GROUP 23B

CONTINUOUSLY VARIABLE TRANSMISSION OVERHAUL

CONTENTS

GENERAL INFORMATION

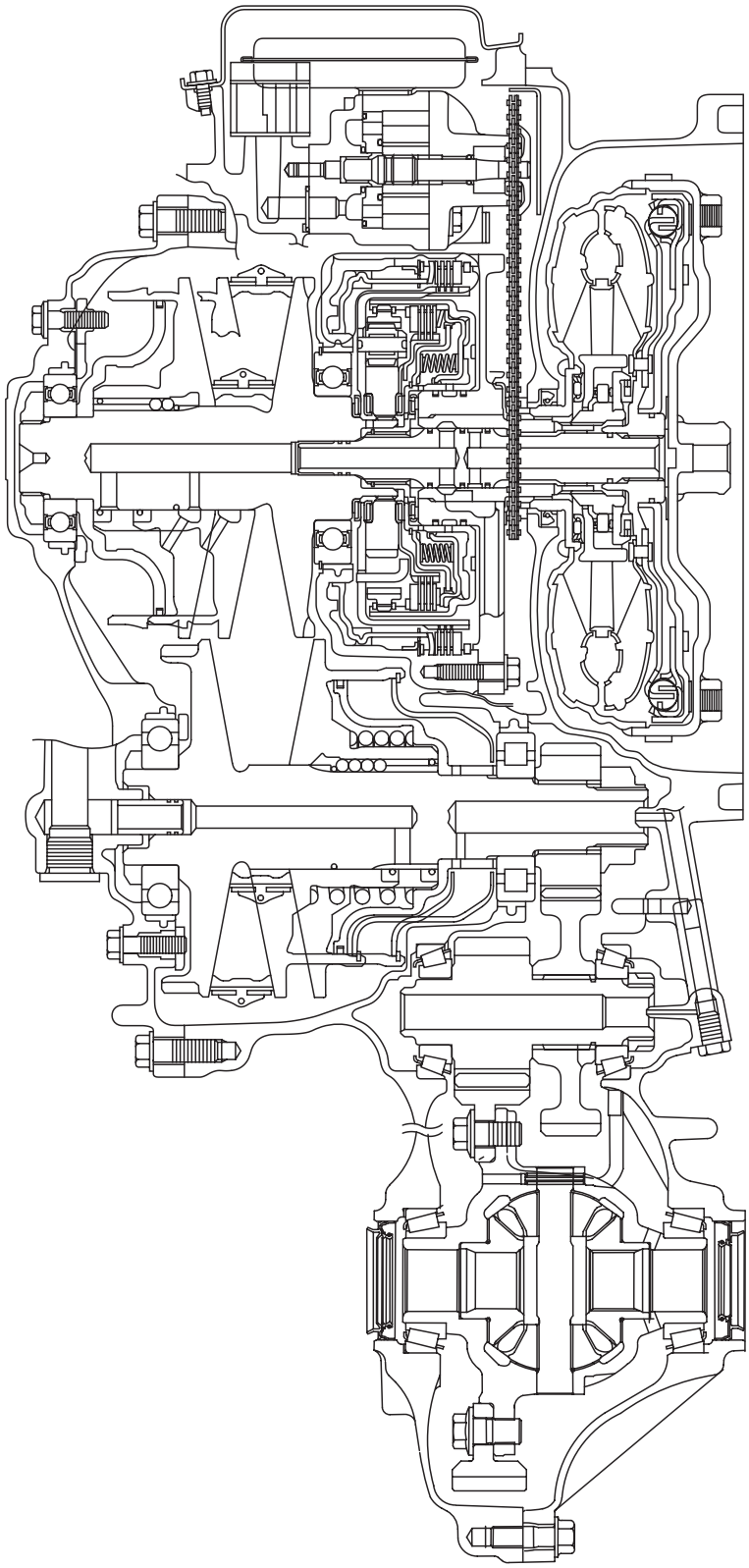
M1233200101154

TRANSMISSION MODEL

Transmission model	Engine model	Vehicle model
F1CJA-2-A5W	4B11	GF2W
W1CJA-1-14YA	4B12	GF3W
W1CJA-2-A5WA	4B11	GF2W

SECTIONAL VIEW <TRANSMISSION>

<F1CJA>



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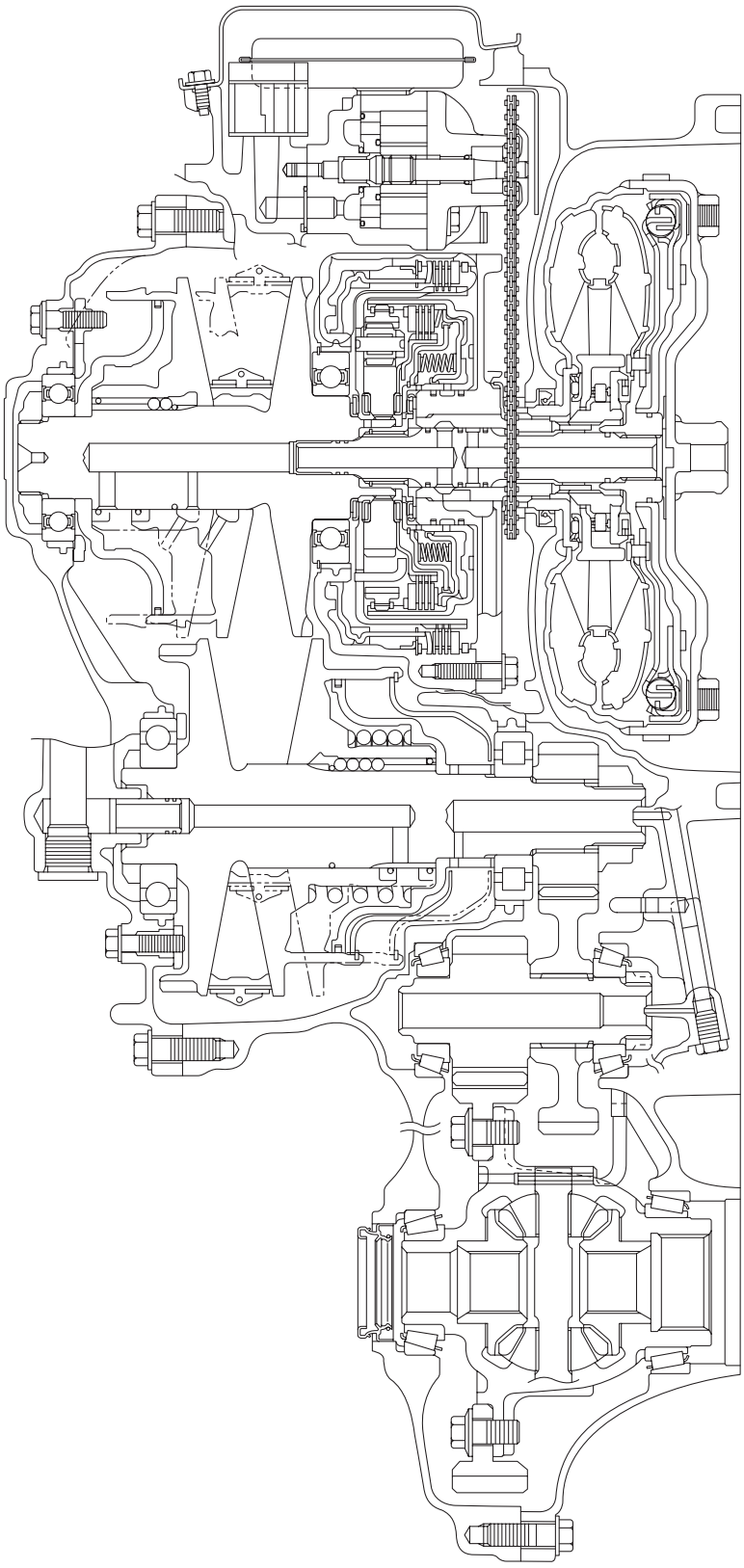

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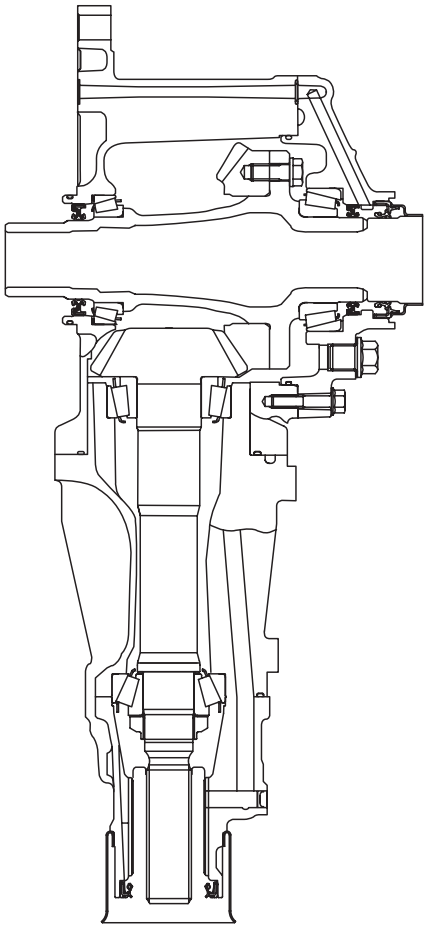

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GENERAL SPECIFICATION

M1233201000931

Item		Specifications
Transmission model		F1CJA-2-A5W
Transmission type		Forward: continuously variable (with steel belt), reverse: 1 gear
Torque converter	Type	3-element·1-stage·2-phase
	Stall torque ratio	1.99
	Lock-up	Present
Transmission gear ratio		2.349 – 0.394
Reverse		1.750
Final reduction ratio		6.466

Item	Specifications	
Transmission model	W1CJA-1-14YA	W1CJA-2-A5WA

Item		Specifications	
Transmission type		Forward: continuously variable (with steel belt), reverse: 1 gear	
Torque converter	Type	3-element·1-stage·2-phase	
	Stall torque ratio	1.83	1.99
	Lock-up	Present	
Transmission gear ratio		2.349 – 0.394	
Reverse		1.750	
Final reduction ratio		6.466	
Transfer type		Centre differential type full-time 4WD	
Transfer gear ratio		0.425	

SERVICE SPECIFICATIONS

M1233202000365

Item		Standard value mm
Reverse brake clearance		1.2 – 1.5
Total axial play		0.25 – 0.55
Differential preload		0.17 – 0.23
Reduction gear preload		0.11 – 0.17
Mounting bore diameter of reduction gear bearing outer race	Converter housing side	ϕ61.949 – 61.979
	Transmission case side	
Mounting bore diameter of differential side bearing outer race	Converter housing side <F1CJA>	ϕ67.949 – 67.979
	Converter housing side <W1CJA>	ϕ84.941 – 84.976
	Transmission case side	ϕ67.949 – 67.979
Mounting shaft diameter of reduction gear bearing inner race	Converter housing side	ϕ30.008 – 30.029
	Transmission case side	
Mounting shaft diameter of differential side bearing inner race	Converter housing side <F1CJA>	ϕ40.026 – 40.051
	Converter housing side <W1CJA>	ϕ60.032 – 60.078
	Transmission case side	ϕ40.026 – 40.051

SNAP RING SPACER AND THRUST WASHER FOR ADJUSTMENT

M1233204000372

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 axial 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) <F1CJA>

Thickness mm	Identification	Thickness mm	Identification
0.40	–	0.88	–
0.44	–	0.92	–
0.48	–	0.96	–
0.52	–	1.00	–
0.56	–	1.04	–
0.60	–	1.08	–
0.64	–	1.12	–
0.68	–	1.16	–
0.72	–	1.20	–
0.76	–	1.24	–
0.80	–	1.28	–
0.84	–	1.32	–

Adjusting shims (For adjustment of differential preload) <W1CJA>

Thickness mm	Identification	Thickness mm	Identification
0.24	–	0.80	–
0.28	–	0.84	–
0.32	–	0.88	–
0.36	–	0.92	–
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	–
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
0.56	–	1.32	–
0.60	–	1.36	–
0.64	–	1.40	–
0.68	–	1.44	–
0.72	–	1.48	–
0.76	–	1.52	–
0.80	–	1.56	–
0.84	–	1.60	–
0.88	–	1.64	–
0.92	–	1.68	–
0.96	–	1.72	–
1.00	–	1.76	–
1.04	–	1.80	–
1.08	–	1.84	–
1.12	–	1.88	–
1.16	–	1.92	–
1.20	–	1.96	–
1.24	–	2.00	–
1.28	–		

TORQUE SPECIFICATIONS

M1233205000784

Transmission

Item	N·m
Detent spring mounting bolt	6.9
Plug	7.5
Clip mounting bolt	5.9
Oil pump mounting bolt (M8 x 1.25 x 70 mm)	19
Oil pump mounting bolt (M8 x 1.25 x 36 mm)	28
Control valve assembly mounting bolt	7.9
Manual valve lever mounting nut	22.1
Bracket mounting bolt	7.9
Oil strainer mounting bolt	7.9
Oil pan mounting bolt	7.9
Drain plug	34.3
Oil guide mounting bolt	5.9
Bracket mounting bolt	26

Item	N·m
Baffle plate mounting bolt	19
Oil pump cover mounting bolt	19
Chain cover mounting nut	5.9
Converter housing mounting bolt	45
Manual control lever mounting nut	17.2
Inhibitor switch mounting bolt	5.5
Primary pulley speed sensor mounting bolt	5.9
Secondary pulley speed sensor mounting bolt	5.9
CVT fluid cooler mounting bolt	4.2
Plug	7.5
Control cable bracket mounting bolt	25 ± 4
Oil filler tube mounting bolt	8.5 ± 3.5
Harness bracket mounting bolt	25 ± 4
Corrgate clump bracket mounting bolt	25 ± 4
Air breather bracket mounting bolt	25 ± 4
Roll rod adapter bracket mounting bolt	90 ± 10
Reduction gear nut	250
Final gear mounting bolt	130

Transfer

Item	N·m
Transfer mounting bolt	68 ± 9
Cover mounting bolt	12 ± 2

SEALANTS

M1233206000345

Transmission

Item	Specified sealant and adhesive
Converter housing	Loctite 509

Transfer

Item	Specified sealant and adhesive
Cover	Mitsubishi Part No. MD997740 or equivalent

FORM-IN-PLACE GASKET (FIPG)

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

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

⚠ CAUTION

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

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

Disassembly

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

Surface Preparation

Thoroughly remove all substances deposited on the FIPG application surface, using a gasket scraper.

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

FIPG Application

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

LUBRICANT(S)

M1233200400453

Transmission

Item	Specified lubricant
CVT fluid application parts	MITSUBISHI MOTORS GENUINE CVTF-J4
Vaseline application parts	White vaseline (main ingredient: isoparaffinic hydrocarbon)

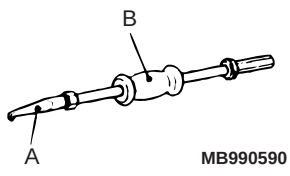
Transfer

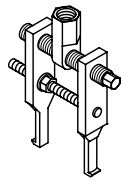
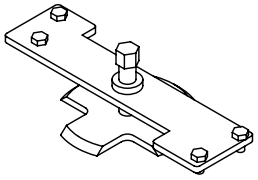
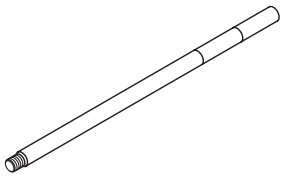
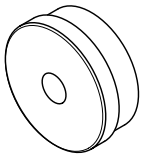
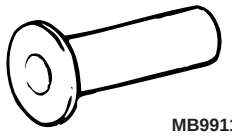
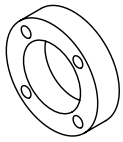
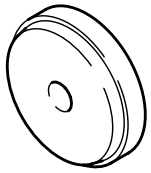
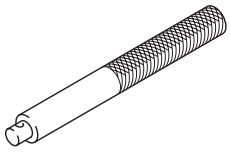
Item	Specified lubricant
Transfer oil application parts	MITSUBISHI MOTORS GENUINE super hypoid gear oil API classification GL-5 SAE80
O-ring	MITSUBISHI MOTORS GENUINE CVTF-J4
Oil seal	Retinax A

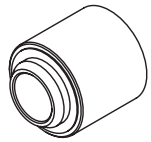
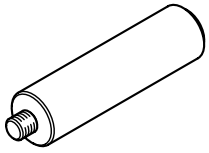
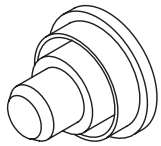
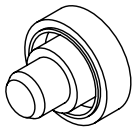
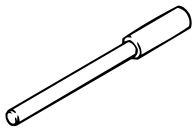
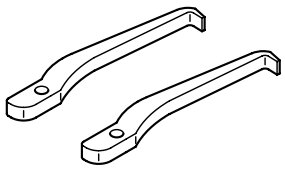
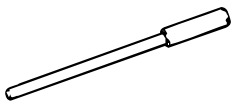
SPECIAL TOOLS

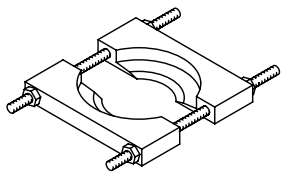
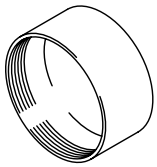
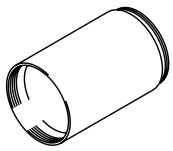
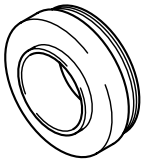
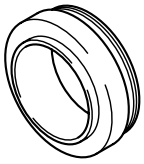
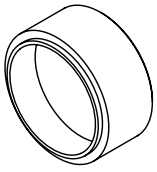
M1233207000490

Transmission

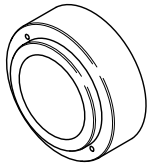
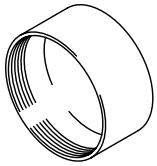
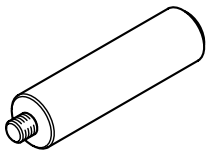
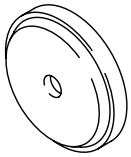
Tool	Tool number	Name	Use
	MB990590	Real axle shaft oil seal remover	Removal of outer race of reduction gear bearing and differential side bearing

Tool	Tool number	Name	Use
	MB992039	Slide hammer puller	Removal of outer race of reduction gear bearing and differential side bearing
	MB992139	Spring compressor	Removal and installation of reverse brake
	MB990779	Bar	Installation of differential side bearing outer race (converter housing side) <F1CJA>
	MB990780	Real axle shaft bushing installer	Installation of differential side bearing outer race (converter housing side <F1CJA> and transmission case side)
 MB991168	MB991168	Differential oil seal installer	Installation of differential side bearing outer race (converter housing side) <W1CJA>
	MB991702	Adapter	Installation of differential side bearing outer race (converter housing side) <W1CJA>
	MB990932	Installer adapter	Reduction gear bearing outer race
	MB990938	Installer bar	Reduction gear bearing outer race

Tool	Tool number	Name	Use
	MB992141	Oil seal installer	Installation of converter housing oil seal
	MB992075	Handle	Use with oil seal installer
	MB992206	Oil seal installer	Installation of side oil seal <F1CJA>
	MB992140	Oil seal installer	Installation of side oil seal <W1CJA>
 MB990810	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 (transmission case side)
 MB990947	MB990947	Lower arm push arbour	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 arbour	Removal of reduction gear bearing inner race (transmission case side)

Tool	Tool number	Name	Use
	MD998917	Bearing remover	Removal of reduction gear bearing inner race (transmission case side)
	MD998812	Installer cap	Installation of reduction gear bearing inner race (converter housing side and transmission 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
	MD998813	Installer-100	Installation of reduction gear bearing inner race (converter housing side and transmission 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 transmission case side), installation of reduction pinion gear
	MB991452	Oil seal installer	Removal of differential side bearing inner race (converter housing side) <W1CJA>
	MD998823	Installer adapter (48)	Installation of differential side bearing inner race (converter housing side) <F1CJA>
	MB992138	Bearing Installer	Installation of differential side bearing inner race (converter housing side) <W1CJA>

Transfer

Tool	Tool number	Name	Use
	MB992154	Oil seal installer	Installation of oil seal
	MD998812	Installer cap	Use with oil seal installer
	MB992142	Oil seal installer	Installation of transfer oil seal
	MB992075	Handle	Use with oil seal installer
	MB990936	Oil seal installer	Installation of transfer oil seal

TRANSMISSION

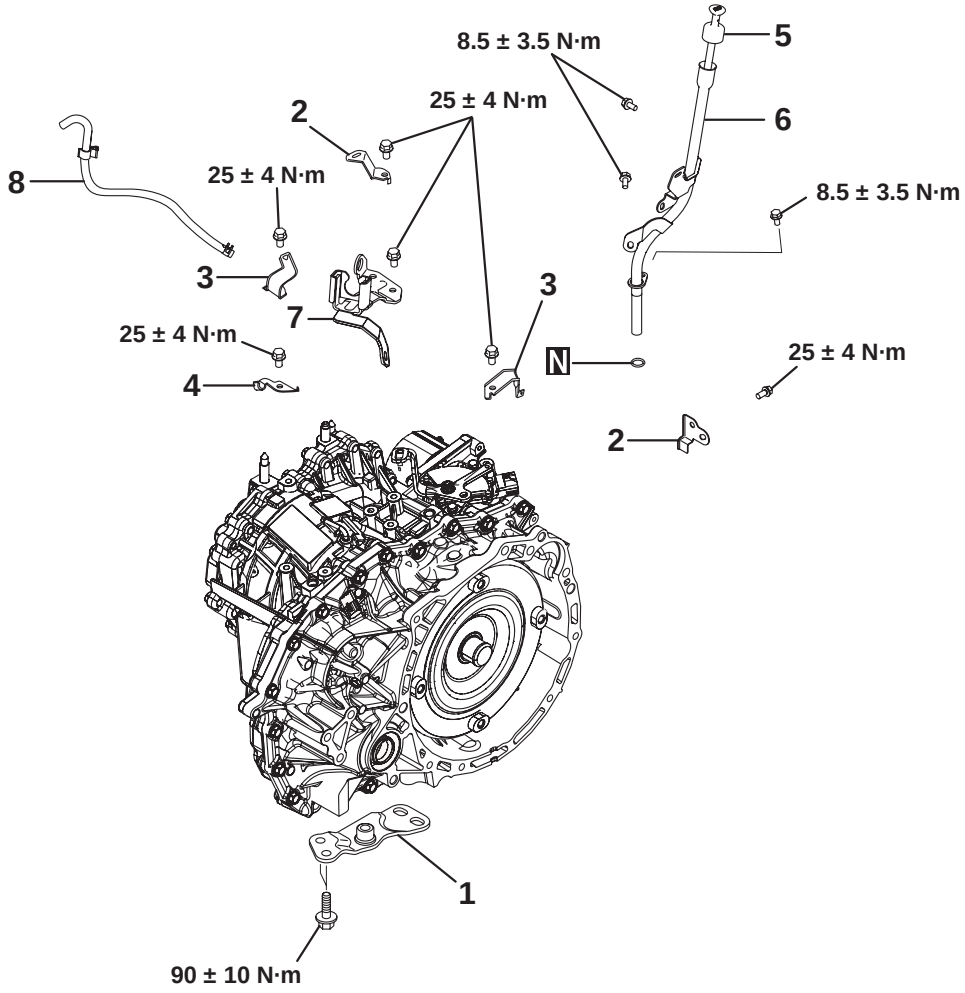
DISASSEMBLY AND REASSEMBLY

M1233208001054

⚠ CAUTION

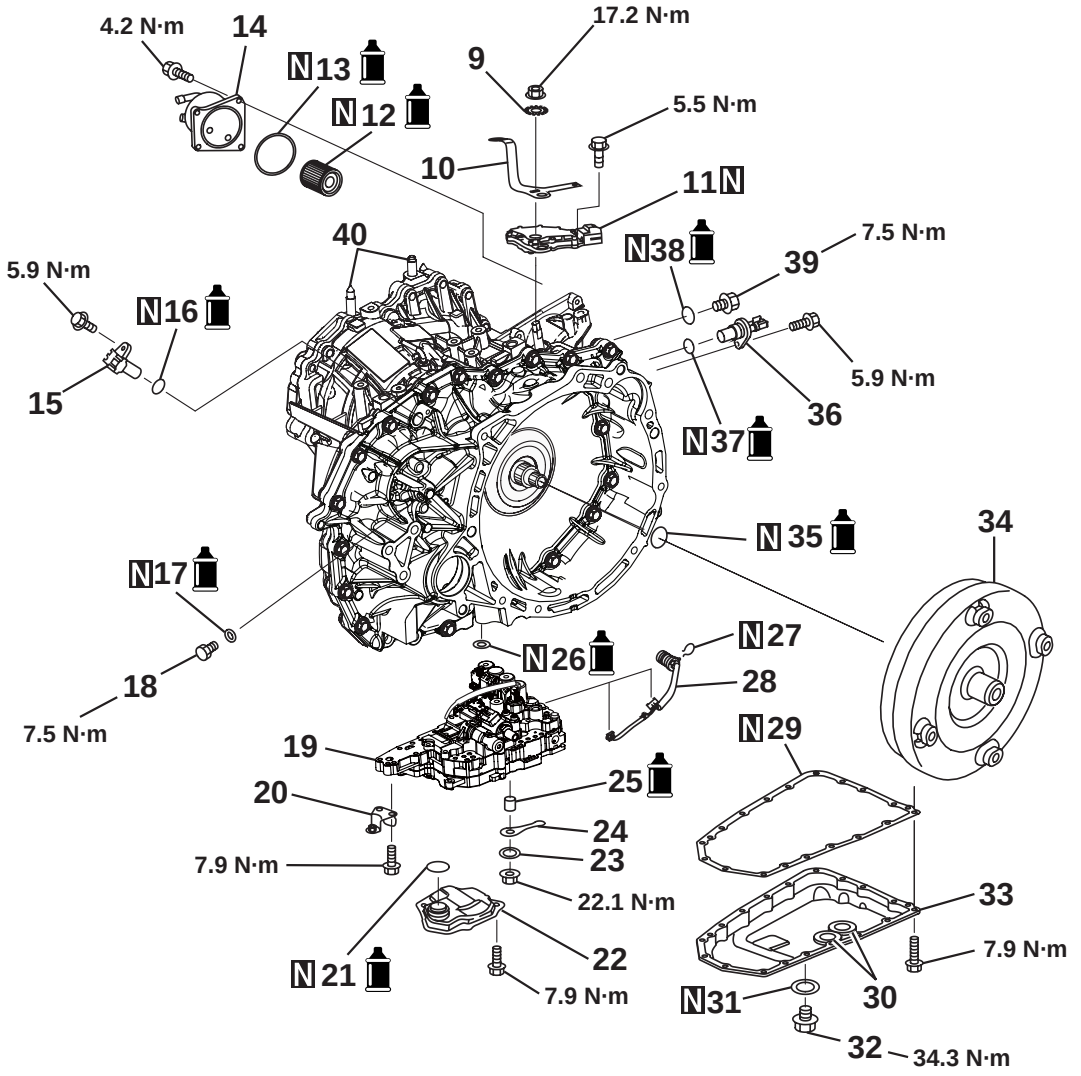
- **Only use CVT fluid of the specified brand. Use of CVT fluid other than specified will impair driveability and CVT endurance, and may lead to breakage of CVT.**
- **Only use the specified vaseline. Use of vaseline other than specified will impair driveability and CVT endurance, and may lead to breakage 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 transmission using steam, washing oil or another solvent, outside the clean room, so as not to contaminate inner parts of transmission during disassembly or assembly. (Do not allow steam to get inside the transmission, and do not clean rubber parts with washing oil.)**
- **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 transmission 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.**

