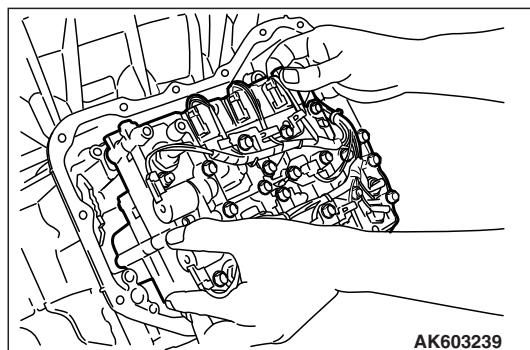
**⚠ CAUTION**

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



AK603439

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



AK603239

**⚠ CAUTION**

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

85. Install the control valve assembly mounting bolts A and B. Refer to the following or the exploded view for tightening torque.

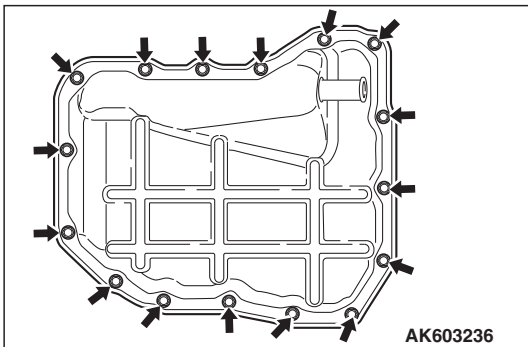
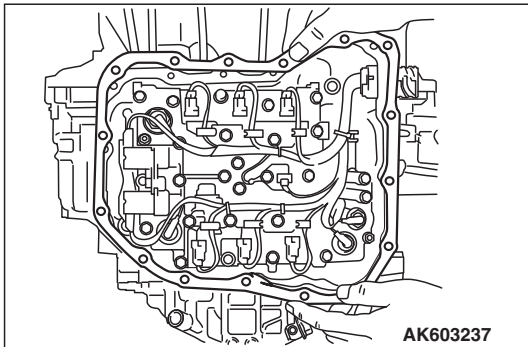
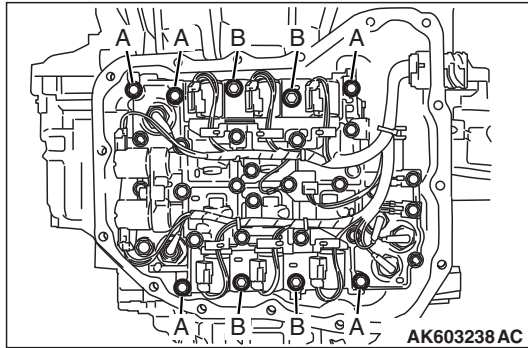
| Bolt code               | A           | B           |
|-------------------------|-------------|-------------|
| Shank length<br>mm (in) | 71.5 (2.82) | 58.0 (2.28) |
| No. of bolts            | 5           | 4           |

**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 transaxle case so that it is completely free of moisture, lubricant and the old gasket.**

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



87. Install the control valve cover on the transaxle case. Refer to the following or the exploded view for the tightening torque.

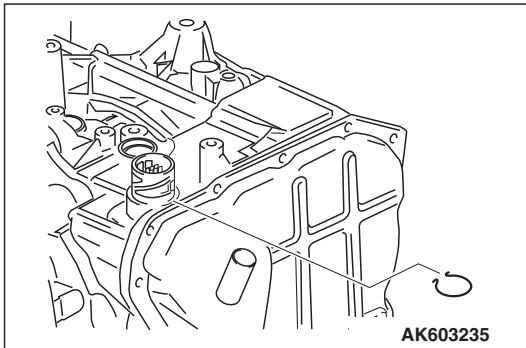
|              |    |
|--------------|----|
| No. of bolts | 16 |
|--------------|----|

**Tightening torque: 9.0 N·m (80 in-lb)**

**⚠ CAUTION**

**Never reuse the snap ring.**

88. Install a snap ring on the terminal body.

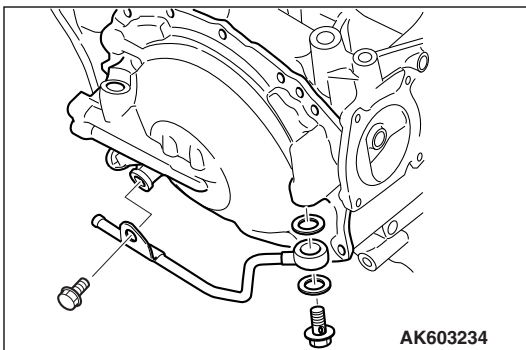
**⚠ CAUTION**

**Never reuse the copper washers.**

89. Refer to the following 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)**

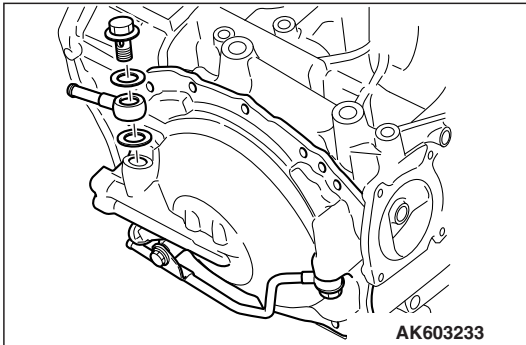
**Bracket tightening torque: 21.6 N·m (16 ft-lb)**

