

GROUP 23B

CONTINUOUSLY VARIABLE TRANSAXLE OVERHAUL

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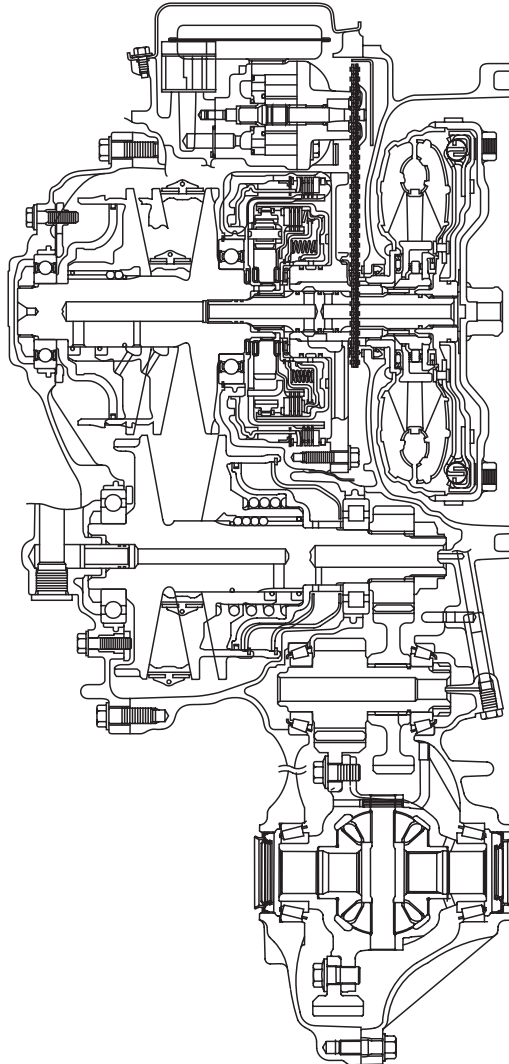
GENERAL INFORMATION

M1233201400014

AUTOMATIC TRANSAXLE MODEL

| Transaxle model | Applicable engine | Vehicle model |
|-----------------|-------------------|---------------|
| F1CJA-2-BBZ | 4B11 MIVEC | CY4A |

SECTIONAL VIEW



AK603120

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

M1233205000115

| Item | Specifications N· m |
|-------------------------------|------------------------|
| Detent spring | 6.9 (61 in-lb) |
| Plug | 7.5 (66 in-lb) |
| Clip | 6.9 (61 in-lb) |
| Oil pump | 19 (14 ft-lb) |
| Oil pump | 28 (21 ft-lb) |
| Control valve assembly | 7.9 (70 in-lb) |
| Manual lever | 22.1 (16 ft-lb) |
| Bracket | 7.9 (70 in-lb) |
| Oil strainer | 7.9 (70 in-lb) |
| Oil pan | 7.9 (70 in-lb) |
| Drain plug | 34.3 (25 ft-lb) |
| Baffle plate | 5.9 (52 in-lb) |
| Bracket | 26 (19 ft-lb) |
| Baffle plate | 26 (19 ft-lb) |
| Oil pump cover | 26 (19 ft-lb) |
| Converter housing | 45 (33 ft-lb) |
| Shift lever | 17.2 (13 ft-lb) |
| Inhibitor switch | 5.5 (49 in-lb) |
| Primary pulley speed sensor | 5.9 (52 in-lb) |
| Secondary pulley speed sensor | 5.9 (52 in-lb) |
| CVT fluid cooler | 4.2 (37 in-lb) |
| Plug | 7.5 (66 in-lb) |
| Oil filter tube | 11 ± 1 (97 ± 9 in-lb) |
| Control cable bracket | 23 ± 3 (17 ± 2 ft-lb) |
| Harness bracket | 23 ± 3 (17 ± 2 ft-lb) |
| FR roll stopper bracket | 90 ± 10 (66 ± 7 ft-lb) |
| RR roll stopper bracket | 90 ± 10 (66 ± 7 ft-lb) |
| Reduction gear nut | 250 (184 ft-lb) |
| Final gear | 154 (114 ft-lb) |

GENERAL SPECIFICATION

M1233201000191

| | | |
|------------------------|--------|---|
| Transaxle model | | F1CJA |
| Torque converter | type | 3-element· 1-stage· 2-phase |
| | lockup | available |
| Transaxle type | | forward: continuously variable (with steel belt), reverse: 1 gear |
| Gear ratio | | 2.349 –0.394 |
| Reverse | | 1.750 |
| Final reduction ratio | | 6.120 |

SERVICE SPECIFICATIONS

M1233202000149

| Item | | Standard value mm |
|--|------------------------|-------------------|
| Reverse brake clearance | | 1.2 –1.5 |
| Total end play | | 0.25 –0.55 |
| Differential preload | | 0.17 –0.29 |
| Reduction gear preload | | 0.13 –0.19 |
| Oil pump drive sprocket to converter housing clearance | | 0.10 –0.23 |
| Mounting bore diameter of reduction gear bearing outer race | converter housing side | φ61.949 –61.979 |
| | transaxle case side | |
| Mounting bore diameter of differential side bearing outer race | converter housing side | φ84.941 –84.976 |
| | transaxle case side | φ67.949 –67.979 |
| Mounting bore diameter of reduction gear bearing inner race | converter housing side | φ30.008 –30.029 |
| | transaxle case side | |
| Mounting bore diameter of differential side bearing inner race | converter housing side | φ60.032 –60.078 |
| | transaxle case side | φ40.026 –40.051 |

SNAP RING, SPACER AND THRUST WASHER FOR ADJUSTMENT

M1233204000145

Snap rings (for adjustment of reverse brake)

| Thickness mm | Identification | Thickness mm | Identification |
|--------------|----------------|--------------|----------------|
| 2.2 | – | 2.8 | – |
| 2.4 | – | 3.0 | – |
| 2.6 | – | | |

Needle bearings (for adjustment of total end play)

| Thickness mm | Identification | Thickness mm | Identification |
|--------------|----------------|--------------|----------------|
| 3.58 | – | 4.26 | – |
| 3.75 | – | 4.43 | – |
| 3.92 | – | 4.60 | – |
| 4.09 | – | 4.77 | – |

Adjusting shims (for adjustment of differential preload)

| Thickness mm | Identification | Thickness mm | Identification |
|--------------|----------------|--------------|----------------|
| 0.40 | – | 0.96 | – |
| 0.44 | – | 1.00 | – |
| 0.48 | – | 1.04 | – |
| 0.52 | – | 1.08 | – |
| 0.56 | – | 1.12 | – |
| 0.60 | – | 1.16 | – |
| 0.64 | – | 1.20 | – |

**CONTINUOUSLY VARIABLE TRANSAXLE OVERHAUL
SPECIFICATIONS**

23B-5

| Thickness mm | Identification | Thickness mm | Identification |
|--------------|----------------|--------------|----------------|
| 0.68 | – | 1.24 | – |
| 0.72 | – | 1.28 | – |
| 0.76 | – | 1.32 | – |

Adjusting shims (for adjustment of reduction gear preload)

| Thickness mm | Identification | Thickness mm | Identification |
|--------------|----------------|--------------|----------------|
| 0.64 | – | 1.48 | – |
| 0.68 | – | 1.52 | – |
| 0.72 | – | 1.56 | – |
| 0.76 | – | 1.60 | – |
| 0.80 | – | 1.64 | – |
| 0.84 | – | 1.68 | – |
| 0.88 | – | 1.72 | – |
| 0.92 | – | 1.76 | – |
| 0.96 | – | 1.80 | – |
| 1.00 | – | 1.84 | – |
| 1.04 | – | 1.88 | – |
| 1.08 | – | 1.92 | – |
| 1.12 | – | 1.96 | – |
| 1.16 | – | 2.00 | – |
| 1.20 | – | 2.04 | – |
| 1.24 | – | 2.08 | – |
| 1.28 | – | 2.12 | – |
| 1.32 | – | 2.16 | – |
| 1.36 | – | 2.20 | – |
| 1.40 | – | 2.24 | – |
| 1.44 | – | | |

Adjusting shims (for adjustment of oil pump drive sprocket / converter housing clearance)

| Thickness mm | Identification | Thickness mm | Identification |
|--------------|----------------|--------------|----------------|
| 0.64 | – | 0.92 | – |
| 0.68 | – | 0.96 | – |
| 0.72 | – | 1.00 | – |
| 0.76 | – | 1.04 | – |
| 0.80 | – | 1.08 | – |
| 0.84 | – | 1.12 | – |
| 0.88 | – | | |

SEALANT(S) AND ADHESIVE(S)

M1233206000099

| Item | Specified sealant and adhesive |
|-------------------|--------------------------------|
| Transaxle | |
| Converter housing | Loctite 509 |

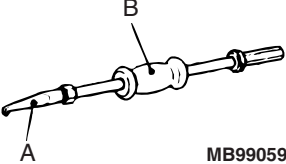
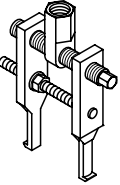
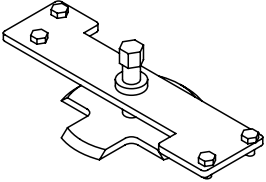
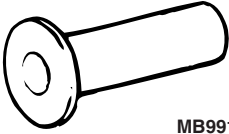
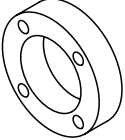
LUBRICANT(S)

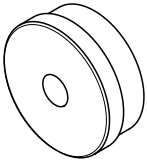
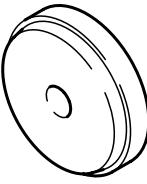
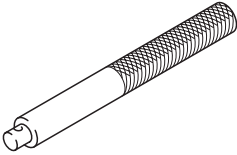
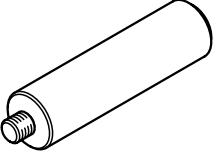
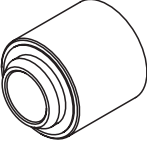
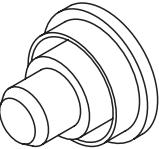
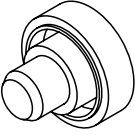
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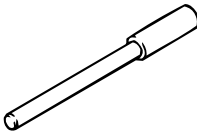
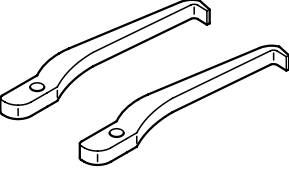
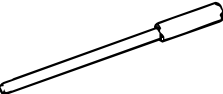
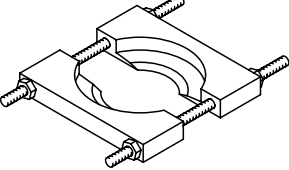
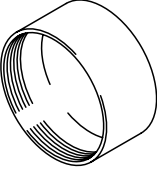
| Item | Specified lubricant |
|-----------------------------|---|
| Transaxle | |
| CVT fluid application parts | Diaqueen CVTF-J1 |
| Vaseline application parts | White vaseline (main ingredient: isoparaffinic hydrocarbon) |


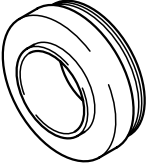

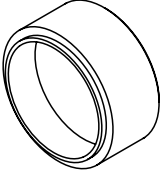
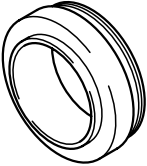
SPECIAL TOOLS

M1233207000155

| TOOL | TOOL NUMBER AND NAME | SUPERSESION | APPLICATION |
|---|--|-------------|---|
|  <p>MB990590</p> | MB990590 Real axle shaft oil seal remover | MB990211-01 | Removal of outer race of reduction gear bearing and differential side bearing |
|  | MB992039 Slide hammer puller | MB992039-01 | Removal of outer race of reduction gear bearing and differential side bearing |
|  | MB992139 Spring compressor | – | Removal and installation of reverse brake |
|  <p>MB991168</p> | MB991168 Differential oil seal installer | MB991168-01 | Installation of differential side bearing outer race (converter housing side) |
|  | MB991702 Adapter | – | Installation of differential side bearing outer race (converter housing side) |

| TOOL | TOOL NUMBER AND NAME | SUPERSESION | APPLICATION |
|---|---|-------------|--|
|  | MB990780 Real axle shaft bushing installer | – | Installation of differential side bearing outer race (transaxle case side) |
|  | MB990932 Installer adapter | – | Reduction gear bearing outer race |
|  | MB990938 Installer bar | – | Reduction gear bearing outer race |
|  | MB992075 Handle | – | Installation of oil seal |
|  | MB992141 Oil seal installer | – | Installation of converter housing oil seal |
|  | MB992206 Oil seal installer | – | Installation of converter housing side oil seal |
|  | MB992140 Oil seal installer | – | Installation of side oil seal |

| TOOL | TOOL NUMBER AND NAME | SUPERSESION | APPLICATION |
|---|--|--|---|
|  <p>MB990810</p> | MB990810 Side bearing puller | – | Removal of reduction gear bearing inner race (converter housing side), removal of differential side bearing inner race (converter housing side), removal of differential side bearing inner race (transaxle case side) |
|  <p>MB990947</p> | MB990947 Lower arm push arbor | MB990947-01 | Removal of reduction gear bearing inner race (converter housing side) |
|  | MD999566 Crow | – | Removal of reduction gear bearing inner race (converter housing side) |
|  | MB990984 Mount bushing lower roll insulator arbor | – | Removal of reduction gear bearing inner race (transaxle case side) |
|  | MD998917 Bearing remover | – | Removal of reduction gear bearing inner race (transaxle case side) |
|  | MD998812 Installer cap | MIT304180-A or 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 |

| TOOL | TOOL NUMBER AND NAME | SUPERSESION | APPLICATION |
|---|------------------------------------|--|---|
|  | MD998813 Installer-100 | MIT304180-A or 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 |
|  | MD998819 Installer adapter (40) | – | Installation of reduction gear bearing inner race (converter housing side and Transaxle case side), installation of reduction pinion gear |
|  | MB991452 Oil seal installer | – | Removal of differential side bearing inner race (converter housing side) |
|  | MB992138 Bearing Installer | – | Installation of differential side bearing inner race (converter housing side) |
|  | MD998823 Installer adapter (48) | – | Installation of differential side bearing inner race (transaxle case side) |

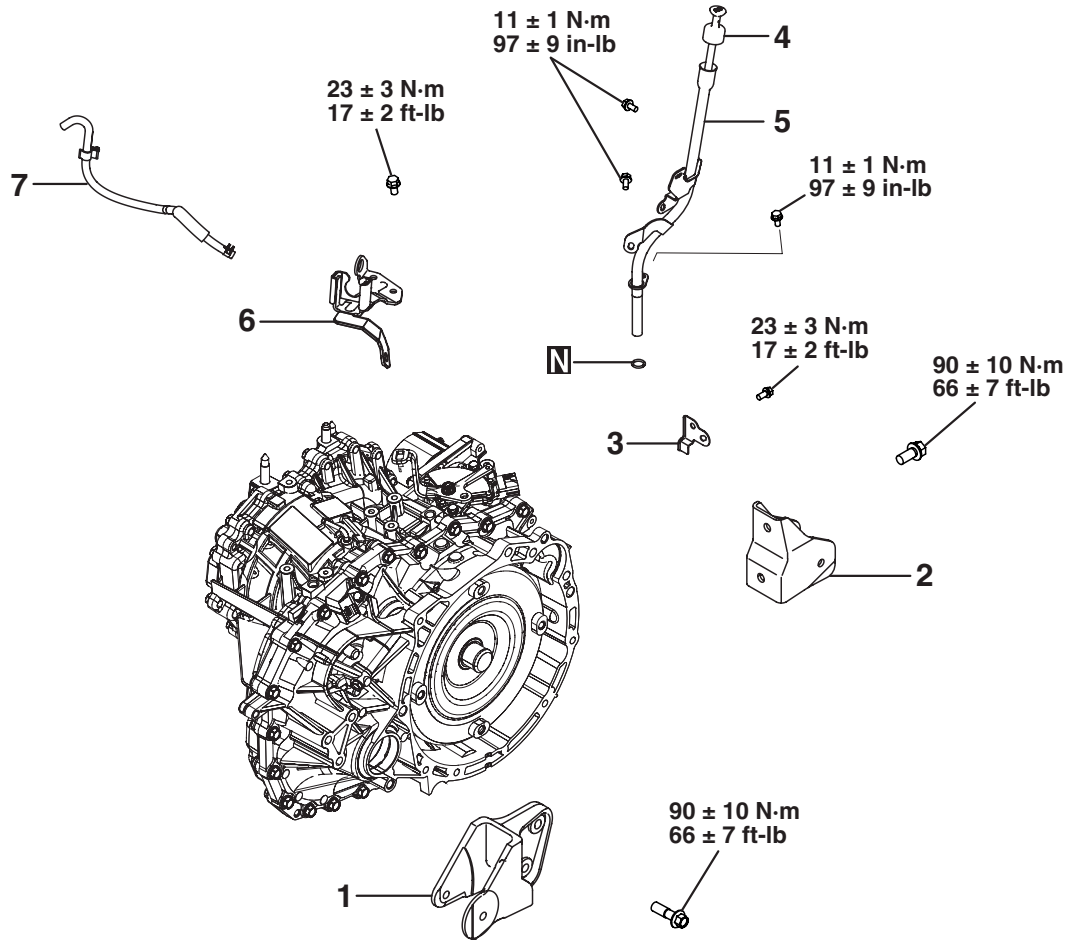
TRANSAXLE

DISASSEMBLY AND ASSEMBLY

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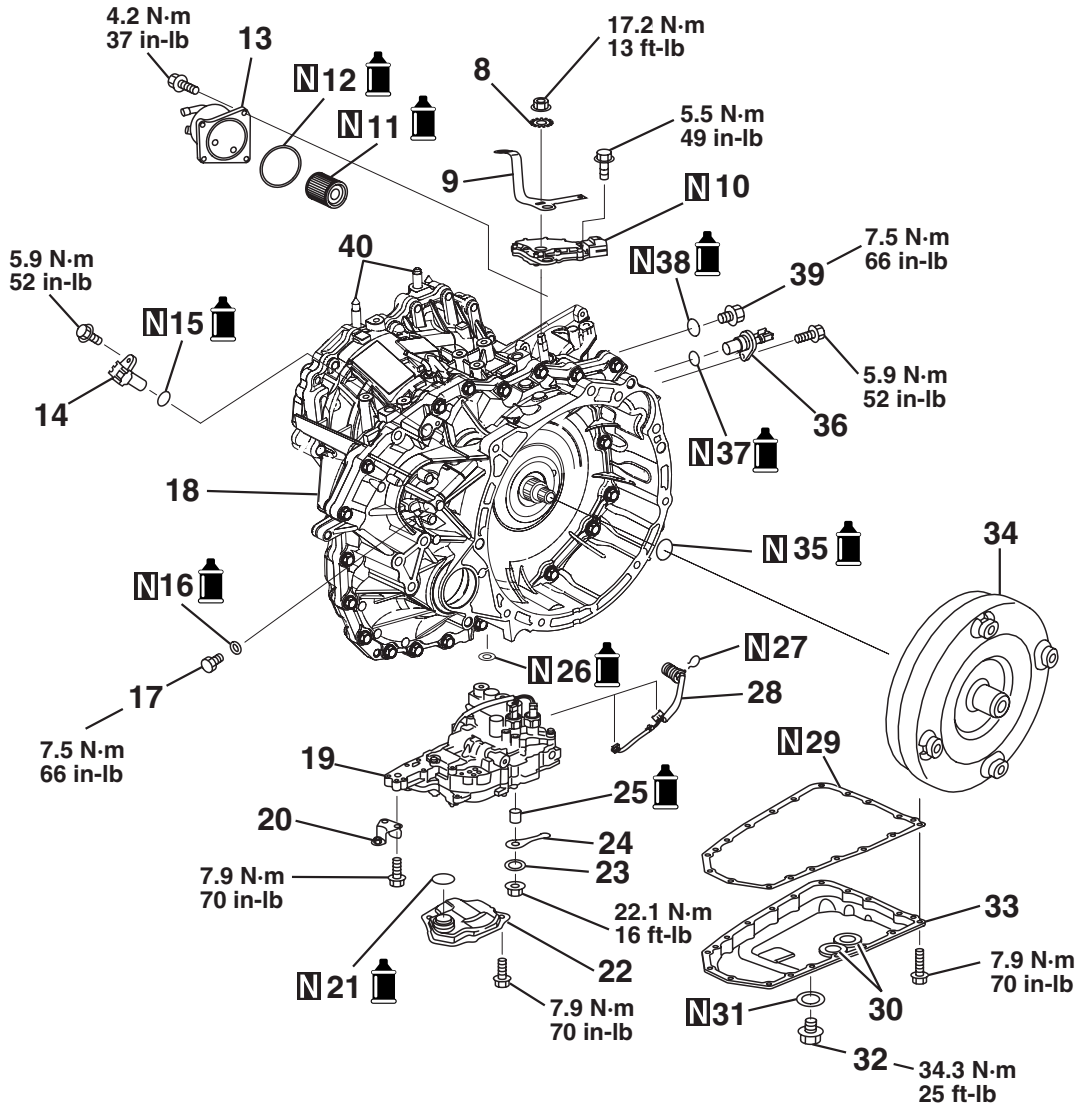
⚠ CAUTION

- Only use CVT fluid of the specified brand. Use of CVT fluid other than specified will impair driveability and CVT endurance, and may lead to breakage of CVT.
- Only use the specified vaseline. Use of vaseline other than specified will impair driveability and CVT endurance, and may lead to breakage of CVT.
- Disassembly work should be done in a clean dust-proof room.
- Prior to disassembly, clean any sand or dirt adhered to the outer parts of transaxle using steam, white gasoline or another solvent, outside the clean room, so as not to contaminate inner parts of transaxle during disassembly or assembly. (Do not allow steam to get inside the transaxle, and do not clean rubber parts with gasoline).
- After cleaning, remove the torque converter, and drain the CVT fluid.
- Disassembly and assembly work should be done with bare hands or using plastic gloves.
- Do not touch inner parts of the transaxle after touching its outer parts. (Wash hands after touching the outer parts).
- Do not use cotton gloves and rags to prevent from lint; instead, use paper rags.
- Prior to assembly or disassembly work, make sure conditions are appropriate.
- Do not re-use the drained CVT fluid.
- Refer to "HOW TO USE THIS MANUAL" for the symbols in the schematic.