<F1CJA>



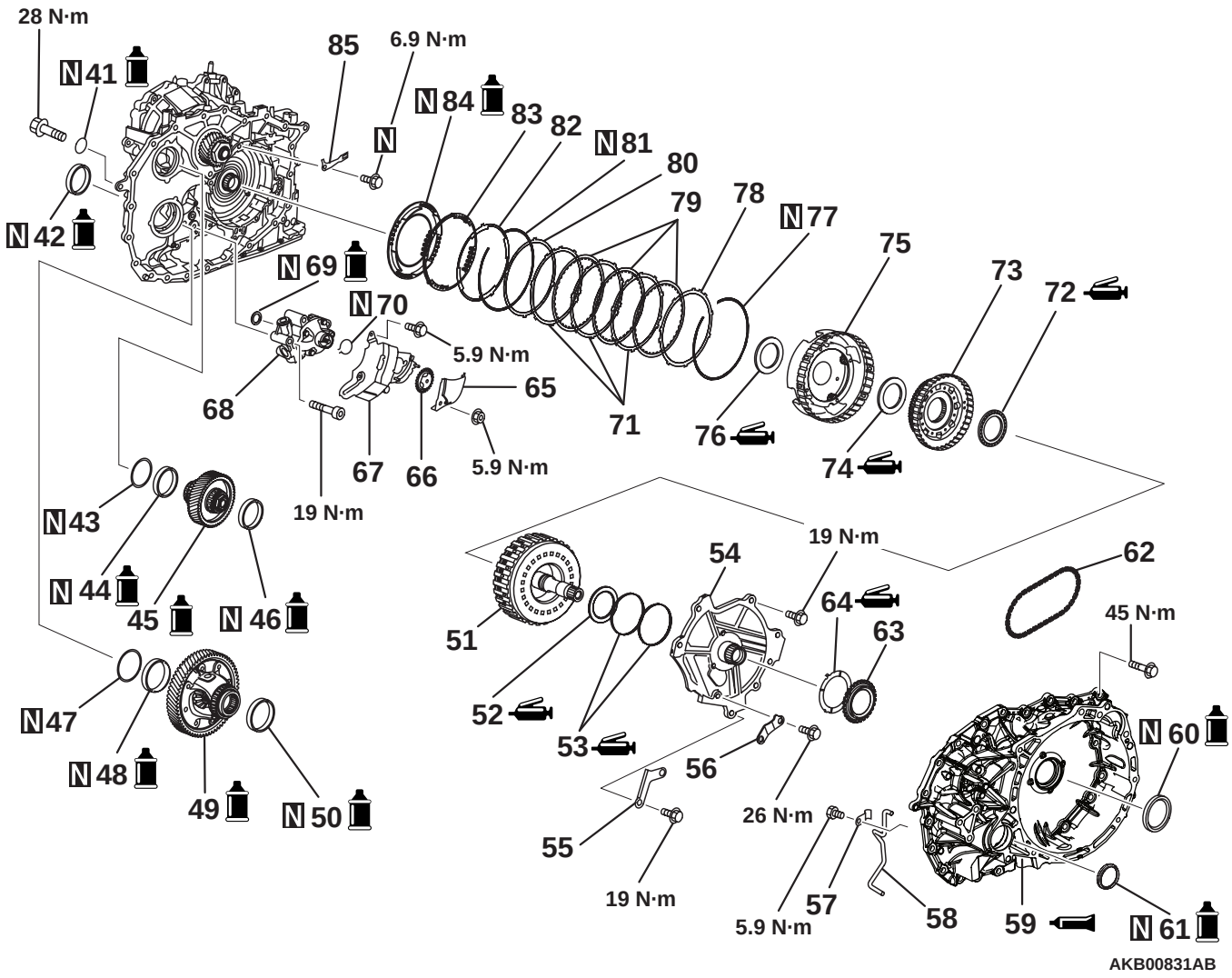
AKB00827AB

1. Roll rod adapter bracket
2. Harness bracket
3. Corrgate clump bracket
4. Air breather bracket
5. Oil level gage
6. Oil filler tube
7. Control cable bracket
8. Breather hose



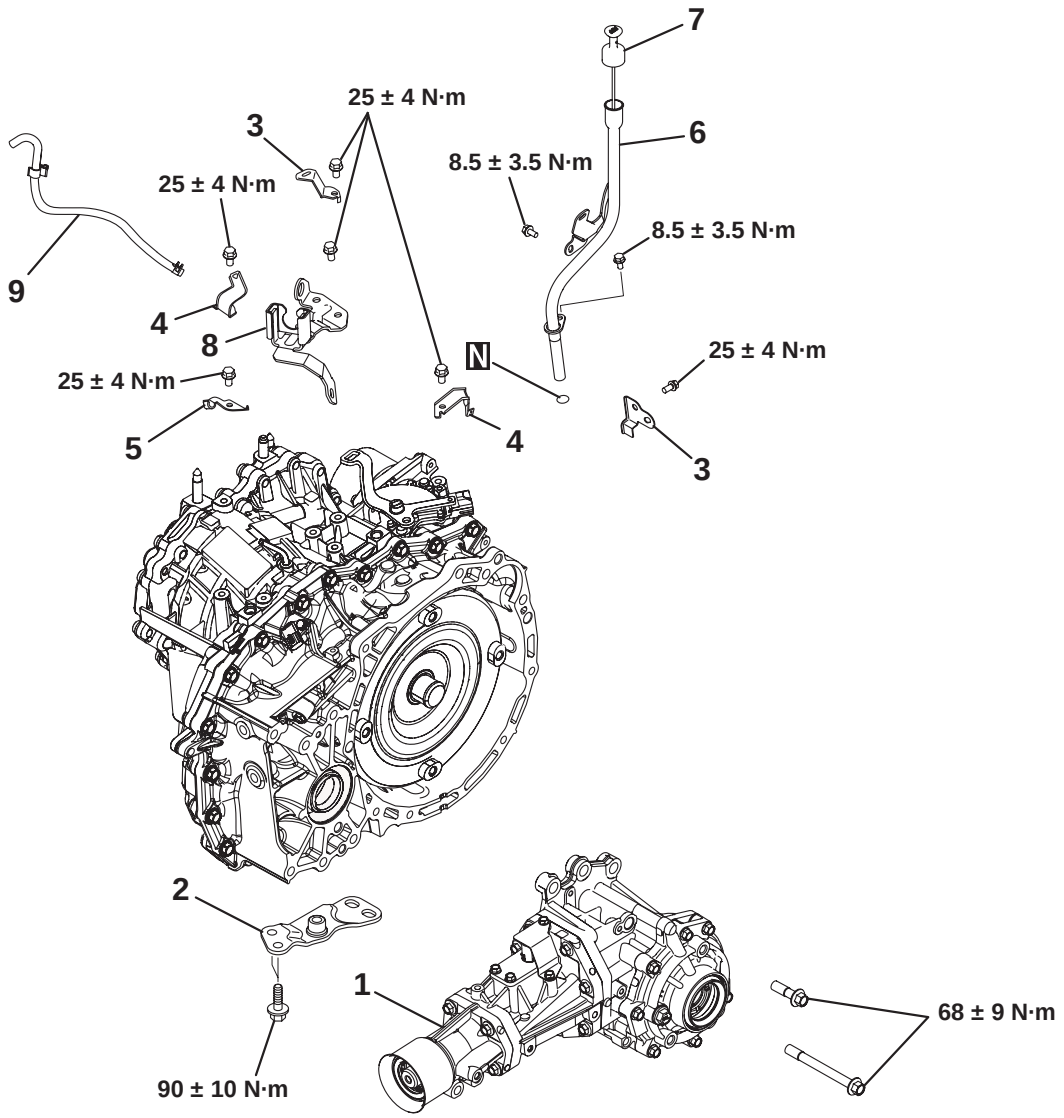
AKB00829AB

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



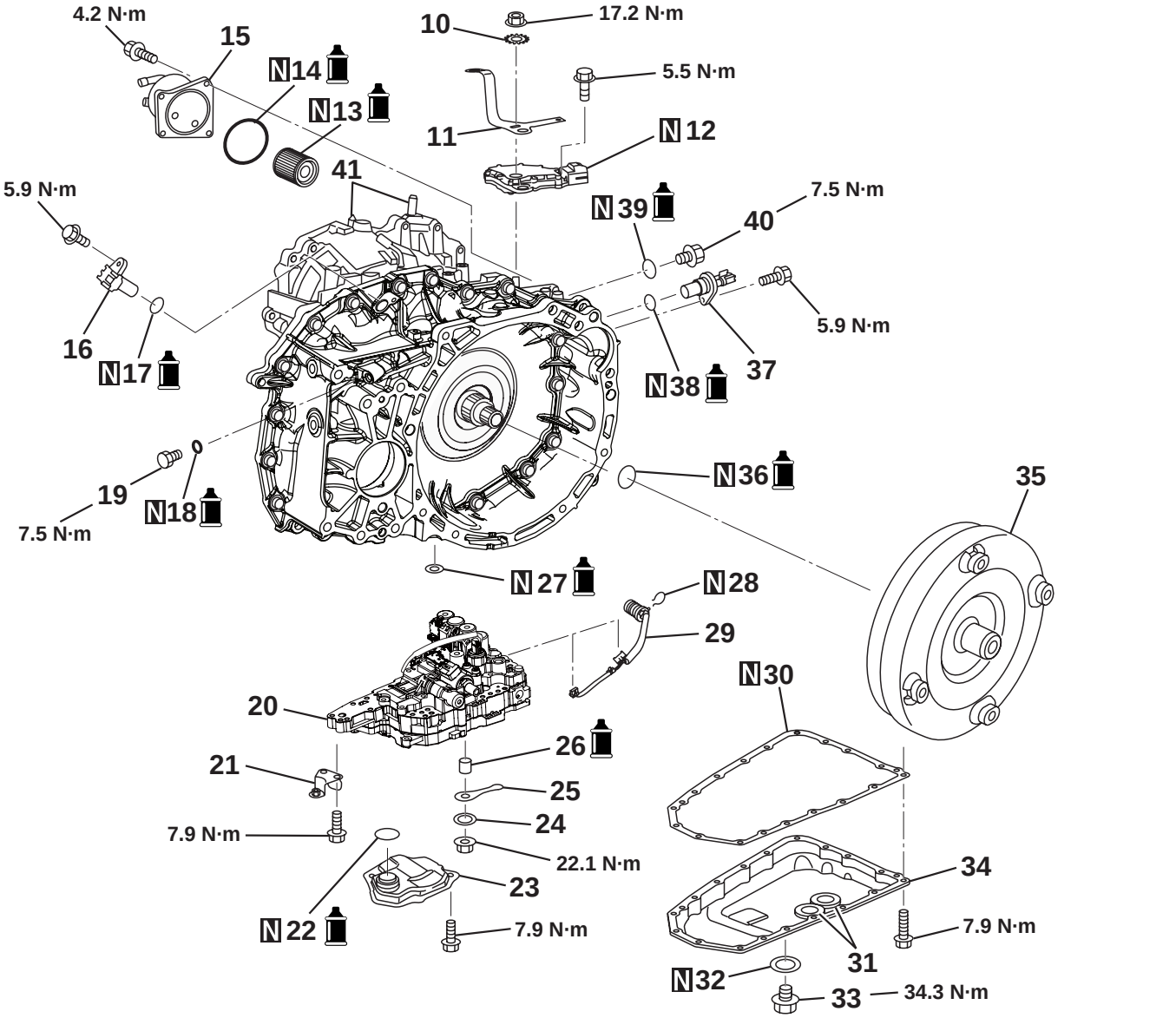
41. O-ring
42. Side oil seal
43. Adjusting shim
44. Outer race
45. Reduction gear assembly
46. Outer race
47. Adjusting shim
48. Outer race
49. Differential assembly
50. Outer race
51. Forward clutch assembly
52. Needle bearing
53. Seal ring
54. Oil pump cover
55. Baffle plate
56. Bracket
57. Clip
58. Pipe
59. Converter housing
60. Converter housing oil seal
61. Converter housing side oil seal
62. Oil pump chain
63. Drive sprocket
64. Thrust washer
65. Chain cover
66. Driven sprocket
67. Oil guide
68. Oil pump
69. Lip seal
70. Snap ring
71. Driven plate
72. Needle bearing
73. Sun gear
74. Needle bearing
75. Planet carrier
76. Needle bearing
77. Snap ring
78. Retaining plate
79. Drive plate
80. Dish plate
81. Snap ring
82. Retaining plate
83. Spring retainer assembly
84. Reverse brake piston
85. Detent spring

<W1CJA>



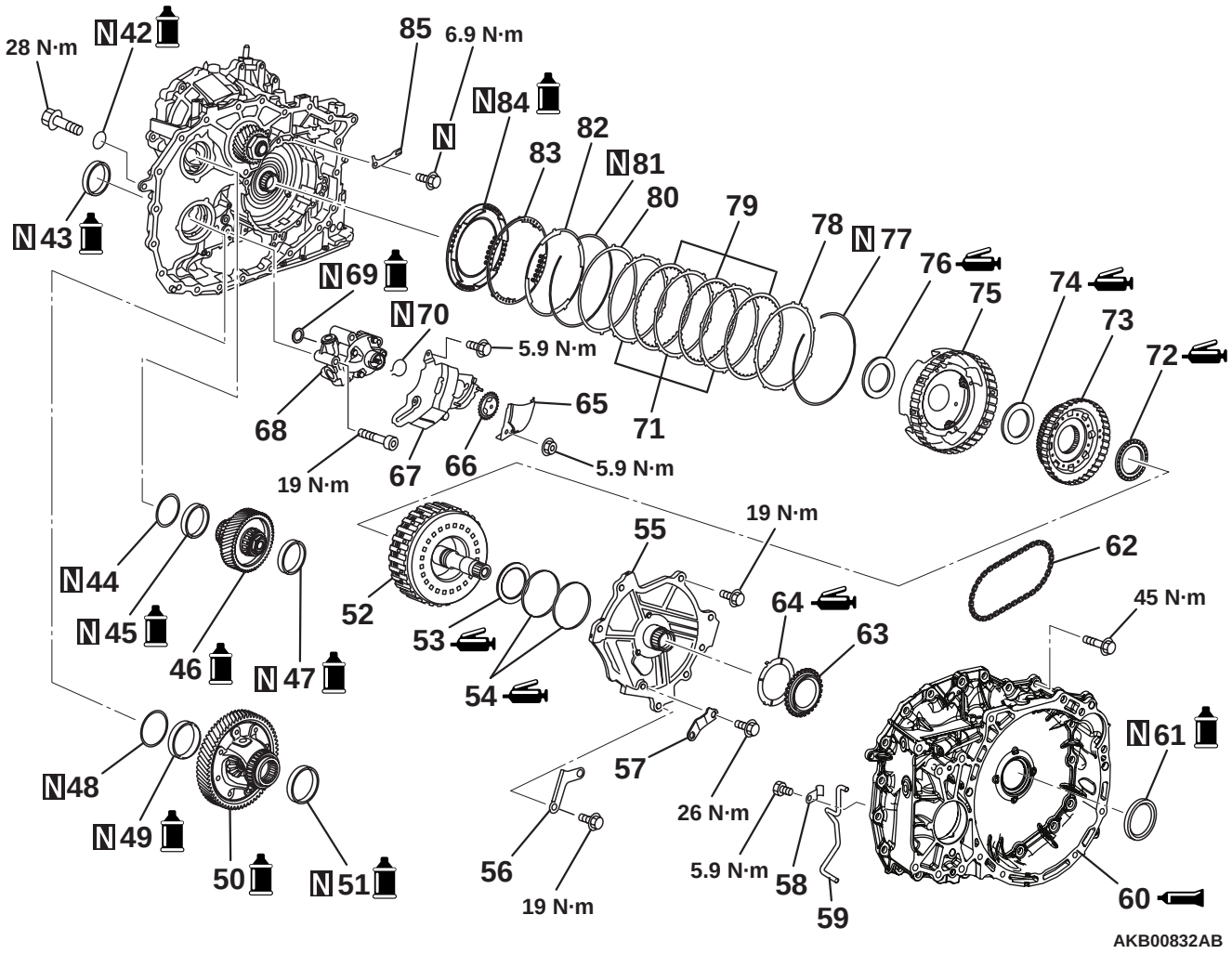
AKB00828AB

1. Transfer
2. Roll rod adapter bracket
3. Harness bracket
4. Corrgate clump bracket
5. Air breather bracket
6. Oil filler tube
7. Oil level gage
8. Control cable bracket
9. Breather hose



AKB00830AB

10. Washer
11. Manual control lever
12. Inhibitor switch
13. CVT fluid filter
14. O-ring
15. CVT fluid cooler
16. Secondary pulley speed sensor
17. O-ring
18. O-ring
19. Plug
20. Control valve
21. Bracket
22. O-ring
23. Oil strainer
24. Spring washer
25. Manual valve lever
26. Bush
27. Lip seal
28. Snap ring
29. Valve body harness
30. Oil pan gasket
31. Magnet
32. Drain plug gasket
33. Drain plug
34. Oil pan
35. Torque converter
36. O-ring
37. Primary pulley speed sensor
38. O-ring
39. O-ring
40. Plug
41. Stud bolt



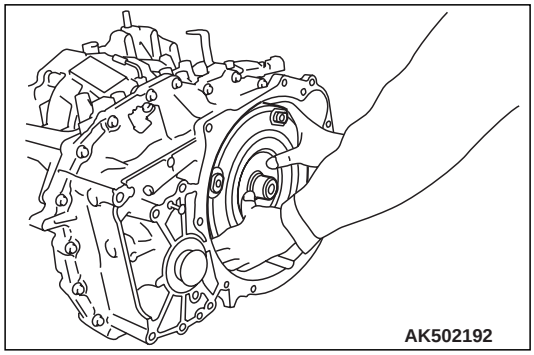
42. O-ring
43. Side oil seal
44. Adjusting shim
45. Outer race
46. Reduction gear assembly
47. Outer race
48. Adjusting shim
49. Outer race
50. Differential assembly
51. Outer race
52. Forward clutch assembly
53. Needle bearing
54. Seal ring
55. Oil pump cover
56. Baffle plate
57. Bracket
58. Clip
59. Pipe
60. Converter housing
61. Converter housing oil seal
62. Oil pump chain
63. Drive sprocket
64. Thrust washer
65. Chain cover
66. Driven sprocket
67. Oil guide
68. Oil pump
69. Lip seal
70. Snap ring
71. Driven plate
72. Needle bearing
73. Sun gear
74. Needle bearing
75. Planet carrier
76. Needle bearing
77. Snap ring
78. Retaining plate
79. Drive plate
80. Dish plate
81. Snap ring
82. Retaining plate
83. Spring retainer assembly
84. Reverse brake piston
85. Detent spring

DISASSEMBLY SERVICE POINT

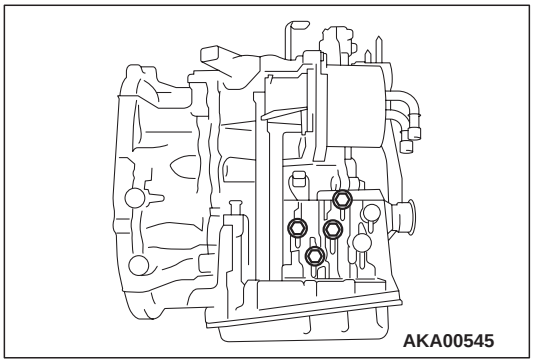
⚠ CAUTION

Do not disassemble parts other than specified in this manual.

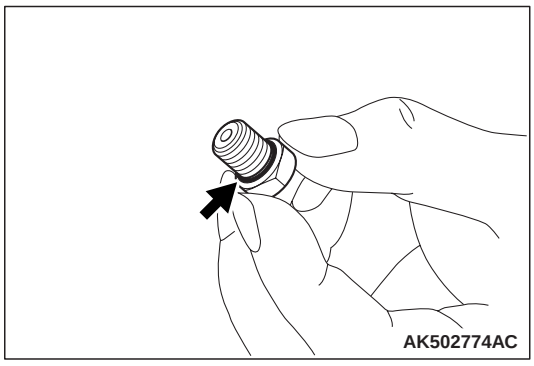
1. Remove the transfer from the transmission.
2. Remove the roll rod adapter bracket from the transmission.
3. Remove the harness bracket, corrgate clump bracket and air breather bracket from the transmission.
4. Remove the oil filler tube and oil level gage from the transmission.
5. Remove the control cable bracket and breather hose from the transmission.


AK502192

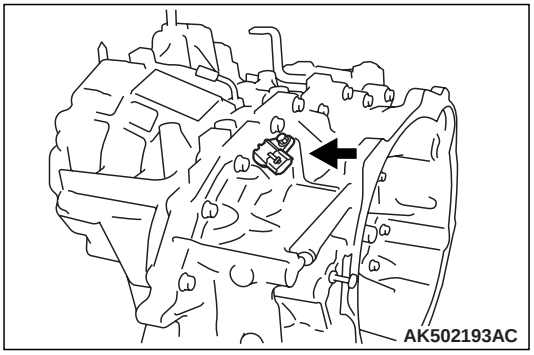
6. Remove the torque converter from the transmission.


AKA00545

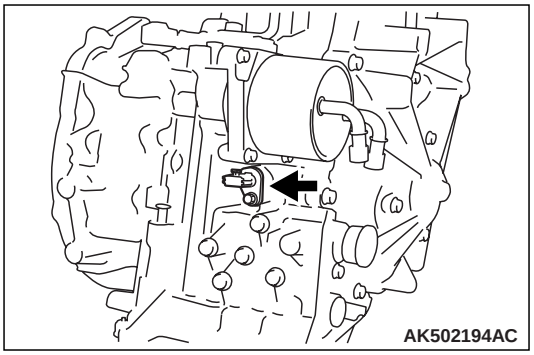
7. Remove the plug from the transmission case.


AK502774AC

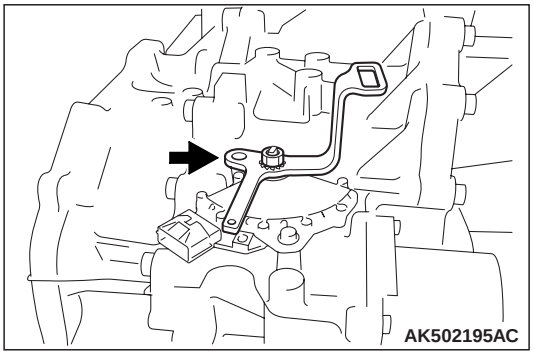
8. Remove the O-ring from the plug.


AK502193AC

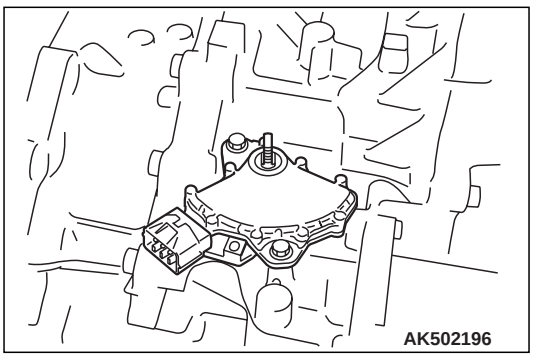
9. Remove the secondary pulley speed sensor from the converter housing, and detach the O-ring from the sensor.