**⚠ CAUTION**

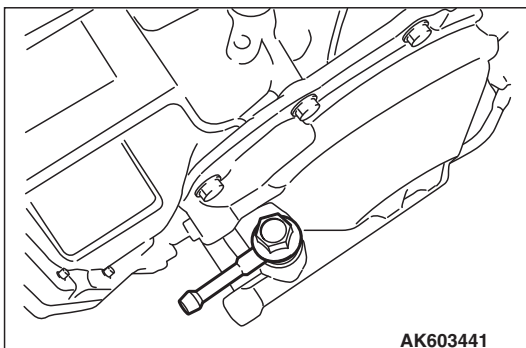
**Never reuse the copper washers.**

90. Refer to the following 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.**

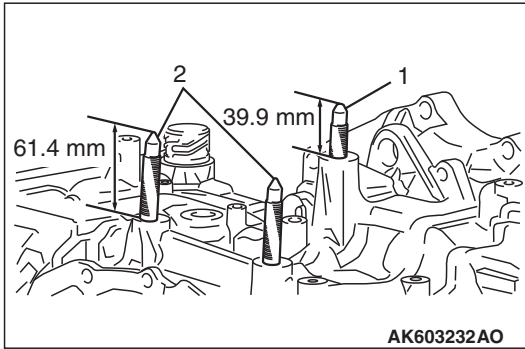


**⚠ CAUTION**

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

| Stud bolt code            | 1           | 2           |
|---------------------------|-------------|-------------|
| Projection amount mm (in) | 39.9 (1.57) | 61.4 (2.42) |

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



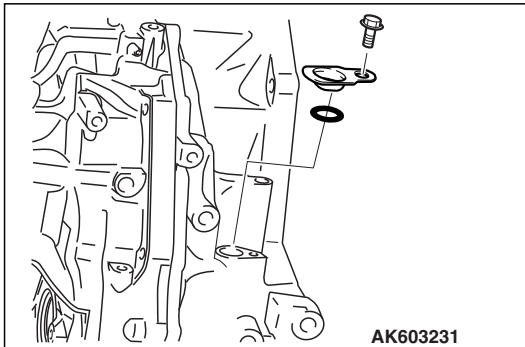
**⚠ CAUTION**

- Never reuse the O-rings.
- Apply transmission fluid to the O-rings before installation.

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

93. Install the baffle plate on the converter housing. Refer to the following or the exploded view for the tightening torque.

**Tightening torque: 6.6 N·m (58 in-lb)**



**⚠ CAUTION**

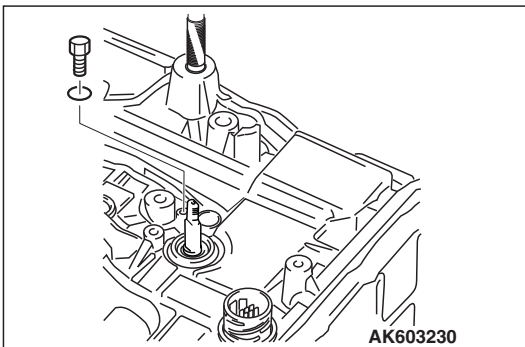
- Never reuse the O-rings.
- Apply transmission fluid to the O-rings before installation.

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

95. Install the pressure test port bolt on the transaxle case.

Refer to the following or the exploded view for the tightening torque.

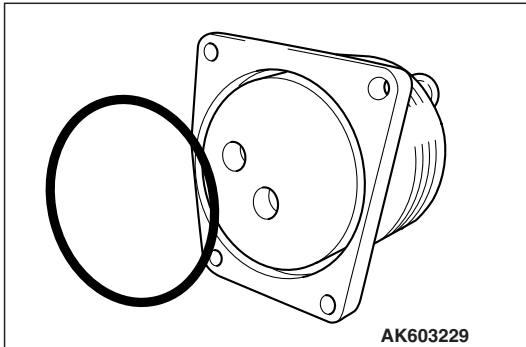
**Tightening torque: 7.4 N·m (65 in-lb)**



**⚠ CAUTION**

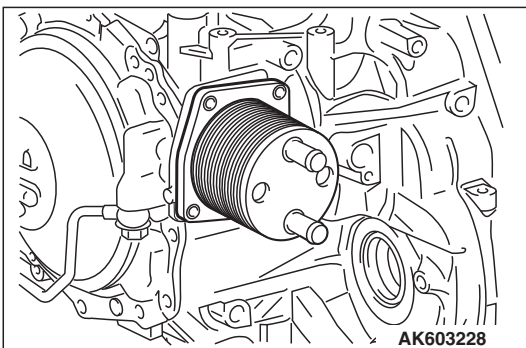
- Never reuse the O-rings.
- Apply transmission fluid to the O-rings before installation.

96. Install an O-ring on the water-cooled transmission fluid cooler.



97. Install the water-cooled transmission fluid cooler on the transaxle case. Refer to the following or the exploded view for the tightening torque.

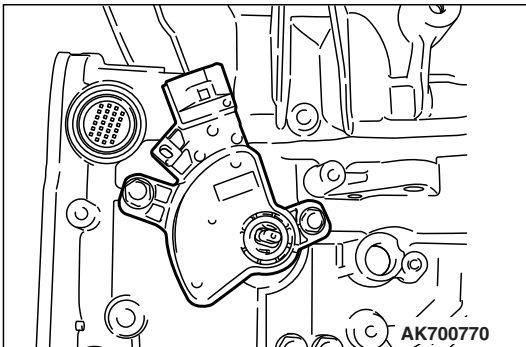
**Tightening torque: 4.3 N·m (38 in-lb)**

**⚠ 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.)

98. Install a park/neutral position switch using the following procedure.

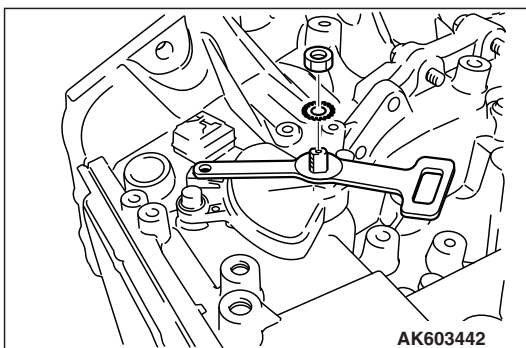
- (1) Loosely install a park/neutral position switch on the manual shaft.

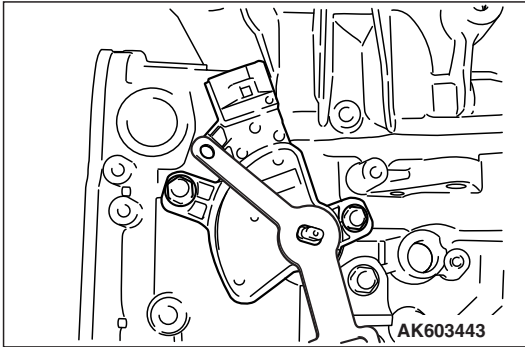


- (2) Install the shift plate on the manual shaft. Refer to the following or the exploded view for the tightening torque.