- | | |
|----------------------------|--------------------------|
| 1. RR roll stopper bracket | 5. Oil filler tube |
| 2. FR roll stopper bracket | 6. Control cable bracket |
| 3. Harness bracket | 7. Breather hose |
| 4. Oil level gage | |

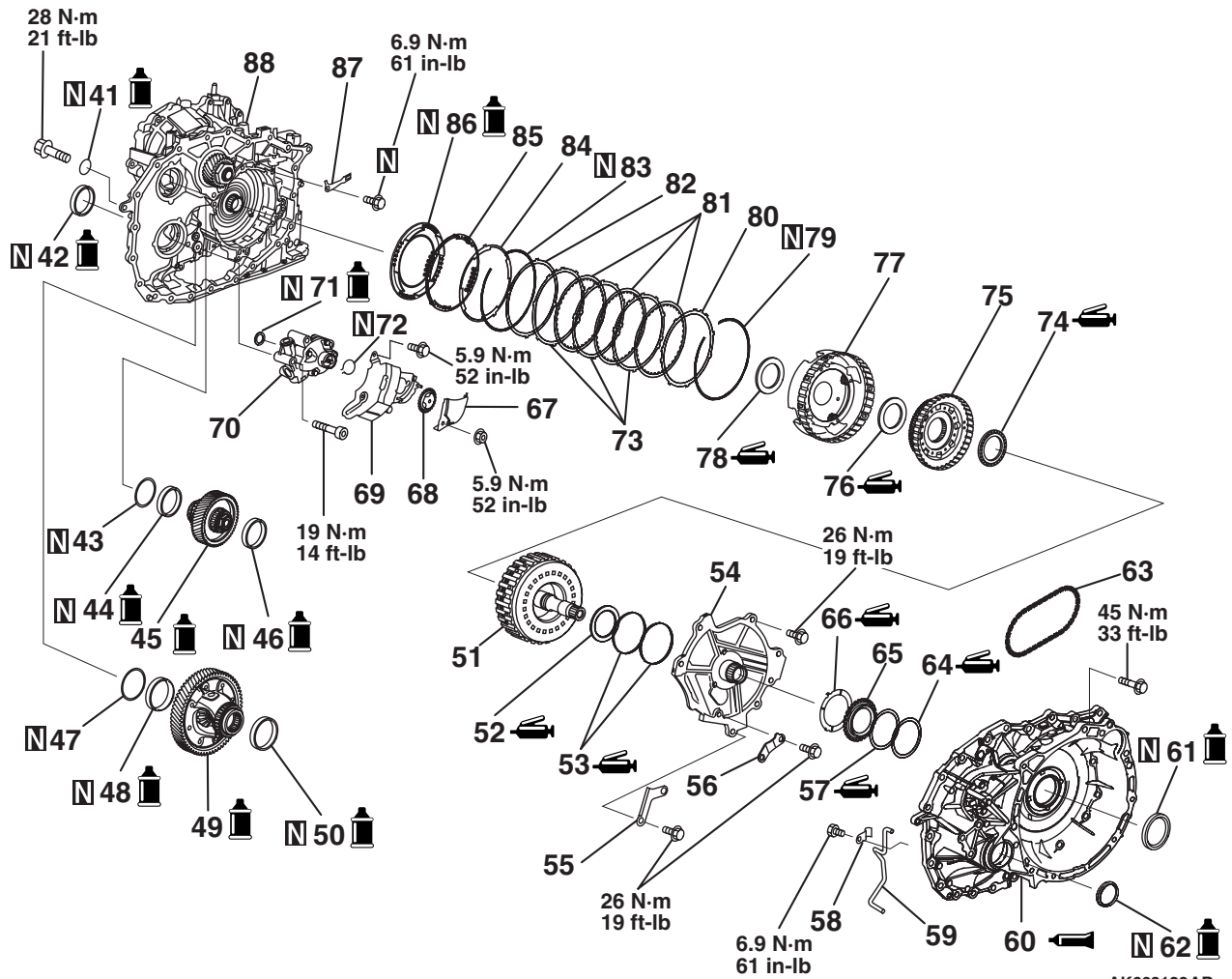
AK603121AB



- 8. Washer
- 9. Shift lever
- 10. Inhibitor switch
- 11. CVT fluid filter
- 12. O-ring
- 13. CVT fluid cooler
- 14. Secondary pulley speed sensor
- 15. O-ring
- 16. O-ring
- 17. Plug
- 18. Transaxle
- 19. Control valve
- 20. Bracket
- 21. O-ring
- 22. Oil strainer
- 23. Spring washer
- 24. Manual lever

- 25. Bush
- 26. Lip seal
- 27. Snap ring
- 28. Valve body harness
- 29. Oil pan gasket
- 30. Magnet
- 31. Drain plug gasket
- 32. Drain plug
- 33. Oil pan
- 34. Torque converter
- 35. O-ring
- 36. Primary pulley speed sensor
- 37. O-ring
- 38. O-ring
- 39. Plug
- 40. Stud bolt

AK603122AB



AK603123AB

- | | |
|--|--|
| <ul style="list-style-type: none"> 41. O-ring 42. Side oil shim 43. Adjusting shim 44. Outer race 45. Reduction gear assembly 46. Outer race 47. Adjusting shim 48. Outer race 49. Differential assembly 50. Outer race 51. Forward clutch assembly 52. Needle bearing 53. Seal ring 54. Oil pump cover 55. Baffle plate 56. Bracket 57. Adjusting shim 58. Clip 59. Pipe 60. Converter housing 61. Converter housing oil seal 62. Converter housing side oil seal 63. Oil pump chain 64. Adjusting shim | <ul style="list-style-type: none"> 65. Drive sprocket 66. Thrust washer 67. Baffle plate 68. Driven sprocket 69. Baffle plate 70. Oil pump 71. Lip seal 72. Snap ring 73. Driven plate 74. Needle bearing 75. Sun gear 76. Needle bearing 77. Planet carrier 78. Needle bearing 79. Snap ring 80. Retaining plate 81. Drive plate 82. Dish plate 83. Snap ring 84. Retaining plate 85. Spring retainer assembly 86. Reverse brake piston 87. Detent spring 88. Transaxle |
|--|--|

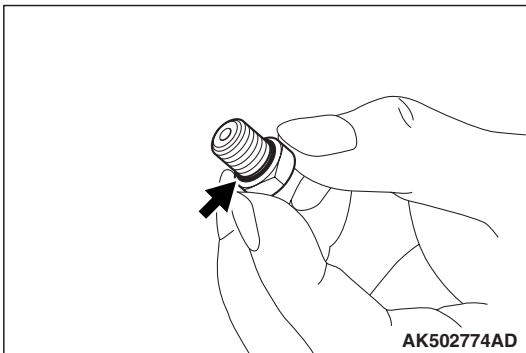
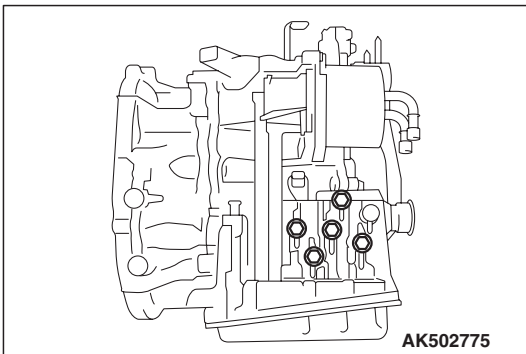
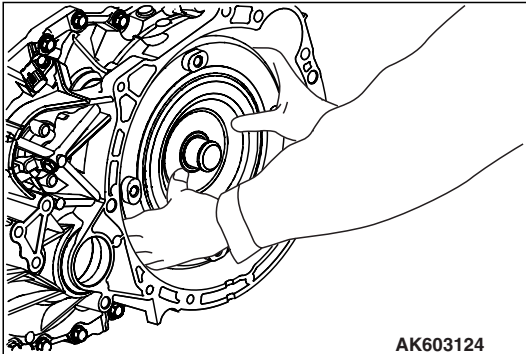
Required Special Tools:

- MB990590: Real axle shaft oil seal remover
- MB992039: Slide hammer puller
- MB992139: Spring compressor
- MB991168: Differential oil seal installer
- MB991702: Adapter
- MB990780: Real axle shaft bushing installer
- MB990932: Installer adapter
- MB990938: Installer bar
- MB992075: Handle
- MB992141: Oil seal installer
- MB992206: Oil seal installer
- MB992140: Oil seal installer

DISASSEMBLY SERVICE POINT**⚠ CAUTION**

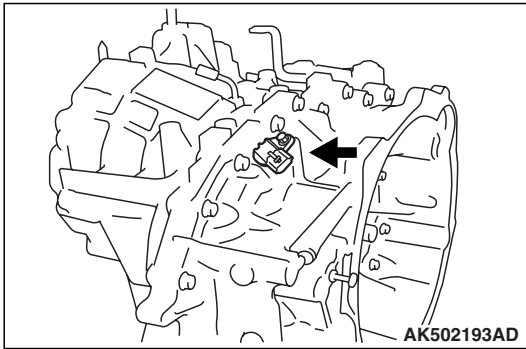
Do not disassemble parts other than specified in this manual.

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

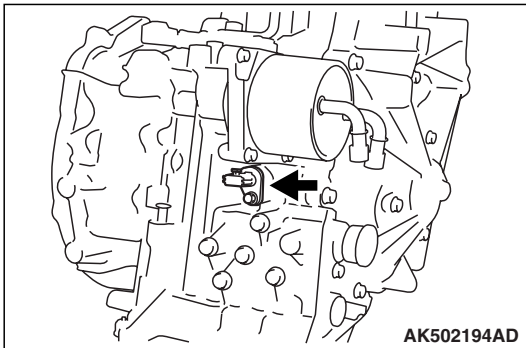


6. Remove the plug from the transaxle case.

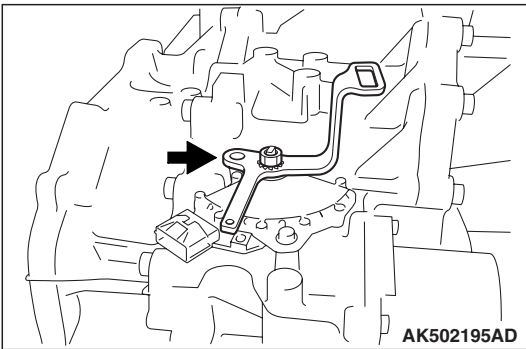
7. Remove the O-ring from the plug.



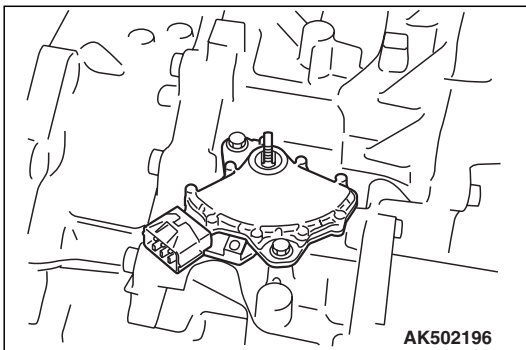
8. Remove the secondary pulley speed sensor from the converter housing, and detach the O-ring from the sensor.



9. Remove the primary pulley speed sensor from the transaxle case, and detach the O-ring from the sensor.



10. Remove the shift lever from the manual shaft.

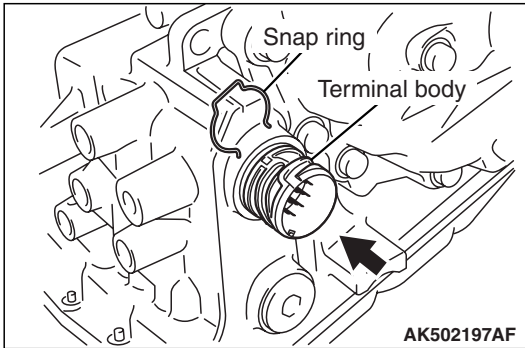


11. Remove the inhibitor switch from the transaxle.

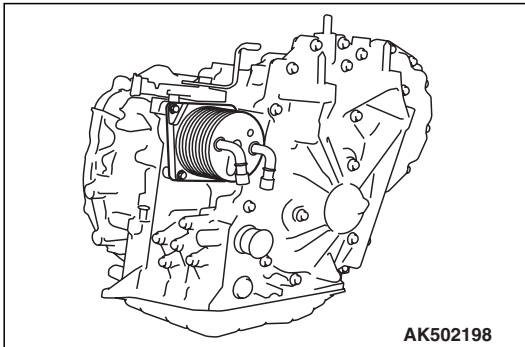
⚠ CAUTION

Be careful not to cause damage to the terminal body.

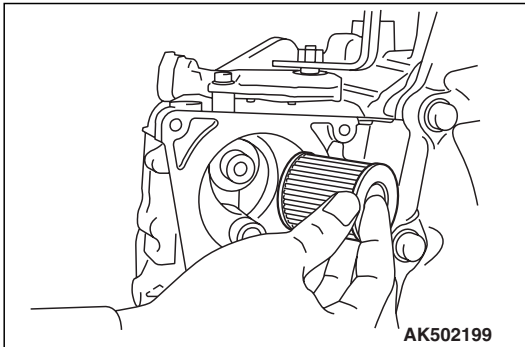
12. Remove the snap ring from the terminal body, and press the terminal body into the transaxle case.



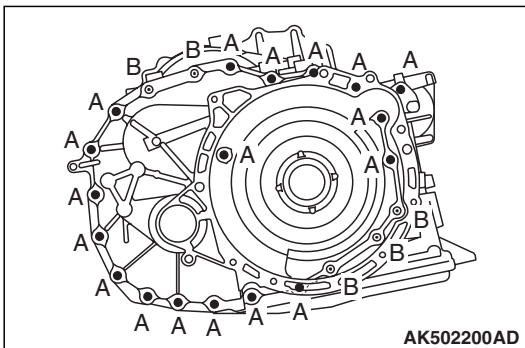
13. Remove the CVT fluid cooler from the transaxle case, and detach the O-ring from the cooler.



14. Remove the CVT fluid cooler filter from the transaxle case.



15. Remove the fastening bolts of converter housing.

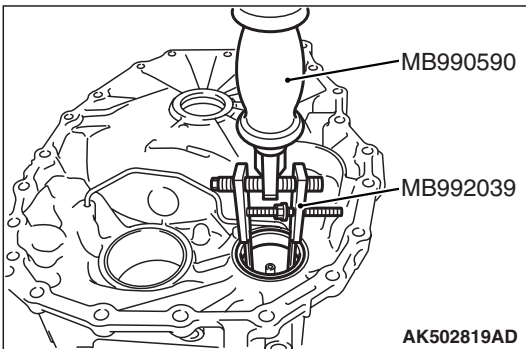
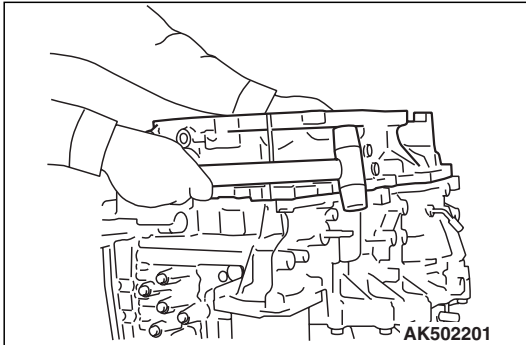


| Bolt symbol | A | B |
|----------------|----|----|
| Bolt length mm | 30 | 35 |
| Quantity | 18 | 5 |

⚠ CAUTION

Be careful because adjusting shim of the drive sprocket may depart.

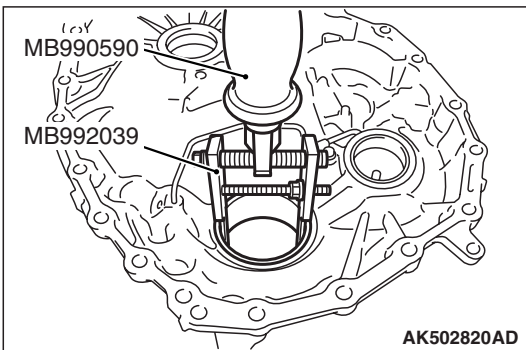
16. Remove the converter housing by tapping with a plastic hammer etc.



17. Using the Special Tools MB990590 and MB992039, remove the outer race of reduction gear bearing from the converter housing.

18. Using cylinder gage etc., measure the mounting bore diameter of reduction gear bearing outer race at the converter housing side; if the standard value is not satisfied, then replace the converter housing.

Standard value: ϕ 61.949 –61.979 mm



19. Using the Special Tools MB990590 and MB992039, remove the outer race of differential side bearing from the converter housing.

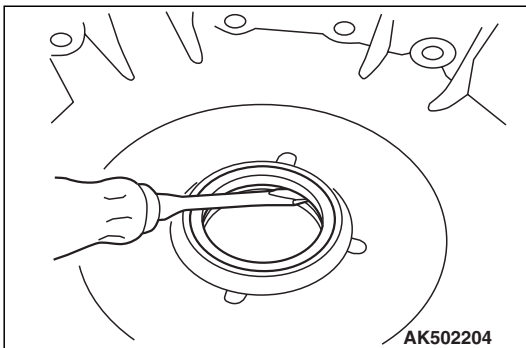
20. Using cylinder gage etc., measure the mounting bore diameter of differential side bearing outer race at the converter housing side; if the standard value is not satisfied, then replace the converter housing.

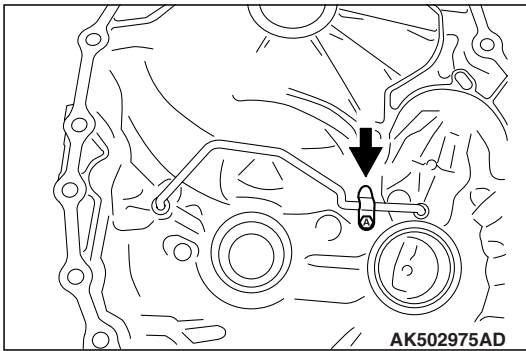
Standard value: ϕ 84.941 –84.976 mm

⚠ CAUTION

When removing the oil seal, be careful not to cause damage to the converter housing.

21. Using a flat blade screwdriver etc., remove the converter housing oil seal from the housing.

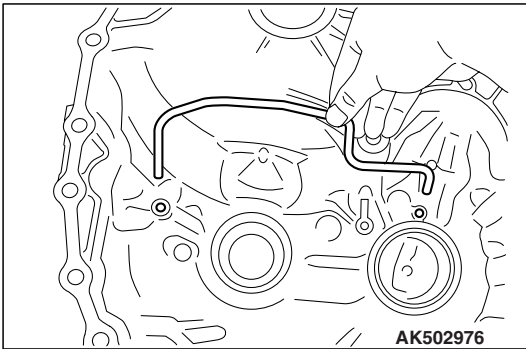




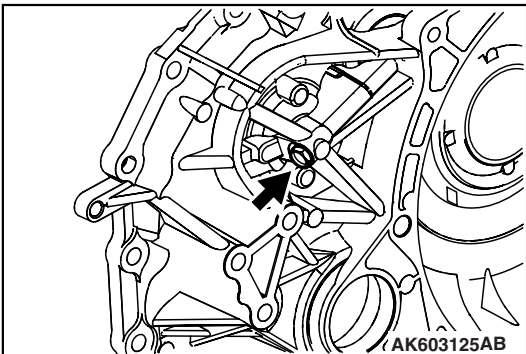
22.Remove the clip.

⚠ CAUTION

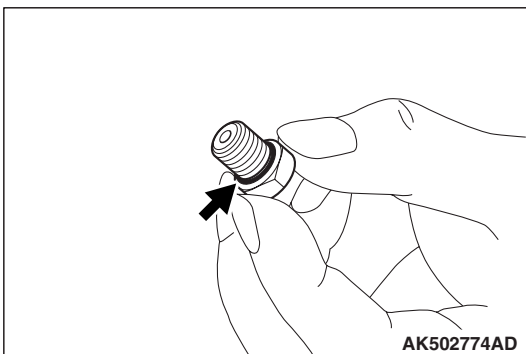
When removing the pipe, be careful not to bend it.



23.Remove the pipe from the converter housing.

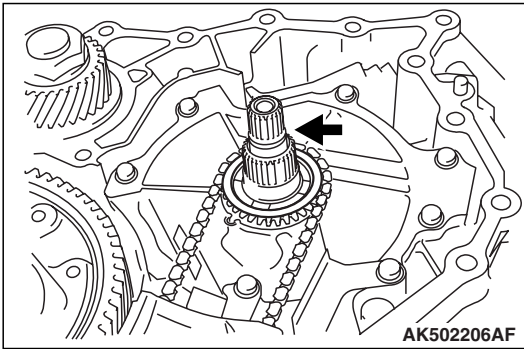


24.Remove the plug from the converter housing.

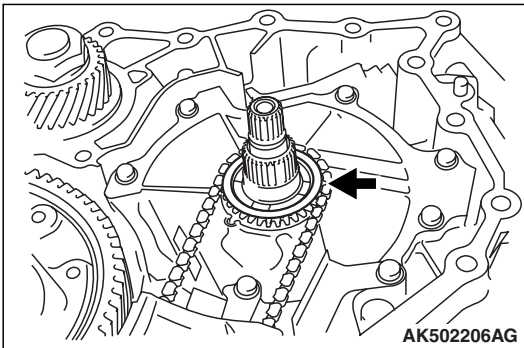


25.Remove the O-ring from the plug.

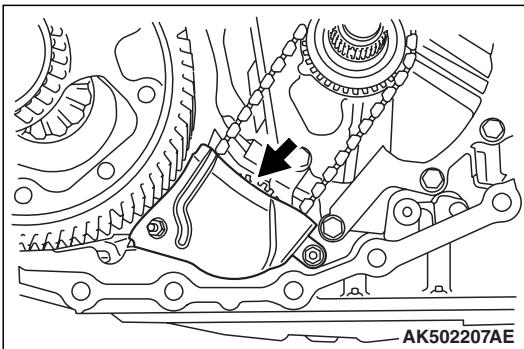
26. Remove the O-ring from the input shaft.



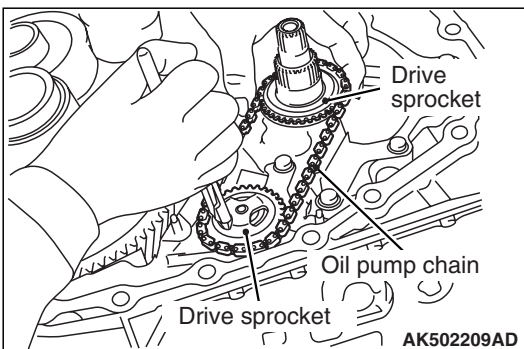
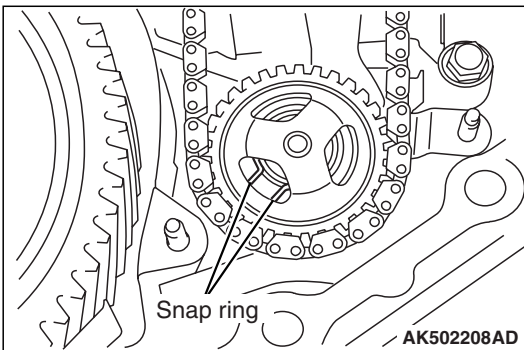
27. Remove the adjusting shim from the drive sprocket.

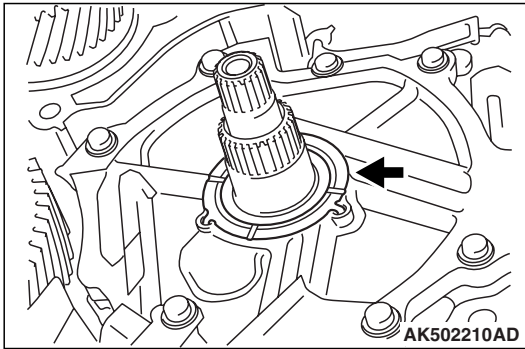


28. Remove the baffle plate.

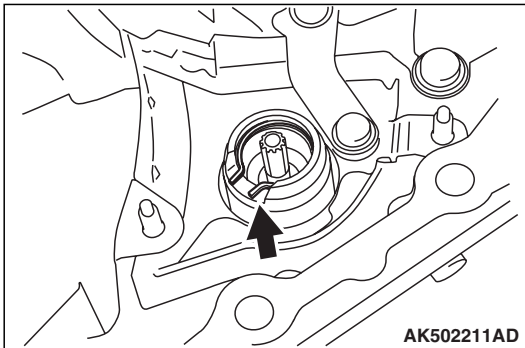


29. Expand the snap ring, and remove the driven sprocket, oil pump chain, and drive sprocket.

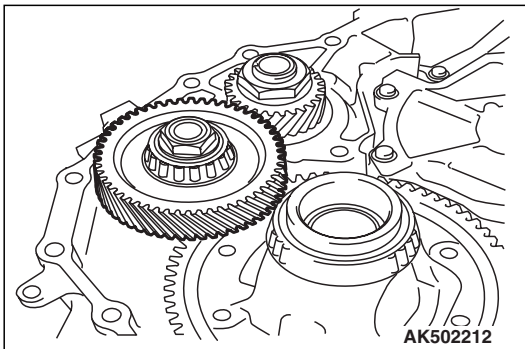




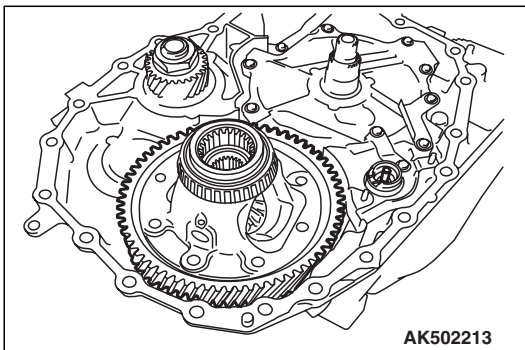
30. Remove the thrust washer from the oil pump cover.