AK502194AC

10. Remove the primary pulley speed sensor from the transmission case, and detach the O-ring from the sensor.

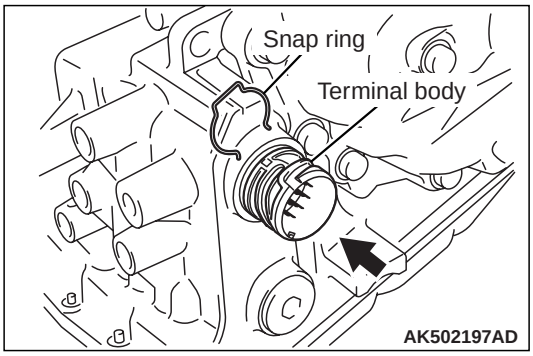

AK502195AC

11. Remove the manual control lever from the manual shaft.

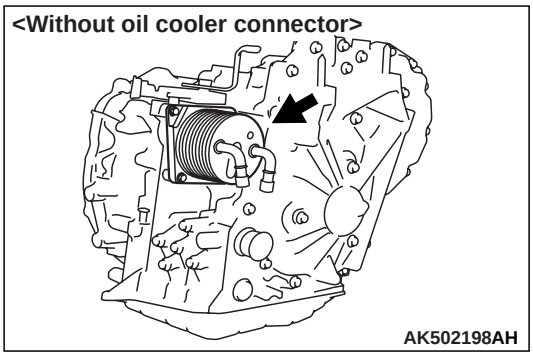

AK502196

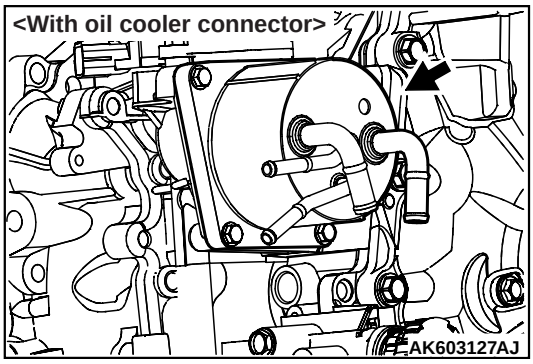
12.Remove the inhibitor switch from the transmission case.

⚠ CAUTION
Be careful not to cause damage to the terminal body.

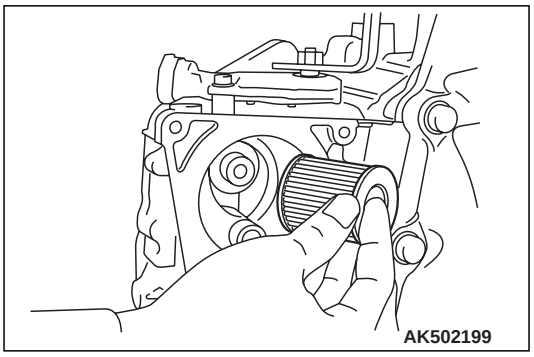


13.Remove the O-ring from the terminal body, and press the terminal body into the transmission case.

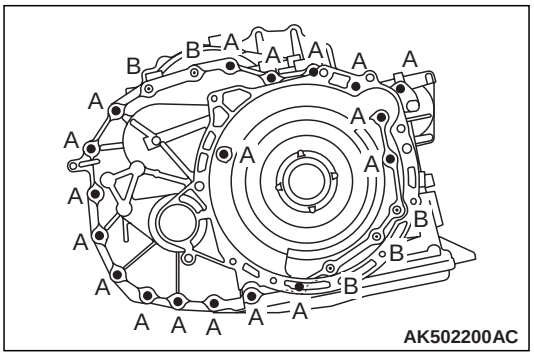




14.Remove the CVT fluid cooler from the transmission case, and detach the O-ring from the cooler.



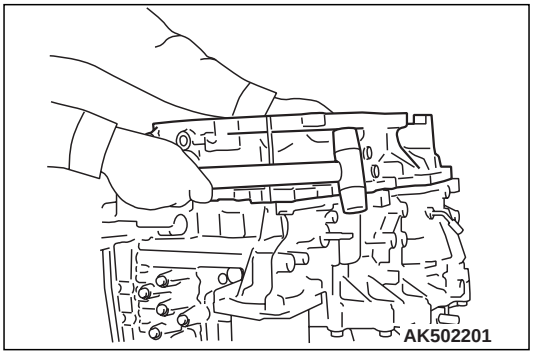
15.Remove the CVT fluid filter from the transmission case.



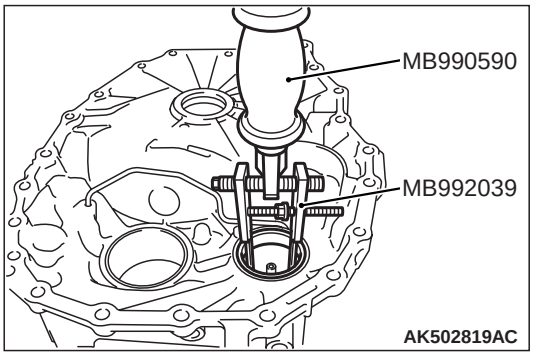
16.Remove the mounting bolt of converter housing.

Bolt symbol	A	B
Shank length mm	30	35
Quantity	18	5

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



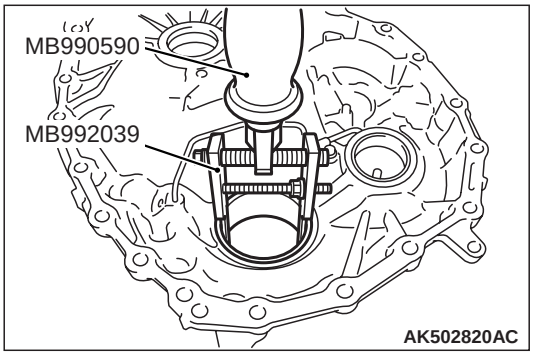
17.Remove the converter housing by tapping with a plastic hammer etc.



18.Using the special tools, remove the outer race of reduction gear bearing from the converter housing.
- Rear axle shaft oil seal remover (MB990590)
- Slide hammer puller (MB992039)

19.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: ϕ61.949 – 61.979 mm

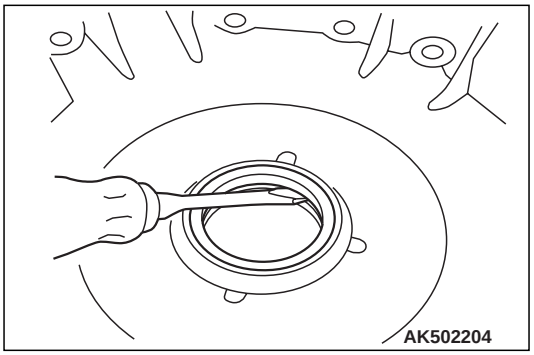


20.Using the special tools, remove the outer race of differential side bearing from the converter housing.
- Rear axle shaft oil seal remover (MB990590)
- Slide hammer puller (MB992039)

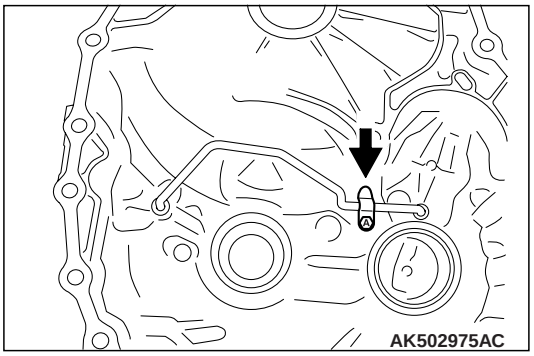
21.Using cylinder gage etc., measure the mounting bore diameter of differential side bearing outer race at the converter housing side; if the standard value is not satisfied, then replace the converter housing.

Standard value:
- **ϕ67.949 – 67.979 mm <F1CJA>**
- **ϕ84.941 – 84.976 mm <W1CJA>**

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

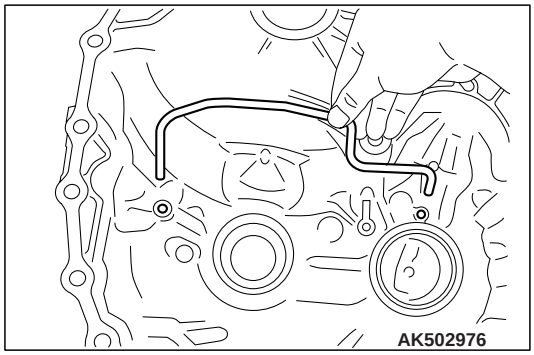


22.Using a flat blade screwdriver etc., remove the converter housing oil seal from the housing.

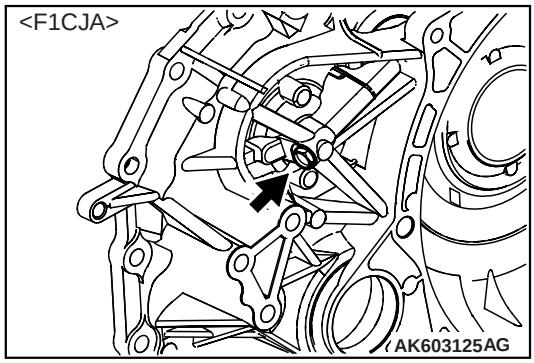


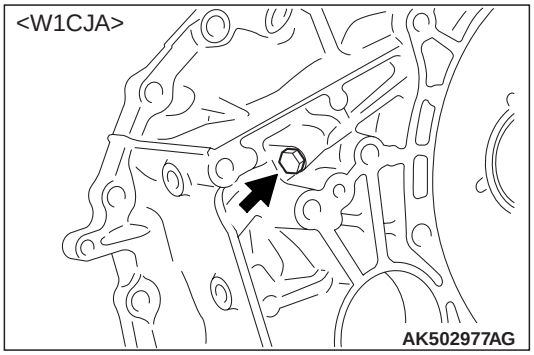
23.Remove the clip.

⚠ CAUTION
When removing the pipe, be careful not to strain it.

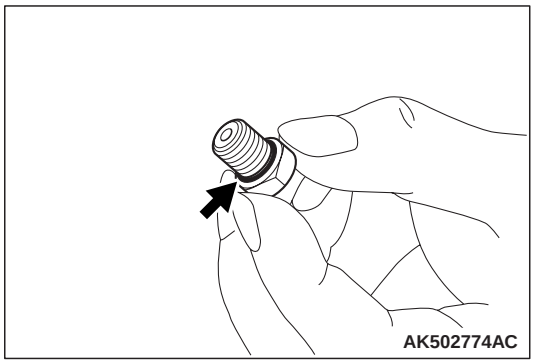


24.Remove the pipe from the converter housing.

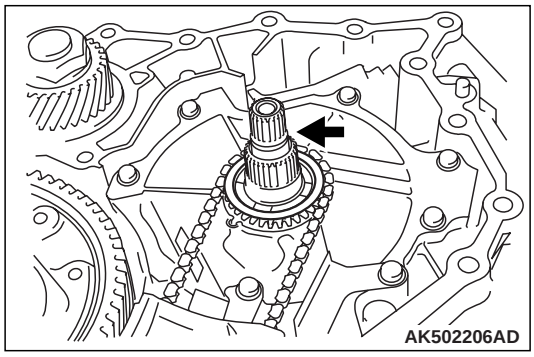




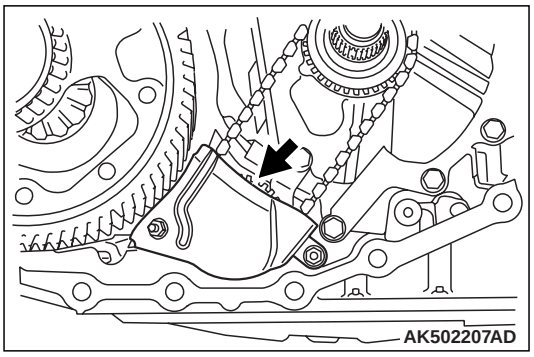
25.Remove the plug from the converter housing.



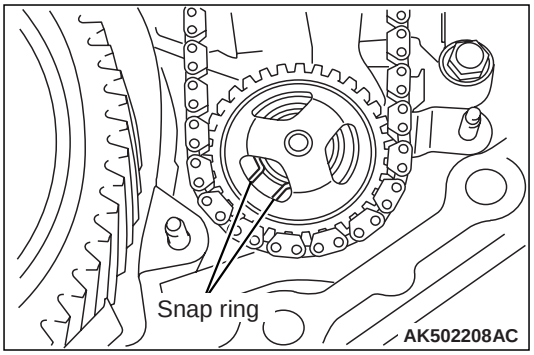
26.Remove the O-ring from the plug.

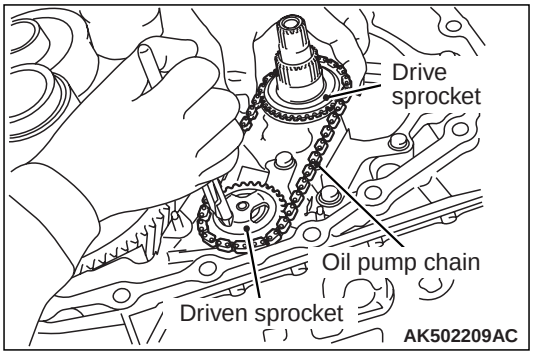


27.Remove the O-ring from the input shaft.

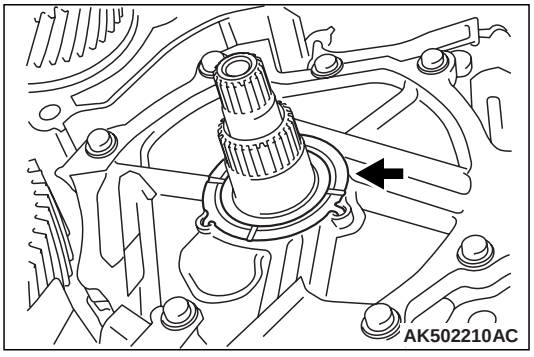


28.Remove the chain cover.

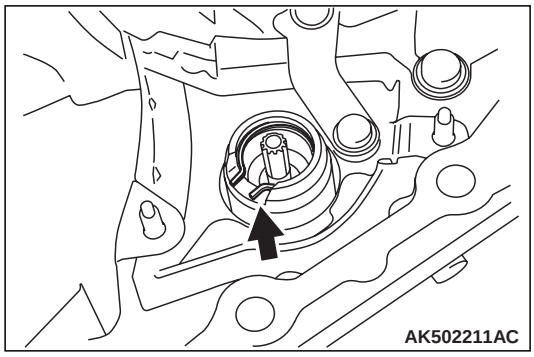




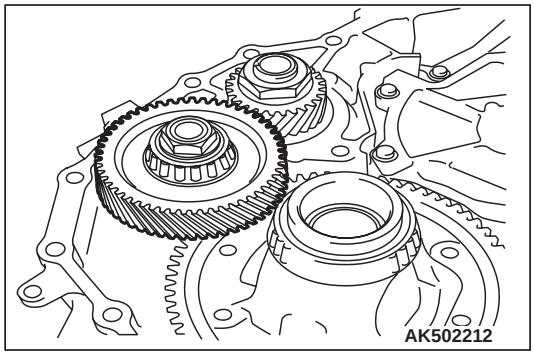
29.Expand the snap ring, and remove the driven sprocket, oil pump chain, and drive sprocket.



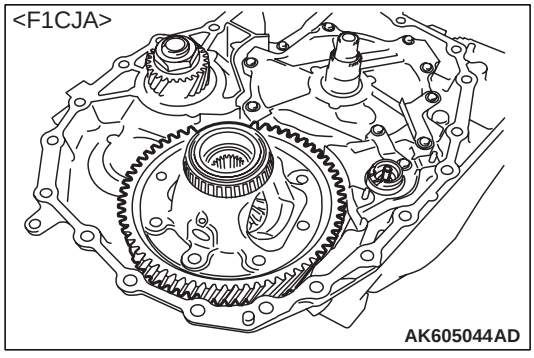
30.Remove the thrust washer from the oil pump cover.

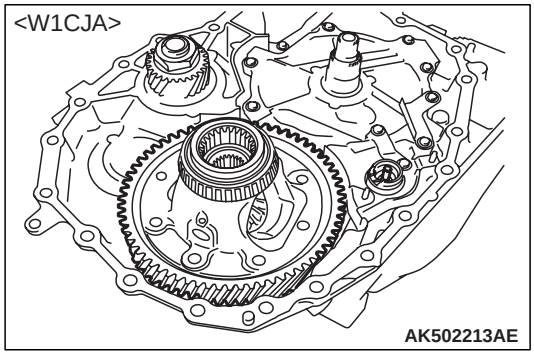


31.Remove the snap ring from the oil pump.

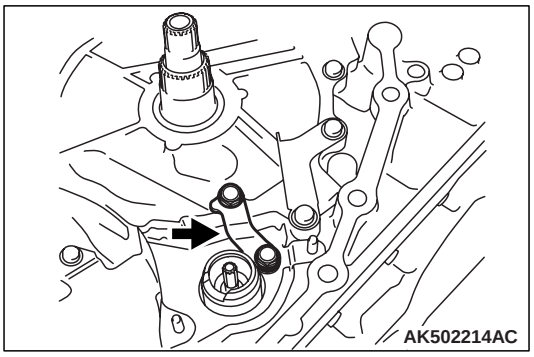


32.Remove the reduction gear assembly from the transmission case.

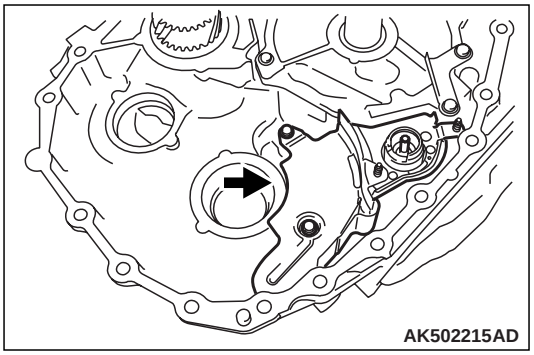




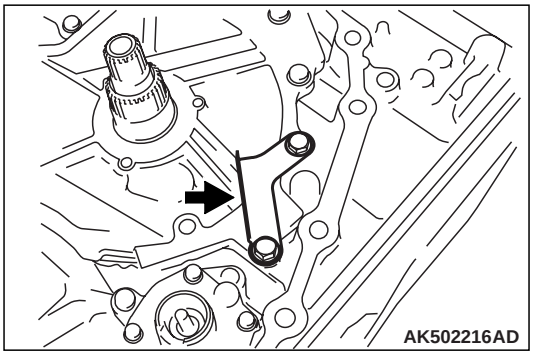
33.Remove the differential assembly from the transmission case.



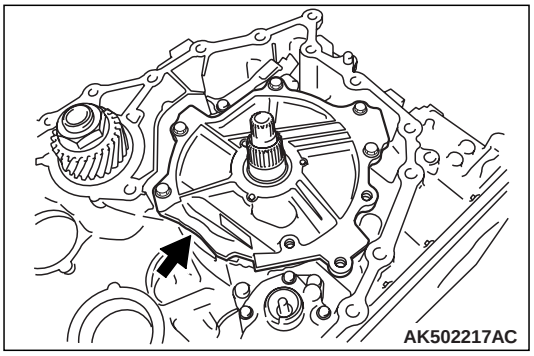
34.Remove the bracket.



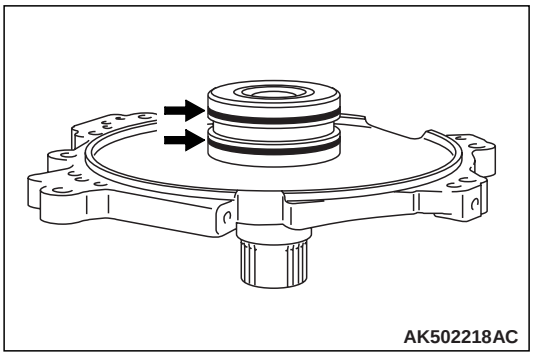
35.Remove the oil guide.



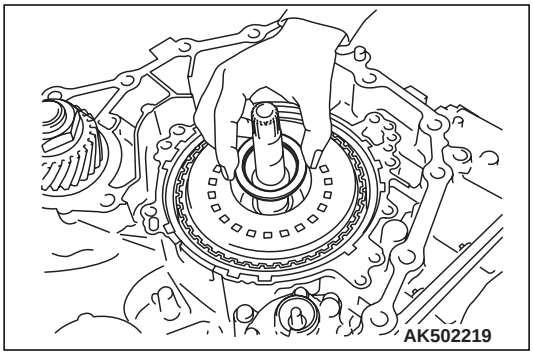
36.Remove the baffle plate.



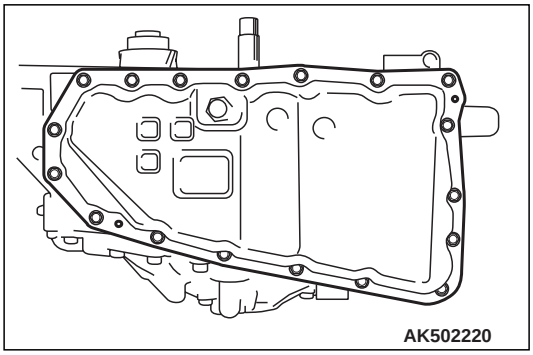
37.Remove the oil pump cover from the transmission case.



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

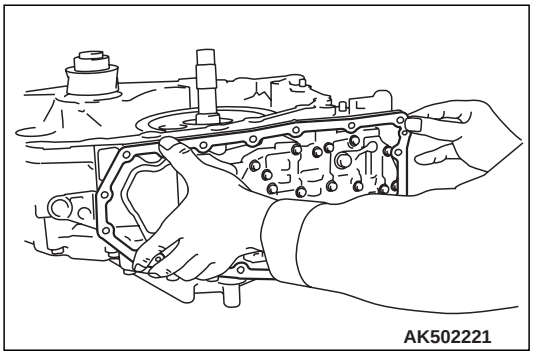


39.Remove the needle bearing from the forward clutch assembly.

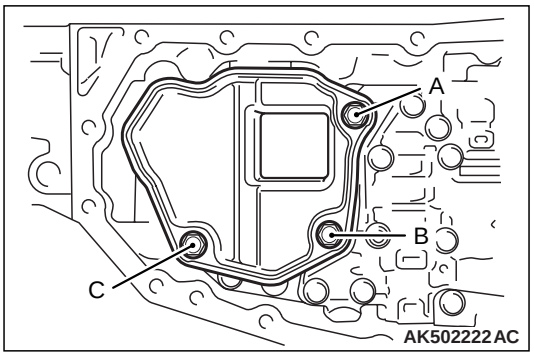


40.Remove the oil pan from the transmission case.

41.Remove the magnet from the oil pan.

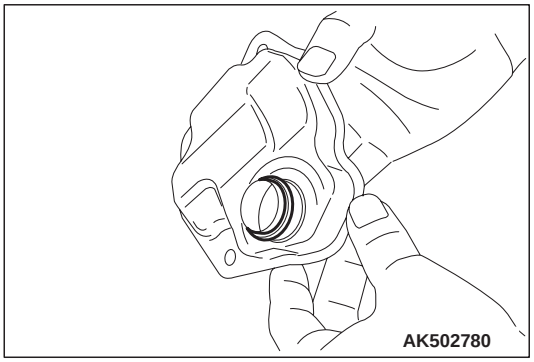


42.Remove the oil pan gasket from the transmission case.

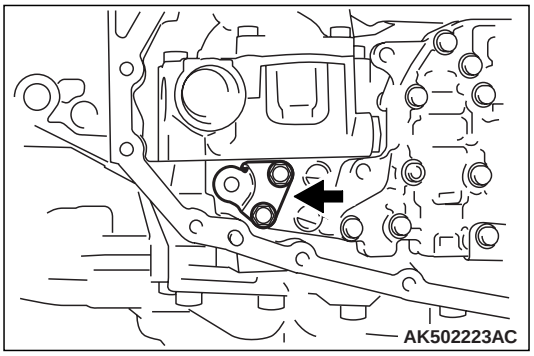


43.Remove the oil strainer.

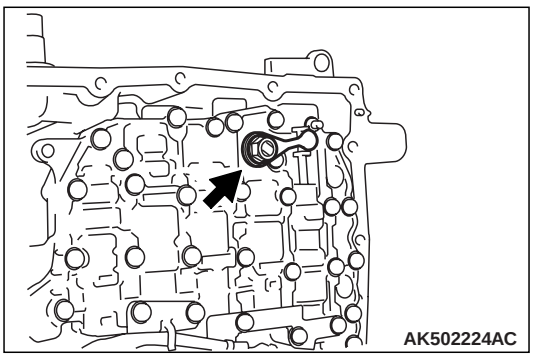
Bolt symbol	A	B	C
Shank length mm	12	44	12
Quantity	1	1	1



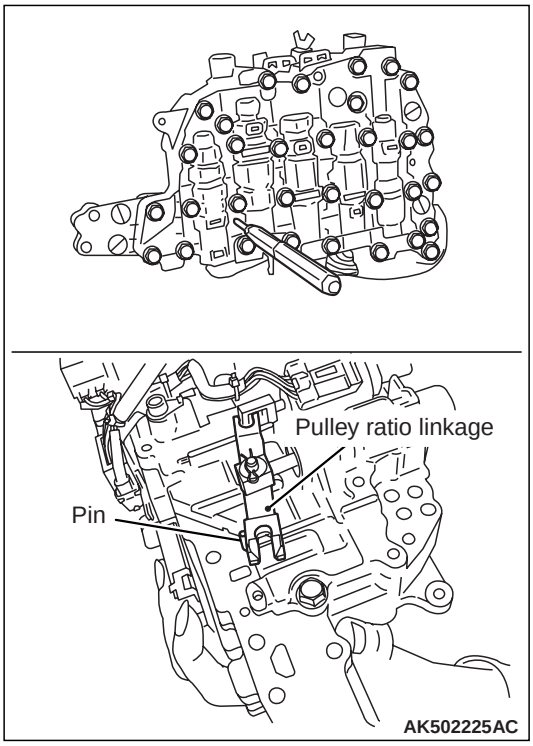
44.Remove the O-ring from the oil strainer.



45.Remove the bracket from the control valve assembly.

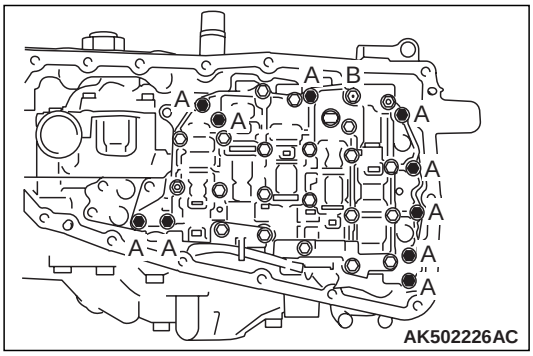


46.Remove the manual valve lever.