**Tightening torque: 22 ± 3 N·m (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 following or in the exploded view. Refer to the following or the exploded view for the tightening torque.

**Tightening torque: 5.9 N·m (52 in-lb)**

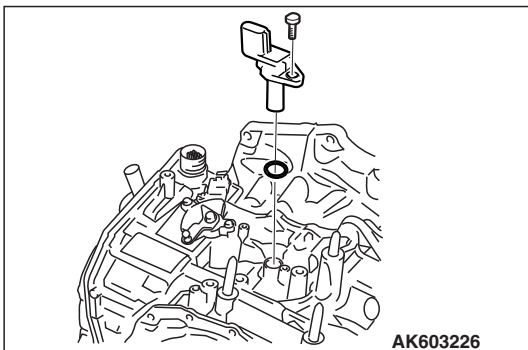
**⚠ CAUTION**

- Never reuse the O-rings.
- Apply transmission fluid to the O-rings before installation.

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

100. Install the turbine sensor on the transaxle case. Refer to the following or the exploded view for the tightening torque.

**Tightening torque: 5.9 N·m (52 in-lb)**



**⚠ CAUTION**

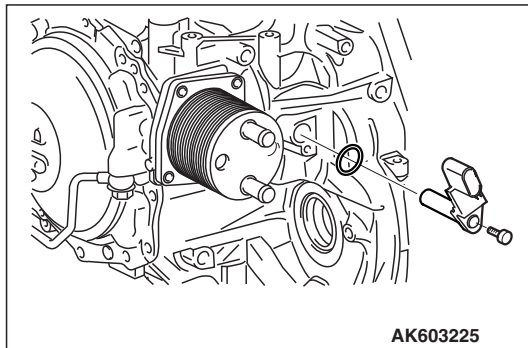
- Never reuse the O-rings.
- Apply transmission fluid to the O-rings before installation.

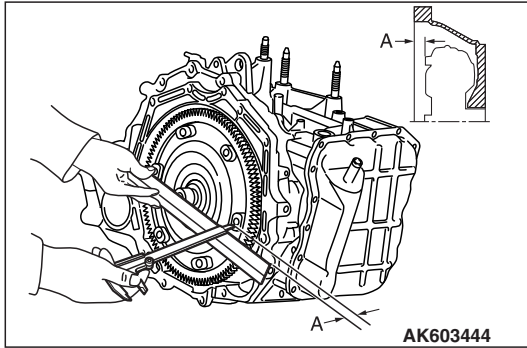
101. Install an O-ring on the vehicle speed sensor.

102. Install the vehicle speed sensor on the transaxle case.

Refer to the following or the exploded view for the 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.**

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

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

104. Install the control cable bracket and breather hose on the transaxle. Refer to the following or the exploded view for the tightening torque.

**Tightening torque:  $23 \pm 3 \text{ N} \cdot \text{m}$  ( $17 \pm 2 \text{ ft-lb}$ )**

105. Install the oil filler tube and oil level gage on the transaxle. Refer to the following or the exploded view for the tightening torque.

**Tightening torque:  $11 \pm 1 \text{ N} \cdot \text{m}$  ( $97 \pm 8 \text{ in-lb}$ )**

106. Install the harness bracket on the transaxle. Refer to the following or the exploded view for the tightening torque.

**Tightening torque:  $23 \pm 3 \text{ N} \cdot \text{m}$  ( $17 \pm 2 \text{ ft-lb}$ )**

107. Install the corrugate clamp bracket on the transaxle. Refer to the following or the exploded view for the tightening torque.

**Tightening torque:  $23 \pm 3 \text{ N} \cdot \text{m}$  ( $17 \pm 2 \text{ ft-lb}$ )**

108. Install the RR roll stopper bracket and FR roll stopper bracket on the transaxle. Refer to the following or the exploded view for the tightening torque.

**Tightening torque:  $90 \pm 10 \text{ N} \cdot \text{m}$  ( $66 \pm 7 \text{ ft-lb}$ )**

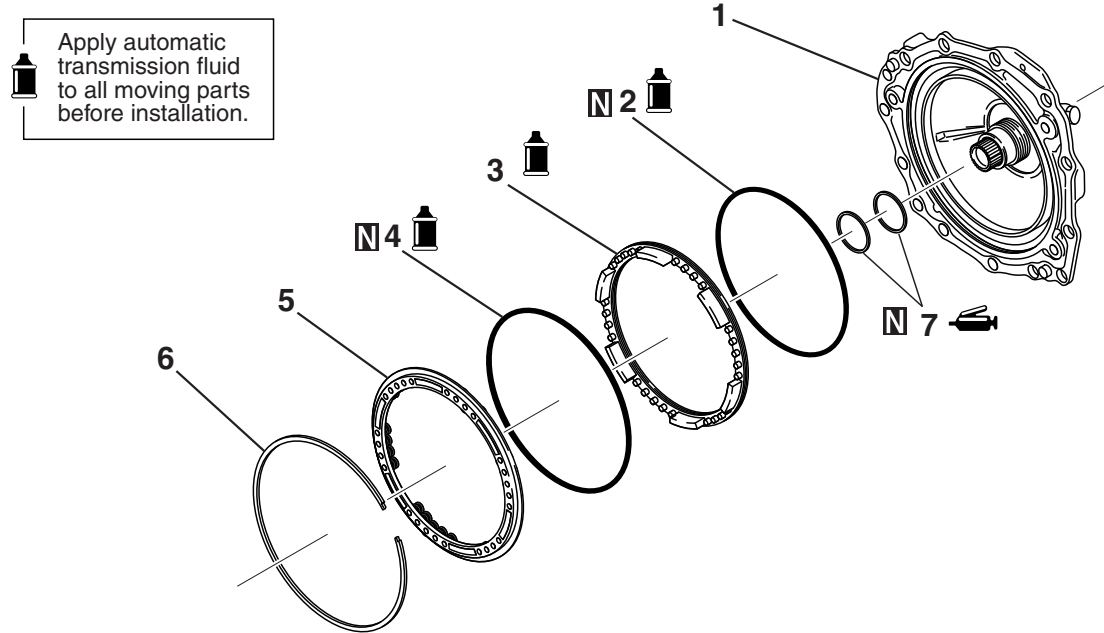
109. Install the transfer on the transaxle. Refer to the following or the exploded view for the tightening torque. <W6AJ>