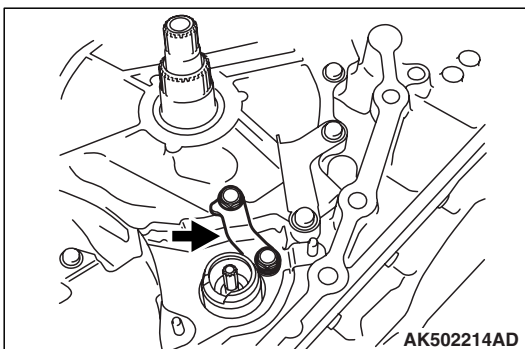
31. Remove the snap ring from the oil pump.



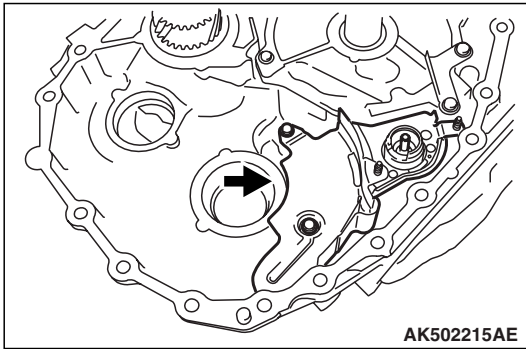
32. Remove the reduction gear assembly from the transaxle case.



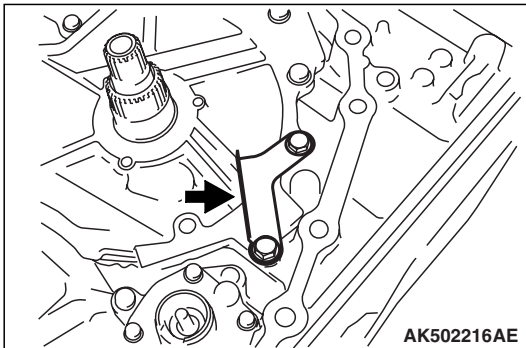
33. Remove the differential assembly from the transaxle case.



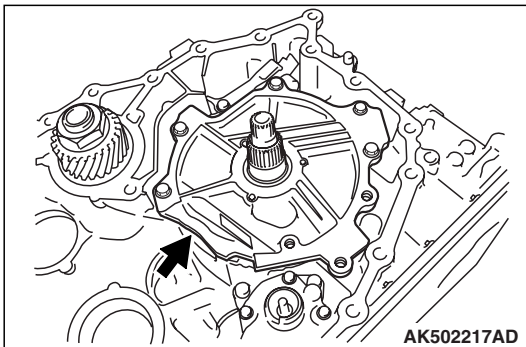
34. Remove the bracket.



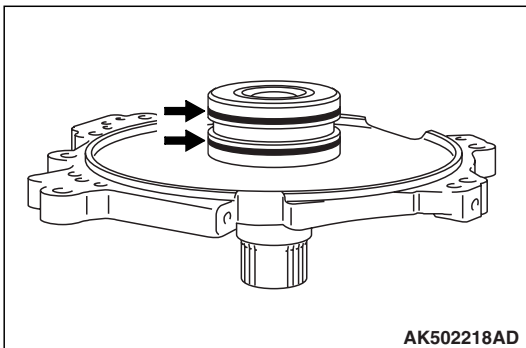
35.Remove the baffle plate.



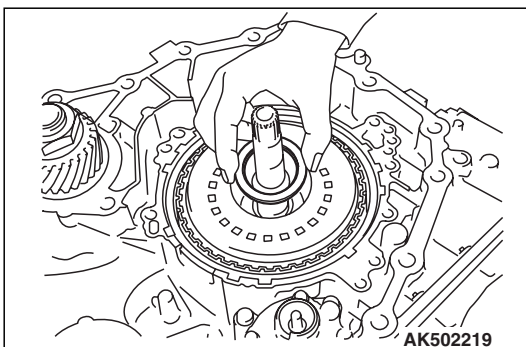
36.Remove the baffle plate.



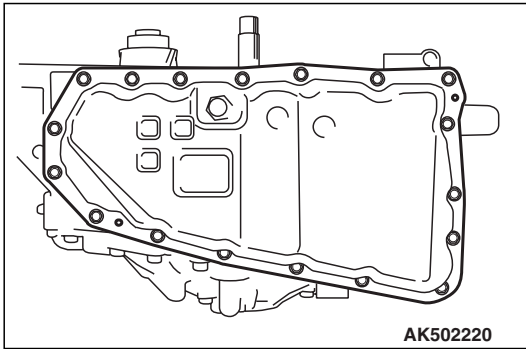
37.Remove the oil pump cover from the transaxle case.



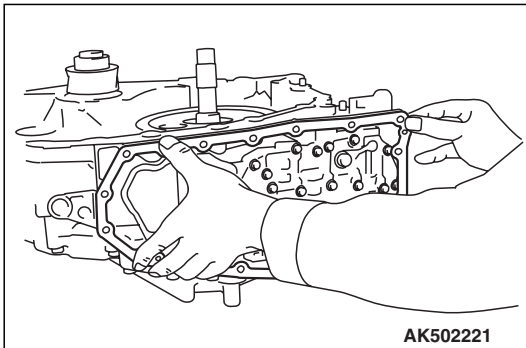
38.Remove the seal rings from the oil pump cover.



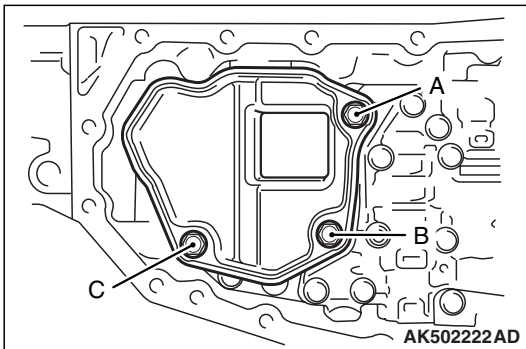
39.Remove the needle bearing from the forward clutch assembly.



- 40. Remove the oil pan from the transaxle case.
- 41. Remove the magnet from the oil pan.

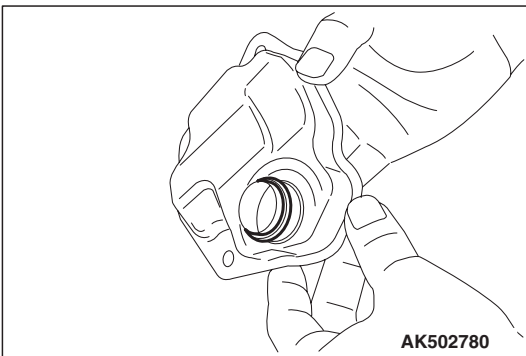


- 42. Remove the oil pan gasket from the transaxle case.

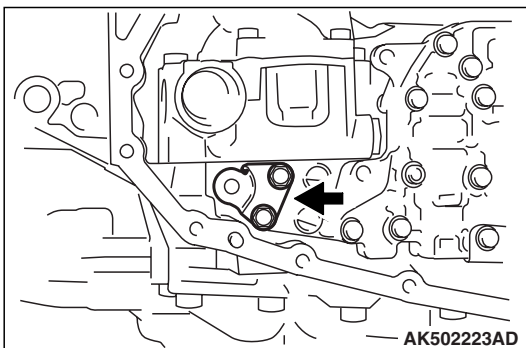


- 43. Remove the oil strainer

| Bolt symbol | A | B | C |
|----------------|----|----|----|
| Bolt length mm | 12 | 44 | 12 |
| Quantity | 1 | 1 | 1 |

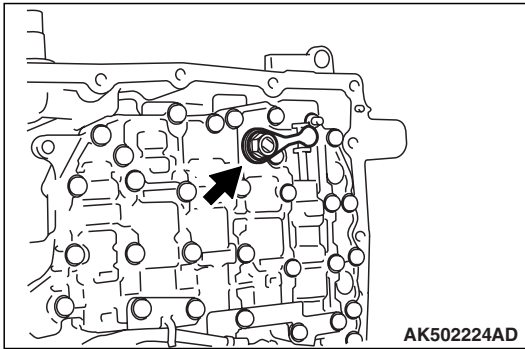


- 44. Remove the O-ring from the oil strainer.



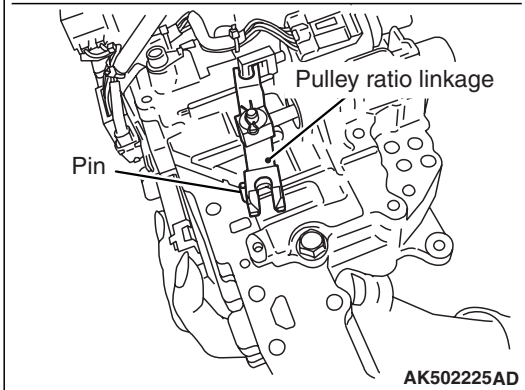
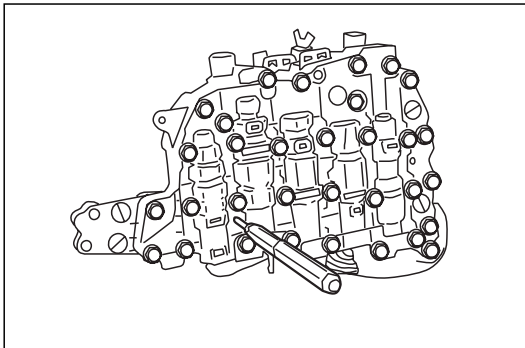
- 45. Remove the bracket from the control valve assembly.

46. Remove the manual lever.



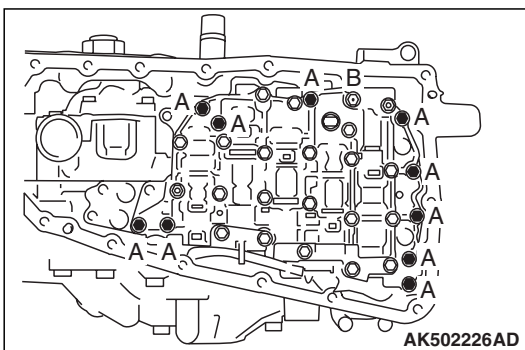
47. Remove the control valve assembly from the transaxle case as follows:

- (1) Insert pins etc. ($\phi 3$ mm) into linkage stopper holes of the control valve assembly to fix the pulley ratio linkage.



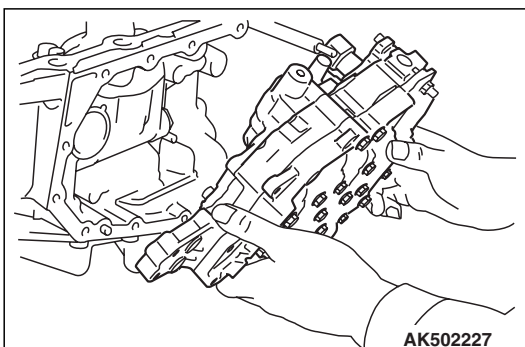
- (2) Remove fastening bolts of the control valve assembly.

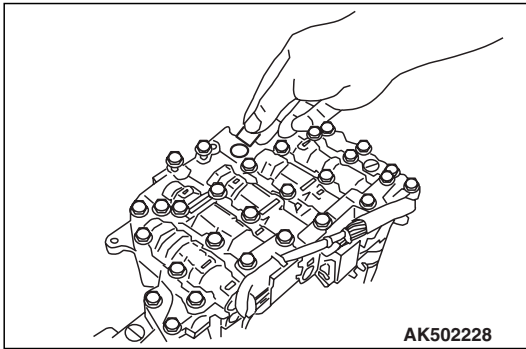
| Bolt symbol | A | B |
|----------------|----|----|
| Bolt length mm | 54 | 44 |
| Quantity | 10 | 1 |



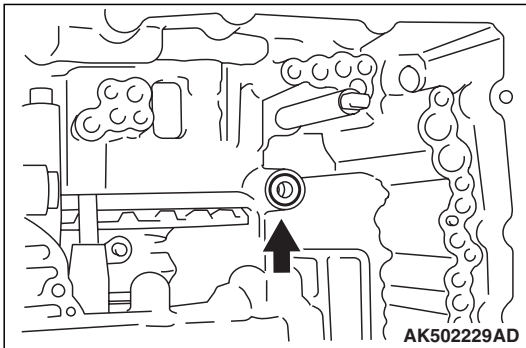
- (3) Remove the control valve assembly from the transaxle case.

NOTE: Tilt the control valve assembly, and after removing from the manual shaft side, remove the terminal body from the transaxle case.

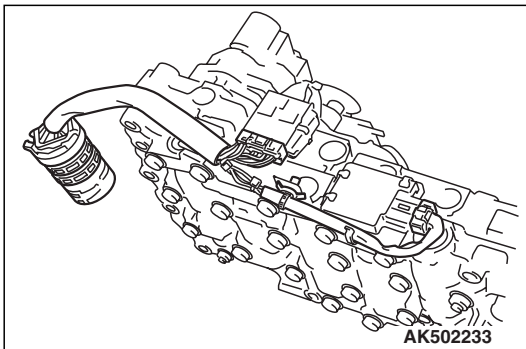




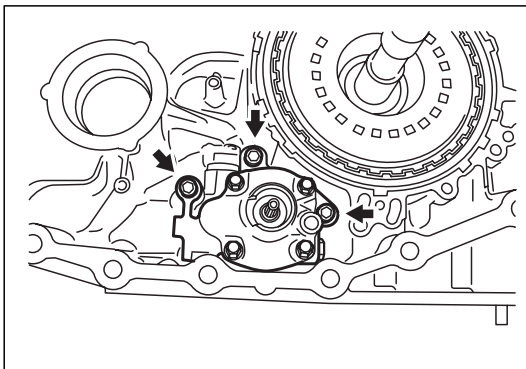
48.Remove the bush from the control valve.



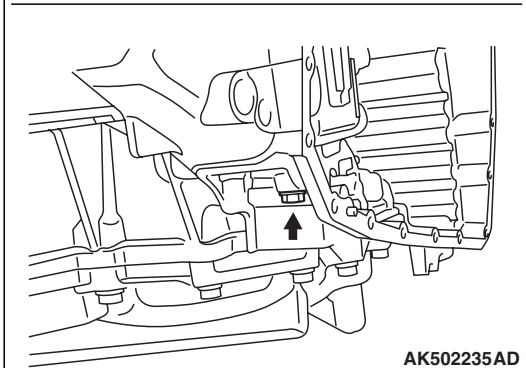
49.Remove the lip seal from the transaxle case.

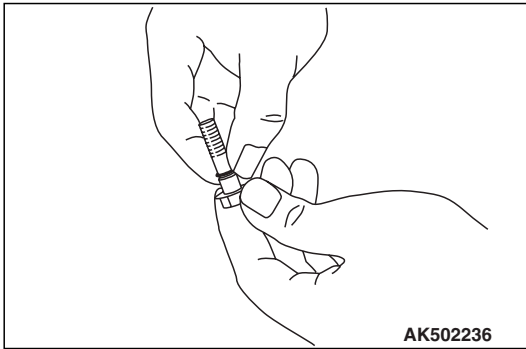


50.Remove the valve body harness from the control valve.

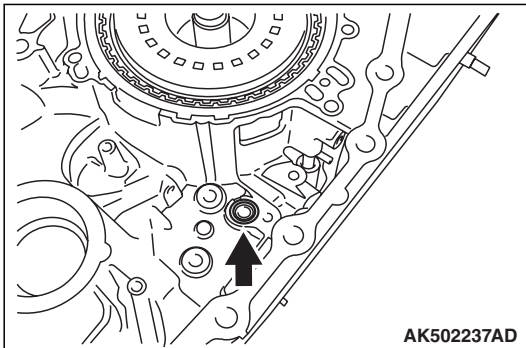


51.Remove the oil pump from the transaxle case. (One fastening bolt is installed at the backside from the transaxle case side).

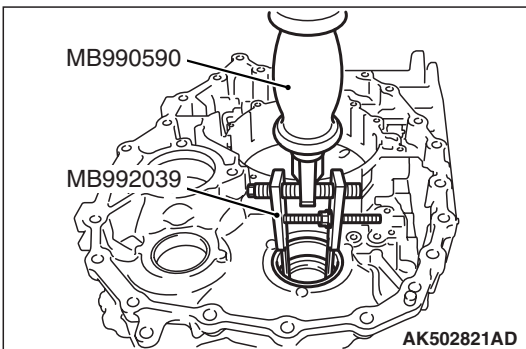




52. Remove the O-ring from the oil pump fastening bolt.



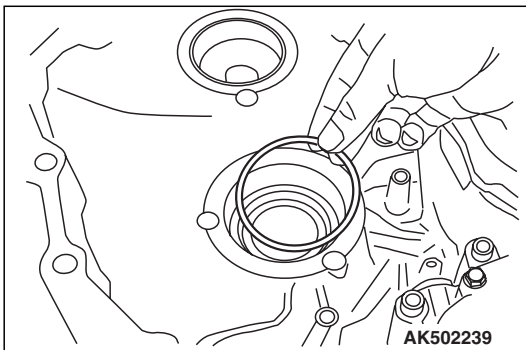
53. Remove the lip seal from the transaxle case.



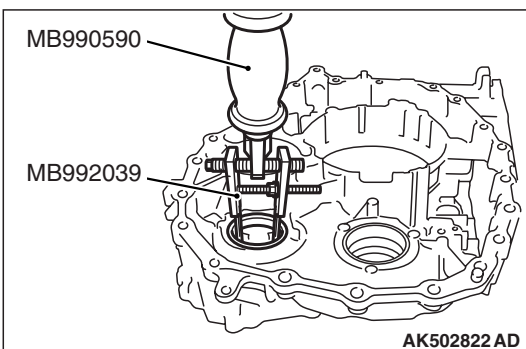
54. Using the Special Tools MB990590 and MB992039, remove outer race of the differential side bearing from the transaxle case.

55. Using cylinder gage etc., measure the mounting bore diameter of differential side bearing outer race at the transaxle case side; if the standard value is not satisfied, then replace the CVT assembly.

Standard value: ϕ 67.949 –67.979 mm



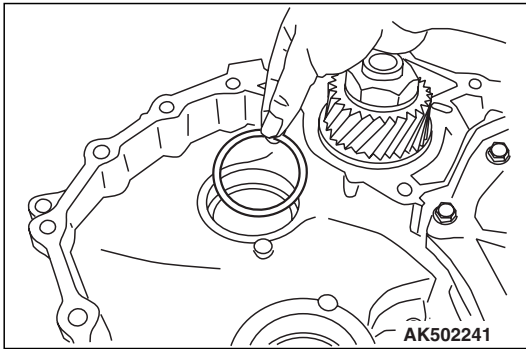
56. Remove the adjusting shim from the transaxle case.



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

58. Using cylinder gage etc., measure the mounting bore diameter of reduction gear bearing outer race at the transaxle case side; if the standard value is not satisfied, then replace the CVT assembly.

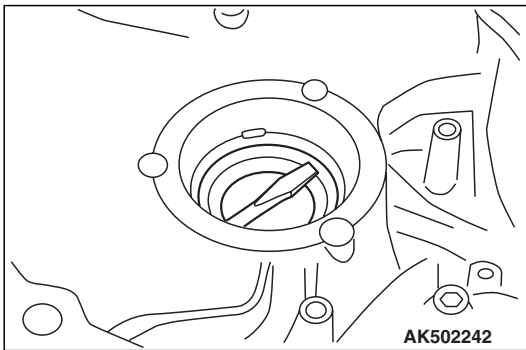
Standard value: ϕ 61.949 –61.979 mm



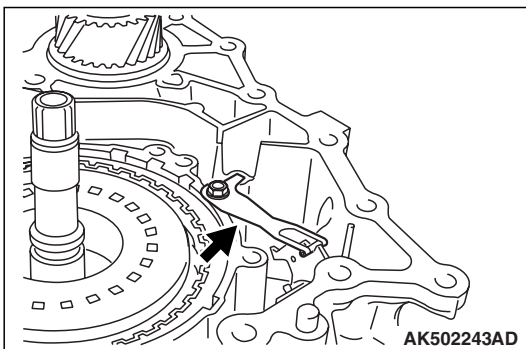
59. Remove the adjusting shim from the transaxle case.

⚠ CAUTION

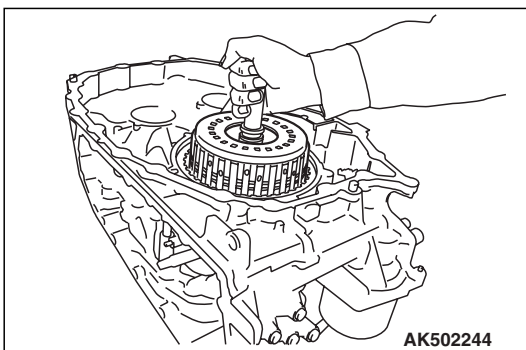
When removing the side oil seal, be careful not to cause damage to the transaxle case.



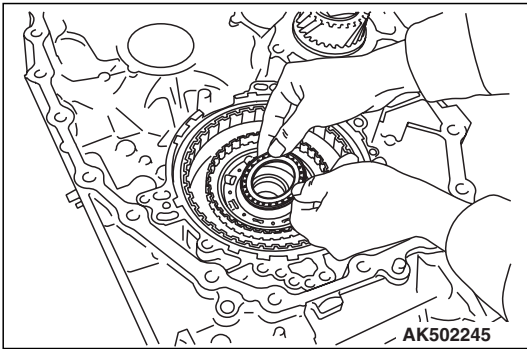
60. Using a flat blade screwdriver etc., remove the side oil seal from the transaxle case.



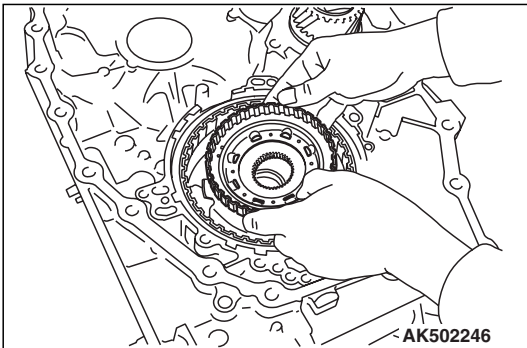
61. Remove the detent spring from the transaxle case.



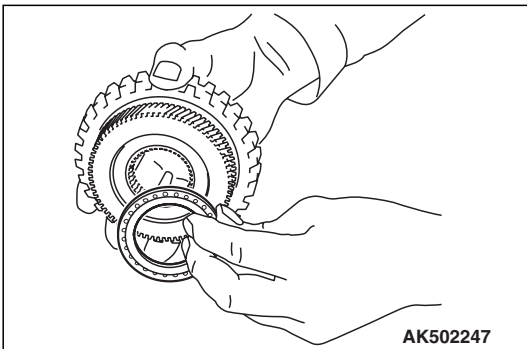
62. Remove the forward clutch assembly from the transaxle case.



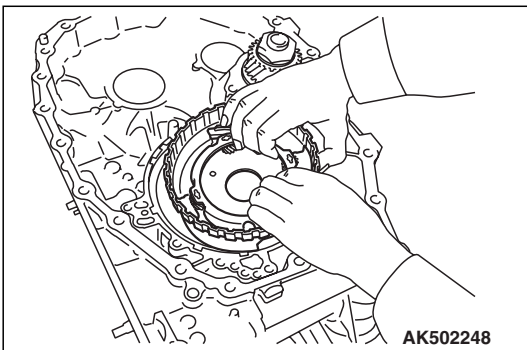
63. Remove the needle bearing on forward clutch drum side from the sun gear.



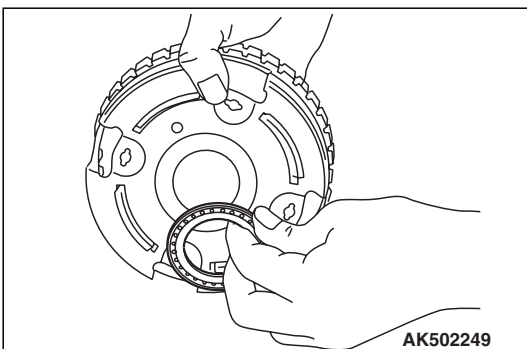
64. Remove the sun gear from the planet carrier.