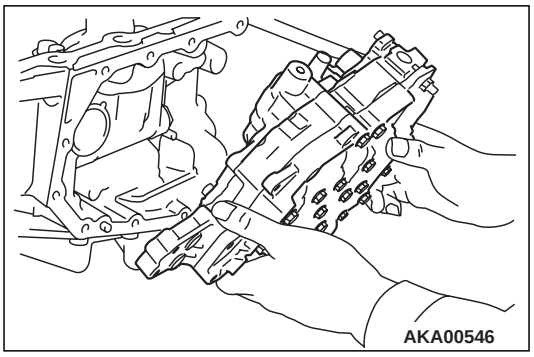
47.Remove the control valve assembly from the transmission case in the following way.

(1) Insert pins etc. (ϕ3 mm) into linkage stopper holes of the control valve assembly to fix the pulley ratio linkage.



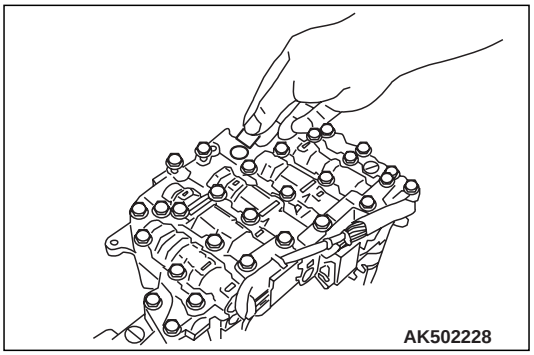
(2) Remove mounting bolt of the control valve assembly.

Bolt symbol	A	B
Shank length mm	54	44
Quantity	10	1

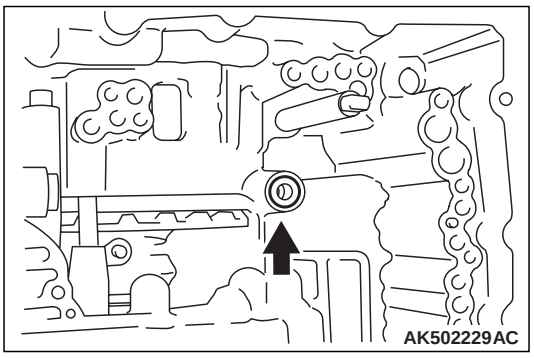


(3) Remove the control valve assembly from the transmission case.

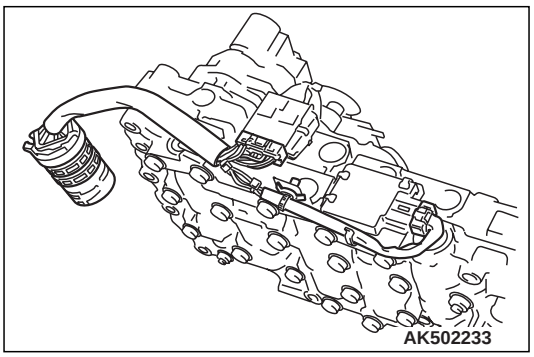
NOTE: Tilt the control valve assembly, and after removing from the manual shaft side, remove the terminal body from the transmission case.



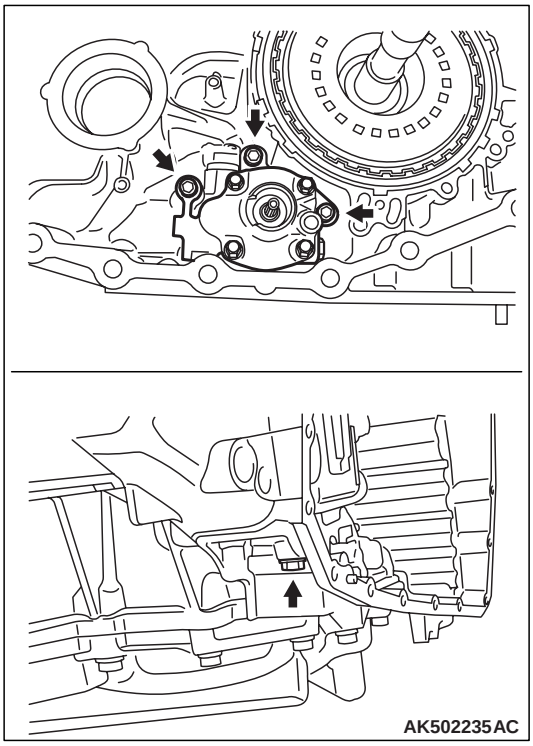
48.Remove the bush from the control valve.



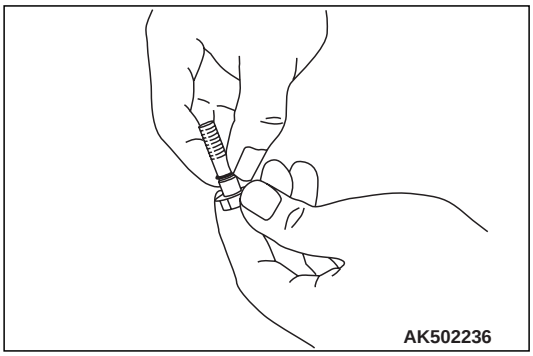
49.Remove the lip seal from the transmission case.



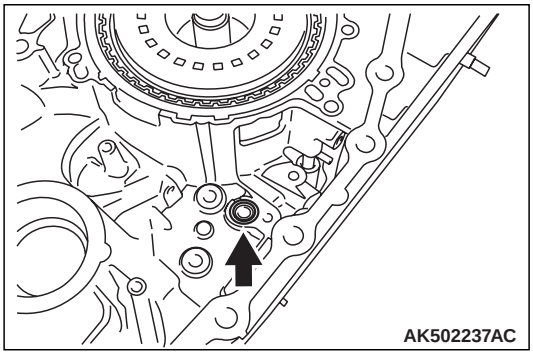
50.Remove the valve body harness from the control valve.



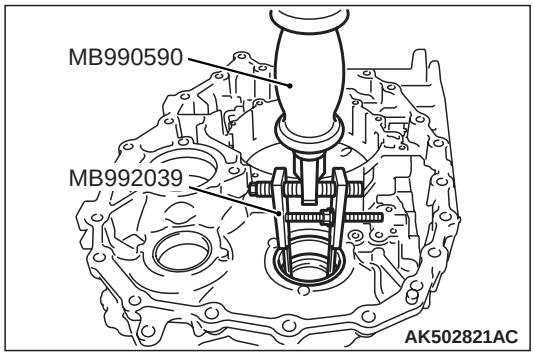
51.Remove the oil pump from the transmission case. (One fastening bolt is installed at the backside from the transmission case side.)



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



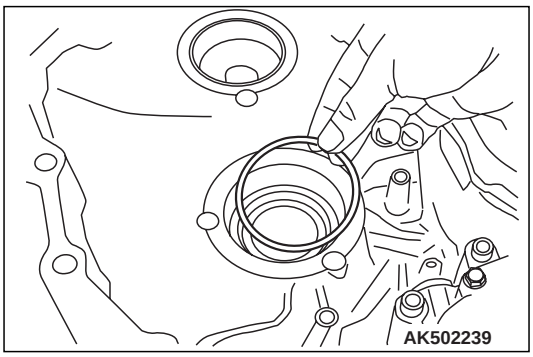
53.Remove the lip seal from the transmission case.



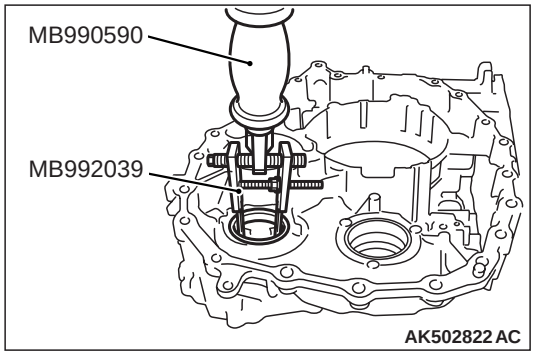
54.Using the special tools, remove outer race of the differential side bearing from the transmission case.
- Rear axle shaft oil seal remover (MB990590)
- Slide hammer puller (MB992039)

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

Standard value: ϕ67.949 – 67.979 mm



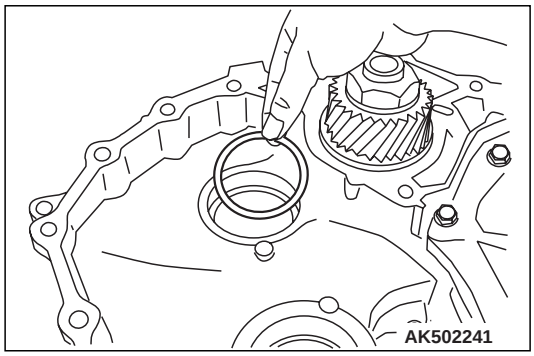
56.Remove the adjusting shim from the transmission case.



57.Using the special tools, remove outer race of the reduction gear bearing from the transmission case.
- Rear axle shaft oil seal remover (MB990590)
- Slide hammer puller (MB992039)

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

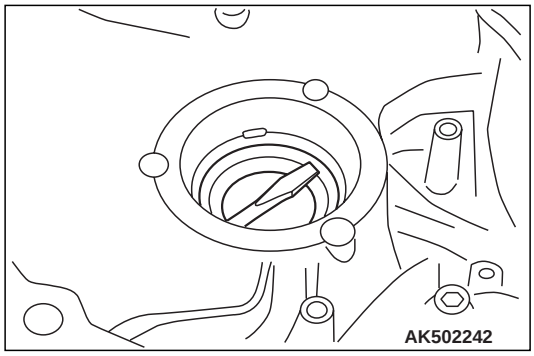
Standard value: ϕ61.949 – 61.979 mm


AK502241

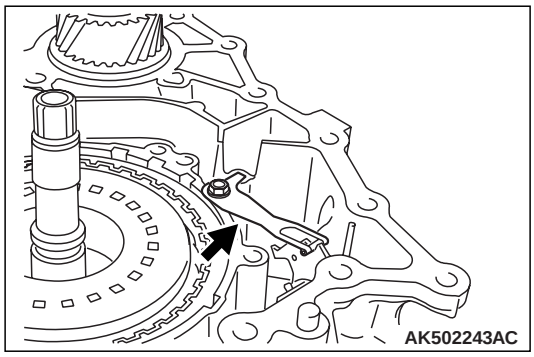
59.Remove the adjusting shim from the transmission case.

⚠ CAUTION

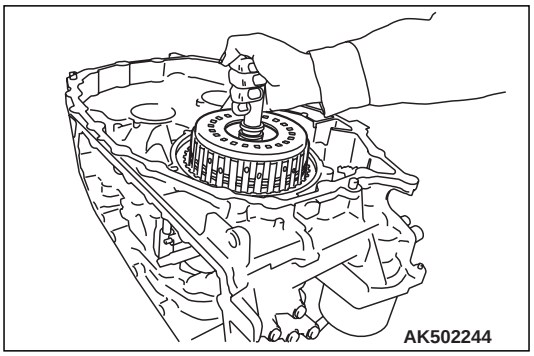
When removing the side oil seal, be careful not to cause damage to the transmission case.


AK502242

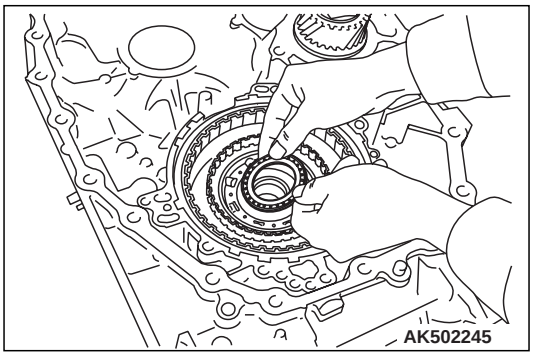
60.Using a flat blade screwdriver etc., remove the side oil seal from the transmission case.


AK502243AC

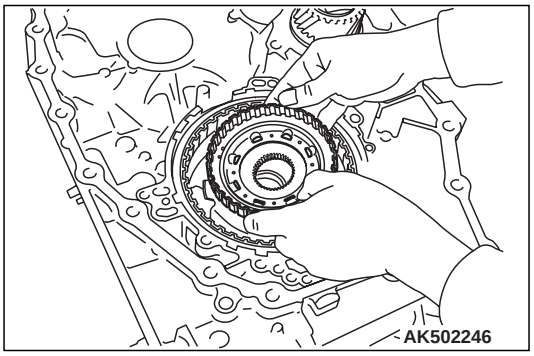
61.Remove the detent spring from the transmission case.


AK502244

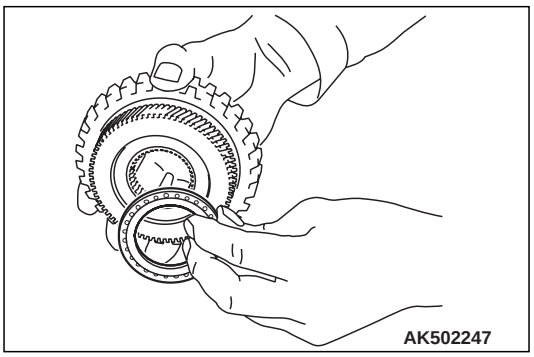
62.Remove the forward clutch assembly from the transmission case.


AK502245

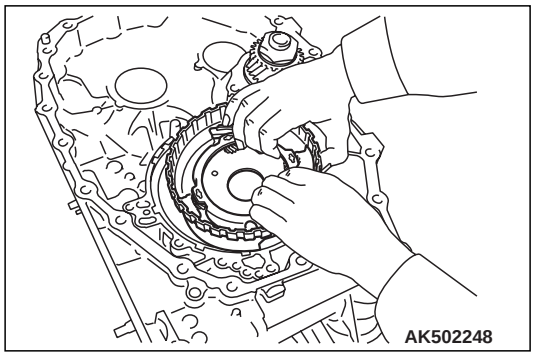
63.Remove the needle bearing on forward clutch drum side from the sun gear.


AK502246

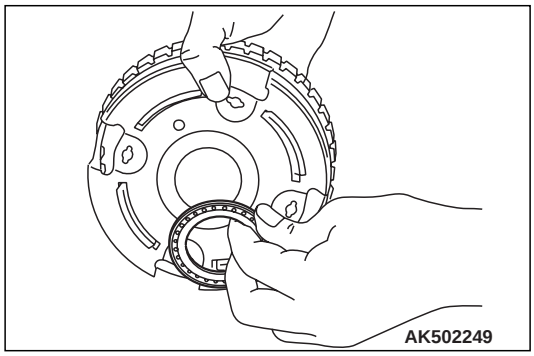
64.Remove the sun gear from the planet carrier.


AK502247

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



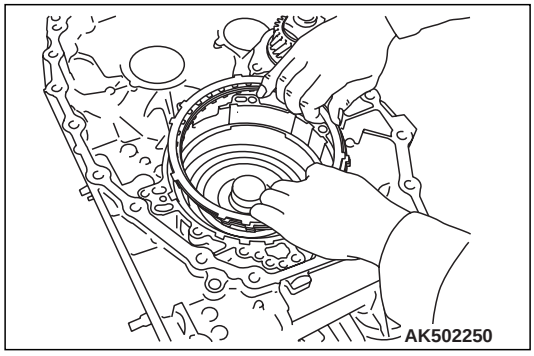
66.Remove the planet carrier from the transmission case.



67.Remove the needle bearing from the planet carrier.

⚠ CAUTION

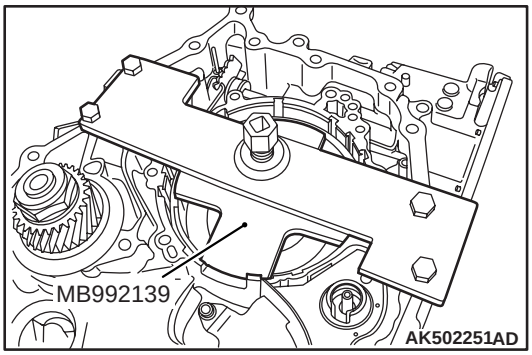
Check if there is a damage, deformation, a burn mark or permanent set on the dish plate, driven plate, snap ring, and drive plate. Replace any defective part.



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

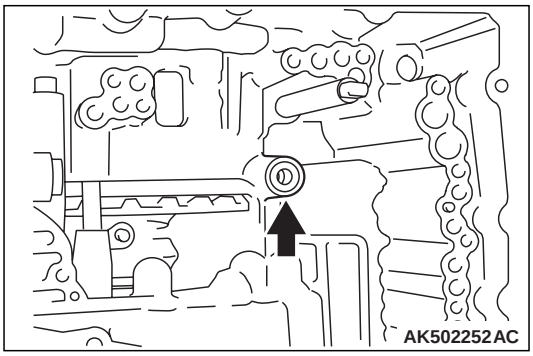


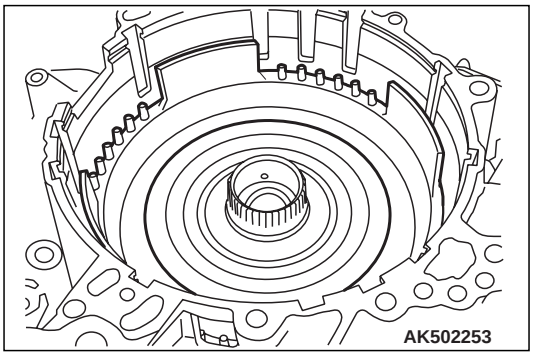
69.Using the special tool, Spring compressor (MB992139), compress the return spring, and remove the snap ring from the transmission case.

70.Remove the retaining plate and return spring assembly.

⚠ CAUTION

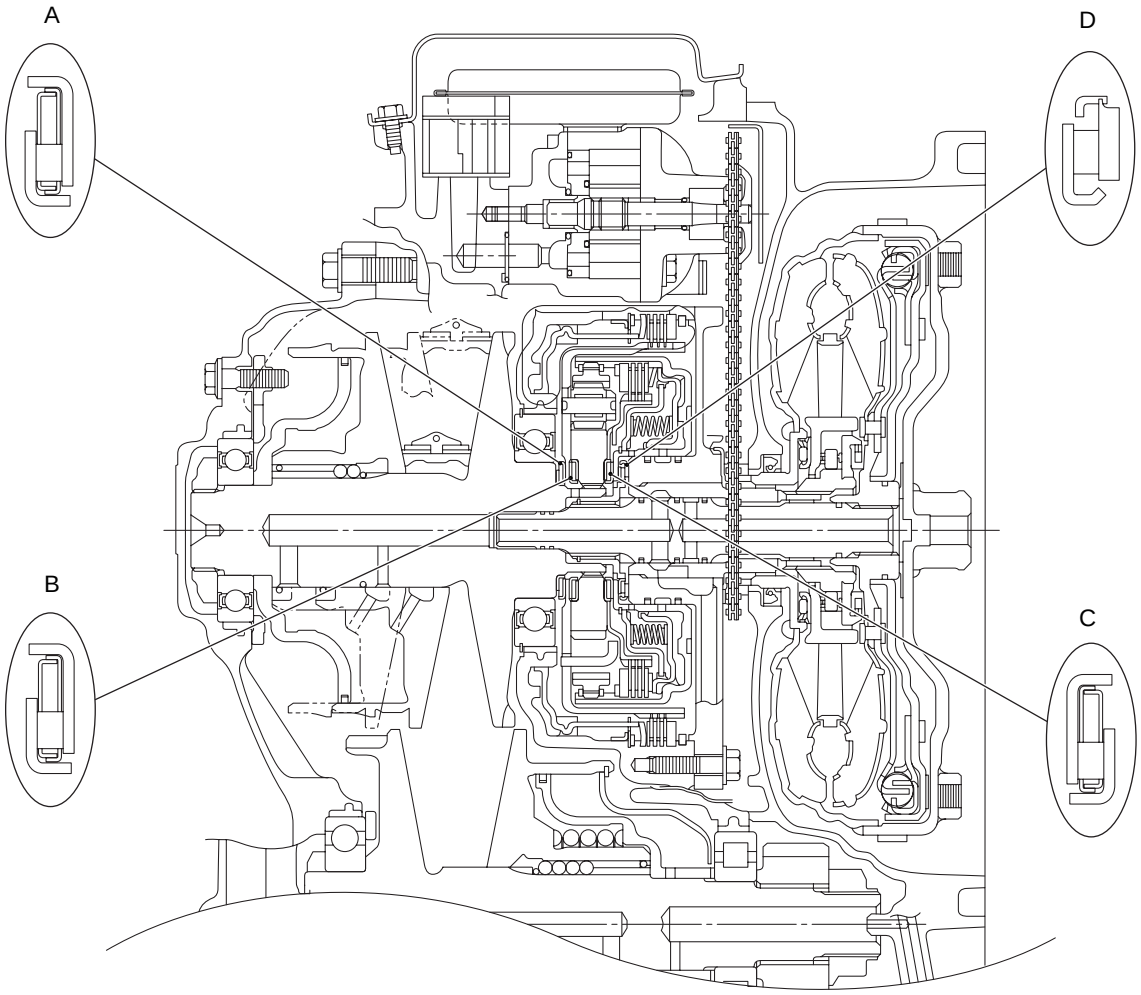
Be careful because that the reverse brake piston may be stuck if compressed air is fed excessively.





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

IDENTIFICATRION OF NEEDLE BEARINGS



AKA00547AB

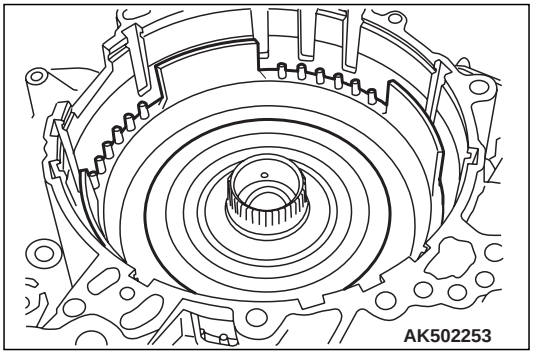
REASSEMBLY SERVICE POINT

⚠ CAUTION

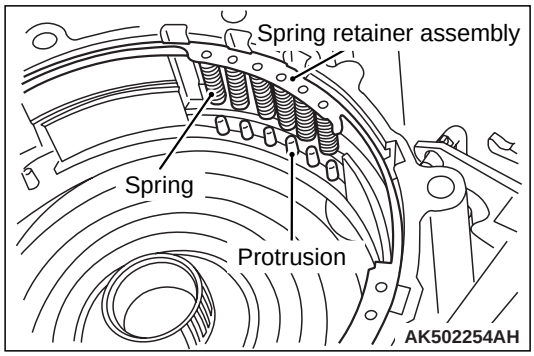
When the outer races of reduction gear bearing and differential side bearing are removed, measure the mounting bore diameters of outer race in the converter housing and transmission case, and replace the housing case or the CVT assembly if the standard value is not satisfied. The standard values are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

⚠ CAUTION

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



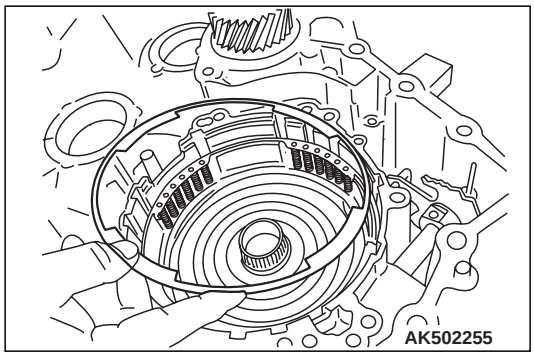
1. Install the reverse brake piston, while turning it, on the transmission case.

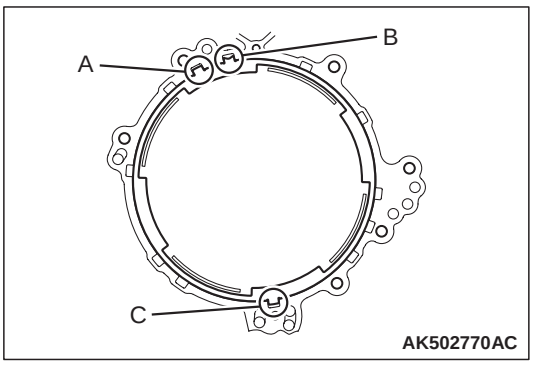


2. Align the spring portion of spring retainer assembly with the projections of the reverse brake piston, and install the spring retainer assembly.