**Tightening torque:  $69 \pm 9 \text{ N} \cdot \text{m}$  ( $51 \pm 6 \text{ ft-lb}$ )**

## SIDE COVER

### DISASSEMBLY AND ASSEMBLY

M1233030700055



- 1. Side cover
- 2. D-ring
- 3. 2-6 brake piston
- 4. D-ring

- 5. Spring retainer
- 6. Snap ring
- 7. Seal ring

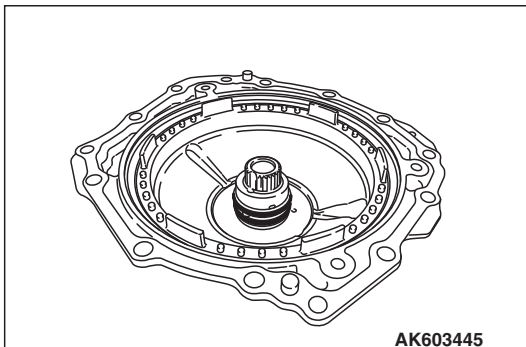
AK603426AD

#### Required special tools:

- MB992196: Spring compressor

### DISASSEMBLY

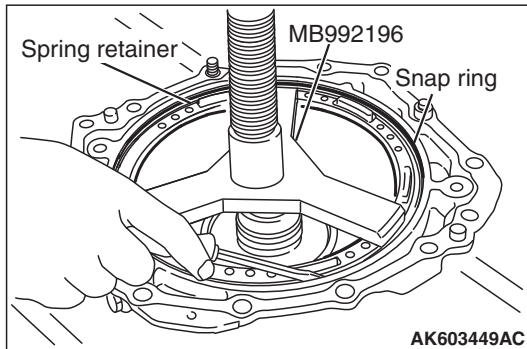
1. Remove the seal rings from the side cover.



**⚠ CAUTION**

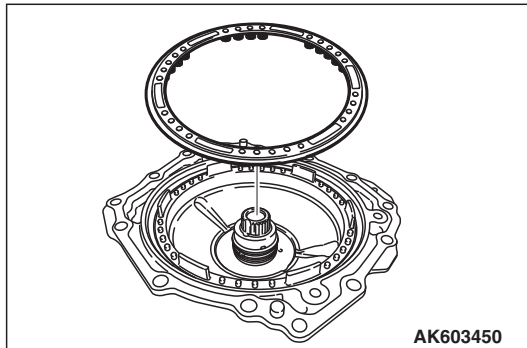
Ensure that the special tool MB992196 is correctly set, directly above the return springs of the spring retainer assembly.

2. Using the special tool MB992196, remove the snap ring while pushing the spring retainer assembly.

**⚠ CAUTION**

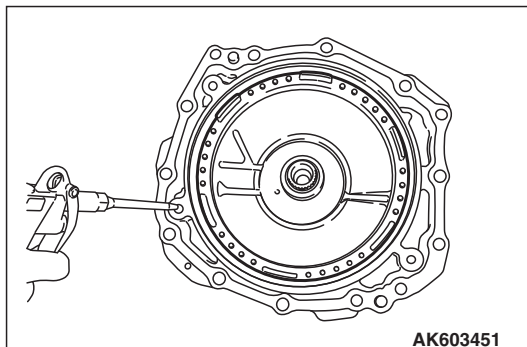
Do not remove the return springs from the spring retainer assembly.

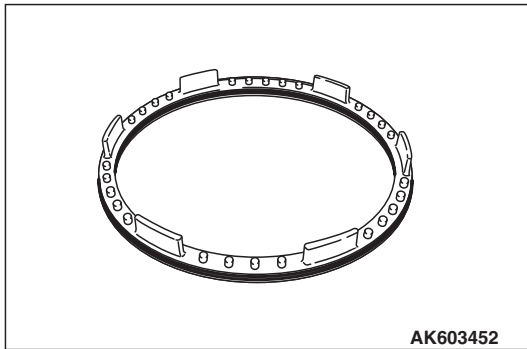
3. Remove the spring retainer assembly from the 2-6 brake piston.

**⚠ 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.





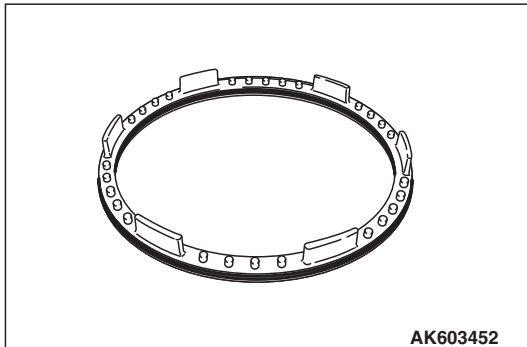
5. Remove the D-rings from the 2-6 reverse brake piston.

## ASSEMBLY

### CAUTION

- Never reuse the D-rings.
- Apply transmission fluid to the D-rings before installation.

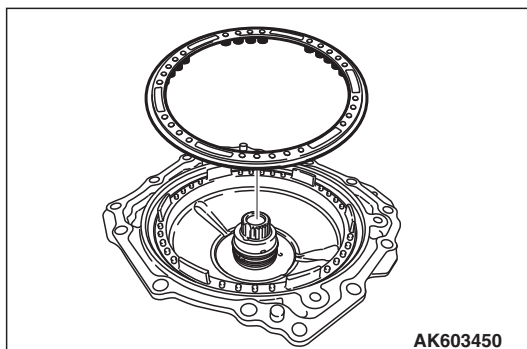
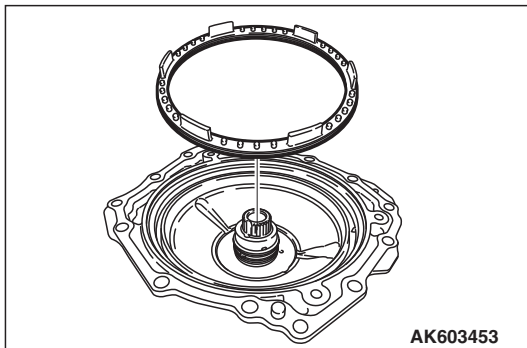
1. Install D-rings onto the 2-6 brake piston.