65. Remove the needle bearing on primary pulley side from the sun gear.



66. Remove the planet carrier from the transaxle case.

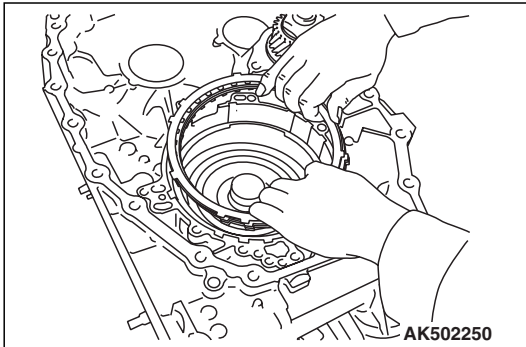


67. Remove the needle bearing from the planet carrier.

⚠ CAUTION

Check if there is damage, deformation, burn marks or permanent sets of the dish plate, driven plate, snap ring, and drive plate. Replace any defective part.

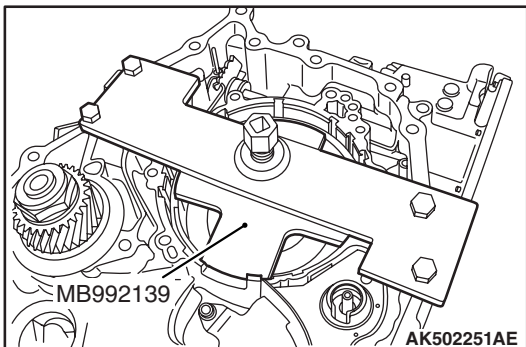
68. Using a flat blade screwdriver etc., remove the reverse brake retaining plate, drive plate, driven plate, and dish plate from the transaxle case.

**⚠ CAUTION**

- Set the spring compressor right on top of the spring of spring retainer assembly.
- Do not remove the return spring from the spring retainer assembly.

69. Using the Special Tool MB992139, compress the return spring, and remove the snap ring from the transaxle case.

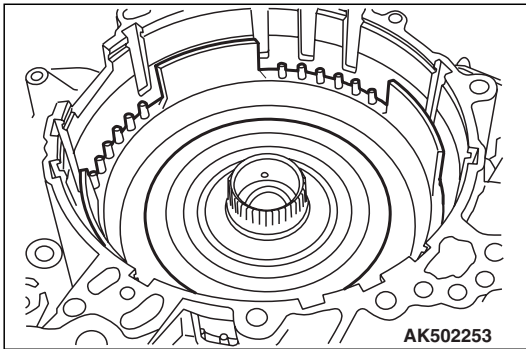
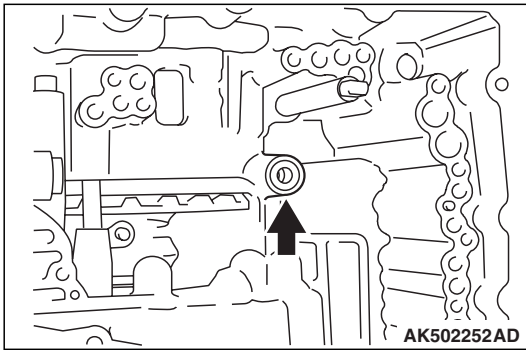
70. Remove the retaining plate and return spring assembly.



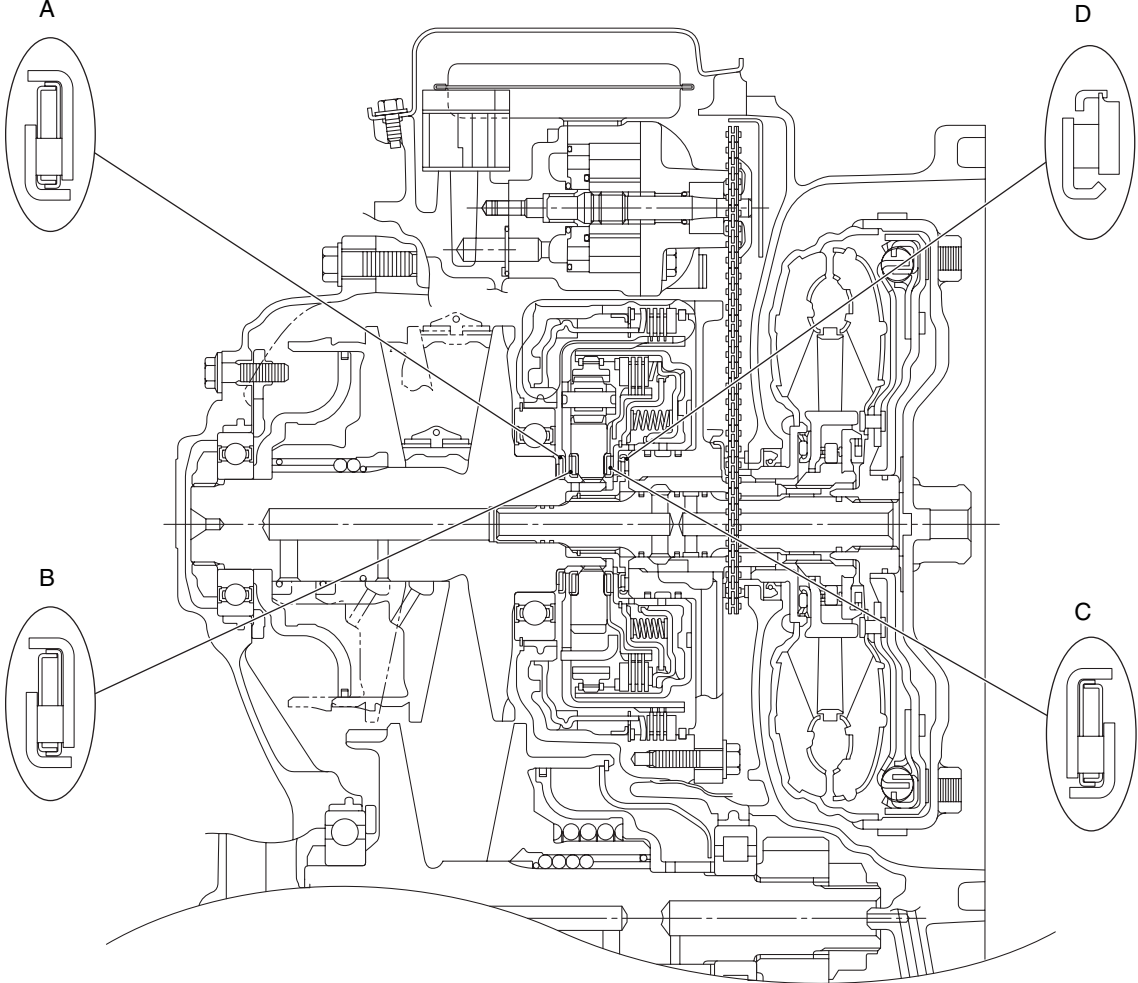
⚠ CAUTION

Be careful. Do not use too much air pressure as this may cause the reverse brake piston to be stuck.

71. Feed the air in the oil hole shown in the diagram, and remove the reverse brake piston from the transaxle case.



IDENTIFICATION OF NEEDLE BEARINGS



AK502299AD

ASSEMBLY SERVICE POINT

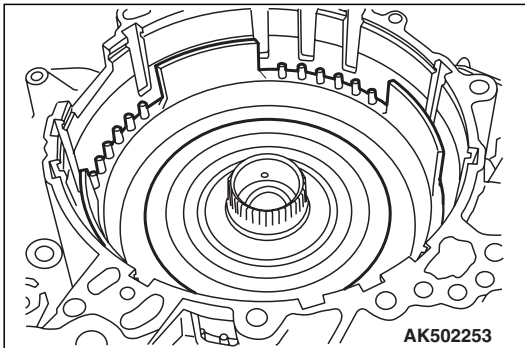
⚠ CAUTION

When the outer races of reduction gear bearing and differential side bearing are removed, measure the mounting bore diameters of outer race in the converter housing and transaxle case, and replace the housing case or the CVT assembly if the standard value is not satisfied. The standard values are listed in "SERVICE SPECIFICATIONS".

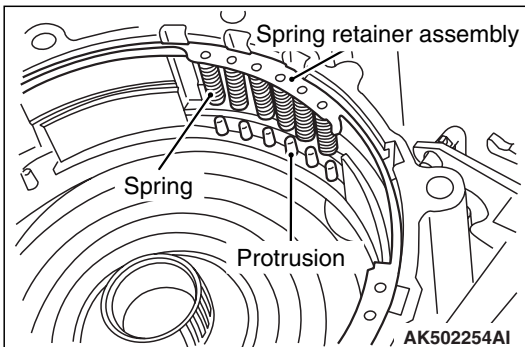
⚠ CAUTION

- Do not re-use the reverse brake piston.
- Apply CVT fluid when installing the reverse brake piston.

1. Install the reverse brake piston, while turning it, on the transaxle case.



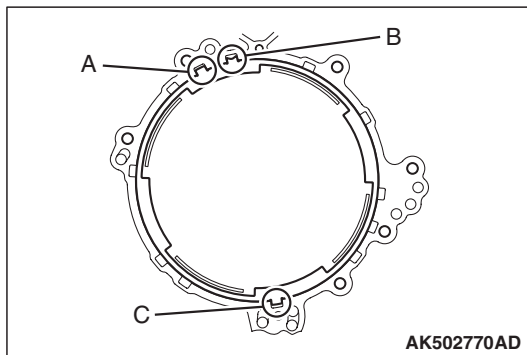
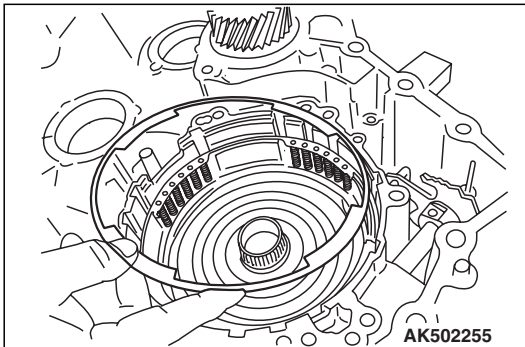
2. Align the spring portion of spring retainer assembly with the projections of the reverse brake piston, and install the spring retainer assembly.



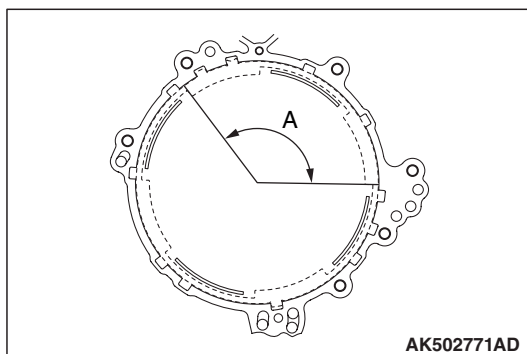
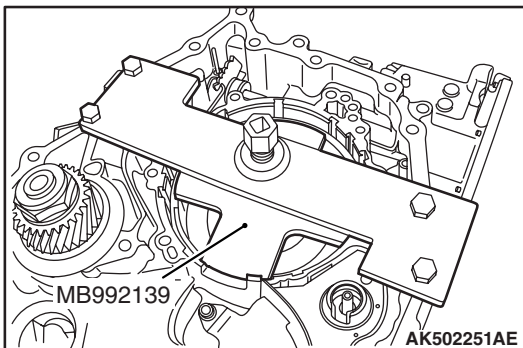
⚠ CAUTION

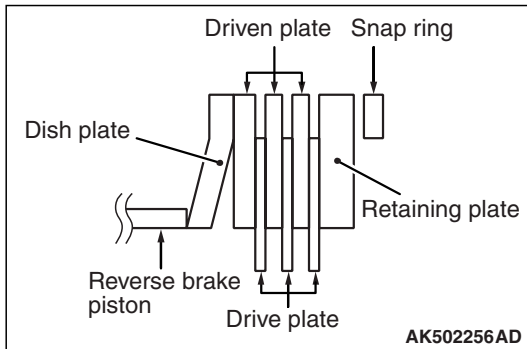
When installing the retaining plate, align the tangs at positions A, B, C in the diagram.

3. Install the retaining plate on the transaxle case.

**⚠ CAUTION**

- Set the spring compressor right on top of the spring of spring retainer assembly.
 - Do not re-use the snap ring.
 - When installing the snap ring, make sure that the joint falls in the area A in the diagram.
4. Using the Special Tool MB992139, compress the return spring, and install the snap ring on the transaxle case by means of a flat blade screwdriver etc.





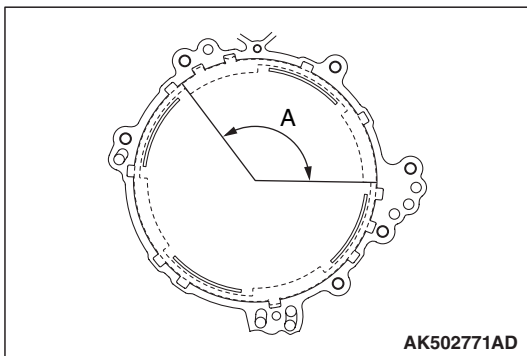
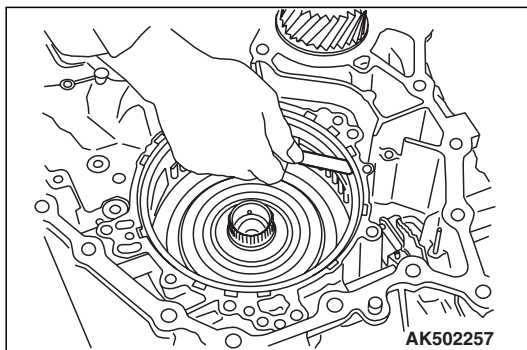
5. Install the reverse brake retaining plate, drive plate, driven plate, and dish plate on the transaxle case.

⚠ CAUTION

- When conducting measurements, measure two or more places, and find the average value.
- Do not re-use the snap ring.
- When installing the snap ring, make sure that the joint falls in the area A in the diagram.

6. Using a flat blade screwdriver etc., install the snap-ring on the transaxle case, and measure clearance between the snap ring and retaining plate. Select the snap ring so as to obtain standard value of the clearance. For selection of the snap ring, refer to "SERVICE SPECIFICATIONS".

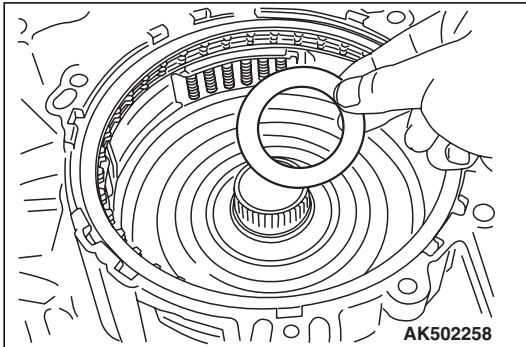
Standard value: 1.2 –1.5 mm



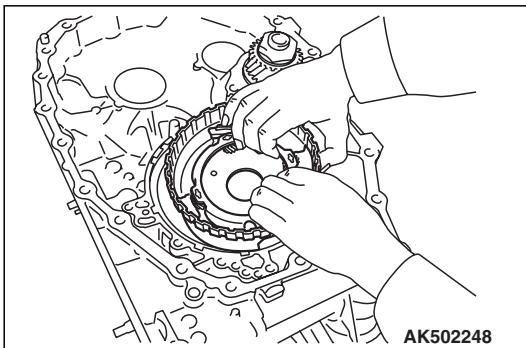
⚠ CAUTION

- Apply vaseline when installing the needle bearing.
- Be careful to attach the needle bearing in right direction.

7. Install the needle bearing on the reverse brake piston. Refer to A in the "IDENTIFICATION OF NEEDLE BEARINGS" for right direction.

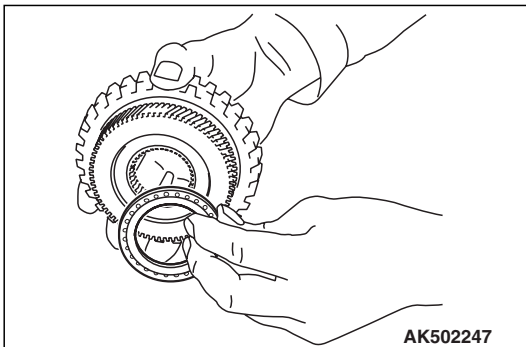


8. Install the planet carrier on the reverse brake.

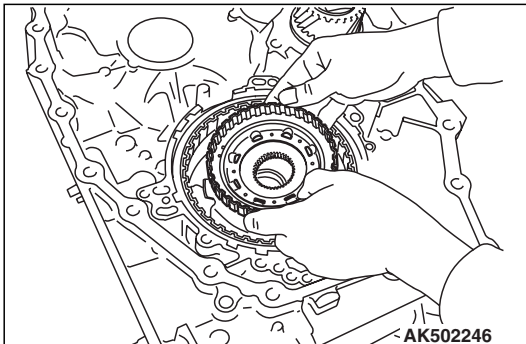
**⚠ CAUTION**

- Apply vaseline when installing the needle bearing.
- Be careful to attach the needle bearing in right direction.

9. Install the needle bearing on the primary pulley side of the sun gear. Refer to B in the "IDENTIFICATION OF NEEDLE BEARINGS" for right direction.



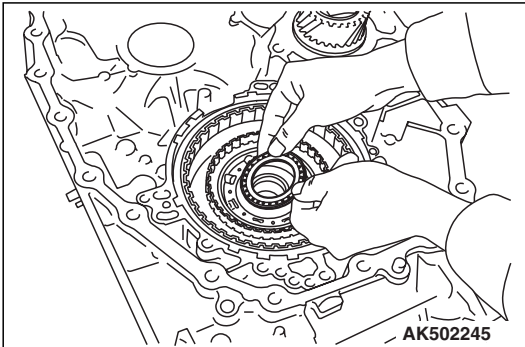
10. Install the sun gear on the planet carrier.



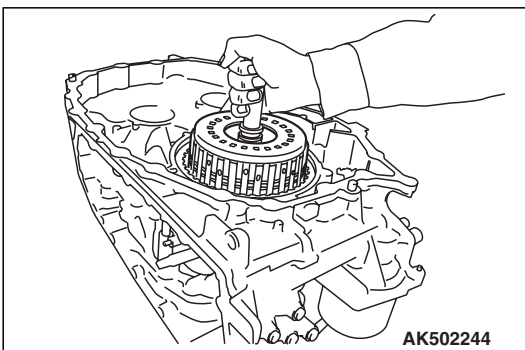
⚠ CAUTION

- Apply vaseline when installing the needle bearing.
- Be careful to attach the needle bearing in right direction.

11. Install the needle bearing on the forward clutch drum side of the sun gear. Refer to C in the "IDENTIFICATION OF NEEDLE BEARINGS" for right direction.



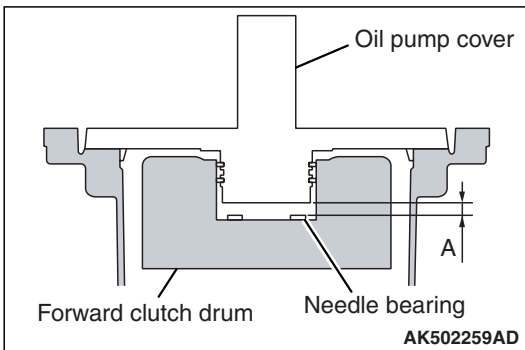
12. Install the forward clutch assembly on the transaxle case.



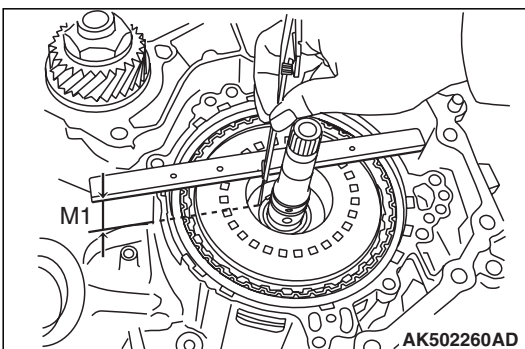
⚠ CAUTION

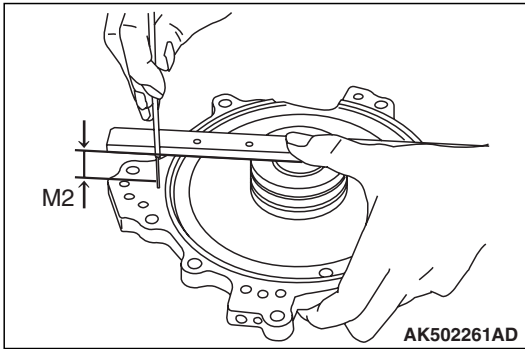
When conducting measurements, measure two or more places, and find the average value.

13. Measure the total end play as follows:



- (1) Measure the distance M1 from the oil pump cover mounting surface of the transaxle case to the needle bearing mounting surface of the forward clutch drum.





- (2) Measure the distance M2 from the edge of oil pump cover to the mounting surface on the transaxle case.
- (3) Calculate the total end play by the following expression.
Select the needle bearing so that the total end play meets its standard value.

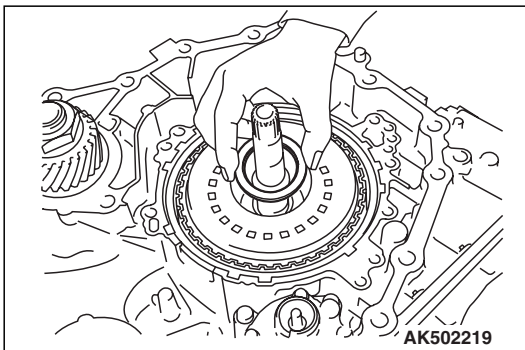
$$\text{Total end play} = M1 - M2 - \text{bearing thickness}$$

Standard value: 0.25 – 0.55 mm

⚠ CAUTION

- Apply vaseline when installing the needle bearing.
- Be careful to attach the needle bearing in right direction.

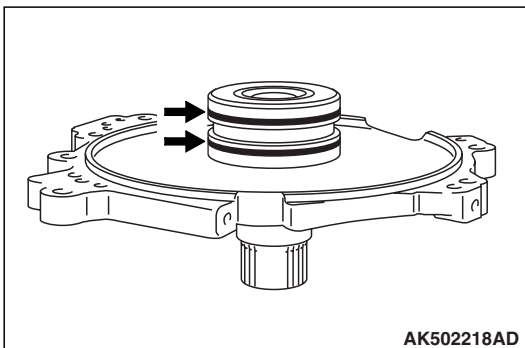
14. Install the selected needle bearing on the forward clutch assembly. Refer to D in the "IDENTIFICATION OF NEEDLE BEARINGS" for right direction.



⚠ CAUTION

- Do not re-use the seal rings.
- Apply vaseline when installing the seal rings.

15. Install the seal rings on the oil pump cover.

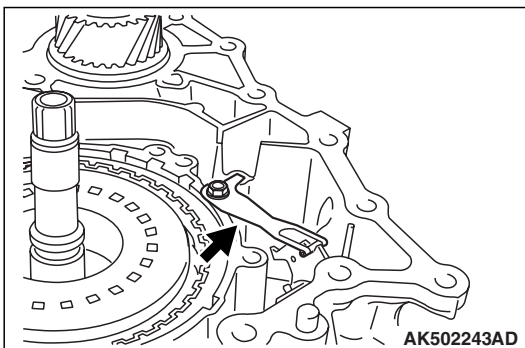


⚠ CAUTION

Do not re-use the bolt.