⚠ CAUTION

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

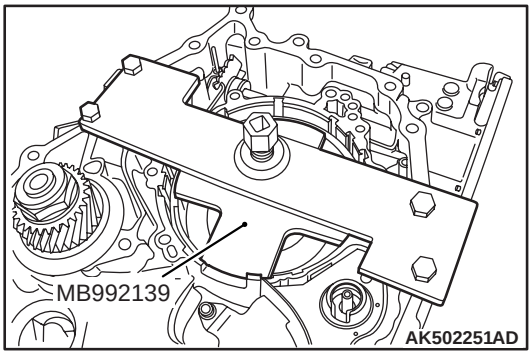


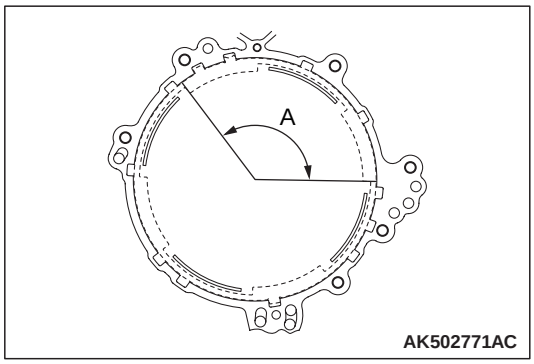


3. Install the retaining plate on the transmission case.

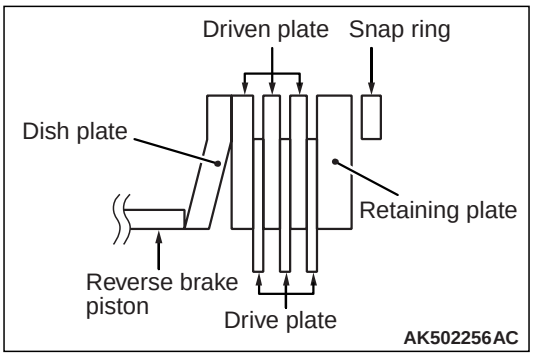
⚠ CAUTION

- **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.**





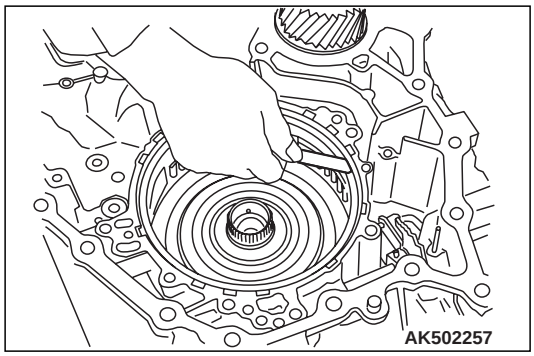
4. Using the special tool, Spring compressor (MB992139), compress the return spring, and install the snap ring on the transmission case by means of a flat blade screwdriver etc.

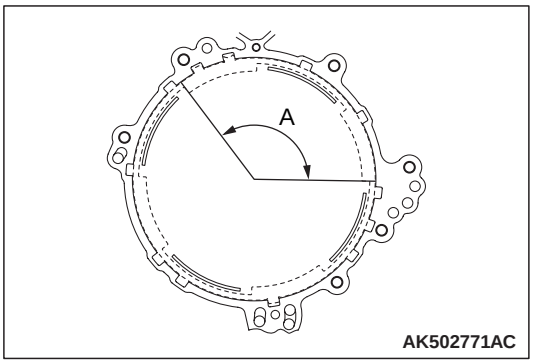


5. Install the reverse brake retaining plate, drive plate, driven plate, and dish plate on the transmission case.

⚠ 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.**



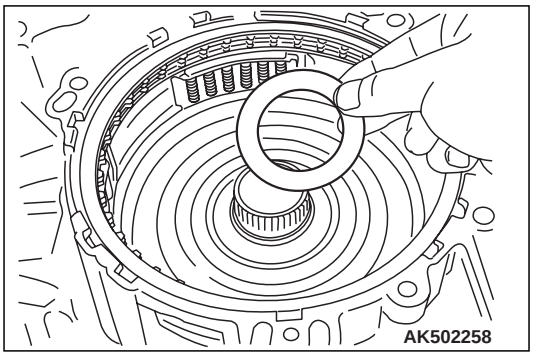


6. Using a flat blade screwdriver etc., install the snap-ring on the transmission case, and measure clearance between the snap ring and retaining plate. Select the snap ring so as to obtain standard value of the clearance. For selection of the snap ring, refer to "SERVICE SPECIFICATIONS."

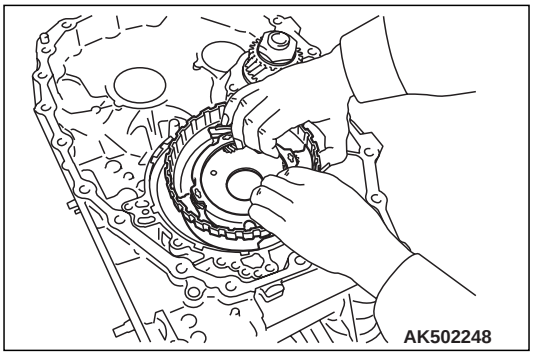
   Standard value: 1.2 – 1.5 mm
   (For reverse brake clearance)

⚠ CAUTION

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



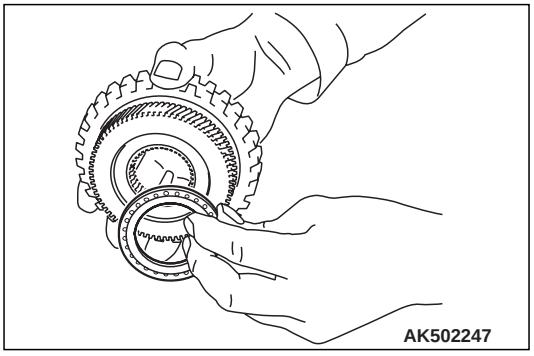
7. Install the needle bearing on the reverse brake piston. Refer to A in the "IDENTIFICATION OF NEEDLE BEARINGS" for right direction.



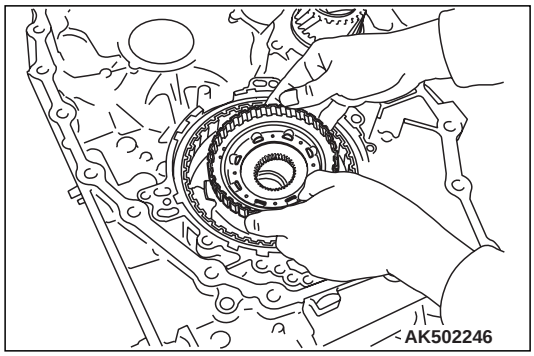
8. Install the planet carrier on the reverse brake.

⚠ CAUTION

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



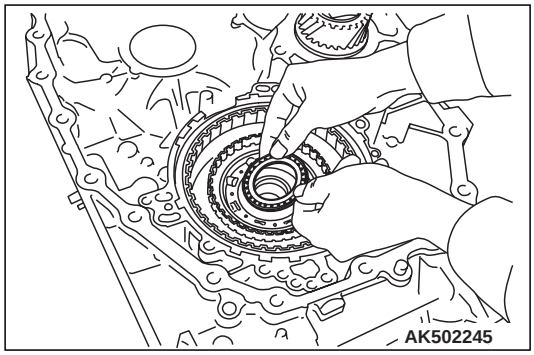
9. Install the needle bearing on the primary pulley side of the sun gear. Refer to B in the "IDENTIFICATION OF NEEDLE BEARINGS" for right direction.



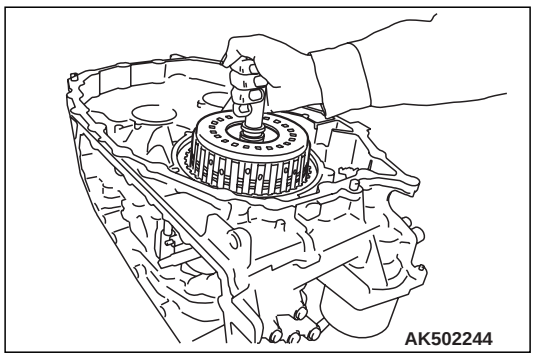
10.Install the sun gear on the planet carrier.

⚠ CAUTION

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



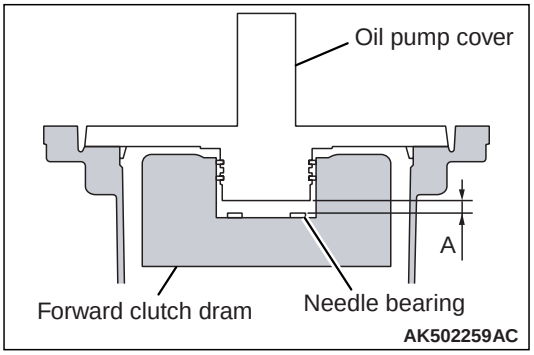
11.Install the needle bearing on the forward clutch drum side of the sun gear. Refer to C in the "IDENTIFICATION OF NEEDLE BEARINGS" for right direction.



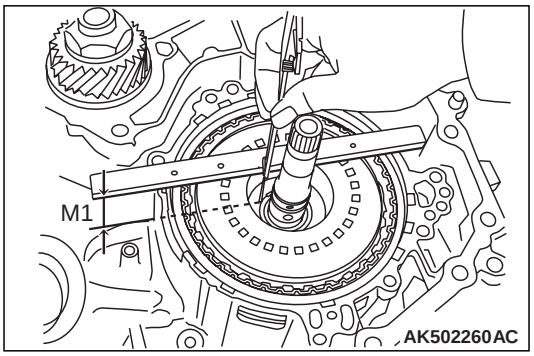
12.Install the forward clutch assembly on the transmission case.

⚠ CAUTION

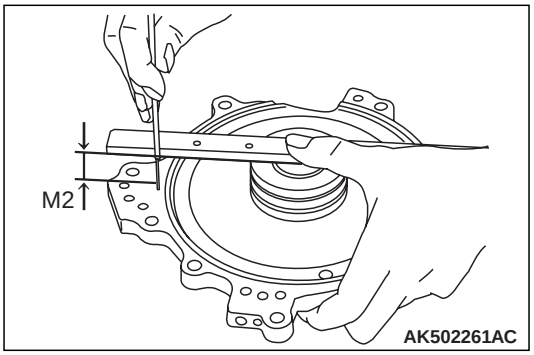
When conducting measurements, measure two or more places, and find the average value.



13.Measure the total axial play A in the following way.



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

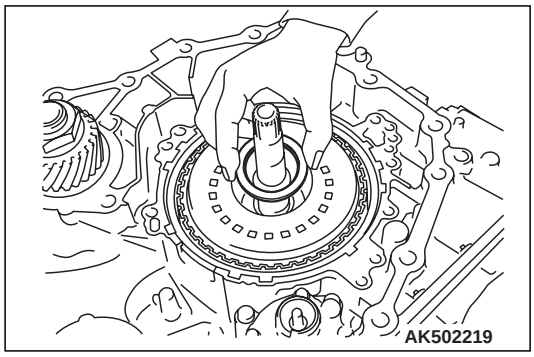


(2) Measure the distance M2 from the edge of oil pump cover to the mounting surface on the transmission case.

(3) Calculate the total axial play by the following expression. Select the needle bearing so that the total axial play meets its standard value.

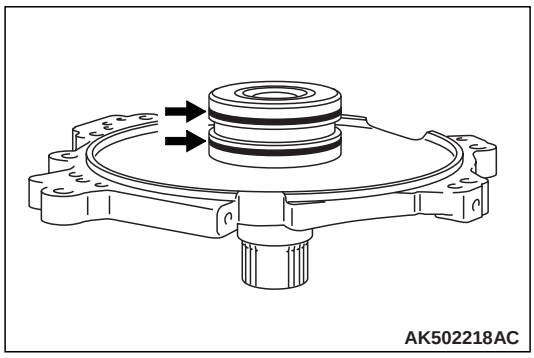
Total axial play = M1 – M2 – bearing thickness
Standard value: 0.25 – 0.55 mm
(For total axial play)

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



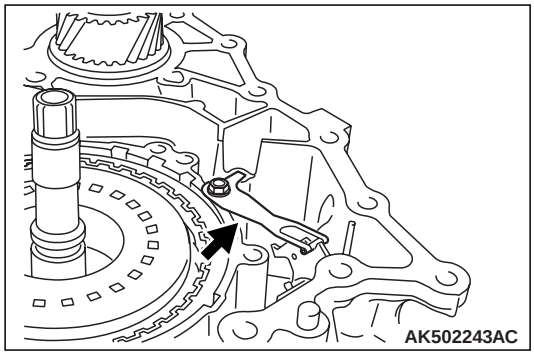
14.Install the selected needle bearing on the forward clutch assembly. Refer to D in the "IDENTIFICATION OF NEEDLE BEARINGS" for right direction.

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



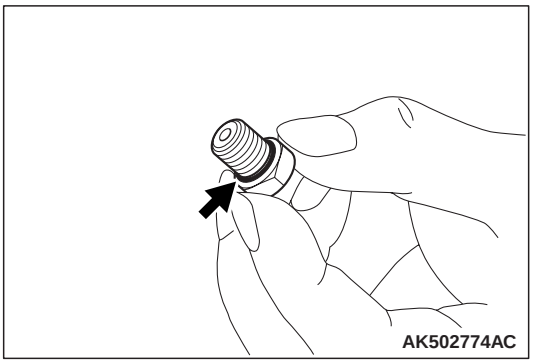
15.Install the seal rings on the oil pump cover.

⚠ CAUTION
Do not re-use the bolt.

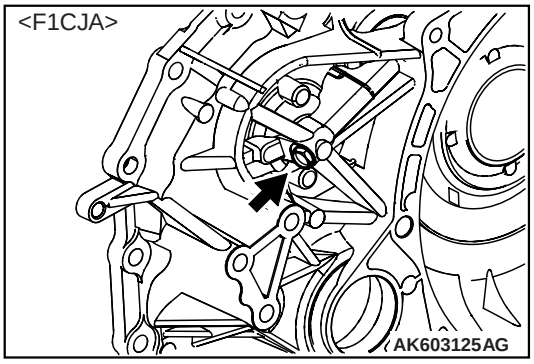


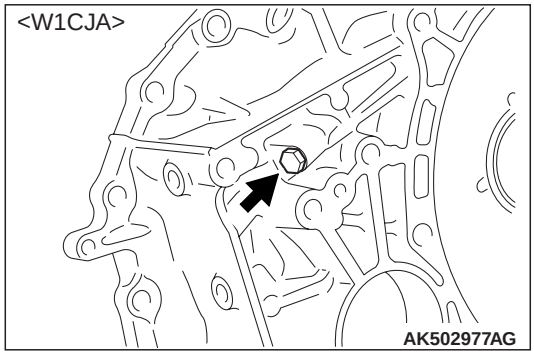
16.Install the detent spring on the transmission case, and tighten the fastening bolt at the specified torque of 6.9 N·m.

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



17.Install the O-ring on the plug.

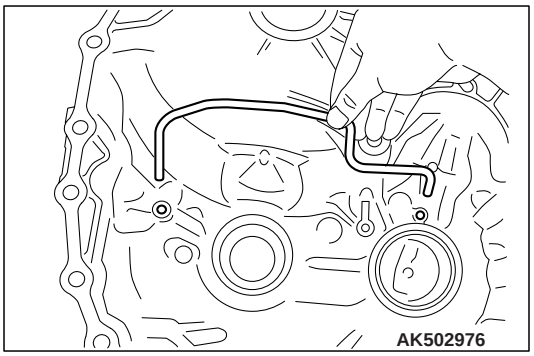




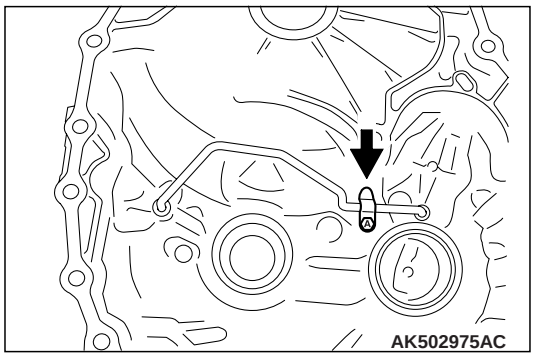
18.Install the plug on the converter housing to the specified torque of 7.5 N·m.

⚠ CAUTION

Do not strain the pipe when attaching it.



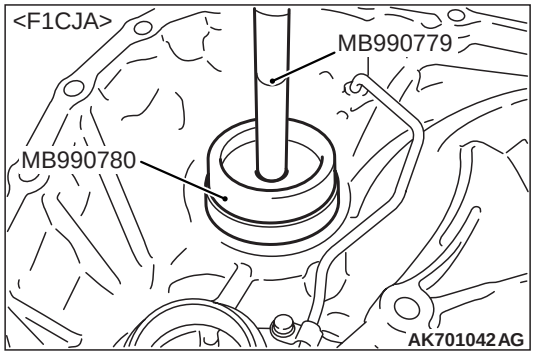
19.Install the pipe on the converter housing.

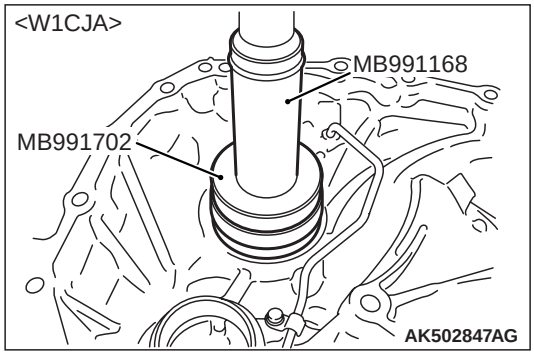


20.Install the clip, and tighten the bolt at the specified torque of 5.9 N·m.

⚠ CAUTION

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

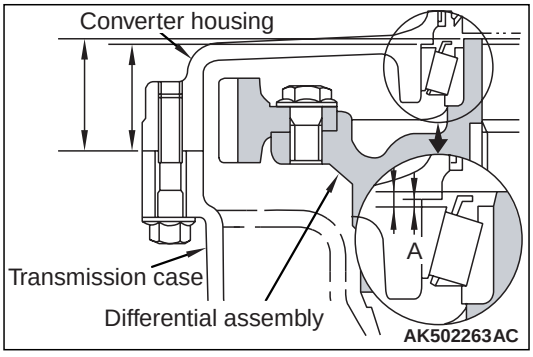




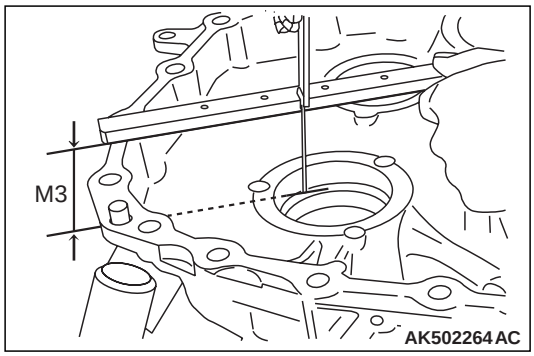
21.Using the special tools, Install the differential bearing outer race.
- Bar (MB990779) <F1CJA>
- Real axle shaft bushing installer (MB990780) <F1CJA>
- Differential oil seal installer (MB991168) <W1CJA>
- Adapter (MB991702) <W1CJA>

⚠ CAUTION

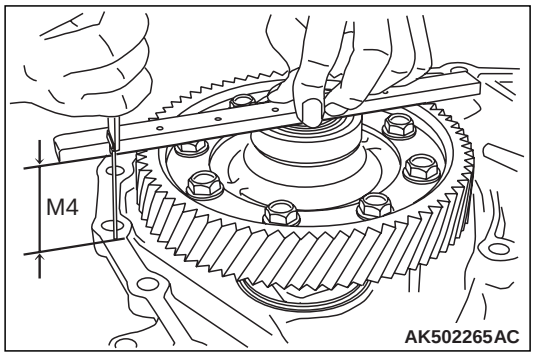
- **When adjusting the preload, apply CVT fluid to the bearing to make it roll smoothly.**
- **When conducting measurements, measure two or more places, and find the average value.**



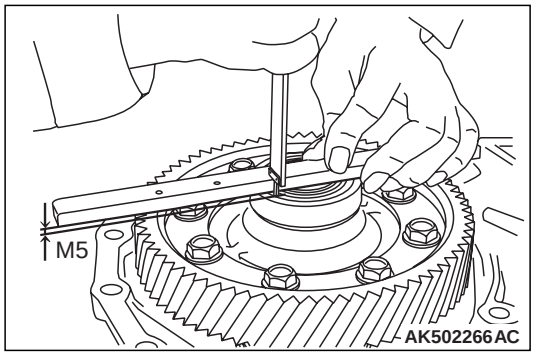
22.Measure the preload A of the differential assembly in the following way.



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



(2) Install the differential assembly on the converter housing, 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.

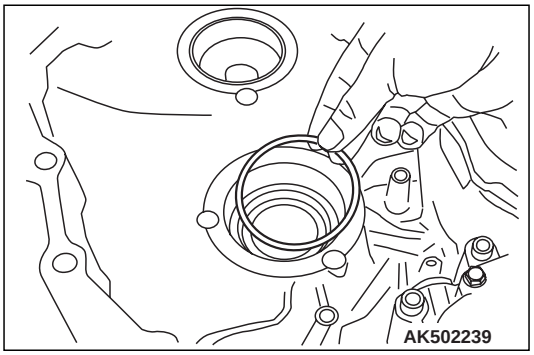
(4) Using the following expression, calculate the distance M6 from the edge of converter housing to the outer race of differential side bearing.

M6 = M4 – M5

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

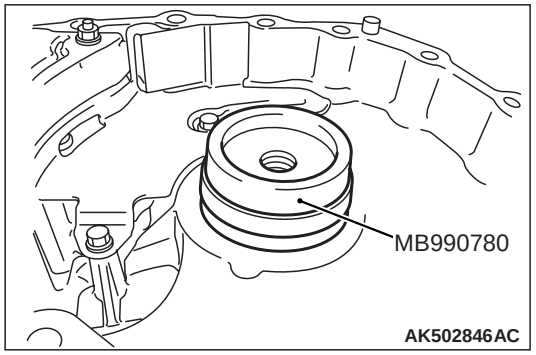
Thickness of adjusting shim = M3 – M6 + preload
Standard value: 0.17 – 0.23 mm
(For differential preload)

⚠ CAUTION
Do not re-use the adjusting shim.



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

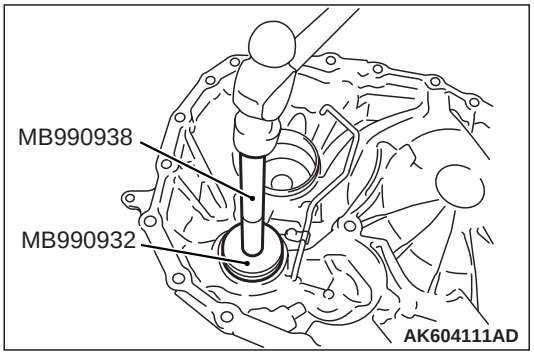
⚠ CAUTION
- **Do not re-use the outer race.**
- **Replace the outer race together with the inner race.**



24.Using the special tool, Real axle shaft bushing installer (MB990780), install the outer race of differential side bearing on the transmission case.

⚠ CAUTION

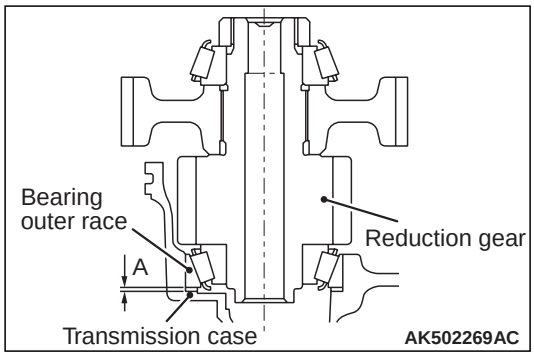
- **Do not re-use the outer race.**
- **Replace the outer race together with the inner race.**



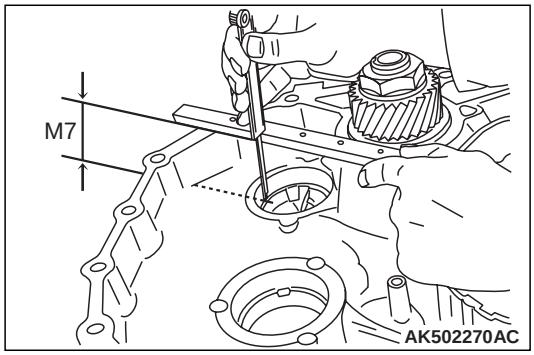
25.Using the special tools, install the outer race of reduction gear bearing on the converter housing.
- Installer adapter (MB990932)
- Installer bar (MB990938)

⚠ CAUTION

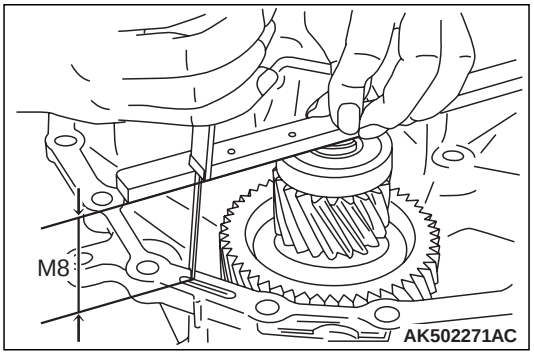
- **When adjusting the preload, apply CVT fluid to the bearing to make it roll smoothly.**
- **When conducting measurements, measure two or more places, and find the average value.**



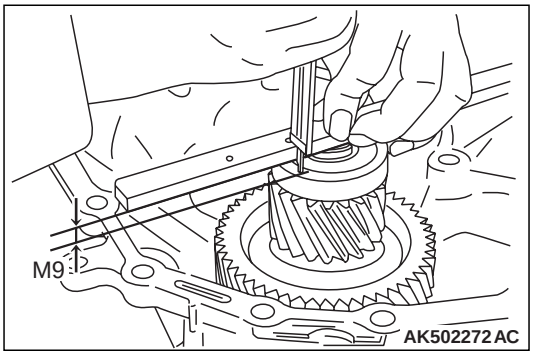
26.Measure the preload A of the reduction gear assembly in the following way.



(1) Measure the distance M7 from the edge of transmission 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.

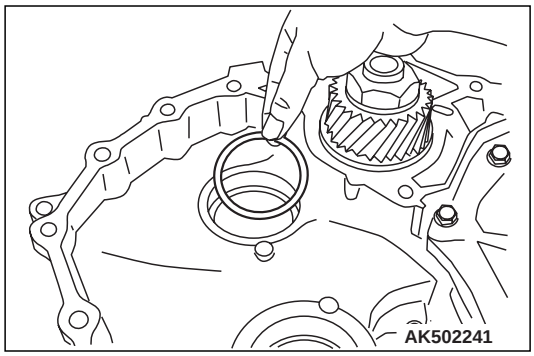
(4) Using the following expression, calculate the difference M10 from the outer race of reduction gear bearing to the edge of converter housing.