### CAUTION

Apply transmission fluid to the 2-6 brake piston before installation.

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

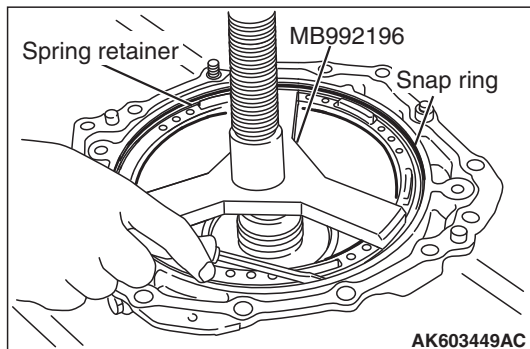


3. Install the spring retainer assembly onto the 2-6 brake piston.

**⚠ CAUTION**

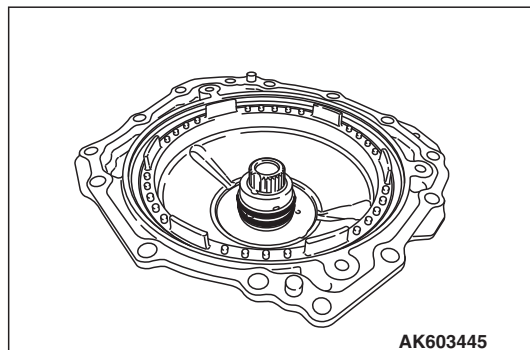
Ensure that the special tool MB992196 is correctly set, directly above the return springs of the spring retainer assembly.

4. Using the special tool MB992196, install the snap ring while pushing the spring retainer assembly.

**⚠ CAUTION**

- Never reuse the seal rings.
- Apply vaseline to the seal rings before installation.


5. Install seal rings onto the side cover.

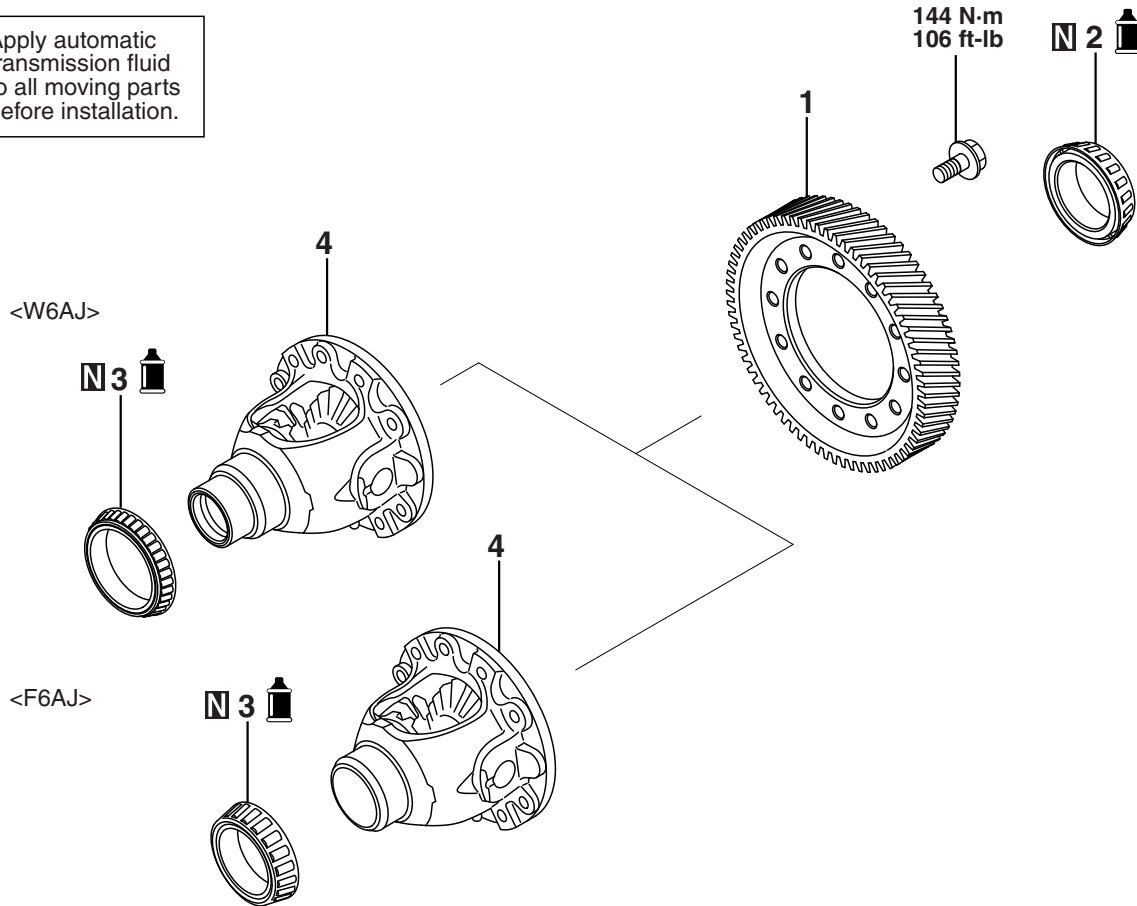


# DIFFERENTIAL

## DISASSEMBLY AND ASSEMBLY

M1233003100565

 Apply automatic transmission fluid to all moving parts before installation.