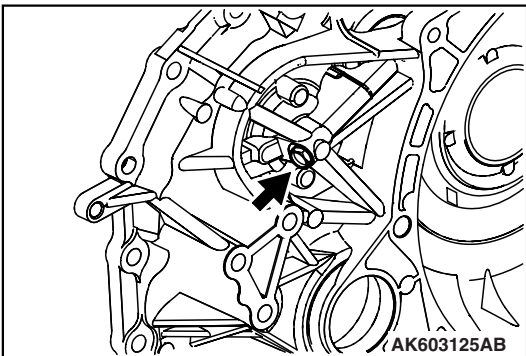
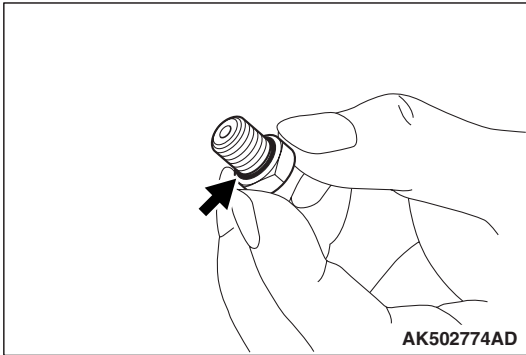
16. Install the detent spring on the transaxle case and tighten the bolt to the specified torque.

Tightening torque: 6.9 N·m (61 in-lb)



⚠ CAUTION

- Do not re-use the O-ring.
 - Apply CVT fluid when installing the O-ring.
17. Install the O-ring on the plug.



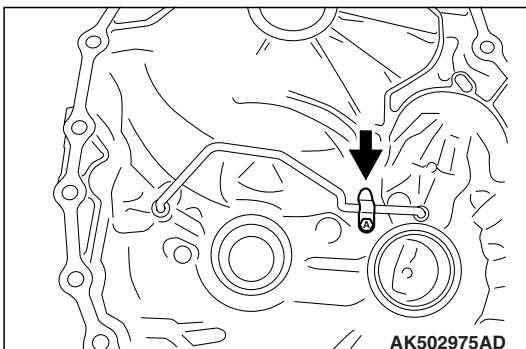
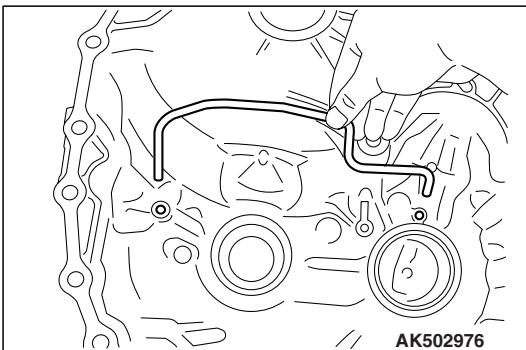
18. Install the plug on the converter housing and tighten the bolt to the specified torque.

Tightening torque: 7.5 N·m (66 in-lb)

⚠ CAUTION

Do not bend the pipe when attaching it.

19. Install the pipe on the converter housing.



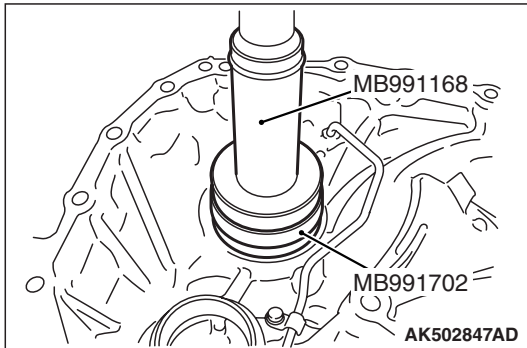
20. Install the clip and tighten the bolt to the specified torque.

Tightening torque: 6.9 N·m (61 in-lb)

⚠ CAUTION

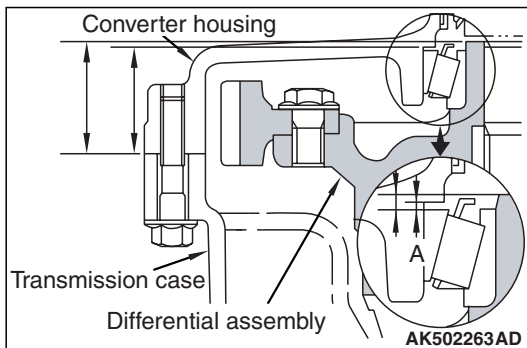
- Do not re-use the outer race.
- Replace the outer race together with the inner race.

21. Using the Special Tools MB991168 and MB991702, Install the differential bearing outer race.

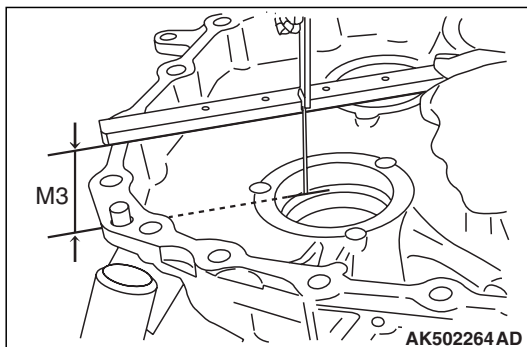
**⚠ CAUTION**

- When adjusting the preload, apply CVT fluid to the bearing to make it roll smoothly.
- When conducting measurements, measure two or more places, and find the average value.

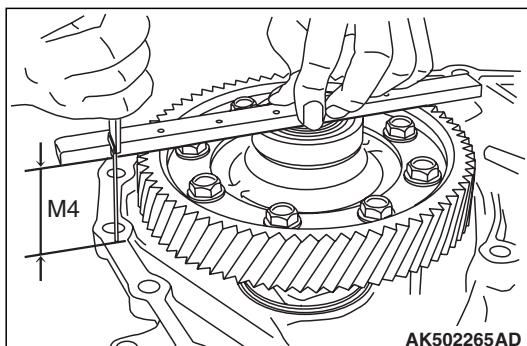
22. Measure the preload A of the differential assembly as follows:

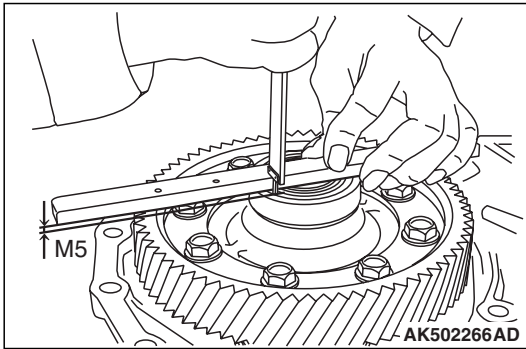


(1) Measure the distance M3 from the edge of transaxle case to the mounting surface of adjusting shim.



(2) Install the differential assembly on the converter case, and measure the distance M4 from the differential case to the edge of converter housing.





- (3) Install the outer race on differential side bearing, and measure the distance M5 from the differential case to the outer race of differential side bearing.
- (4) Using the following expression, calculate the distance M6 from the edge of converter housing to the outer race of differential side bearing.

$$M6 = M4 - M5$$

- (5) Using the following expression, calculate thickness of the adjusting shim.

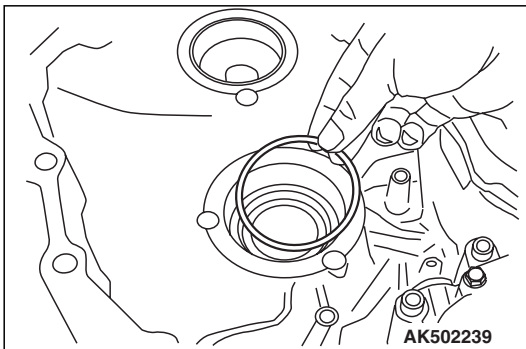
$$\text{Thickness of adjusting shim} = M3 - M6 + \text{preload}$$

Preload standard value: 0.17 –0.29 mm

⚠ CAUTION

Do not re-use the adjusting shim.

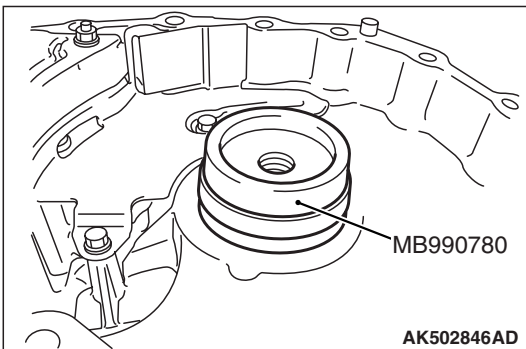
23. Install the selected shim on the transaxle case. For selection of the adjusting shim, refer to "SERVICE SPECIFICATIONS".



⚠ CAUTION

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

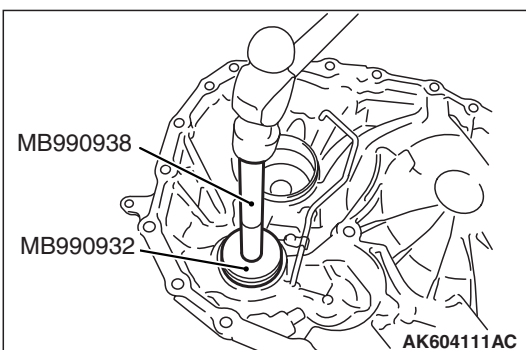
24. Using the Special Tool MB990780, install the outer race of differential side bearing on the transaxle case.



⚠ CAUTION

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

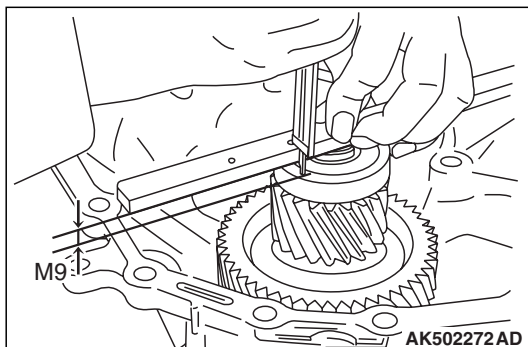
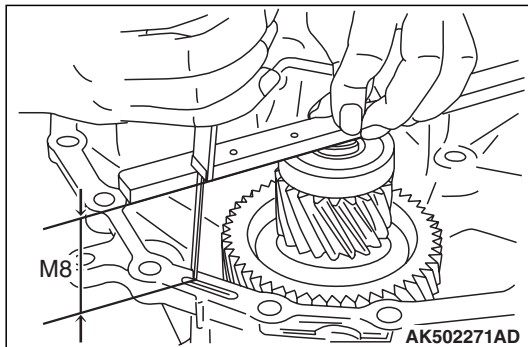
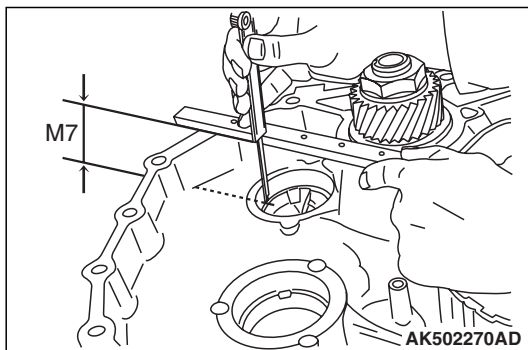
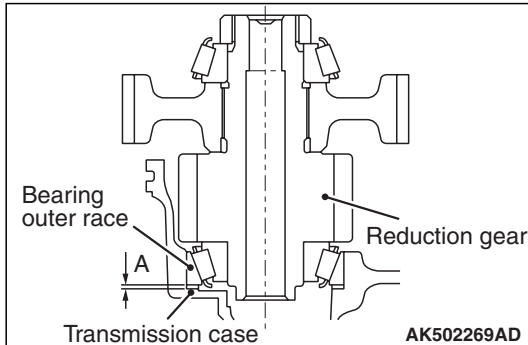
25. Using the Special Tools MB990932 and MB990938, install the outer race of reduction gear bearing on the converter housing.



⚠ CAUTION

- When adjusting the preload, apply CVT fluid to the bearing to make it roll smoothly.
- When conducting measurements, measure two or more places, and find the average value.

26. Measure the preload A of the reduction gear assembly in the following way.



(1) Measure the distance M7 from the edge of transaxle case to the mounting surface of adjusting shim.

(2) Install the reduction gear assembly on the converter housing, and measure the distance M8 from the edge of reduction gear assembly to the edge of converter housing.

(3) Install the outer race of reduction gear side bearing on the bearing, and measure the distance M9 from the edge of reduction gear assembly to the outer race of reduction gear bearing.

(4) Using the following expression, calculate the difference M10 from the outer race of reduction gear bearing to the edge of converter housing.

$$M10 = M8 - M9$$

(5) Using the following expression, calculate the thickness of adjusting shim.

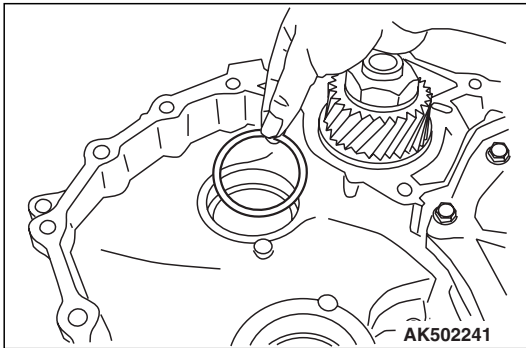
$$\text{Thickness of adjusting shim} = M7 - M10 + \text{preload}$$

$$\text{Preload standard value:} = 0.13 - 0.19 \text{ mm}$$

⚠ CAUTION

Do not re-use the adjusting shim.

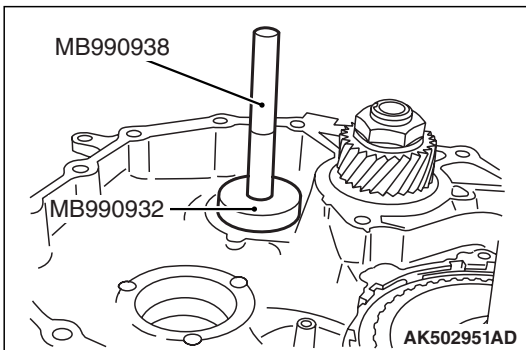
27. Install the selected adjusting shim on the transaxle case.
For selection of the adjusting shim, refer to "SERVICE SPECIFICATIONS".



⚠ CAUTION

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

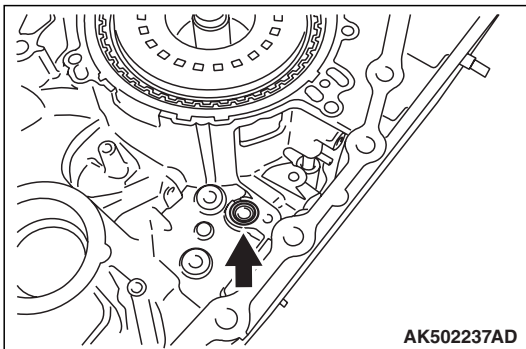
28. Using the Special Tools MB990932 and MB990938, install the outer race of reduction gear bearing on the transaxle case.



⚠ CAUTION

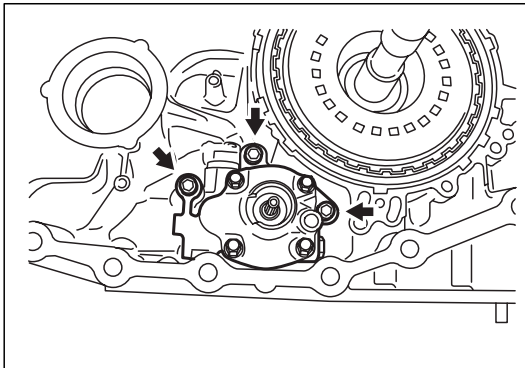
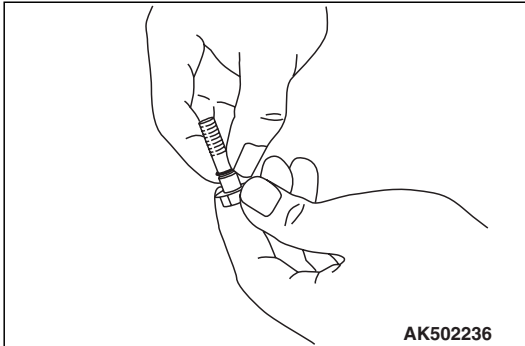
- Do not re-use the lip seal.
- Apply CVT fluid when installing the lip seal.

29. Install the lip seal on the transaxle case.



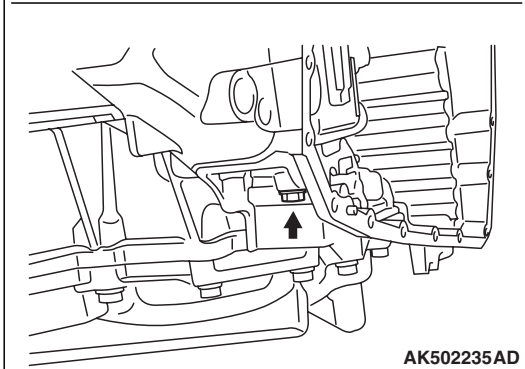
⚠ CAUTION

- Do not re-use the O-rings.
 - Apply CVT fluid when installing the O-rings.
30. Install the O-rings on the oil pump fastening bolts.

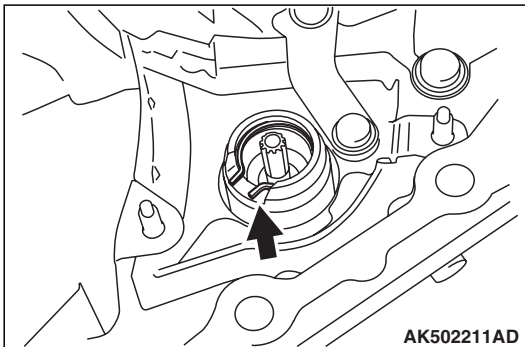


31. Install the oil pump on the transaxle case and tighten the bolt to the specified torque. (One fastening bolt is installed at the backside from the transaxle case side. Only this bolt should be tightened to the specified torque of 28 N·m [21 ft-lb]).

Tightening torque: 19 N·m (14 ft-lb)

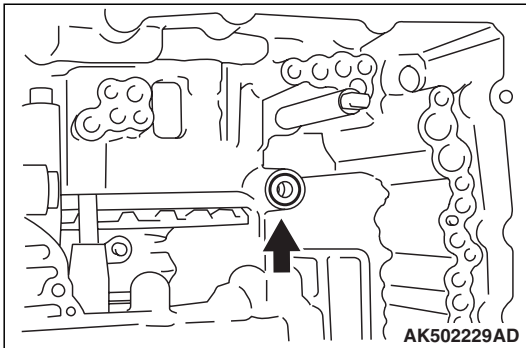
**⚠ CAUTION**

- Do not re-use the snap ring.**
32. Install the snap ring on the oil pump.

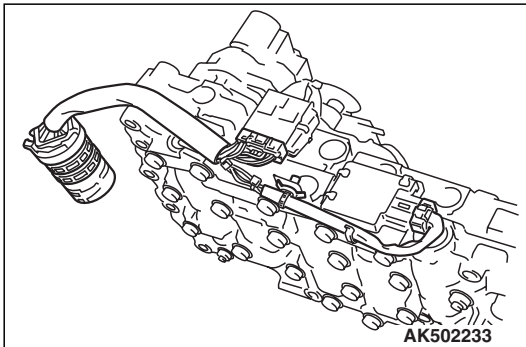


⚠ CAUTION

- Do not re-use the lip seal.
 - Apply CVT fluid or vaseline when installing the lip seal.
33. Install the lip seal on the transaxle case.

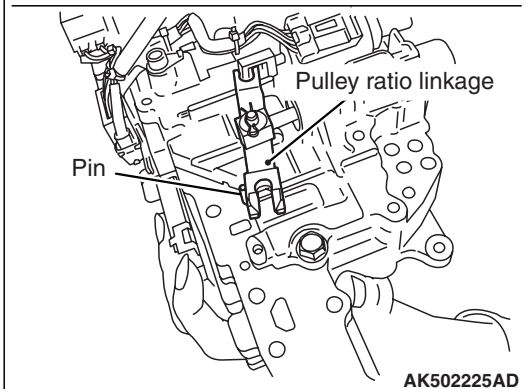
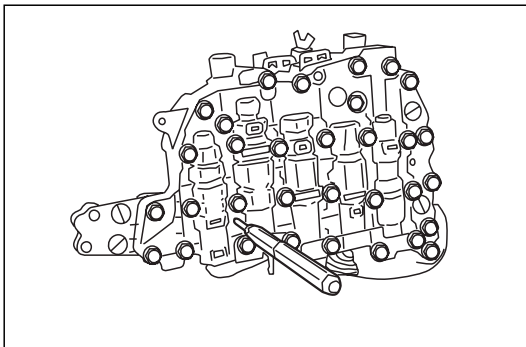


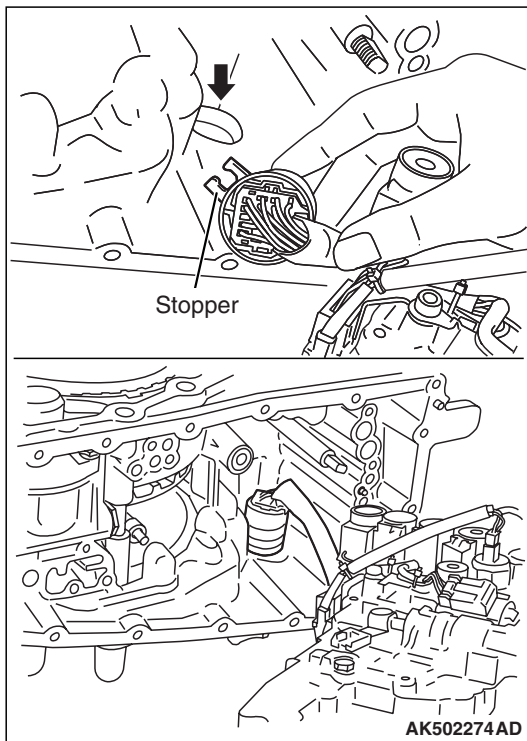
34. Install the valve body harness on the control valve.



35. Install the control valve assembly on the transaxle case as follows:

- (1) Insert pins etc. (ϕ 3 mm) into linkage stopper holes of the control valve assembly to fix the pulley ratio linkage.





- (2) Install the terminal body on the transaxle case, while aligning the detent of terminal body with the transaxle case as shown in the diagram.

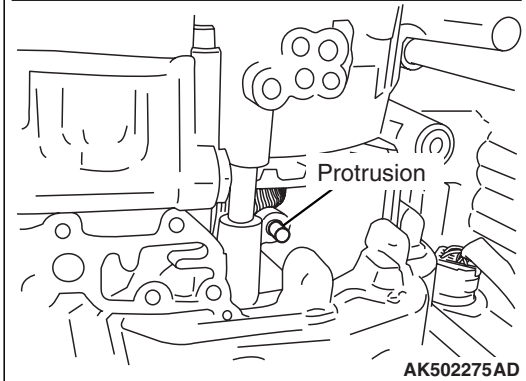
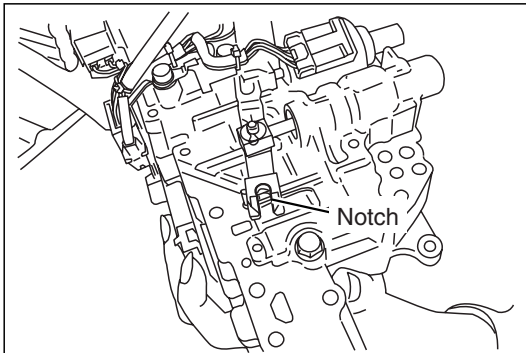
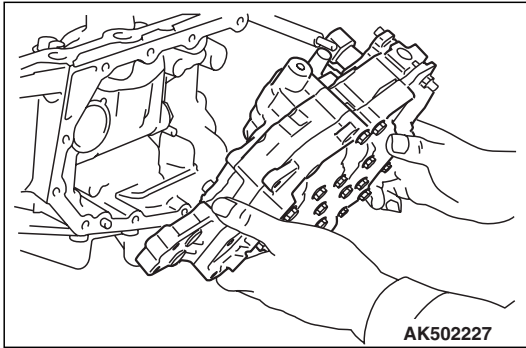
⚠ CAUTION

Align the notch of pulley ratio linkage with the prong of pulley sensor.