M10 = M8 – M9

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

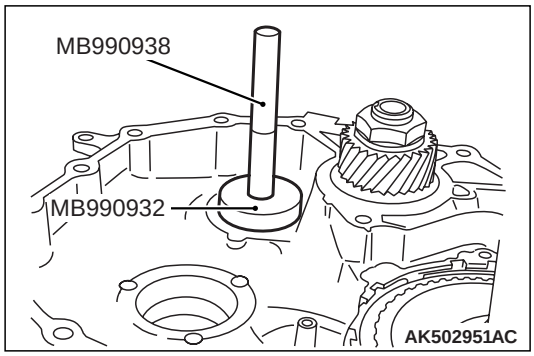
Thickness of adjusting shim = M7 – M10 + preload
Standard value: 0.11 – 0.17 mm
(For reduction gear preload)

⚠ CAUTION
Do not re-use the adjusting shim.



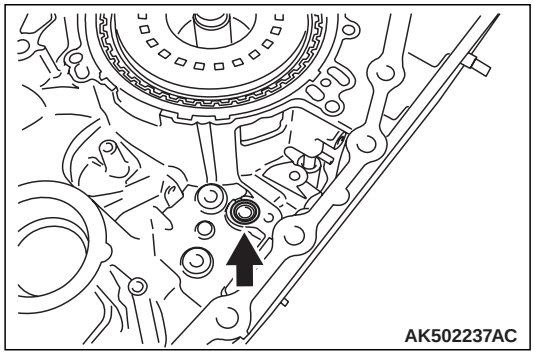
27.Install the selected adjusting shim on the transmission case. For selection of the adjusting shim, refer to "SERVICE SPECIFICATIONS."

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



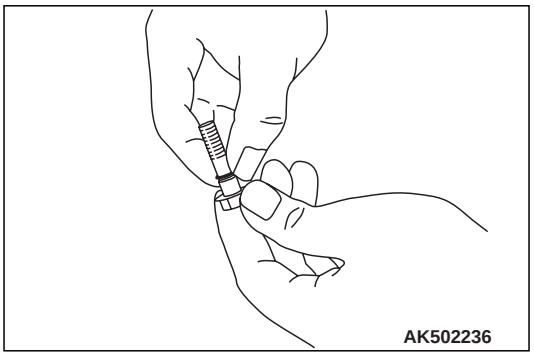
28.Using the special tools, install the outer race of reduction gear bearing on the transmission case.
- Installer adapter (MB990932)
- Installer bar (MB990938)

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

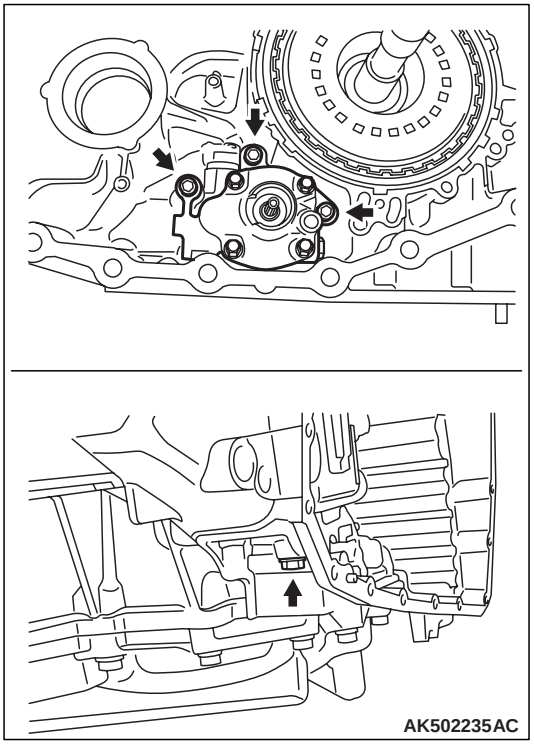


29.Install the lip seal on the transmission case.

⚠ CAUTION
- **Do not re-use the O-rings.**
- **Apply CVT fluid when installing the O-rings.**

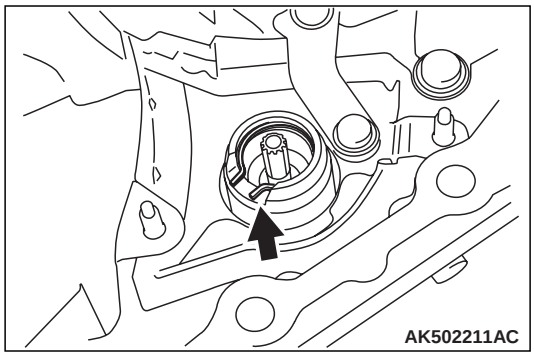


30.Install the O-rings on the oil pump mounting bolt.



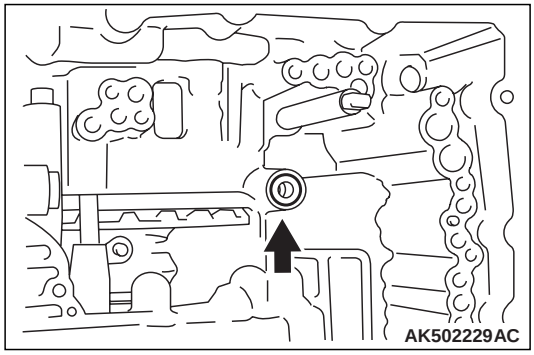
31.Install the oil pump on the transmission case to the specified tightening torque of 19 N·m. (One fastening bolt is installed at the backside from the transmission case side. Only this bolt should be tightened to the specified torque of 28 N·m.)

⚠ CAUTION
Do not re-use the snap ring.

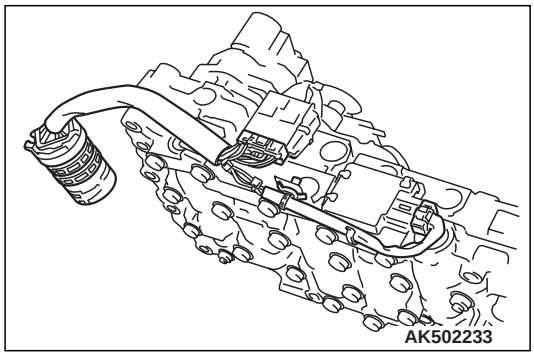


32.Install the snap ring on the oil pump.

⚠ CAUTION
- **Do not re-use the lip seal.**
- **Apply CVT fluid or vaseline when installing the lip seal.**

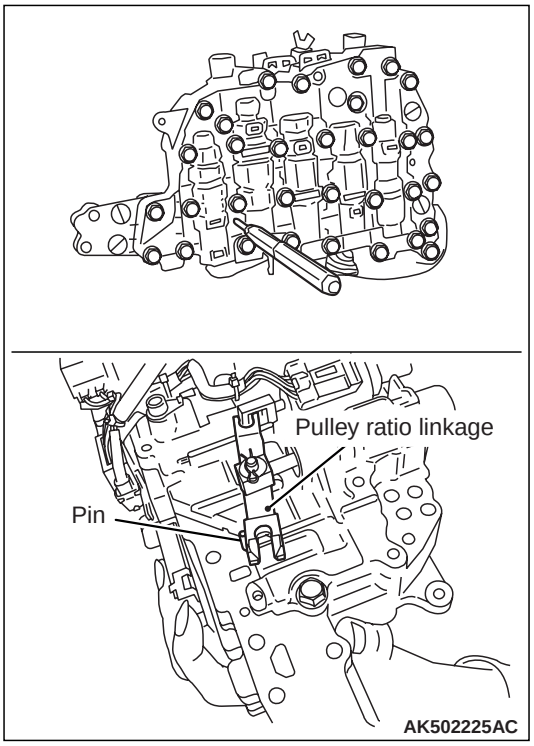


33.Install the lip seal on the transmission case.

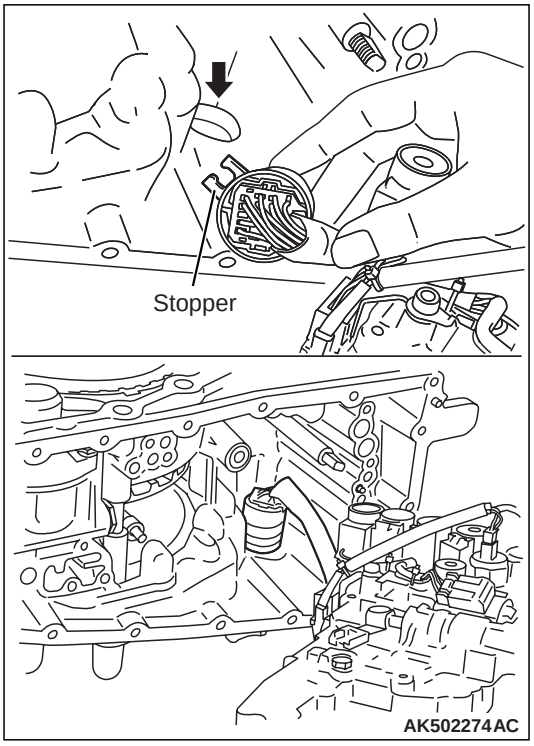


34.Install the valve body harness on the control valve.

35.Install the control valve assembly on the transmission case in the following way.



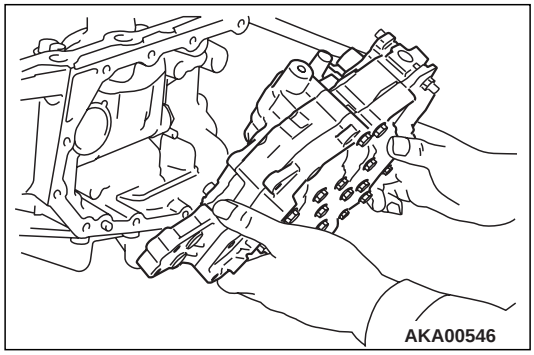
(1) Insert pins etc. (ϕ3 mm) into linkage stopper holes of the control valve assembly to fix the pulley ratio linkage.

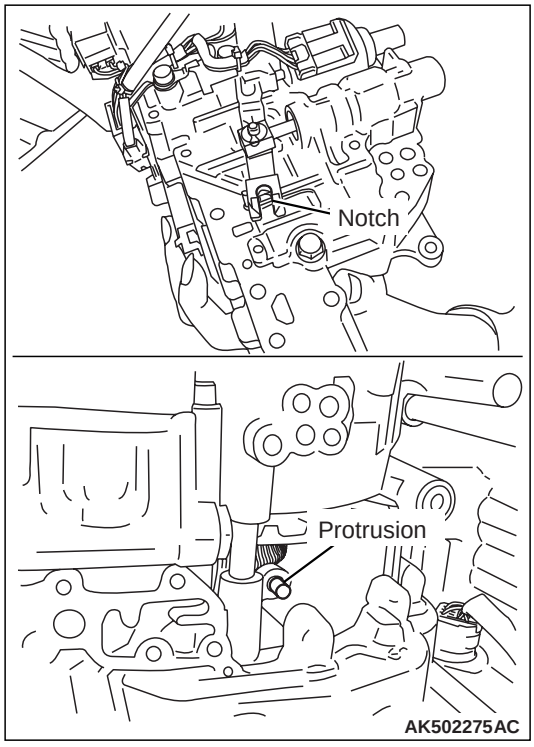


(2) Install the terminal body on the transmission case, while aligning the detent of terminal body with the transmission case as shown in the diagram.

⚠ CAUTION

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

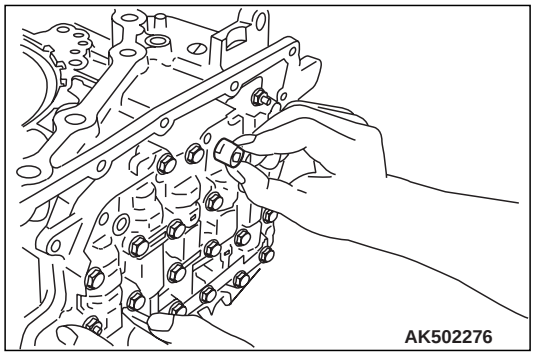




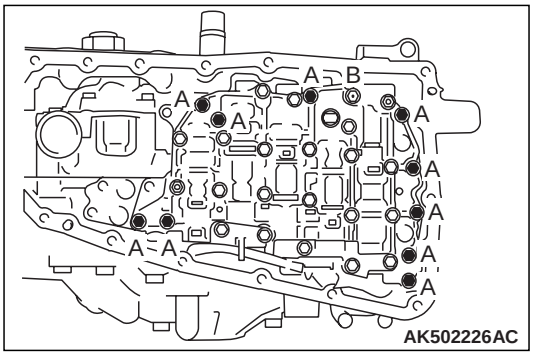
(3) Slide the control valve assembly from the bottom, and install it on the transmission case.

⚠ CAUTION

Apply CVT fluid when attaching the bush.

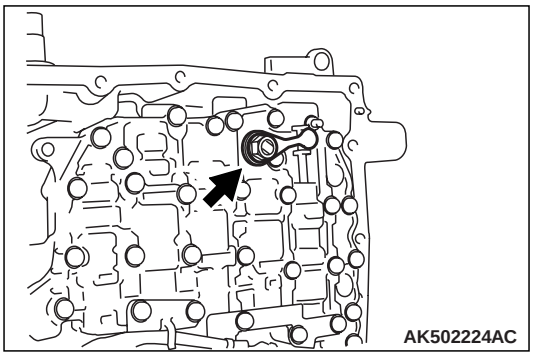


(4) Install the bush on the control valve assembly.

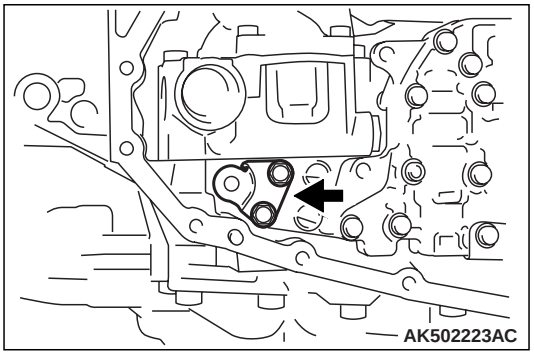


(5) Install the mounting bolt of control valve assembly, and tighten to the specified torque of 7.9 N·m.

Bolt symbol	A	B
Shank length mm	54	44
Quantity	10	1

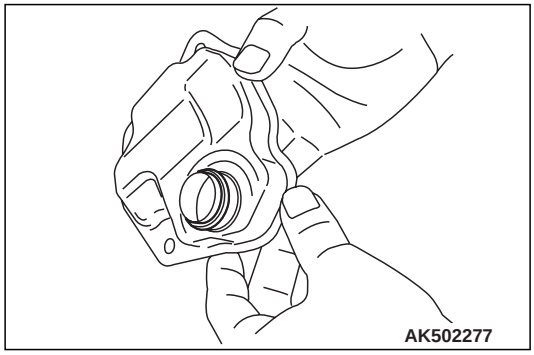


36. Install the manual valve lever, and tighten the fastening nuts to the specified torque of 22.1 N·m.

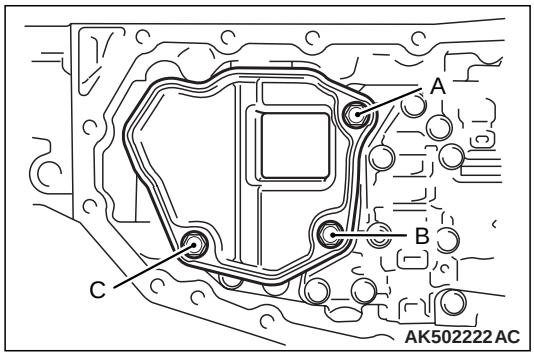


37. Install the bracket on the manual valve assembly, and tighten the mounting bolt to the specified torque of 7.9 N·m.

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



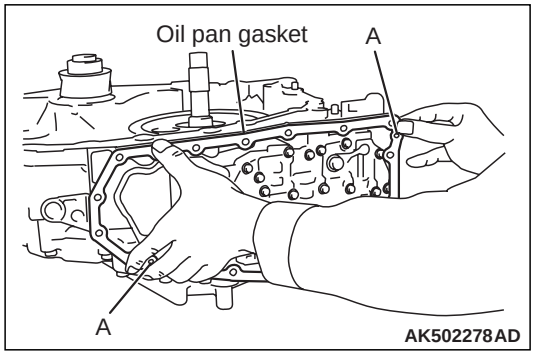
38.Install the O-ring on the oil strainer.



39.Install the oil strainer, and tighten the mounting bolt to the specified torque of 7.9 N·m.

Bolt symbol	A	B	C
Shank length mm	12	44	12
Quantity	1	1	1

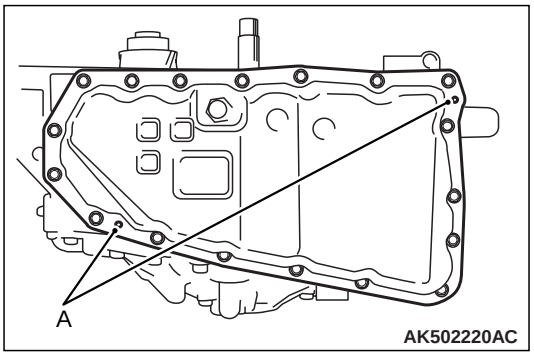
⚠ CAUTION
- **Do not re-use the oil pan gasket.**
- **Remove any moisture, oil, and used gasket from the mounting surface of oil pan gasket.**
- **When installing the oil pan gasket, align the dowel pins of transmission case with dowel pin holes A of the oil pan gasket.**



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

41.Install the magnet on the oil pan.

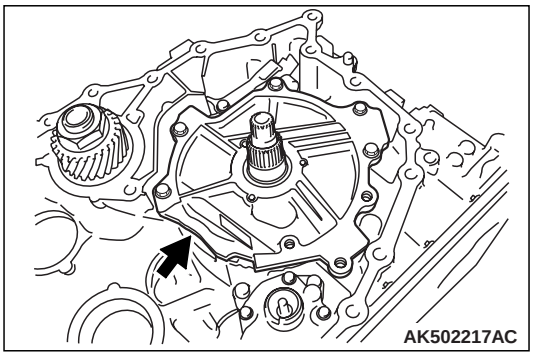
⚠ CAUTION
When installing the oil pan, align the dowel pins of transmission case with dowel pin holes A of the oil pan.



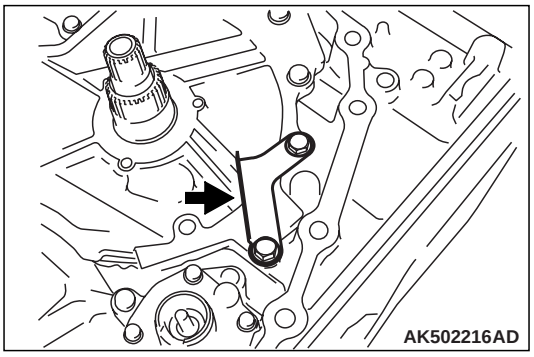
42.Install the oil pan on the transmission case, and tighten the mounting bolt to the specified torque of 7.9 N·m.

⚠ CAUTION
Do not re-use the drain plug gasket.

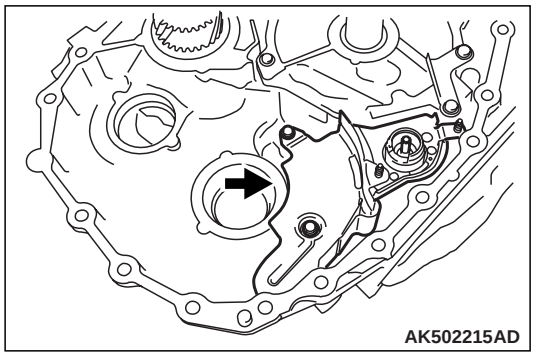
43.Install the drain plug and drain plug gasket on the transmission case, and tighten to the specified torque of 34.3 N·m.



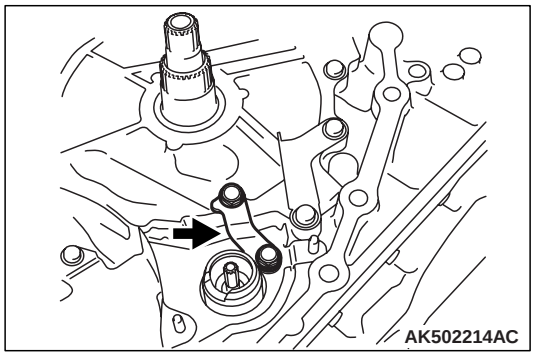
44.Install the oil pump cover on the transmission case, and fix the mounting bolt temporarily.



45.Install the baffle plate, and fix the mounting bolt temporarily.



46.Install the oil guide, and tighten the mounting bolt to the specified torque of 5.9 N·m.

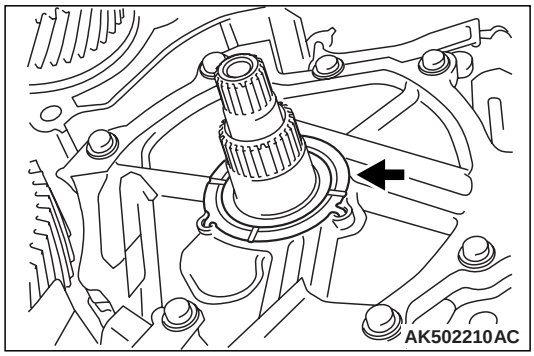


47.Install the bracket, and tighten the fastening bolts of the bracket to the bolts to the specified torque of 26 N·m.

48.Tighten the fastening bolts of the oil pump cover and baffle plate to the bolts to the specified torque of 19 N·m.

⚠ CAUTION

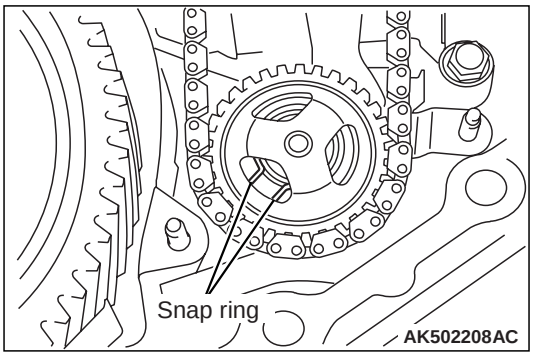
- **Make sure the tang of thrust washer is aligned with the mounting hole of oil pump cover.**
- **Apply vaseline when installing the thrust washer.**

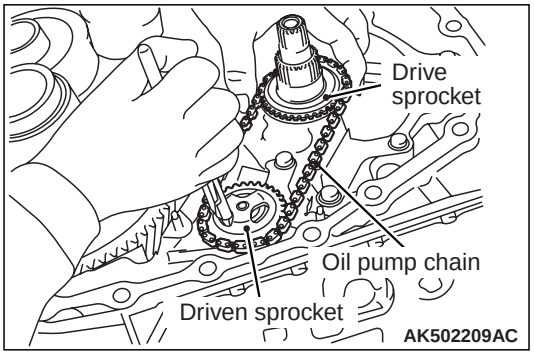


49.Install the thrust washer on the oil pump cover.

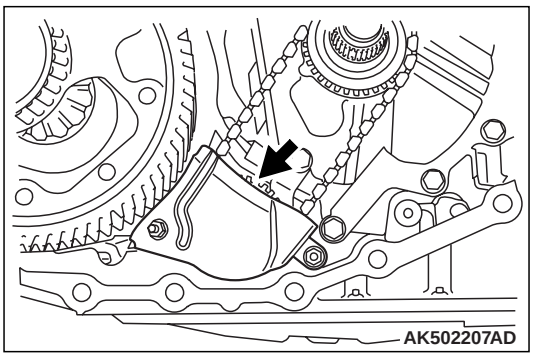
⚠ CAUTION

Pull the driven sprocket up softly to make sure it is securely attached.



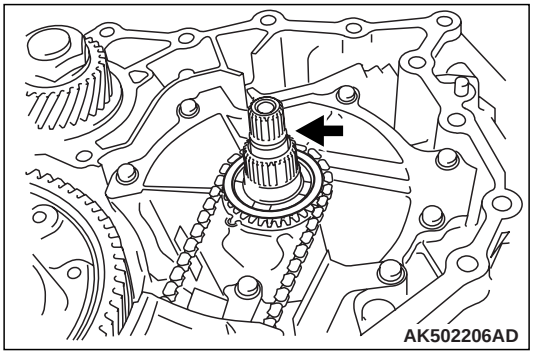


50.Expand the snap ring, and install the driven sprocket, oil pump chain, and drive sprocket.

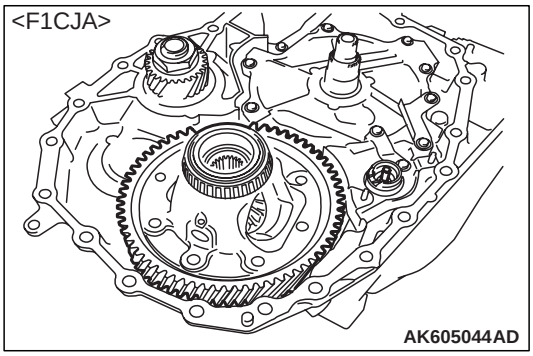


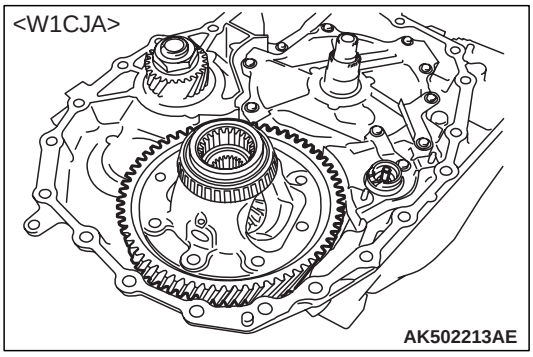
51.Install the chain cover, and tighten the mounting nut to the specified torque of 5.9 N·m.