AK700771AB

- Disassembly Steps**
- <<A>> >>C<< 1. Final gear
- >>B<< 2. Differential side bearing (transmission case side)

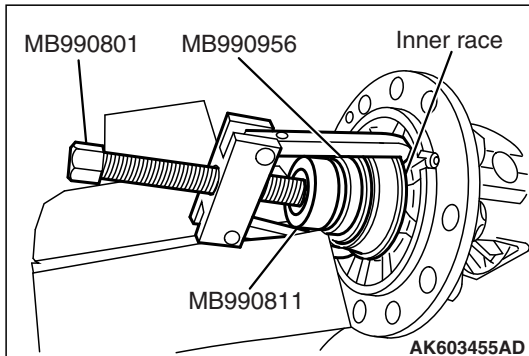
- Disassembly Steps (Continued)**
- <<B>> >>A<< 3. Differential side bearing (converter housing side)
4. Differential sub-assembly

### Required special tools:

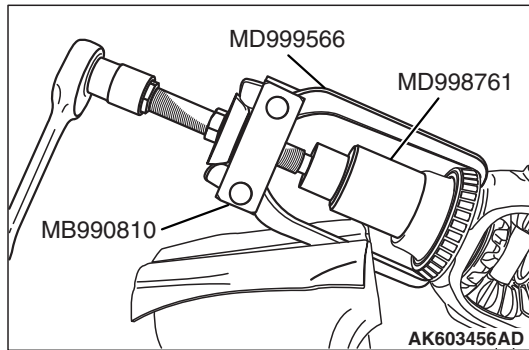
- MB990801: Real axle bearing puller
- MB990811: Side bearing puller cap
- MB990956: Needle bearing installer
- MB990810: Side bearing puller
- MD999566: Claw
- MD998761: Cam oil seal installer
- MD998812: Installer cap
- MD998813: Installer-100
- MD998826: Installer adapter
- MB991559: Cam oil seal installer adapter
- MB992213: Bearing installer
- MB992150: Oil seal installer

**DISASSEMBLY SERVICE POINT****<<A>> DIFFERENTIAL SIDE BEARING REMOVAL**

1. Break and remove the roller of the differential side bearing.
2. Using the special tools MB990801, MB990811 and MB990956, remove the inner race of differential side bearing (transmission case side) from the differential sub-assembly.

**<<B>> DIFFERENTIAL SIDE BEARING REMOVAL**

1. Using the special tools MB990810, MD999566 and MD998761, remove the inner race of differential side bearing (converter housing side) from the differential sub-assembly.

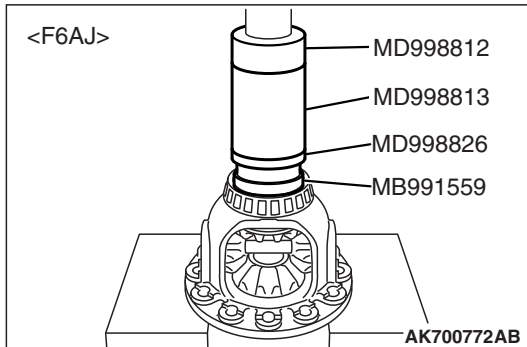


## ASSEMBLY SERVICE POINT

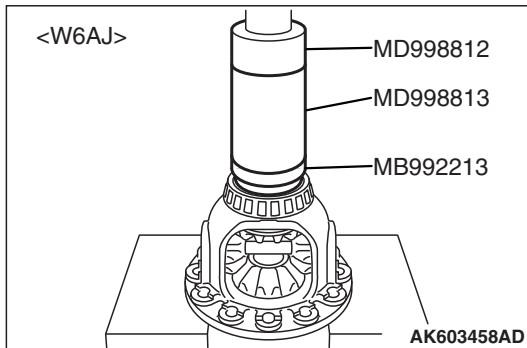
### >>A<< DIFFERENTIAL SIDE BEARING INSTALLATION

#### CAUTION

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



Using the special tools MD998812, MD998813, MD998826 <F6AJ> and MB991559 <F6AJ> or MB992213 <W6AJ>, install the differential side bearing (converter housing side) on the differential sub-assembly.

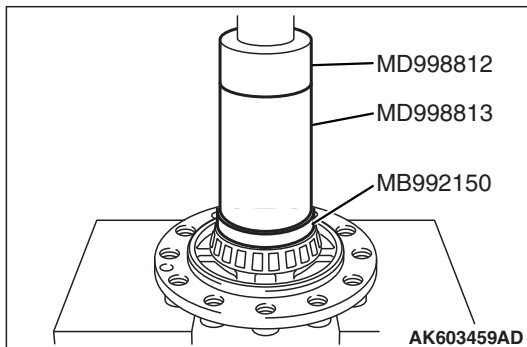


### >>B<< DIFFERENTIAL SIDE BEARING INSTALLATION

#### CAUTION

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

Using the special tools MD998812, MD998813 and MB992150, install the inner race of differential side bearing (transmission case side) on the differential sub-assembly.



## &gt;&gt;C&lt;&lt; FINAL GEAR INSTALLTION

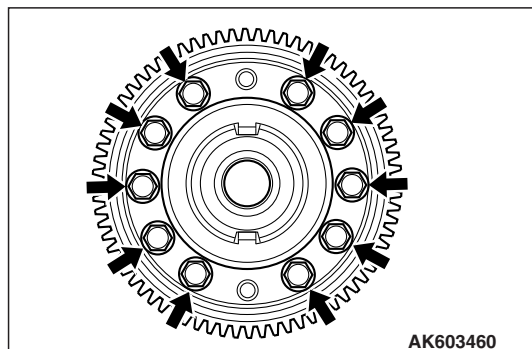
 CAUTION

- 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 following or the exploded view for the tightening torque.