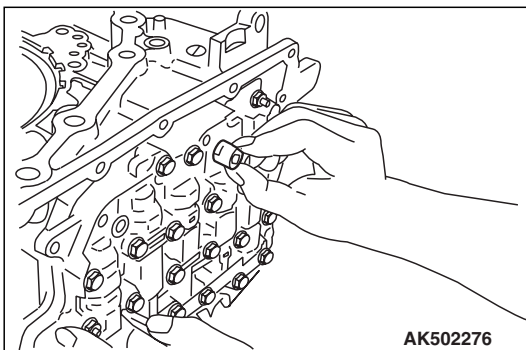
- (3) Slide the control valve assembly from the bottom, and install it on the transaxle case.

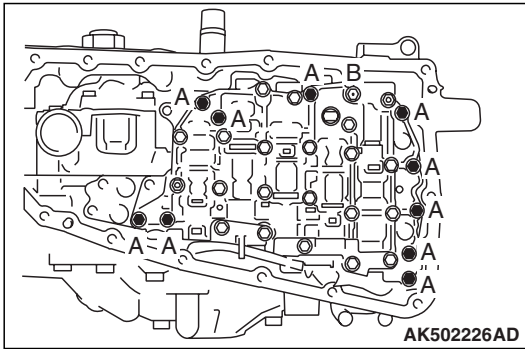
⚠ CAUTION

Apply CVT fluid when attaching the bush.



- (4) Install the bush on the control valve assembly.

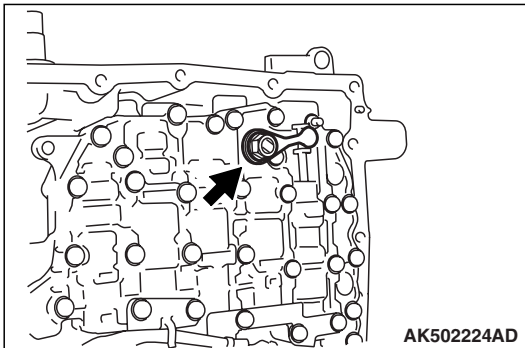




(5) Install the fastening bolts of control valve assembly and tighten the bolt to the specified torque.

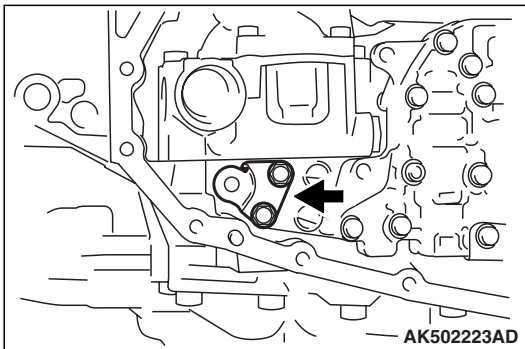
Tightening torque: 7.9 N·m (70 in-lb)

| Bolt symbol | A | B |
|----------------|----|----|
| Bolt length mm | 54 | 44 |
| Quantity | 10 | 1 |



36. Install the manual lever and tighten the bolt to the specified torque.

Tightening torque: 22.1 N·m (16 ft-lb)

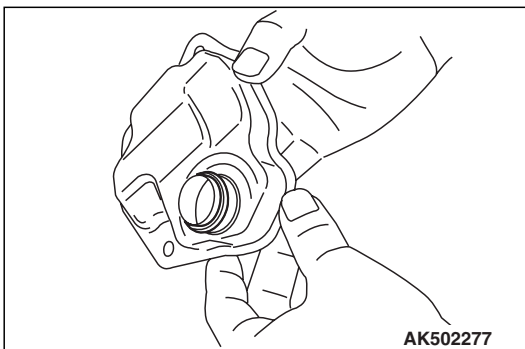


37. Install the bracket on the control valve assembly and tighten the bolt to the specified torque.

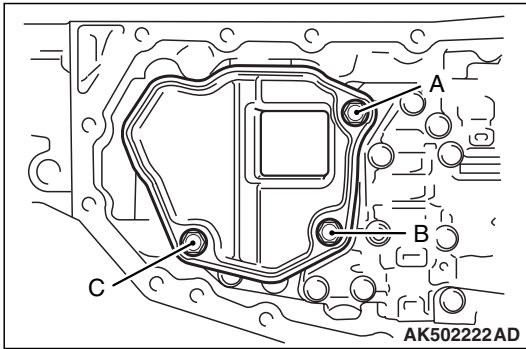
Tightening torque: 7.9 N·m (70 in-lb)

⚠ CAUTION

- Do not re-use the O-ring.
- Apply CVT fluid when installing the O-ring.



38. Install the O-ring on the oil strainer.



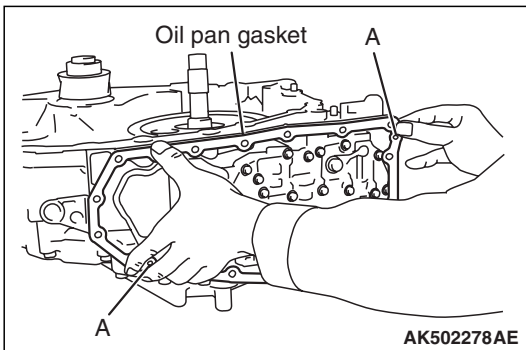
39. Install the oil strainer and tighten the bolt to the specified torque.

Tightening torque: 7.9 N·m (70 in-lb)

| Bolt symbol | A | B | C |
|----------------|----|----|----|
| Bolt length mm | 12 | 44 | 12 |
| Quantity | 1 | 1 | 1 |

⚠ CAUTION

- Do not re-use the oil pan gasket.
- Remove any moisture, oil, and used gasket from the mounting surface of oil pan gasket.
- When installing the oil pan gasket, align the dowel pins of transaxle case with dowel pin holes A of the oil pan gasket.



40. Install the oil pan gasket on the transaxle case.

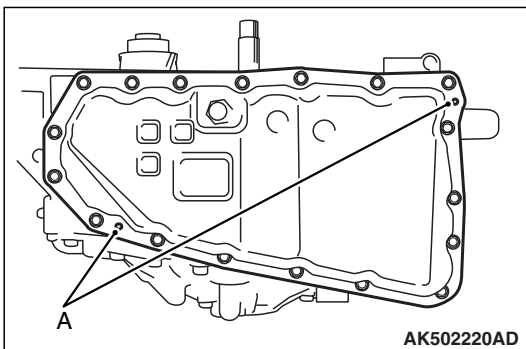
41. Install the magnet on the oil pan.

⚠ CAUTION

When installing the oil pan, align the dowel pins of transaxle case with dowel pin holes A of the oil pan.

42. Install the oil pan on the transaxle case and tighten the bolts to the specified torque.

Tightening torque: 7.9 N·m (70 in-lb)

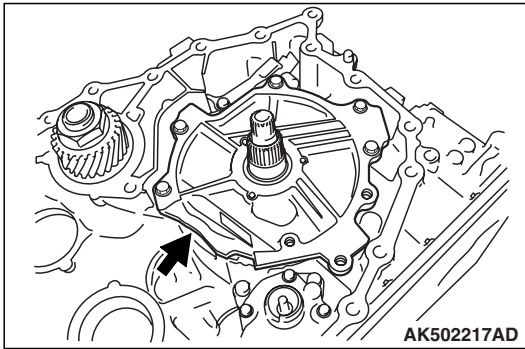


⚠ CAUTION

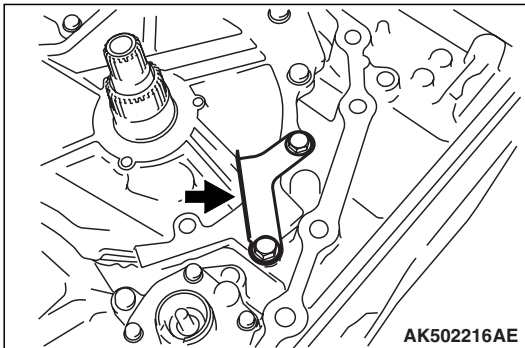
Do not re-use the drain plug gasket.

43. Install the drain plug and drain plug gasket on the transaxle case and tighten the bolt to the specified torque.

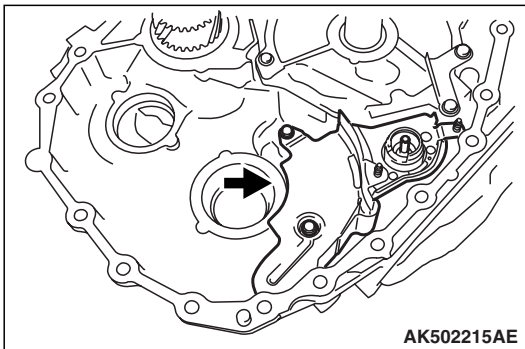
Tightening torque: 34.3 N·m (25 ft-lb)



44. Install the oil pump cover on the transaxle case, and fix the fastening bolts temporarily.

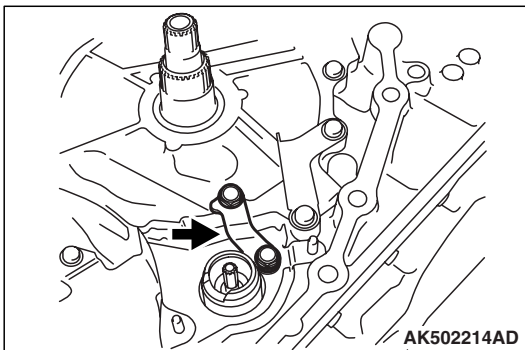


45. Install the baffle plate, and fix the fastening bolts temporarily.



46. Install the baffle plate and tighten the bolt to the specified torque.

Tightening torque: 5.9 N·m (52 in-lb)

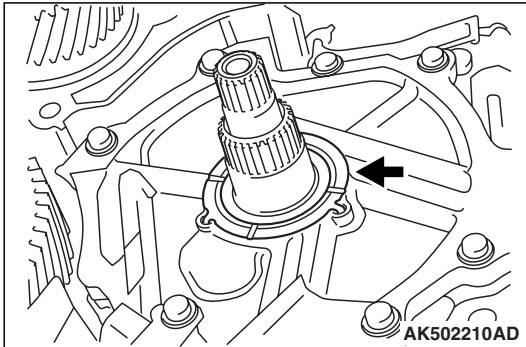


47. Install the bracket, and tighten the fastening bolts of the oil pump cover, baffle plate and tighten the bolts to the specified torque.

Tightening torque: 26 N·m (19 ft-lb)

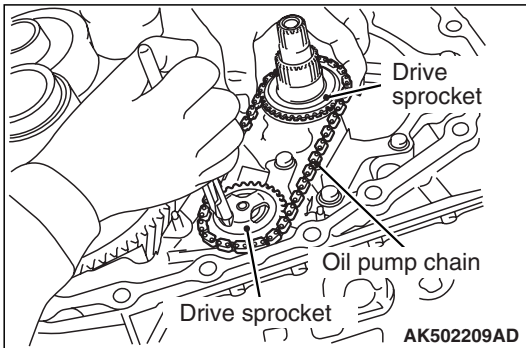
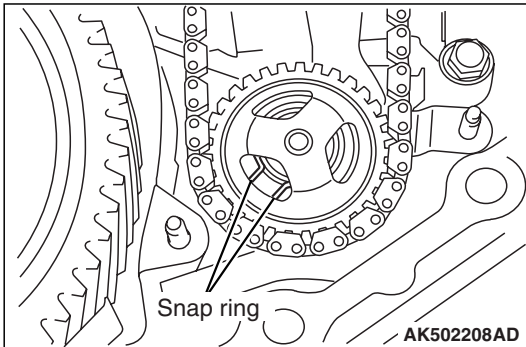
⚠ CAUTION

- Make sure the tang of thrust washer is aligned with the mounting hole of oil pump cover.
 - Apply vaseline when installing the thrust washer.
48. Install the thrust washer on the oil pump cover.

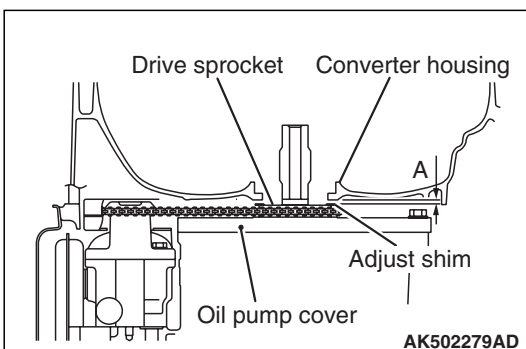


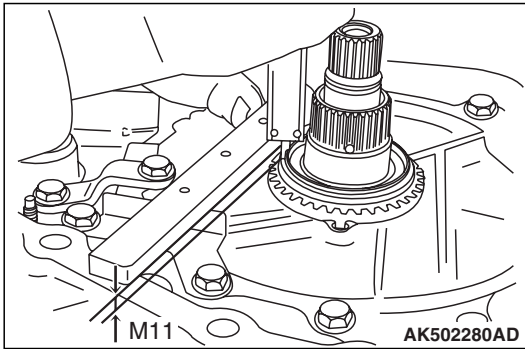
⚠ CAUTION

- Pull the driven sprocket up softly to make sure it is securely attached.**
49. Expand the snap ring, and install the driven sprocket, oil pump chain, and drive sprocket.

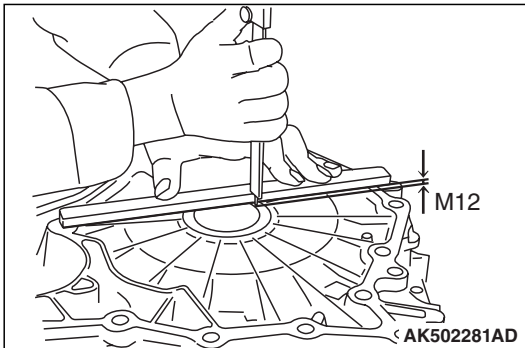


50. Measure the clearance A between the oil pump drive sprocket and the converter housing as follows:





- (1) Measure the distance M11 between the edge of transaxle case and the adjusting shim mounting surface of drive sprocket.



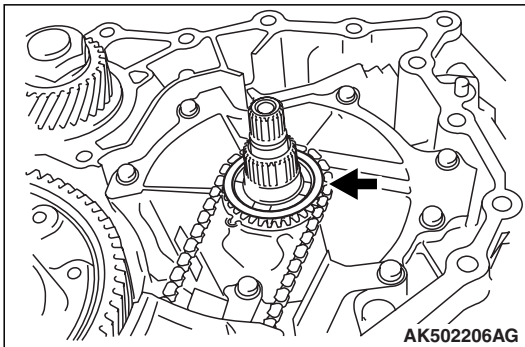
- (2) Measure the distance M12 between the edge of converter housing and the surface contacting the adjusting shim.
- (3) Use the following expression, to select the adjusting shim having the standard value.

Standard value of clearance = M11 + M12 – thickness of adjusting shim

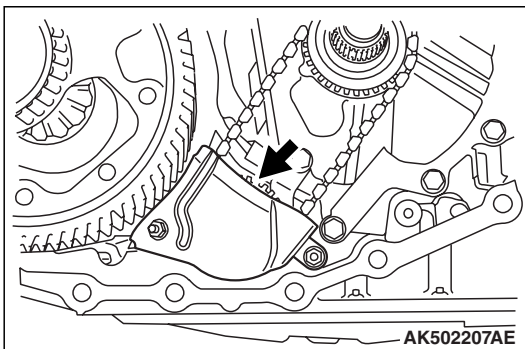
Standard value: 0.10 –0.23 mm

CAUTION

Apply vaseline when installing the adjusting shim.



- (4) Install the selected adjusting shim on the drive sprocket.
For selection of the adjusting shim, refer to "SERVICE SPECIFICATIONS".



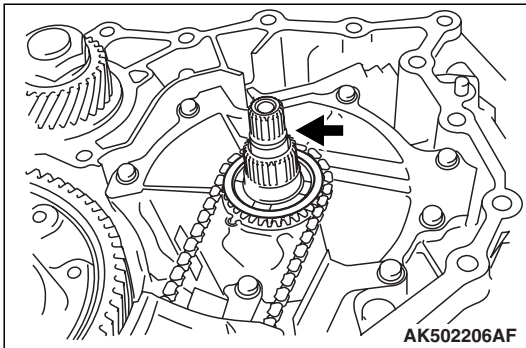
51. Install the baffle plate, and tighten the fastening nuts to the specified torque.

Tightening torque: 5.9 N·m (52 in-lb)

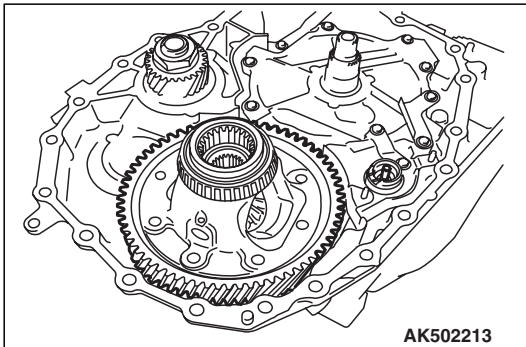
⚠ CAUTION

- Do not re-use the O-ring.
- Apply CVT fluid when installing the O-ring.

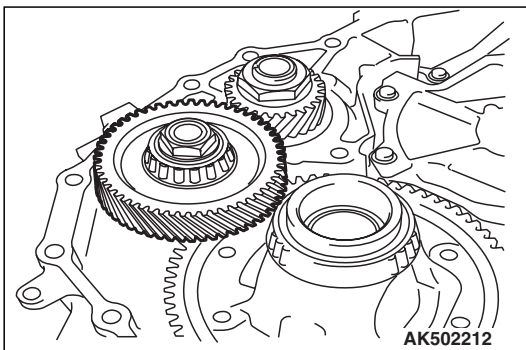
52. Install the O-ring on the input shaft.



53. Install the differential assembly on the transaxle case.



54. Install the reduction gear assembly on the transaxle case.

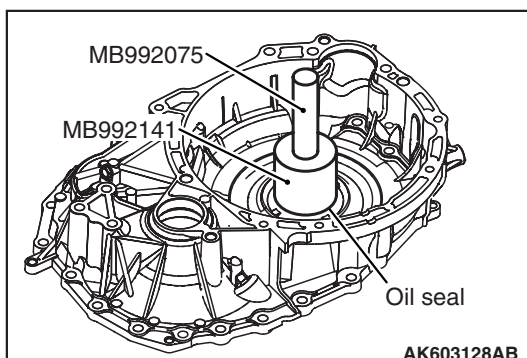


⚠ CAUTION

- Do not re-use the converter housing oil seal.
- Apply CVT fluid when installing the converter housing oil seal.

55. Using the Special Tools MB992141 and MB992075, install the converter housing oil seal on the converter housing.

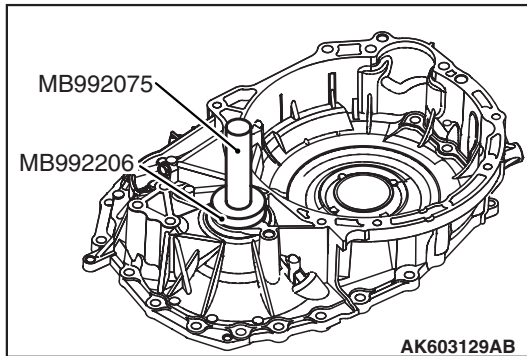
Depth from the case edge: within -1.0 ± 0.5 mm (recessed).



⚠ CAUTION

- Do not re-use the converter housing side oil seal.
- Apply CVT fluid when installing the converter housing side oil seal.

56. Using the Special Tools MB992206 and MB992075, install the converter housing side oil seal on the converter housing.

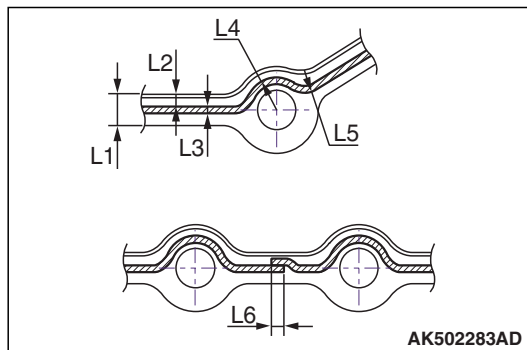


⚠ CAUTION

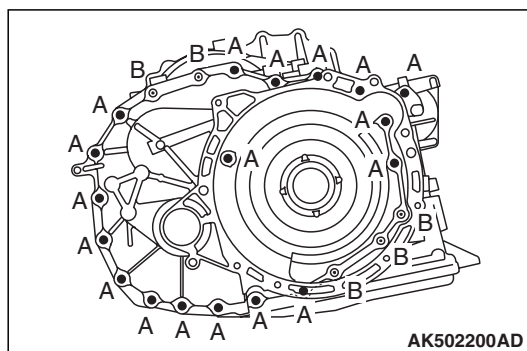
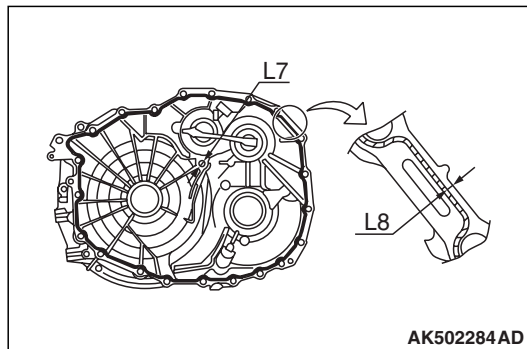
- Remove any moisture, oil and oil sealant from the application surface.
- Make sure the starting point and the ending point are about the middle between the bolts.

57. Apply the sealant on the converter housing mounting surface of the transaxle case in the following way.

Specified sealant: Loctite 509



| | |
|----|-----------|
| L1 | 9 mm |
| L2 | 5 mm |
| L3 | φ 1.5 mm |
| L4 | R 8.5 mm |
| L5 | R 5 –8 mm |
| L6 | R 3 –5 mm |
| L7 | φ 17 mm |
| L8 | 3.5 mm |



58. Install the converter housing on the transaxle case, and tighten the fastening bolts to the specified torque of 45 N· m.

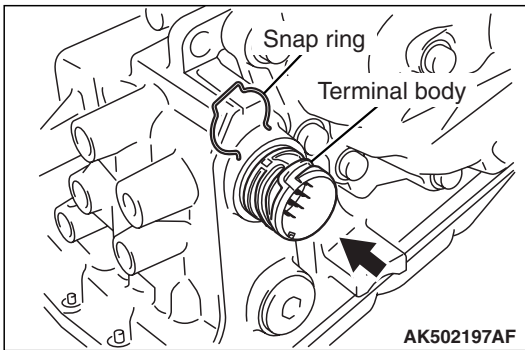
Tightening torque: 45 N· m (33 ft-lb)

| Bolt symbol | A | B |
|----------------|----|----|
| Bolt length mm | 30 | 35 |
| Quantity | 18 | 5 |

⚠ CAUTION

Do not re-use the snap ring.

59. Install the snap ring on the terminal body.



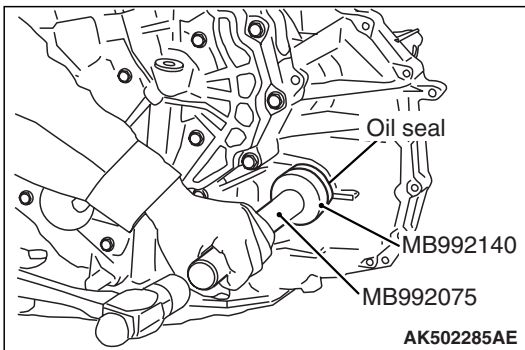
⚠ CAUTION

- Do not re-use the side oil seal.

- Apply CVT fluid when installing the side oil seal.

60. Using the Special Tool MB992140 and MB992075, install the side oil seal on the transaxle case.

Depth from the case edge: within -1.8 ± 0.5 mm (recessed).

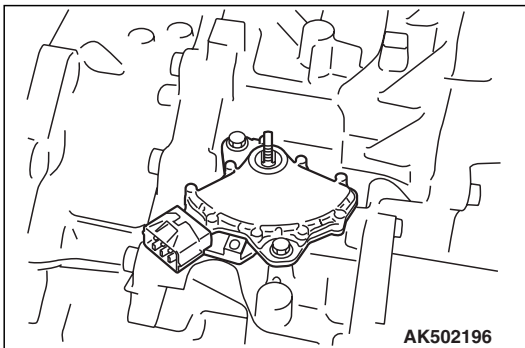


⚠ CAUTION

Do not re-use the inhibitor switch.