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

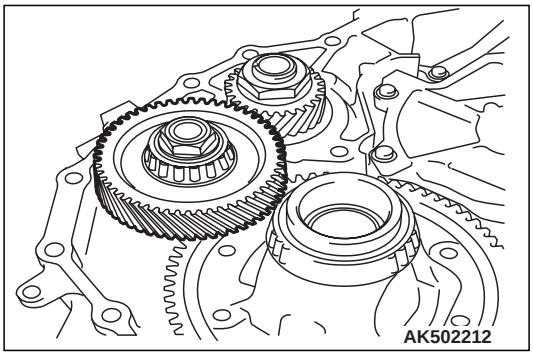


52.Install the O-ring on the input shaft.



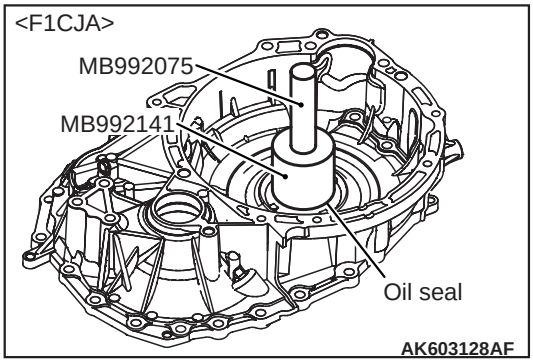


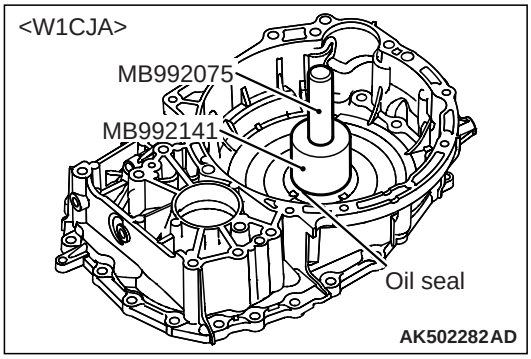
53.Install the differential assembly on the transmission case.



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

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

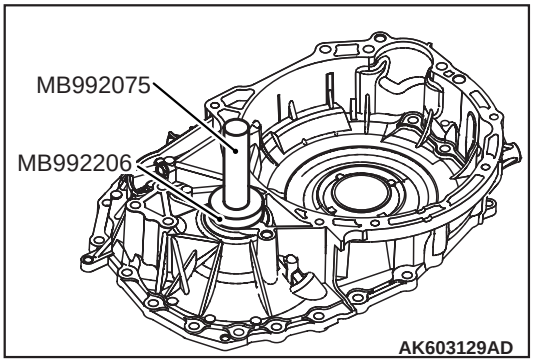




55.Using the special tools, install the converter housing oil seal on the converter housing.
- Oil seal installer (MB992141)
- Handle (MB992075)

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.**

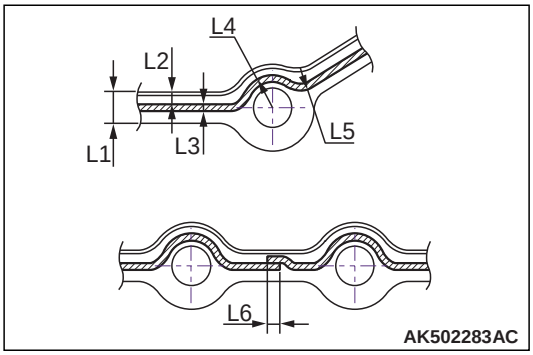


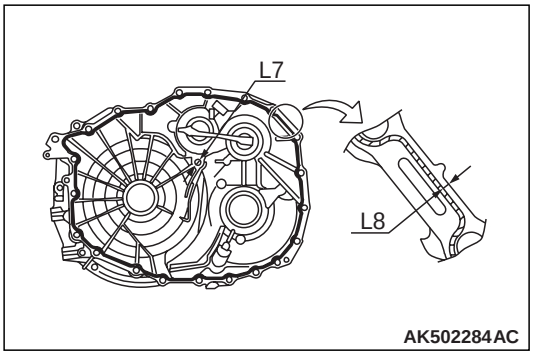
56.Using the special tools, install the converter housing side oil seal on the converter housing.
<F1CJA>
- Oil seal installer (MB992206)

- Handle (MB992075)

⚠ CAUTION

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

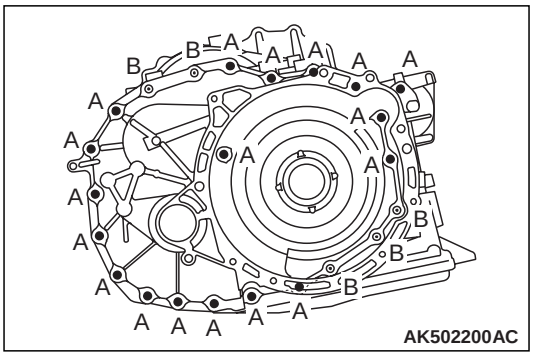




57.Apply the sealant on the converter housing mounting surface of the transmission case in the following way.

Specified sealant: Loctite 509

L1	9 mm
L2	5 mm
L3	ϕ1.5 mm
L4	R8.5 mm
L5	R5 – 8 mm
L6	3 – 5 mm
L7	ϕ17 mm
L8	3.5 mm

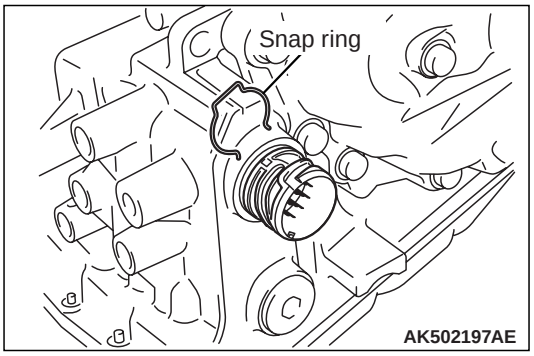


58.Install the converter housing on the transmission case, and tighten the mounting bolt to the specified torque of 45 N·m.

Bolt symbol	A	B
Shank length mm	30	35
Quantity	18	5

⚠ CAUTION

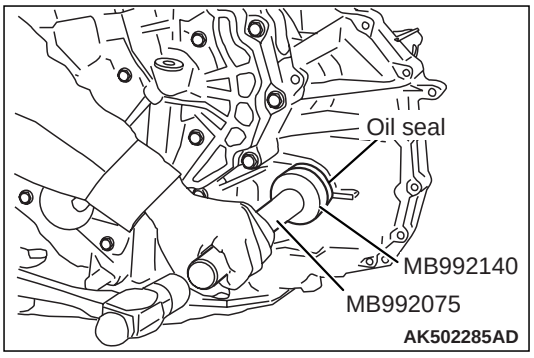
Do not re-use the snap ring.



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 tools, install the side oil seal on the transmission case.

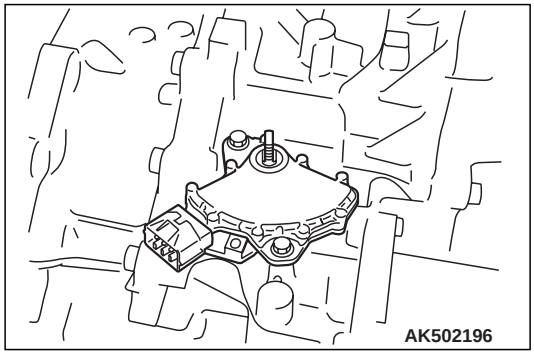
- Oil seal installer (MB992140)
- Handle (MB992075)

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

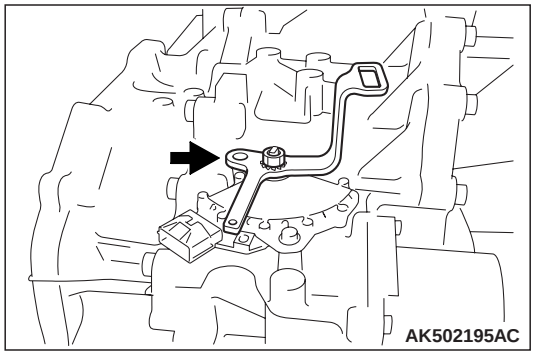
61.Install the inhibitor switch on the transmission case in the following way.

⚠ CAUTION

Do not re-use the inhibitor switch.

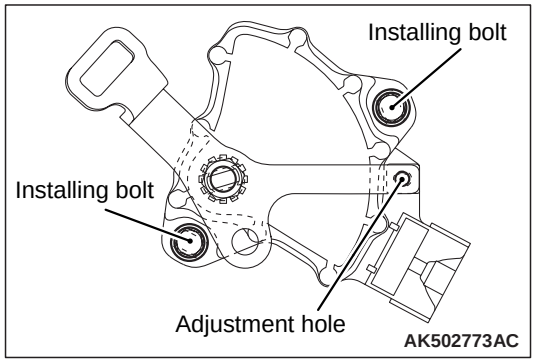


(1) Install the inhibitor switch on the transmission case.



(2) Install the manual control lever on the manual shaft, and tighten the fastening nuts to the specified torque of 17.2 N·m.

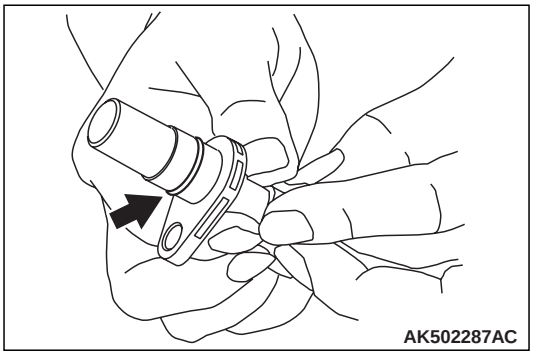
(3) Set the manual shaft at N position.



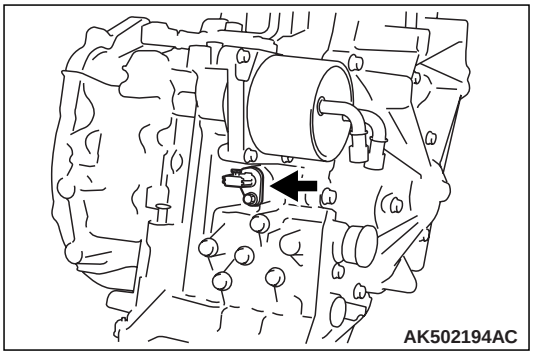
(4) Insert pins etc. (ϕ5 mm) in adjusting holes in both inhibitor switch and manual control lever, and after alignment, tighten the mounting bolt to the specified torque of 5.5 N·m.

⚠ CAUTION

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



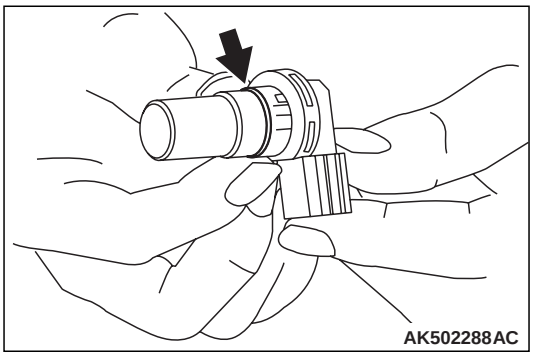
62.Install the O-ring on the primary pulley speed sensor.



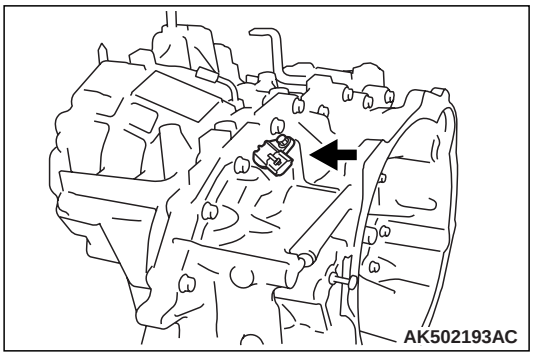
63.Install the primary pulley speed sensor on the transmission case, and tighten the mounting bolt to the specified torque of 5.9 N·m.

⚠ CAUTION

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

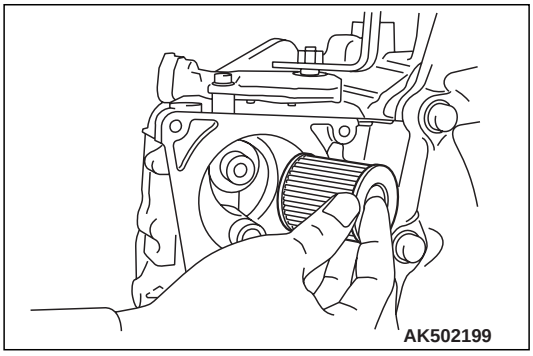


64.Install the O-ring on the secondary pulley speed sensor.


AK502193AC

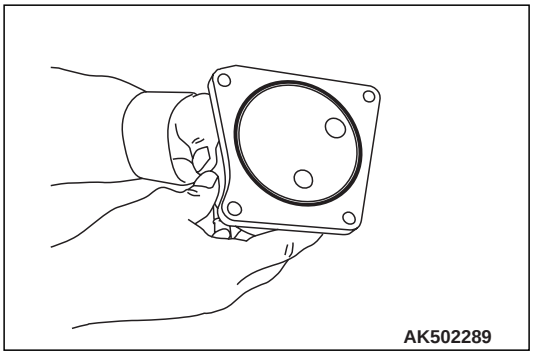
65.Install the secondary pulley speed sensor on the transmission case, and tighten the mounting bolt to the specified torque of 5.9 N·m.

⚠ CAUTION
- **Apply CVT fluid or vaseline when installing the CVT fluid filter.**
- **Do-not re-use the CVT fluid filter.**

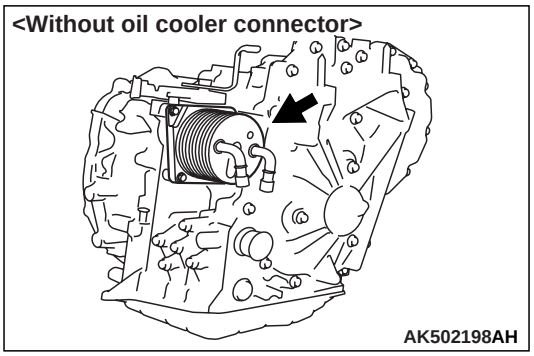

AK502199

66.Install the CVT fluid filter on the transmission case.

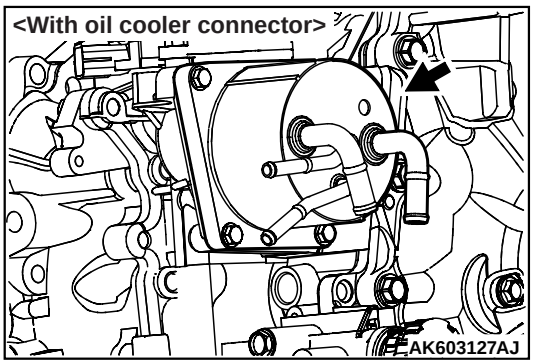
⚠ CAUTION
- **Do not re-use the O-ring.**
- **Apply CVT fluid when installing the O-ring.**
- **When installing O-ring, make sure that projection of the O-ring is put into the groove on the filter.**


AK502289

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



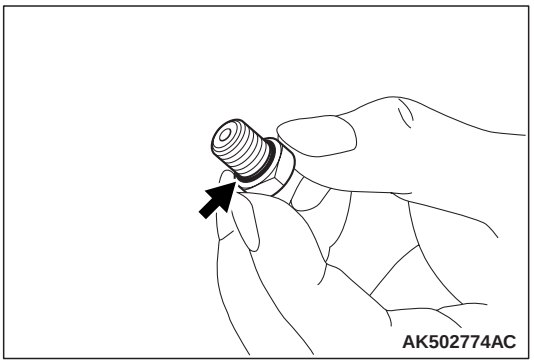
AK502198AH



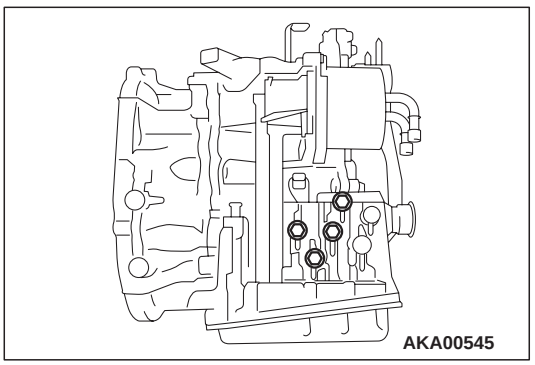
AK603127AJ

68.Install the CVT fluid cooler on the transmission case, and tighten the mounting bolt to the specified torque of 4.2 N·m.

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


AK502774AC

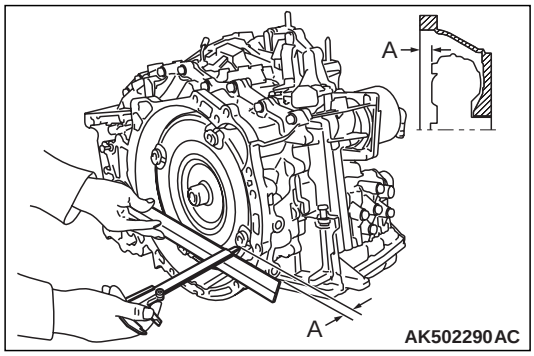
69.Install the O-ring on the plug.


AKA00545

70.Fasten the plug on the transmission case to the specified torque of 7.5 N·m.

⚠ CAUTION

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



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

Standard size A: 15.9 mm

72.Install the control cable bracket and breather hose on the transmission to the specified torque of 25 ± 4 N·m.

73.Install the oil filler tube and oil level gage on the transmission to the specified torque of 8.5 ± 3.5 N·m.

74.Install the harness bracket, corrgate clump bracket and air breather bracket on the transmission to the specified torque of 25 ± 4 N·m.

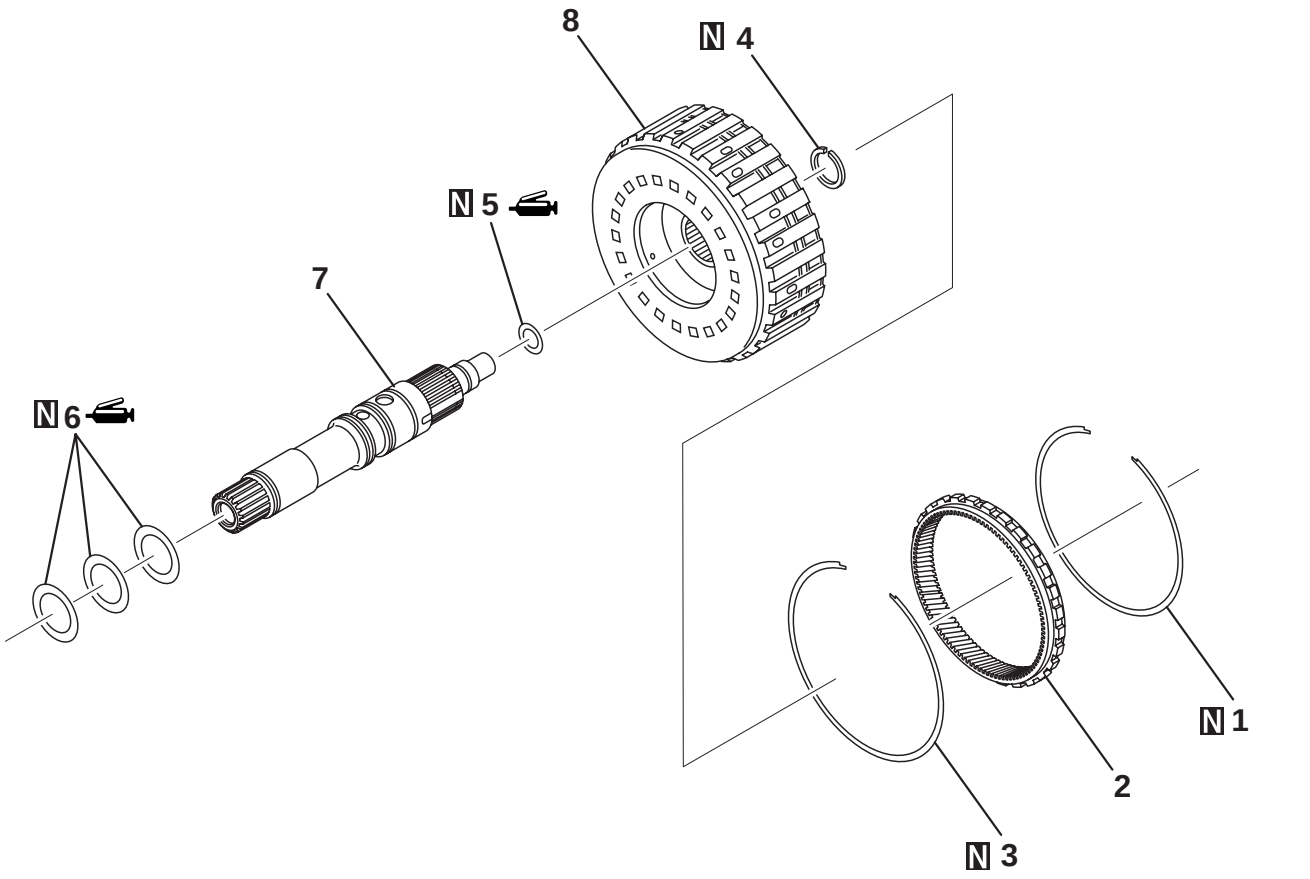
75.Install the roll rod adapter bracket on the transmission to the specified torque of 90 ± 10 N·m.

76.Install the transfer on the transmission to the specified torque of 68 ± 9 N·m.

FORWARD CLUTCH

DISASSEMBLY AND REASSEMBLY

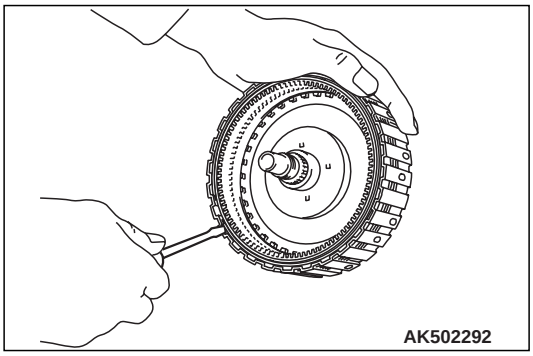
M1233209000292



		Disassembly steps
<<A>>	>>E<<	1. Snap ring
<<B>>	>>D<<	2. Internal gear
<<C>>	>>C<<	3. Snap ring
<<D>>	>>B<<	4. Snap ring
<<E>>	>>A<<	5. Seal ring (small)
<<E>>	>>A<<	6. Seal ring (big)
		7. Input shaft
		8. Forward clutch sub-assembly

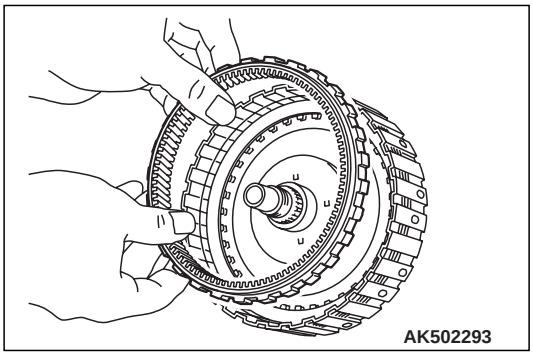
DISASSEMBLY SERVICE POINT

<<A>> SNAP RING REMOVAL



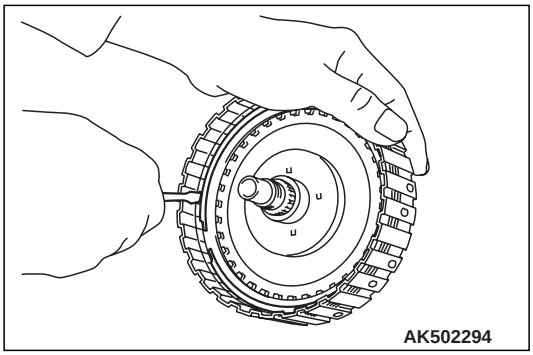
Using a flat blade screwdriver etc., remove the snap ring from the forward clutch drum.

<<B>> INTERNAL GEAR REMOVAL



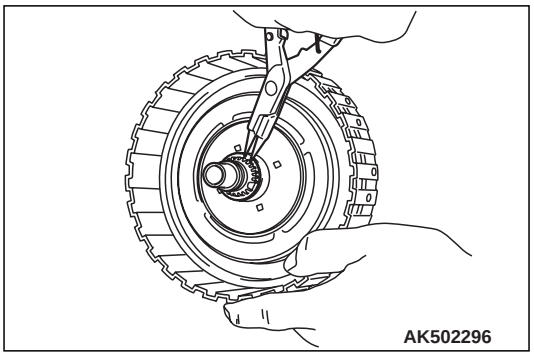
Remove the internal gear from the forward clutch drum.

<<C>> SNAP RING REMOVAL



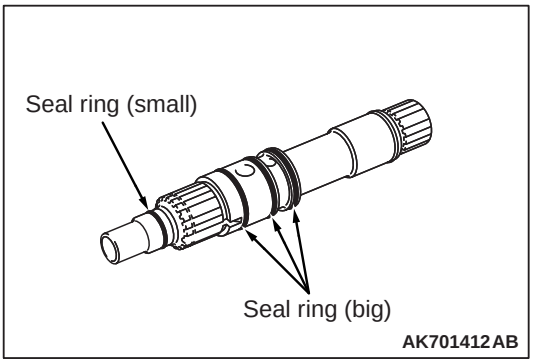
Using a flat blade screwdriver etc., remove the snap ring from the forward clutch drum.