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

Tightening torque: 144 N·m (106 ft-lb)

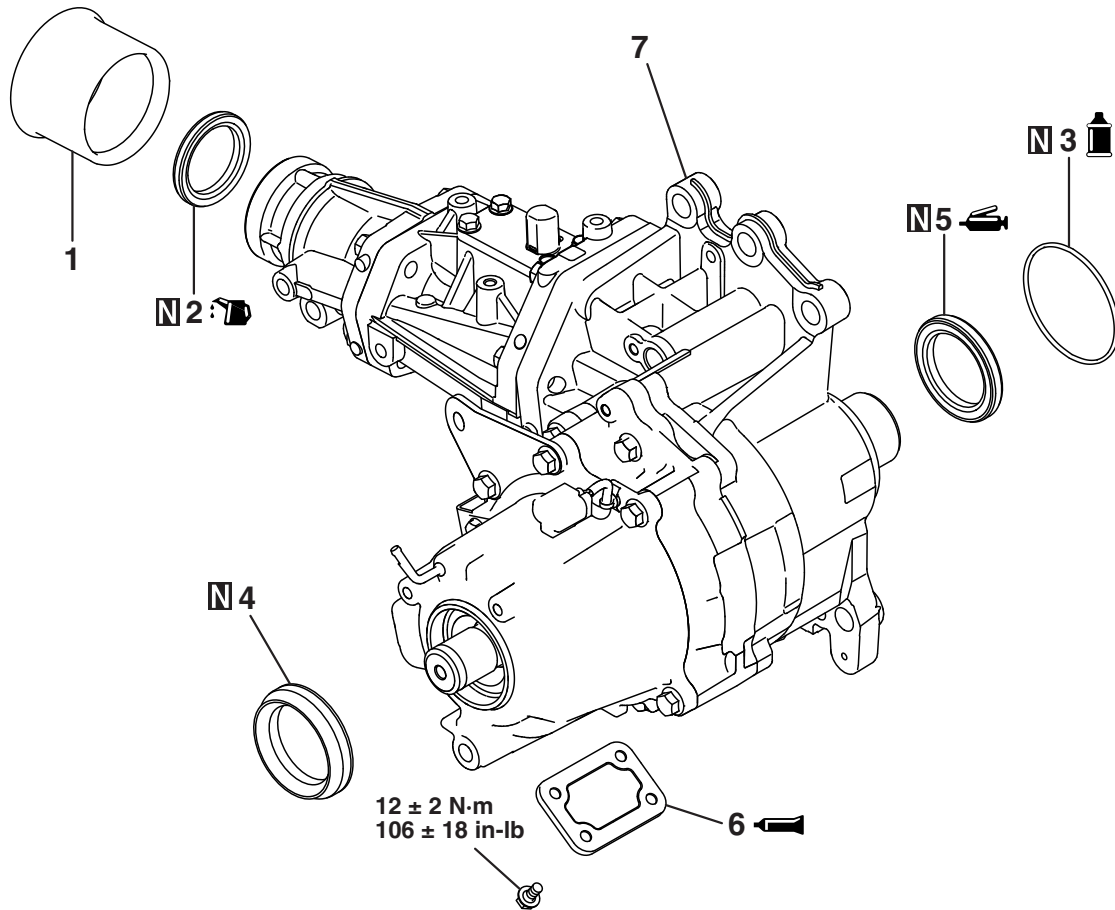


# TRANSFER

## DISASSEMBLY AND ASSEMBLY

M1233006700748

<Vehicles with S-AWC>

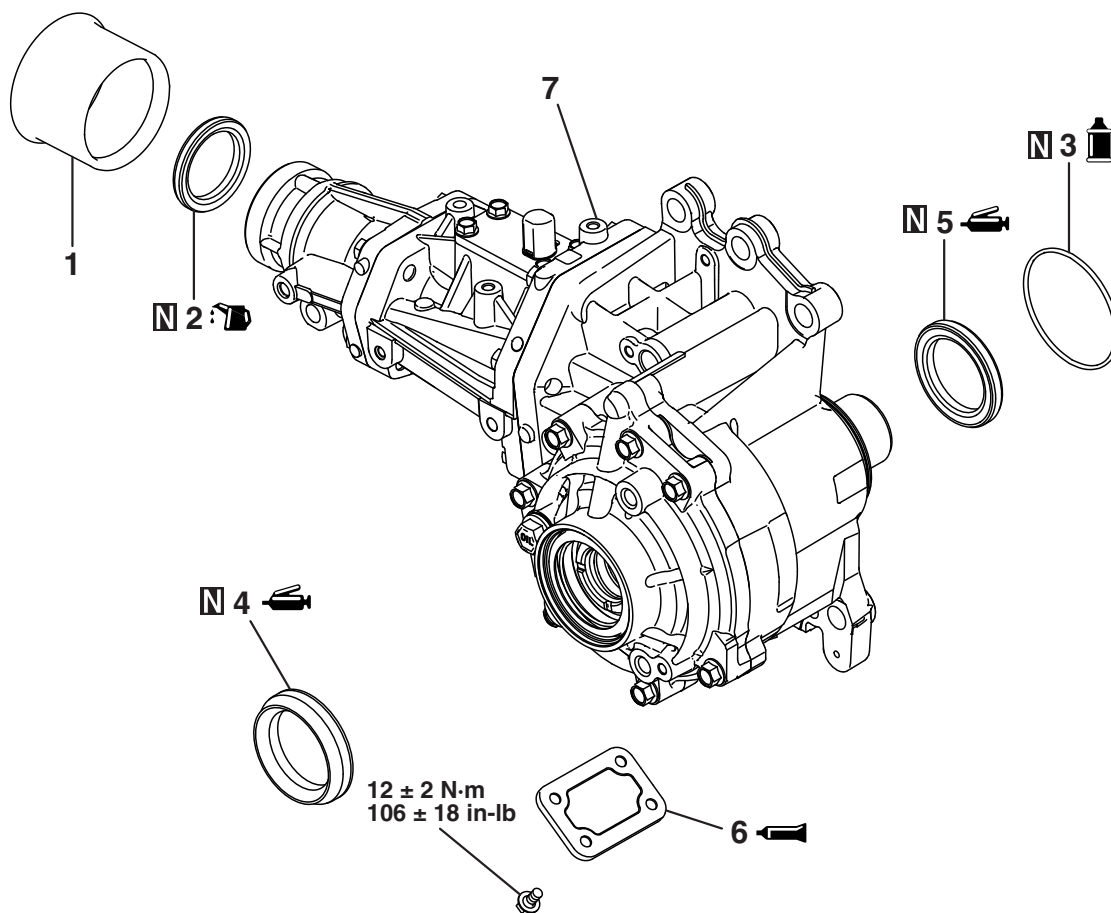


AK900246AC

- Disassembly steps**
- >>E<< 1. Dust seal guard
  - >>E<< 2. Oil seal
  - >>C<< 3. O-ring
  - >>C<< 4. Dust seal