61. Install the inhibitor switch on the transaxle case as follows:

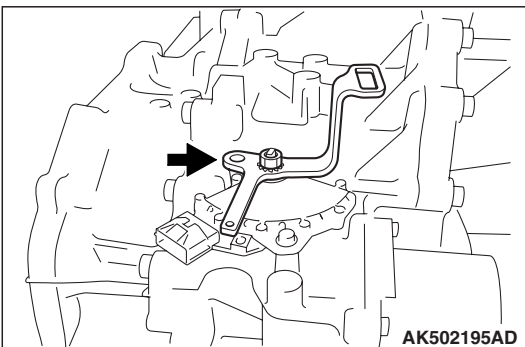
(1) Install the inhibitor switch on the transaxle case.

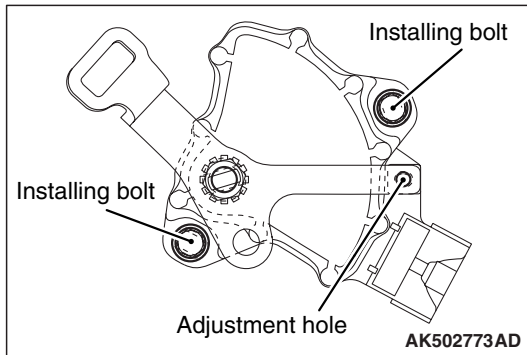


(2) Install the shift lever on the manual shaft, and tighten the fastening nuts to the specified torque.

Tightening torque: 17.2 N·m (13 ft·lb)

(3) Set the manual shaft at N position.



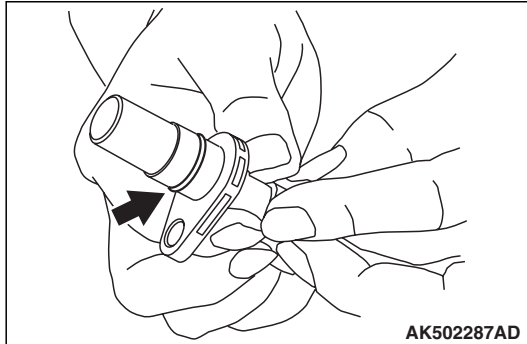


- (4) Insert pins etc. ($\phi 5$ mm) in adjusting holes in both inhibitor switch and shift lever, and after alignment, tighten the fastening bolts to the specified torque.

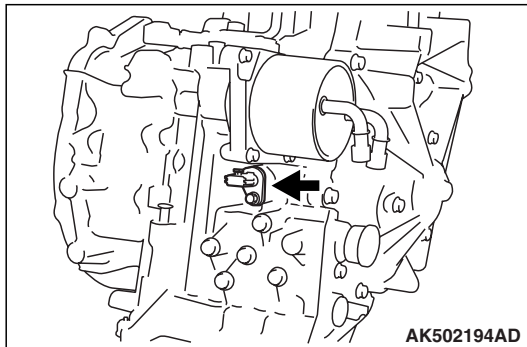
Tightening torque: 5.5 N·m (49 in-lb)

CAUTION

- Do not re-use the O-ring.
- Apply CVT fluid when installing the O-ring.



62. Install the oil ring on the primary pulley speed sensor.

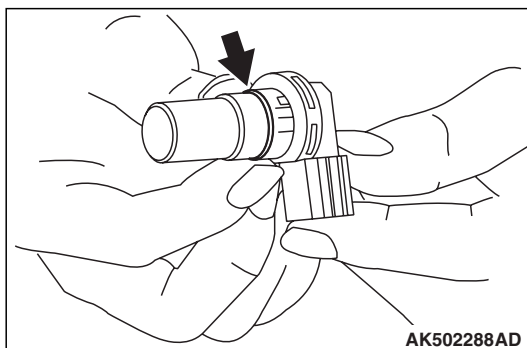


63. Install the primary pulley speed sensor on the transaxle case, and tighten the fastening bolts to the specified torque.

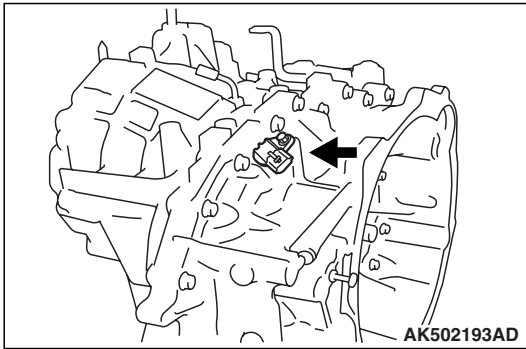
Tightening torque: 5.9 N·m (52 in-lb)

CAUTION

- Do not re-use the O-ring.
- Apply CVT fluid when installing the O-ring.



64. Install the O-ring on the secondary pulley speed sensor.

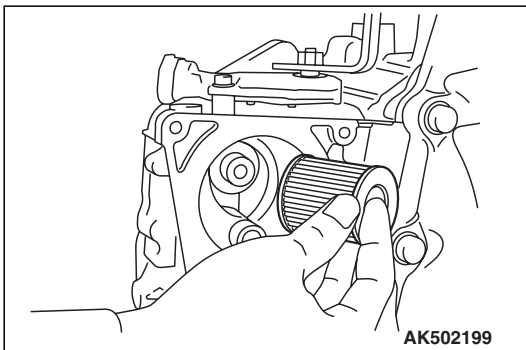


65. Install the secondary pulley speed sensor on the transaxle case, and tighten the fastening bolts to the specified torque.

Tightening torque: 5.9 N·m (52 in-lb)

⚠ CAUTION

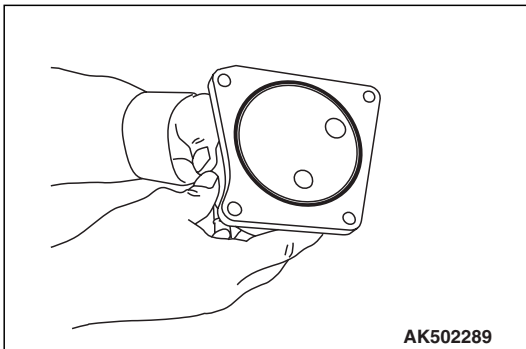
- Apply CVT fluid or vaseline when installing the CVT fluid cooler filter.
- Do not re-use the CVT fluid cooler filter.



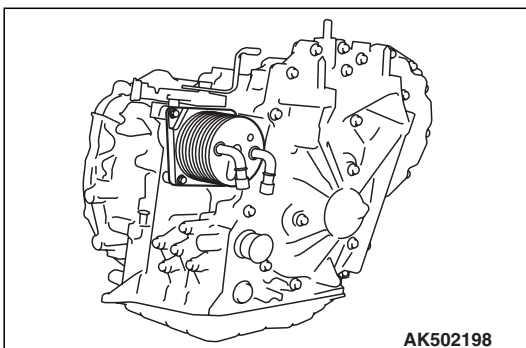
66. Install the CVT fluid cooler filter on the transaxle case.

⚠ CAUTION

- Do not re-use the O-ring.
- Apply CVT fluid when installing the O-ring.
- When installing O-ring, make sure that projection of the O-ring is put into the groove on the filter.



67. Install the O-ring on the CVT fluid filter.

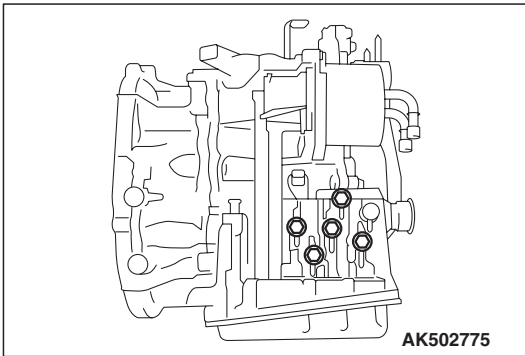
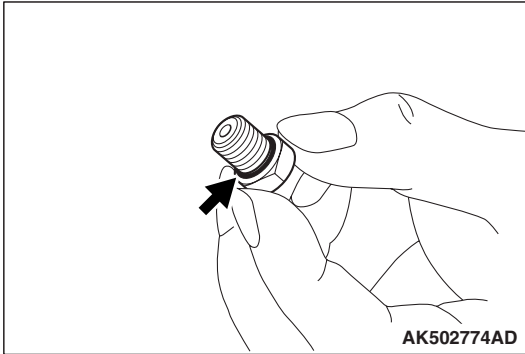


68. Install the CVT fluid cooler on the transaxle case, and tighten the fastening bolts to the specified torque.

Tightening torque: 4.2 N·m (37 in-lb)

⚠ CAUTION

- Do not re-use the O-ring.
 - Apply CVT fluid when installing the O-ring.
69. Install the O-ring on the plug.



70. Fasten the plug on the transaxle case and tighten the bolt to the specified torque.

Tightening torque: 7.5 N·m (66 in-lb)

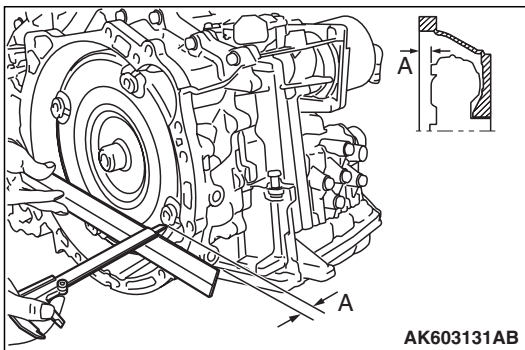
⚠ CAUTION

When conducting measurements, measure two or more places, and find the average value.

71. Install the converter on the transaxle, and measure the size A to check if it meets the standard value.

Standard value: 15.9 mm.

72. Install the control cable bracket and breather hose on the transaxle.
73. Install the oil filler tube and oil level gage on the transaxle.
74. Install the harness bracket on the transaxle.
75. Install the RR roll stopper bracket and FR roll stopper bracket on the transaxle.



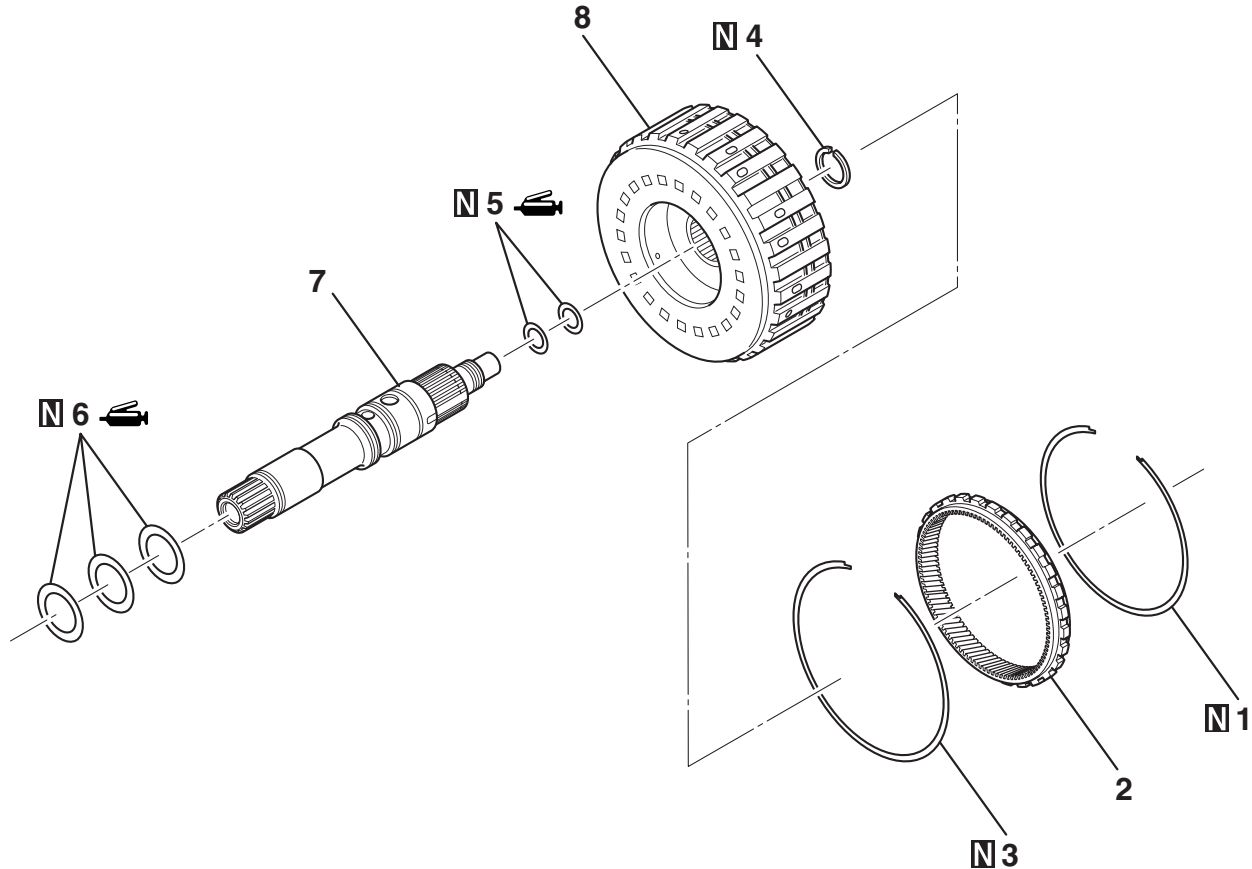
FORWARD CLUTCH

DISASSEMBLY AND ASSEMBLY

M1233209000184

CAUTION

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



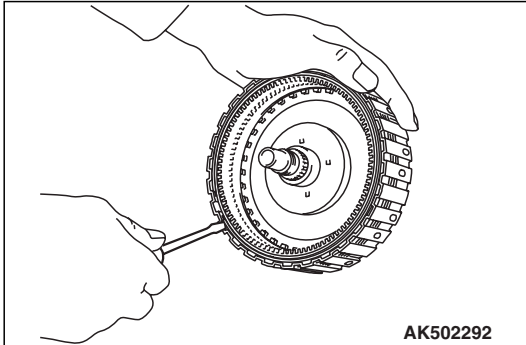
AK502291AD

- Disassembly steps**
- | | | | |
|-------|-------|----|---------------|
| <<A>> | >>E<< | 1. | Snap ring |
| <> | >>D<< | 2. | Internal gear |
| <<C>> | >>C<< | 3. | Snap ring |
| <<D>> | >>B<< | 4. | Snap ring |

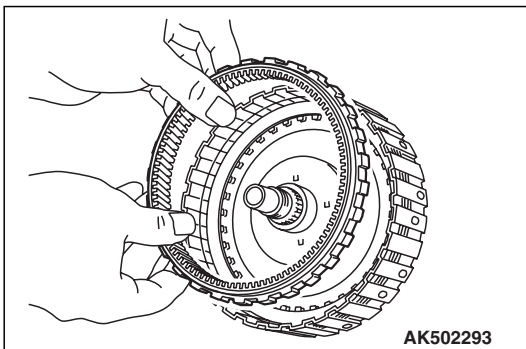
- Disassembly steps (Continued)**
- | | | | |
|-------|-------|----|-----------------------------|
| <<E>> | >>A<< | 5. | Seal ring (small) |
| <<E>> | >>A<< | 6. | Seal ring (big) |
| | | 7. | Input shaft |
| | | 8. | Forward clutch sub-assembly |

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

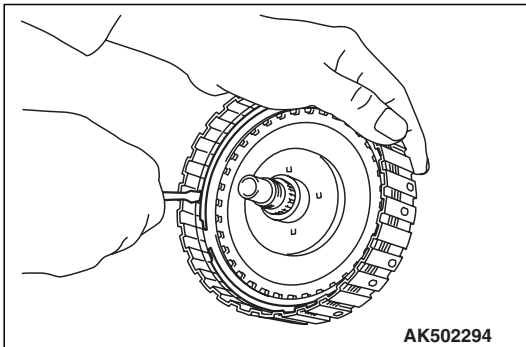
Using a flat blade screwdriver etc., remove the snap ring from the forward clutch drum.

**<>INTERNAL GEAR REMOVAL**

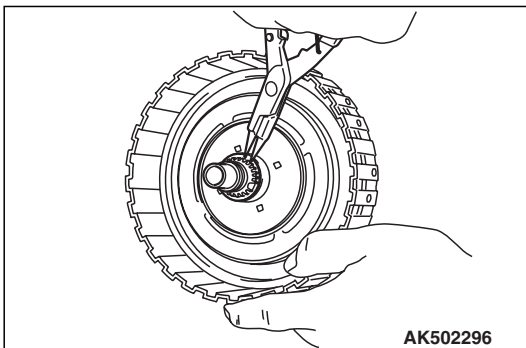
Remove the internal gear from the forward clutch drum.

**<<C>>SNAP RING REMOVAL**

Using a flat blade screwdriver etc., remove the snap ring from the forward clutch drum.

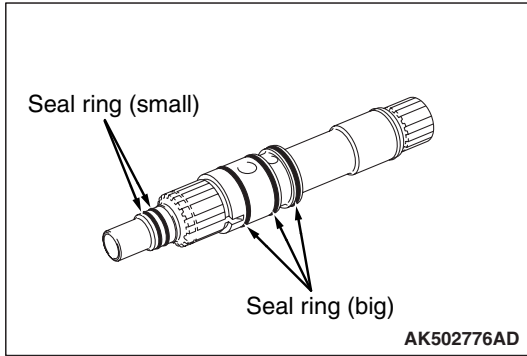
**<<D>>SNAP RING REMOVAL**

Remove the snap ring using snap ring pliers, and remove the input shaft from the forward clutch drum.



<<E>>SEAL RING REMOVAL

Remove the seal rings (small and big) from the input shaft.



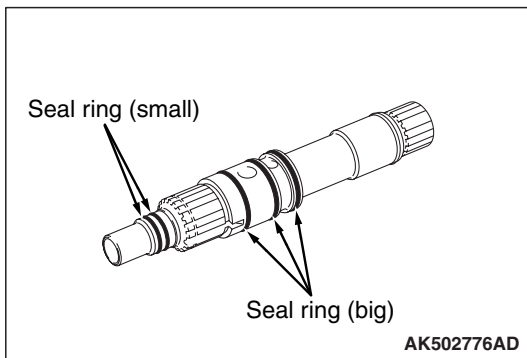
REASSEMBLY SERVICE POINT

>>A<<SEAL RING INSTALLATION

⚠ CAUTION

- Apply vaseline when installing the seal rings.
- Do not re-use the seal rings.

Install the seal rings (small and big) on the input shaft.

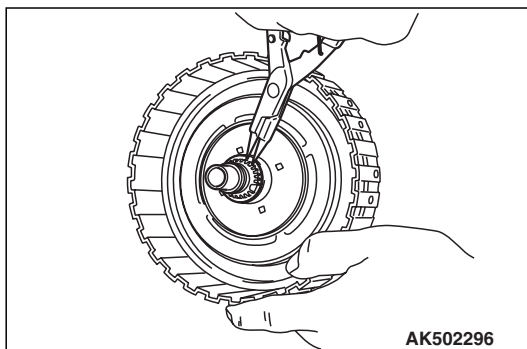


>>B<<SNAP RING INSTALLATION

⚠ CAUTION

- Be careful not to strain the snap ring by expanding it excessively.
- Do not re-use the snap ring.

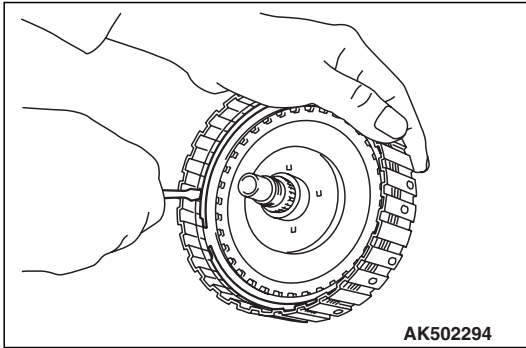
Install the input shaft on the forward clutch drum, and attach the snap ring.



>>C<<SNAP RING INSTALLATION

⚠ CAUTION**Do not re-use the snap ring.**

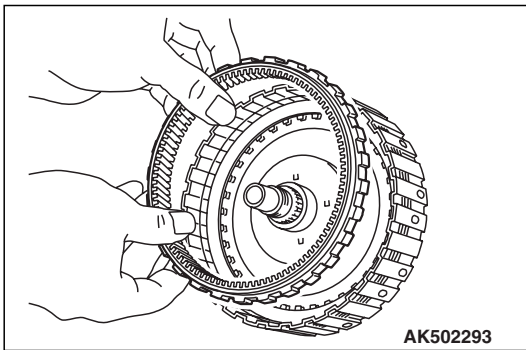
Install the snap ring on the forward clutch drum.



AK502294

>>D<<INTERNAL GEAR INSTALLATION

Install the internal gear on the forward clutch drum.

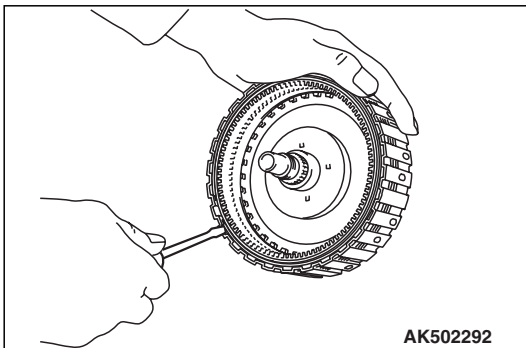


AK502293

>>E<<SNAP RING INSTALLATION

⚠ CAUTION**Do not re-use the snap ring.**

Install the snap ring on the forward clutch drum.



AK502292

INSPECTION

M1233200200040

FORWARD CLUTCH SUB-ASSEMBLY

Check if there is a damage, deformation, or burn marks, and replace the forward clutch sub-assembly if any defect is found.

INPUT SHAFT AND INTERNAL GEAR

Check if there is a damage or deformation, and replace if any defect is found.

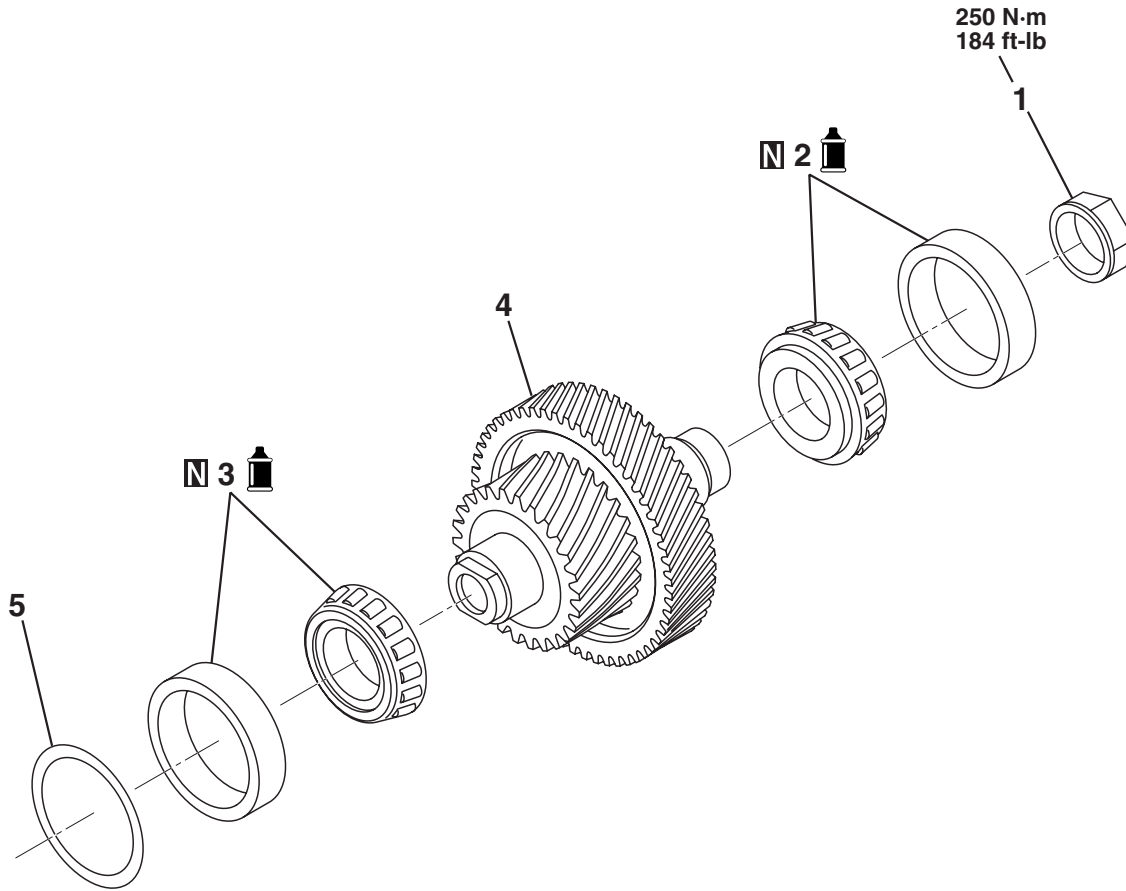
REDUCTION GEAR

DISASSEMBLY AND ASSEMBLY

M1233200600059

CAUTION

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



AK502978AD

Disassembly steps

- | | | | |
|-------|-------|----|------------------------|
| <<A>> | >>C<< | 1. | Nut |
| <> | >>B<< | 2. | Reduction gear bearing |
| <<C>> | >>A<< | 3. | Reduction gear bearing |

Disassembly steps (Continued)

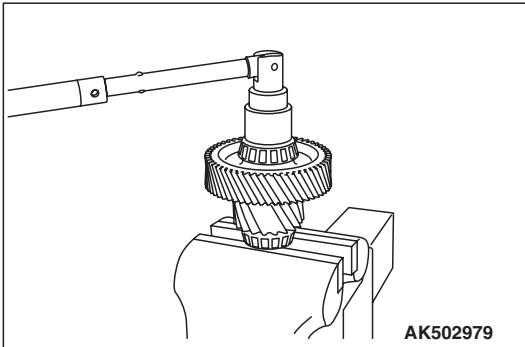
- | | |
|----|-----------------------------|
| 4. | Reduction gear sub-assembly |
| 5. | Adjusting shim |

Required Special Tools:

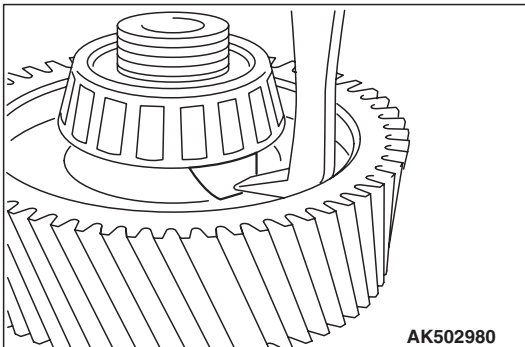
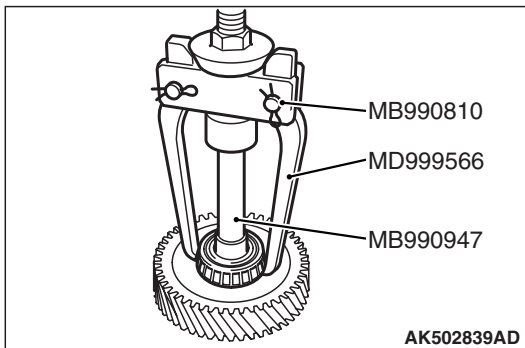
- | | |
|---|---|
| <ul style="list-style-type: none"> • MB990810: Side bearing puller • MB990947: Lower arm push arbor • MD999566: Crow • MB990984: Mount bushing lower roll insulator arbor | <ul style="list-style-type: none"> • MD998917: Bearing remover • MD998812: Installer Cap • MD998813: Installer-100 • MD998819: Installer adapter (40) |
|---|---|

DISASSEMBLY SERVICE POINT**<<A>>NUT REMOVAL**

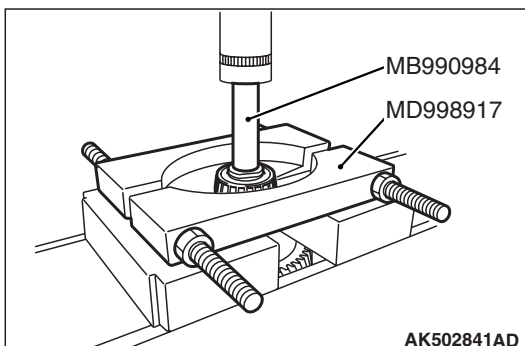
Remove the nut from the reduction gear sub-assembly.

**<>REDUCTION GEAR BEARING REMOVAL****⚠ CAUTION**

Align the tang of special tool as shown in the diagram.
Using the Special Tools MB990810, MB990947 and MD999566, remove the inner race of reduction gear bearing (converter housing side) from the reduction gear sub-assembly.

**<<C>>REDUCTION GEAR BEARING REMOVAL**

Using the Special Tools MB990984 and MD998917, remove the outer race of reduction gear bearing (transaxle case side) from the reduction gear sub-assembly.



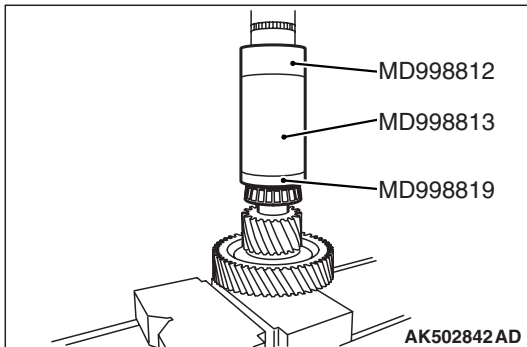
ASSEMBLY SERVICE POINT

**>>A<<REDUCTION GEAR BEARING
INSTALLTION**

⚠ CAUTION

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

Using the Special Tools MD998812, MD998813 and MD998819, install the inner race of reduction gear bearing (transaxle case side) on the reduction gear sub-assembly.

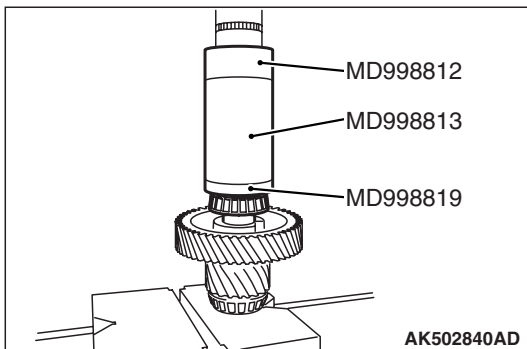


**>>B<<REDUCTION GEAR BEARING
INSTALLATION**

⚠ CAUTION

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

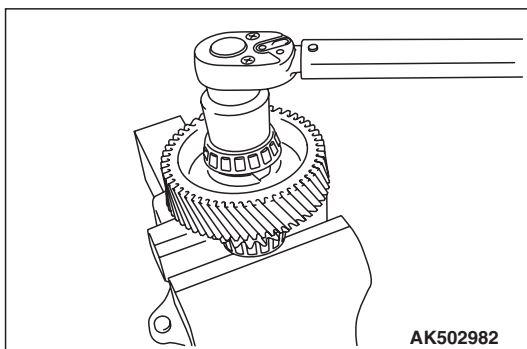
Using the Special Tools MD998812, MD998813 and MD998819, install the inner race of reduction gear bearing (converter housing side) on the reduction gear sub-assembly.



>>C<<NUT INSTALLATION

Install the nut on the reduction gear sub-assembly to the specified torque.

Tightening torque: 250 N·m (184 ft-lb)



INSPECTION

M1233200700034

REDUCTION GEAR SUB-ASSEMBLY

Measure the inner race press-fit shaft diameter of reduction gear sub-assembly, and replace the assembly if the diameter does not meet the standard value.

Standard values

- Converter housing side: ϕ 30.008 –30.029 mm
- transaxle case side: ϕ 30.008 –30.029 mm

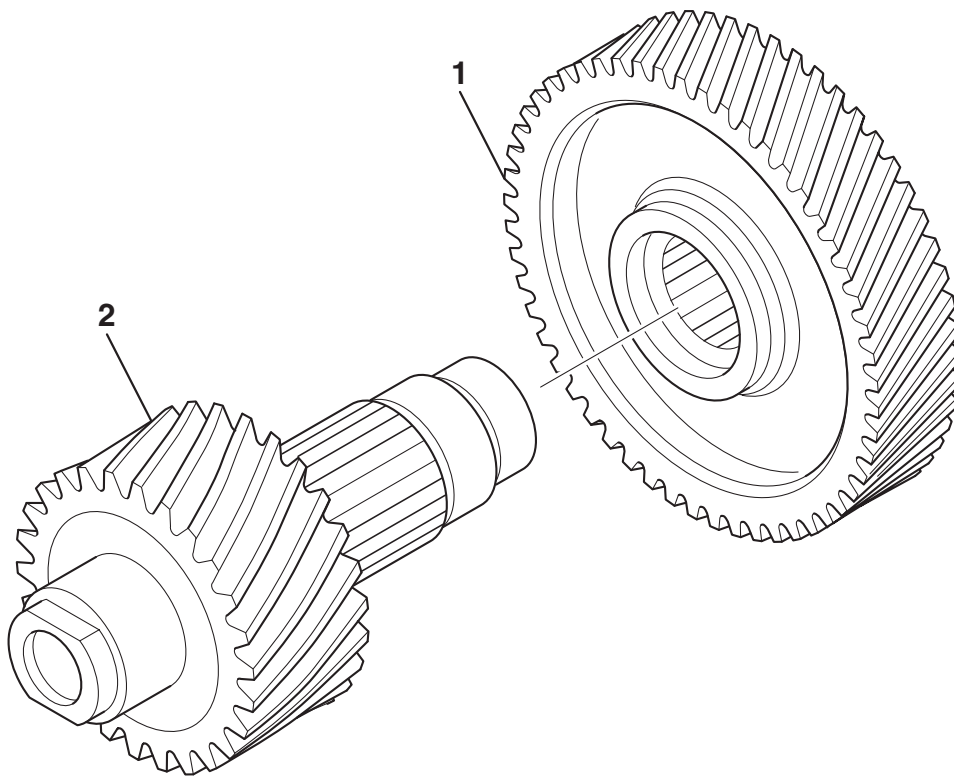
REDUCTION GEAR SUB-ASSEMBLY

ASSEMBLY

M1233200900038

CAUTION

The reduction gear sub-assembly can only be assembled, not disassembled.



AK503079AD

Assembly steps

- >>A<< 1. Idler gear
>>A<< 2. Reduction pinion gear

Required Special Tools:

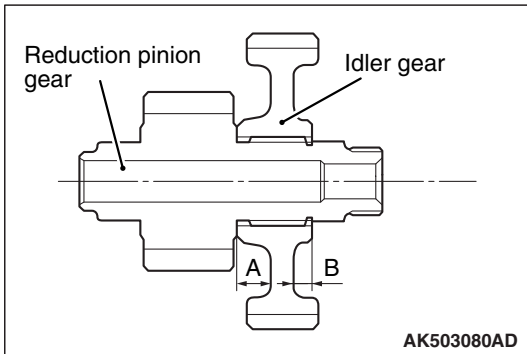
- MD998812: Installer Cap
- MD998813: Installer-100
- MD998819: Installer adapter (40)

ASSEMBLY SERVICE POINT

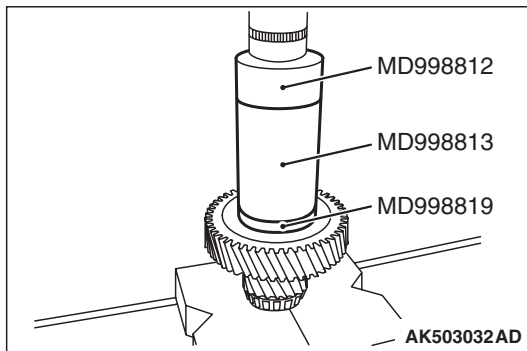
**>>A<<REDUCTION PINION GEAR / IDLER GEAR
INSTALLATION**

⚠ CAUTION

When attaching the idler gear to the reduction pinion gear, make sure the center boss portion A faces the reduction pinion gear.



| | |
|-----------------------|-------|
| Center boss portion A | Long |
| Center boss portion B | Short |



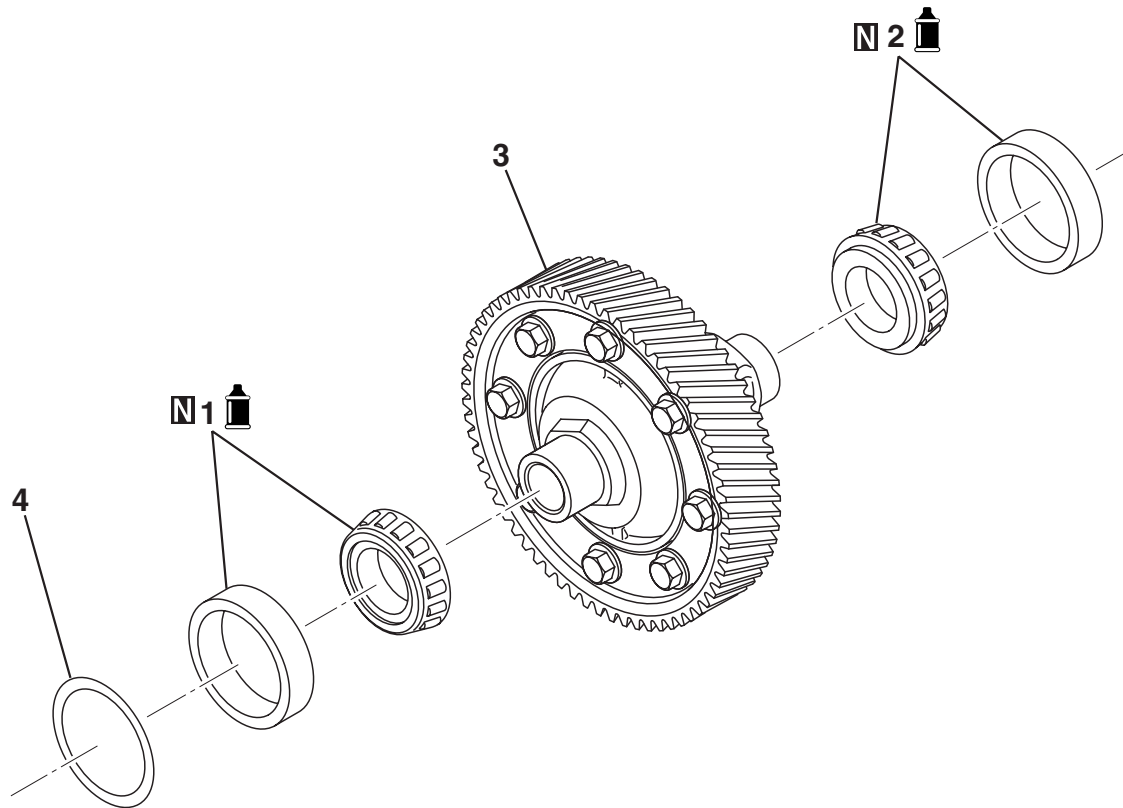
Using the Special Tools MD998812, MD998813 and MD998819, attach the idler gear to the reduction pinion gear.

DIFFERENTIAL**DISASSEMBLY AND ASSEMBLY**

M1233213000176

CAUTION

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



AK502984 AD

Disassembly steps

- <<A>> >>B<< 1. Differential side bearing
<> >>A<< 2. Differential side bearing

Disassembly steps (Continued)

3. Differential sub-assembly
4. Adjusting shim

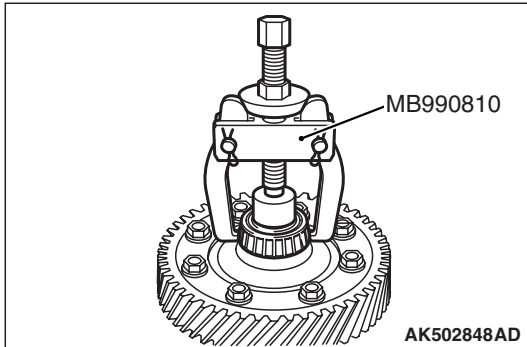
Required Special Tools:

- MB990810: Side bearing puller
- MB991452: Oil seal installer
- MD998812: Installer Cap
- MD998813: Installer-100
- MD998819: Installer adapter (40)
- MB992138: Bearing Installer
- MD998823: Installer adapter (48)

DISASSEMBLY SERVICE POINT

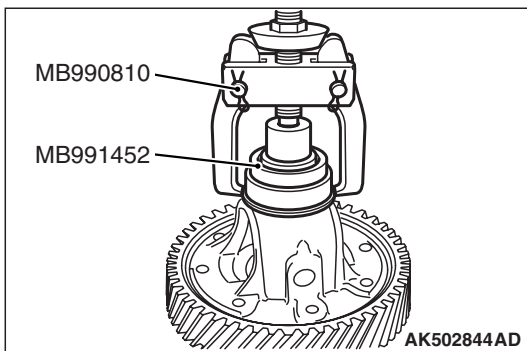
<<A>>DIFFERENTIAL SIDE BEARING REMOVAL

Using the Special Tool MB990810, remove the inner race of differential side bearing (transaxle case side) from the differential sub-assembly.



<>DIFFERENTIAL SIDE BEARING REMOVAL

Using the Special Tools MB990810 and MB991452, remove the inner race of differential side bearing (converter housing side) from the differential sub-assembly.



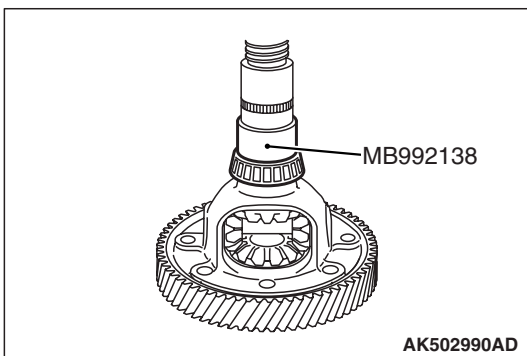
REASSEMBLY SERVICE POINT

>>A<<DIFFERENTIAL SIDE BEARING INSTALLATION

⚠ CAUTION

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

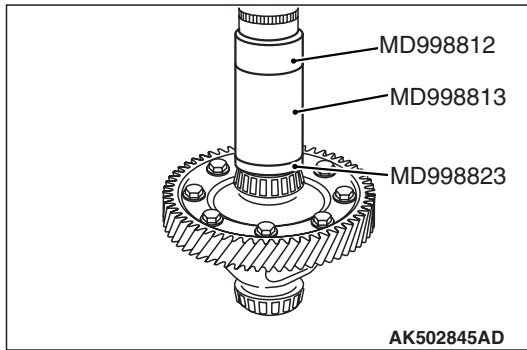
Using the Special Tool MB992138, install the inner race of reduction gear bearing (converter housing side) on the reduction gear sub-assembly.



>>B<<REDUCTION GEAR 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 MD998823, install the inner race of reduction gear bearing (transaxle case side) on the reduction gear sub-assembly.



INSPECTION

M1233200800031

DIFFERENTIAL SUB-ASSEMBLY

Measure the inner race press-fit shaft diameter of differential sub-assembly, and replace the assembly if the diameter does not meet the standard value.

Standard values

- Converter housing side: ϕ 60.032 –60.078 mm
- Transaxle case side: ϕ 40.026 –40.051 mm

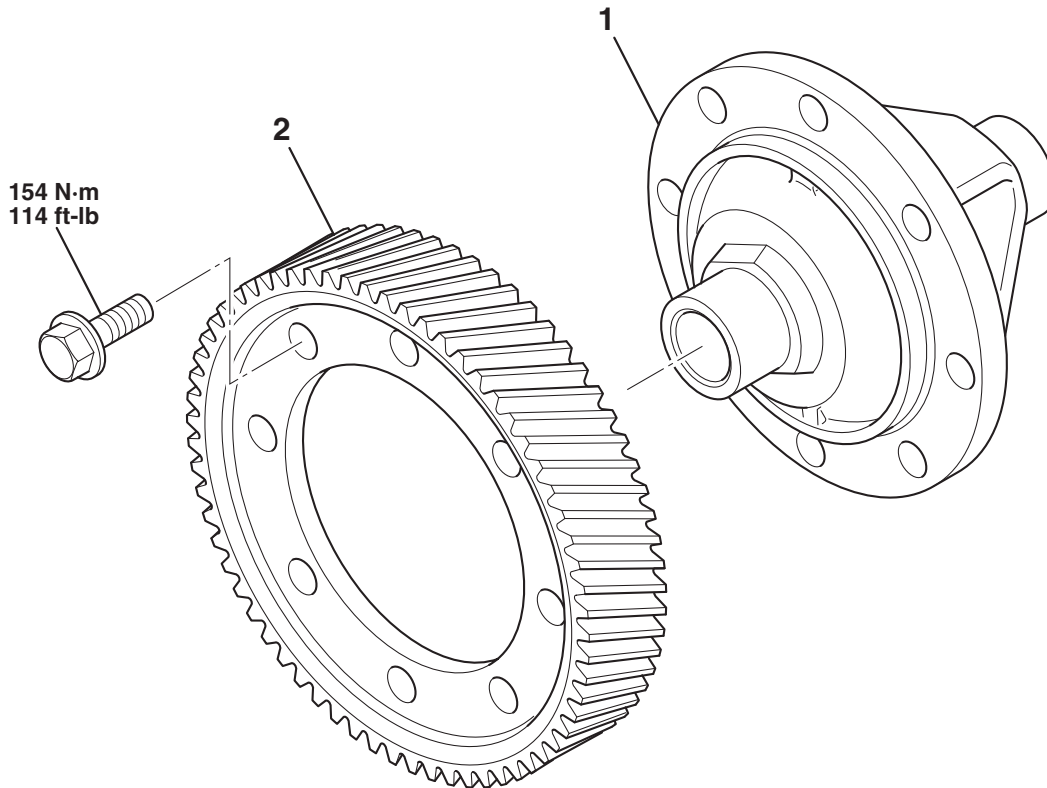
DIFFERENTIAL SUB-ASSEMBLY

ASSEMBLY

M1233201200032

CAUTION

The differential sub-assembly can only be assembled, not disassembled.



AK503081AD

Assembly steps

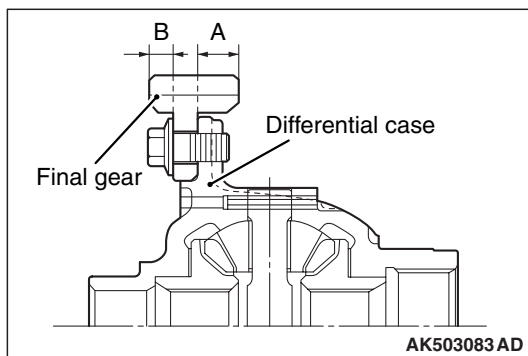
- >>A<< 1. Differential case
- >>A<< 2. Final gear

ASSEMBLY SERVICE POINT

>>A<<DIFFERENTIAL CASE/FINAL GEAR INSTALLATION

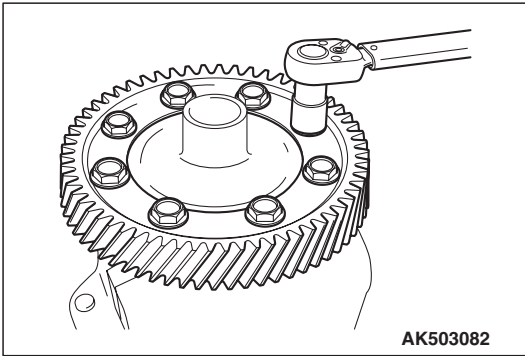
CAUTION

When attaching the final gear to the differential case, make sure the side with the bigger distance from the edge to the flange A face the differential case.



AK503083 AD

| | |
|-------------------------------------|-------|
| Distance from gear edge to flange A | Long |
| Distance from gear edge to flange B | Short |



Install the final gear on the differential case, and tighten the fastening bolts to the specified torque.

Tightening torque: 154 N·m (114 ft-lb)