- Disassembly steps (Continued)**
- >>B<< 5. Oil seal
  - >>A<< 6. Cover
  - 7. Transfer

## &lt;Vehicles without S-AWC&gt;



AK800123AF

**Disassembly steps**

1. Dust seal guard
- >>E<< 2. Oil seal
3. O-ring
- >>D<< 4. Oil seal

**Disassembly steps (Continued)**

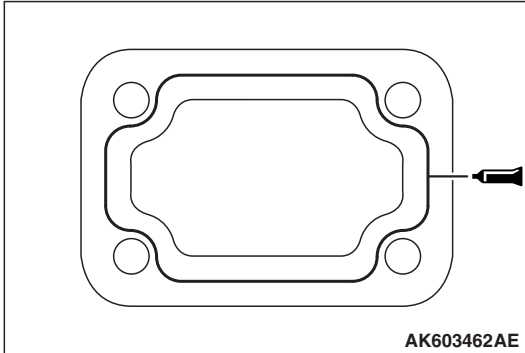
- >>B<< 5. Oil seal
- >>A<< 6. Cover
7. Transfer

**Required special tools:**

- MD998812: Installer cap
- MB992154: Oil seal installer
- MB992075: Handle
- MD998777: Camshaft oil seal installer adapter
- MD998713: Camshaft oil seal installer
- MB992142: Oil seal installer
- MB990936: Installer adapter

## ASSEMBLY SERVICE POINT

### >>A<< COVER INSTALLATION



1. Apply a 1.5 mm diameter bead of sealant as illustrated onto the cover.

**3M™ ATD Part No.8660 or equivalent**

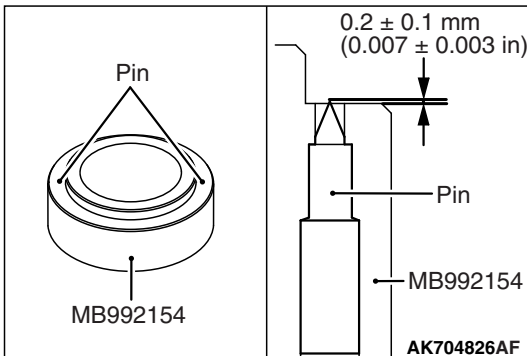
2. Attach the cover to the transfer and tighten it to the specified torque.

**Tightening torque:  $12 \pm 2$  N·m ( $106 \pm 18$  in-lb)**

### >>B<< OIL SEAL INSTALLATION

#### **⚠ CAUTION**

**Pay attention to the transfer case that can possibly twist when the pin projection is too large.**

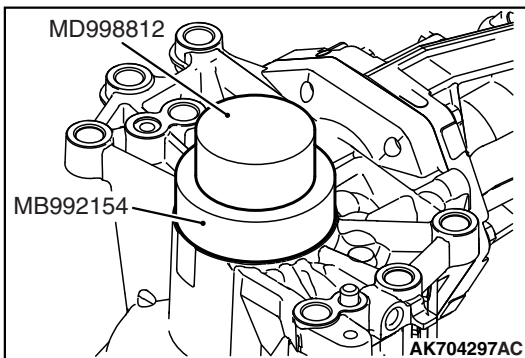


1. Adjust the projection allowances of the two pins of the special tool, Oil Seal Installer (MB992154) to be  $0.2 \pm 0.1$  mm ( $0.007 \pm 0.003$  in).

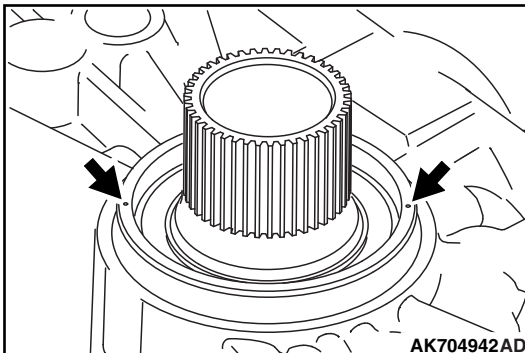
*NOTE: The two pins are inserted into the special tool, Oil Seal Installer (MB992154). When the oil seal is replaced, the traces are found on the transfer case so that the replacement using the specified special tool can be recognized.*

2. Apply specified grease to the oil seal lip area.

**Specified grease: Retinax A**



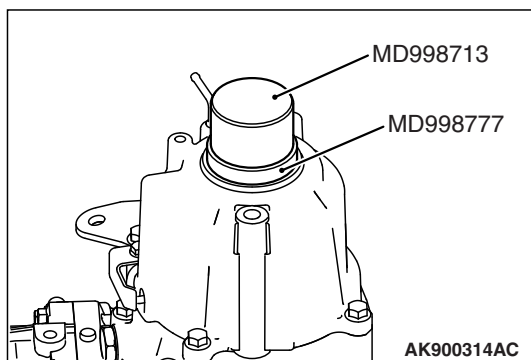
3. Using the special tool MD998812 and MB992154, install the oil seal.



4. Check whether the two traces are found on the transfer case.

## &gt;&gt;C&lt;&lt; DUST SEAL INSTALLATION

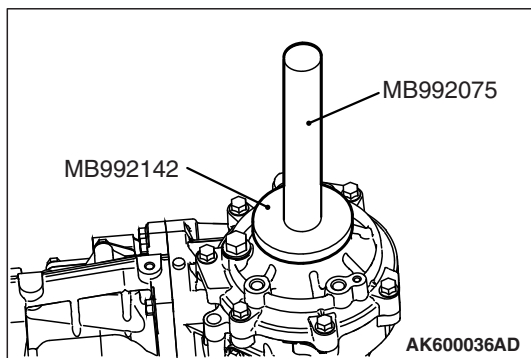
1. Using the special tool MD998777 and MD998713, install the oil seal.



## &gt;&gt;D&lt;&lt; OIL SEAL INSTALLATION

1. Using the special tool MB992075 and MB992142, install the oil seal.
2. Apply specified grease to the oil seal lip area.

**Specified grease: Retinax A**



## &gt;&gt;E&lt;&lt; OIL SEAL INSTALLATION

1. Using the special tool MB990936, install the oil seal.
2. Apply transfer oil to the lip of oil seal.