<<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



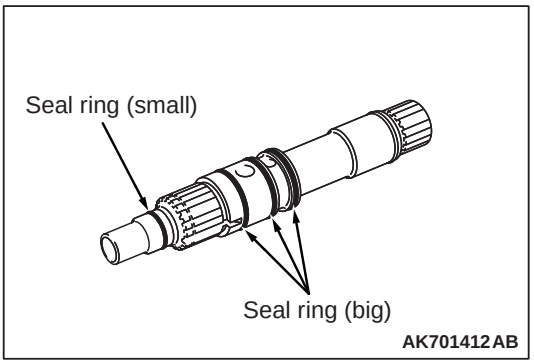
Remove the seal rings (small and big) from the input shaft.

REASSEMBLY SERVICE POINT

>>A<< SEAL RING INSTALLATION

⚠ CAUTION

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

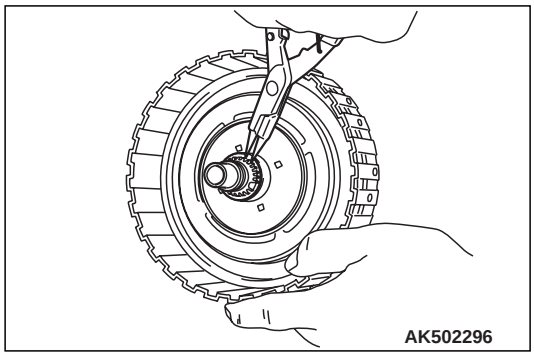


Install the seal rings (small and big) on the input shaft.

>>B<< SNAP RING INSTALLATION

⚠ CAUTION

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

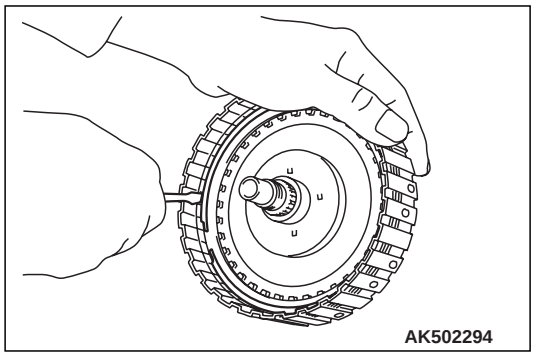


Install the input shaft on the forward clutch drum, and attach the snap ring.

>>C<< SNAP RING INSTALLATION

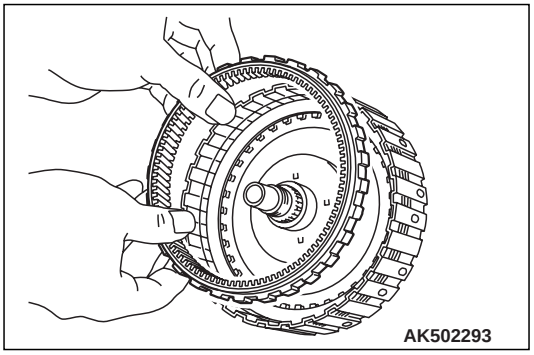
⚠ CAUTION

Do not re-use the snap ring.



Install the snap ring on the forward clutch drum.

>>D<< INTERNAL GEAR INSTALLATION

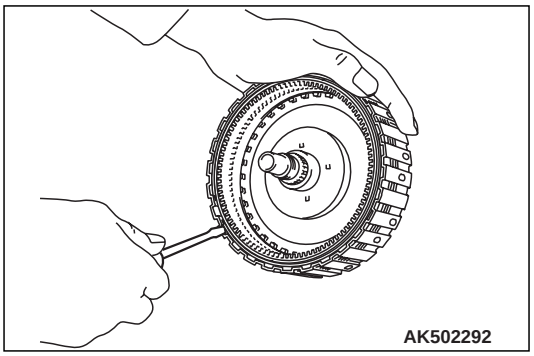


Install the internal gear on the forward clutch drum.

>>E<< SNAP RING INSTALLATION

⚠ CAUTION

Do not re-use the snap ring.



Install the snap ring on the forward clutch drum.

INSPECTION

M1233200200062

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.

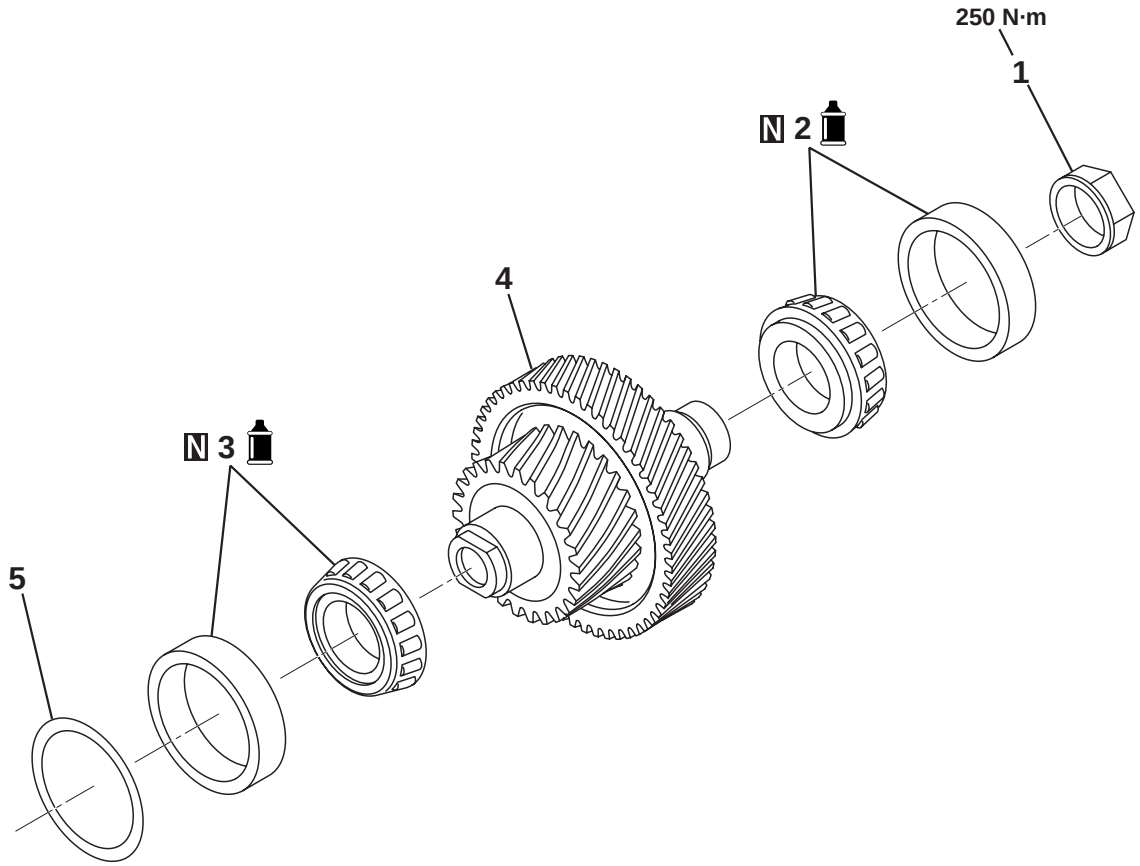
INPUT SHAFT AND INTERNAL GEAR

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

REDUCTION GEAR

DISASSEMBLY AND REASSEMBLY

M1233200600208

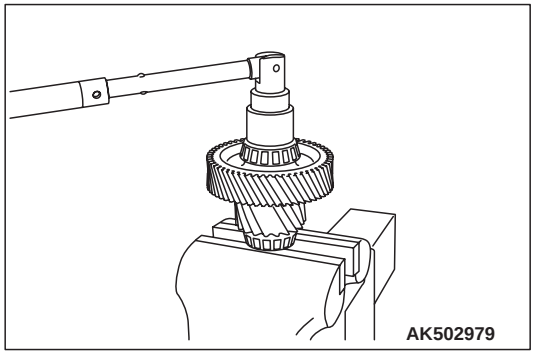


AK502978AC

		Disassembly steps	
<<A>>	>>C<<	1.	Nut
<<B>>	>>B<<	2.	Reduction gear bearing
<<C>>	>>A<<	3.	Reduction gear bearing
		4.	Reduction gear sub-assembly
		5.	Adjusting shim

DISASSEMBLY SERVICE POINT

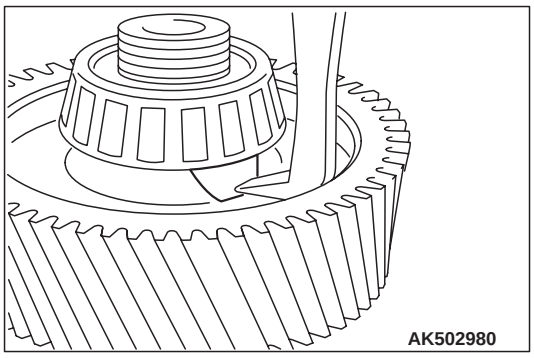
<<A>> NUT REMOVAL



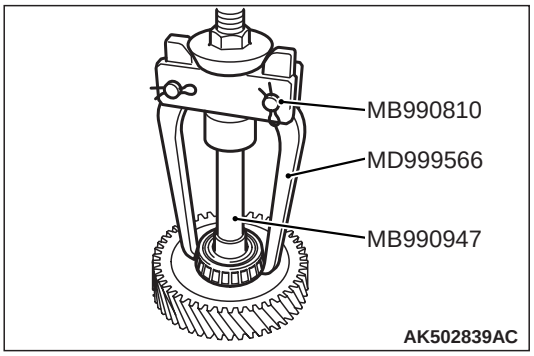
Remove the nut from the reduction gear sub-assembly.

<<B>> REDUCTION GEAR BEARING REMOVAL

⚠ CAUTION



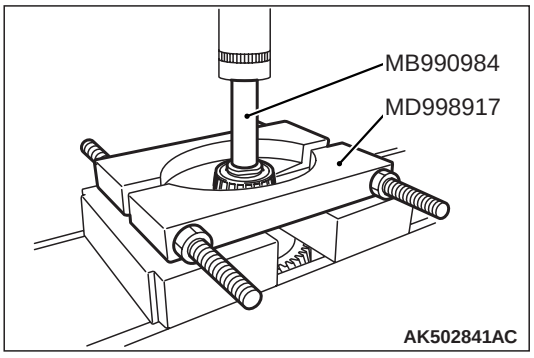
Align the tang of special tool as shown in the diagram.



Using the special tools, remove the inner race of reduction gear bearing (converter housing side) from the reduction gear sub-assembly.

- Side bearing puller (MB990810)
- Lower arm push arbour (MB990947)
- Crow (MD999566)

<<C>> REDUCTION GEAR BEARING REMOVAL



Using the special tools, remove the outer race of reduction gear bearing (transmission case side) from the reduction gear sub-assembly.

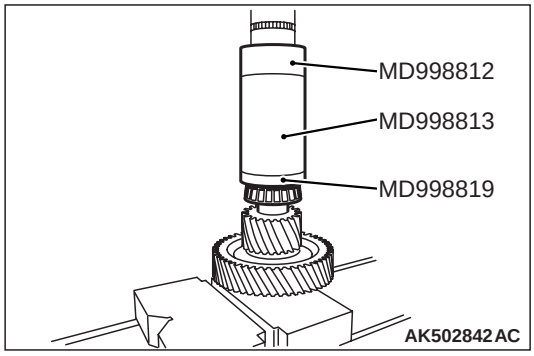
- Mount bushing lower roll insulator arbour (MB990984)
- Bearing remover (MD998917)

REASSEMBLY SERVICE POINT

>>A<< REDUCTION GEAR BEARING INSTALLATION

⚠ CAUTION

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



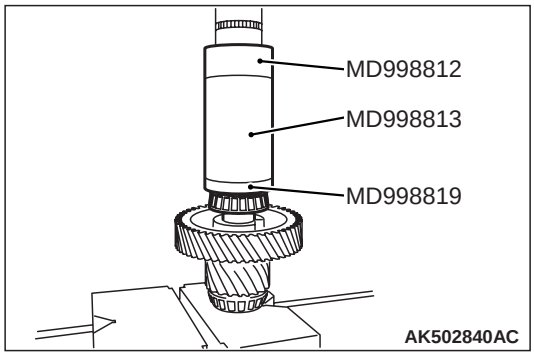
Using the special tools, install the inner race of reduction gear bearing (transmission case side) on the reduction gear sub-assembly.

- Installer cap (MD998812)
- Installer-100 (MD998813)
- Installer adapter (MD998819)

>>B<< REDUCTION GEAR BEARING INSTALLATION

⚠ CAUTION

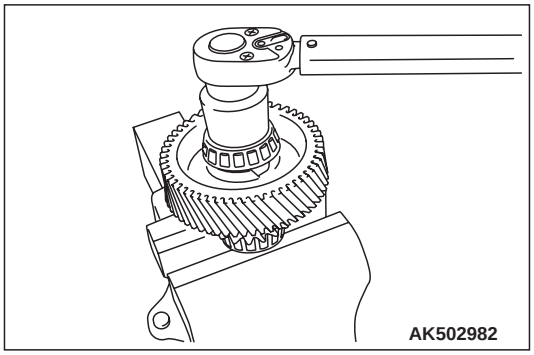
- **Do not re-use the inner race.**
- **Replace the inner race together with the outer race.**



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

- Installer cap (MD998812)
- Installer-100 (MD998813)
- Installer adapter (MD998819)

>>C<< NUT INSTALLATION



Install the nut on the reduction gear sub-assembly to the specified torque of 250 N·m.

INSPECTION

M1233200700108

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: ϕ30.008 – 30.029 mm**
- **Transmission case side: ϕ30.008 – 30.029 mm**

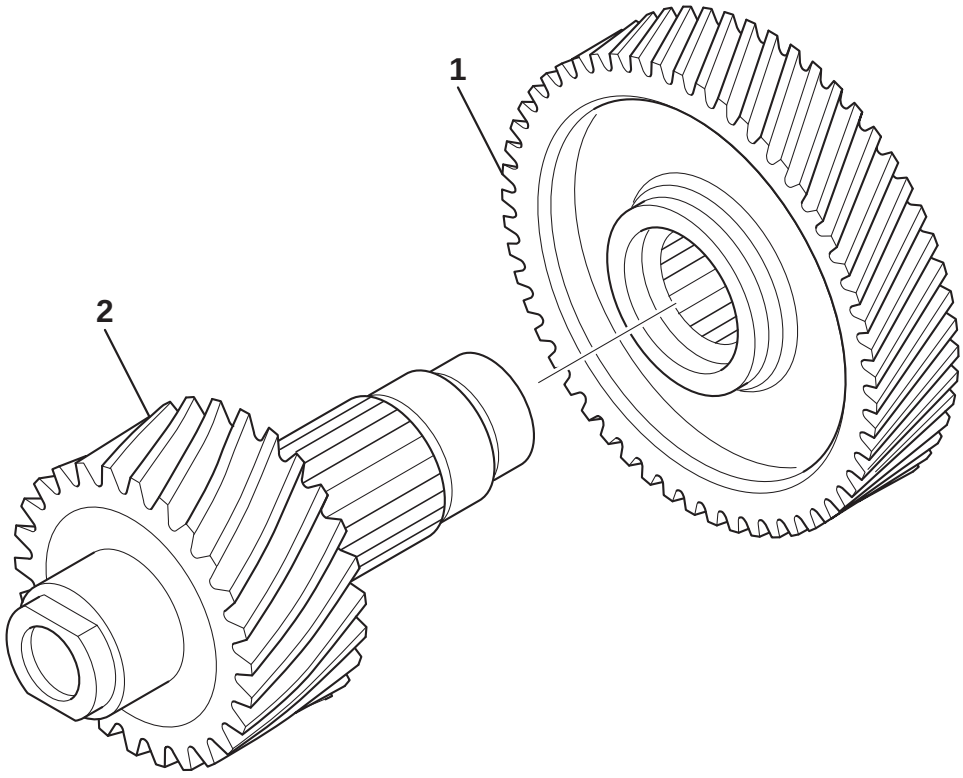
REDUCTION GEAR SUB-ASSEMBLY

ASSEMBLY

M1233200900146

⚠ CAUTION

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



AK503079AC

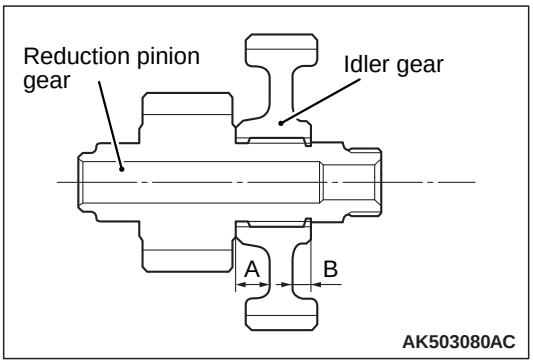
Reassembly steps

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

ASSEMBLY SERVICE POINT

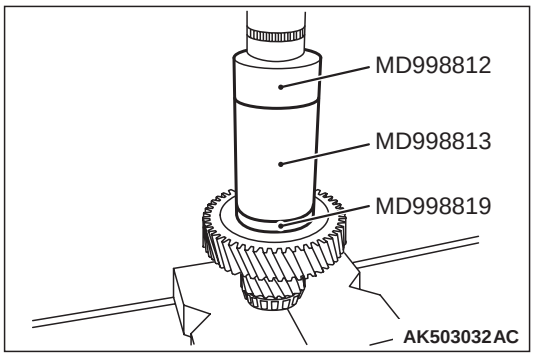
>>A<< REDUCTION PINION GEAR / IDLER GEAR

⚠ CAUTION



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

Centre boss portion A	**Long**
Centre boss portion B	**Short**



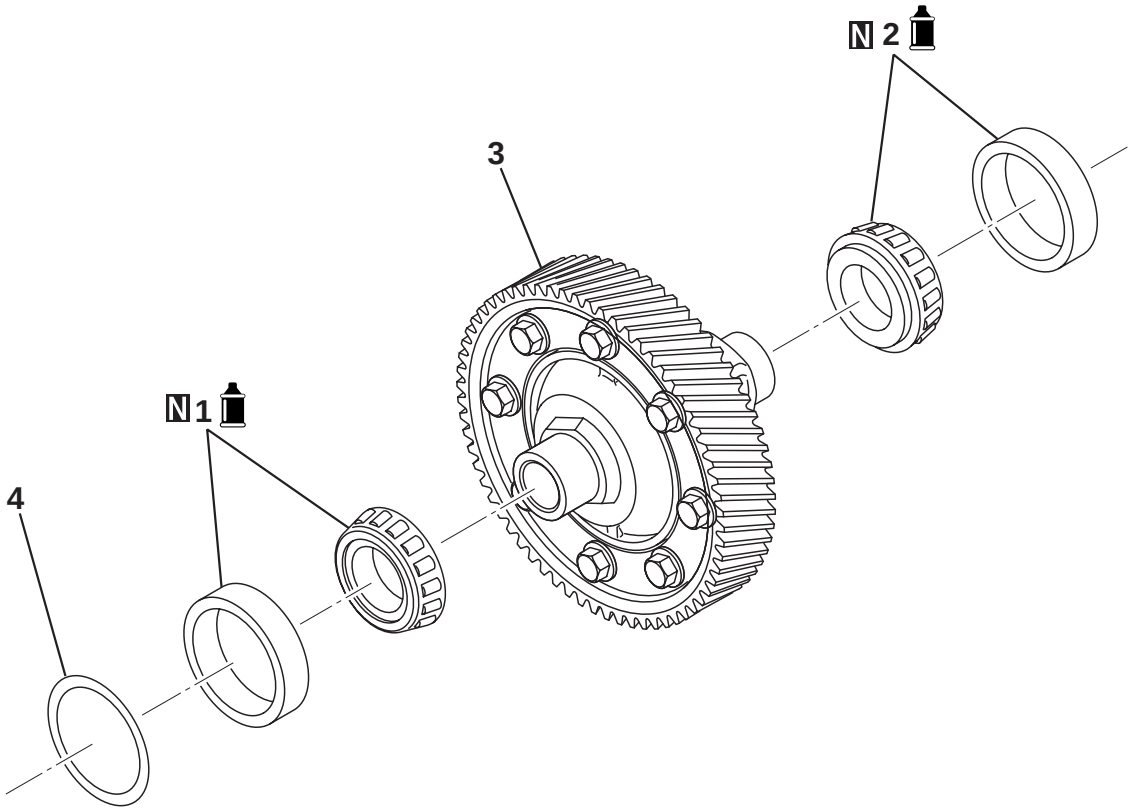
Using the special tools, attach the idler gear to the reduction pinion gear.

- Installer cap (MD998812)
- Installer-100 (MD998813)
- Installer adapter (MD998819)

DIFFERENTIAL

DISASSEMBLY AND REASSEMBLY

M1233213000295

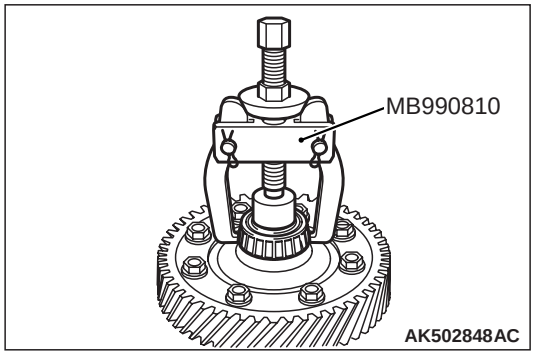


AK502984AC

			Disassembly steps
<<A>>	>>B<<	1.	Differential side bearing
<<B>>	>>A<<	2.	Differential side bearing
		3.	Differential sub-assembly
		4.	Adjusting shim

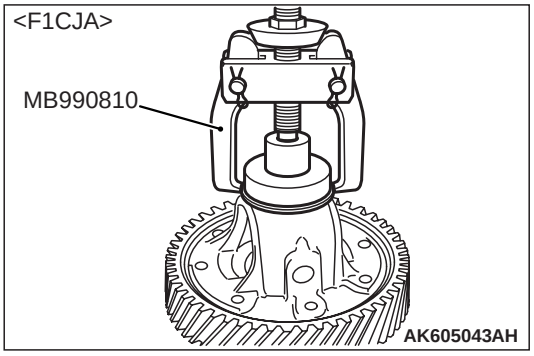
DISASSEMBLY SERVICE POINT

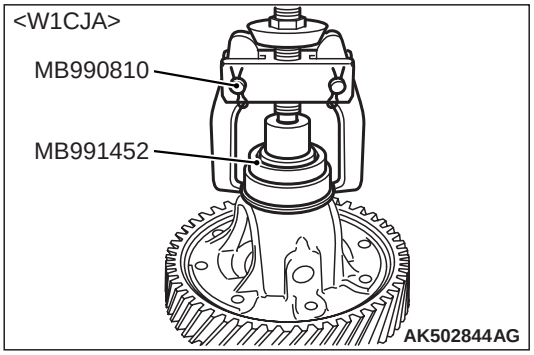
<<A>> DIFFERENTIAL SIDE BEARING REMOVAL



Using the special tool, Side bearing puller (MB990810), remove the inner race of differential side bearing (transmission case side) from the differential sub-assembly.

<<B>> DIFFERENTIAL SIDE BEARING REMOVAL





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

- Side bearing puller (MB990810)
- Oil seal installer (MB991452) <W1CJA>

>>B<< REDUCTION GEAR BEARING INSTALLATION

⚠ CAUTION

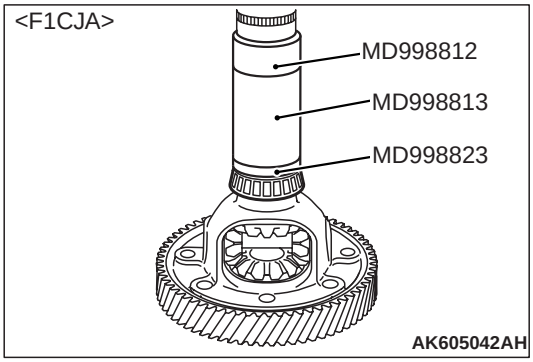
- **Do not re-use the inner race.**
- **Replace the inner race together with the outer race.**

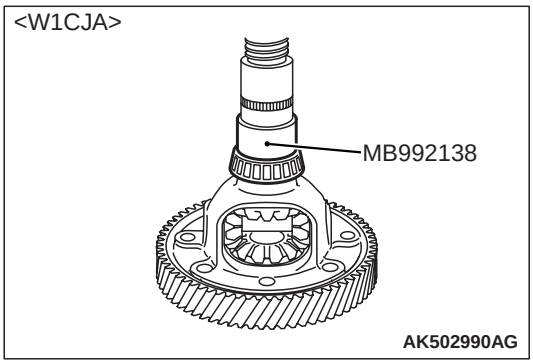
REASSEMBLY SERVICE POINT

>>A<< DIFFERENTIAL SIDE BEARING INSTALLTION

⚠ CAUTION

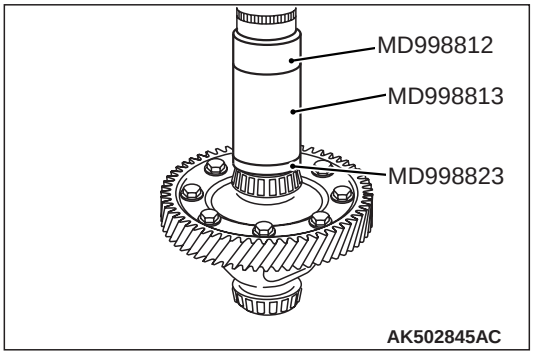
- **Do not re-use the inner race.**
- **Replace the inner race together with the outer race.**





Using the special tools, install the inner race of differential side bearing (converter housing side) on the differential sub-assembly.

- Installer cap (MD998812) <F1CJA>
- Installer-100 (MD998813) <F1CJA>
- Installer adapter (MD998823) <F1CJA>
- Bearing installer (MB992138) <W1CJA>



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

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

- Installer adapter (MD998823)

INSPECTION

M1233200800202

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: ϕ40.026 – 40.051 mm <F1CJA>**
- **Converter housing side: ϕ60.032 – 60.078 mm <W1CJA>**
- **Transmission case side: ϕ40.026 – 40.051 mm**

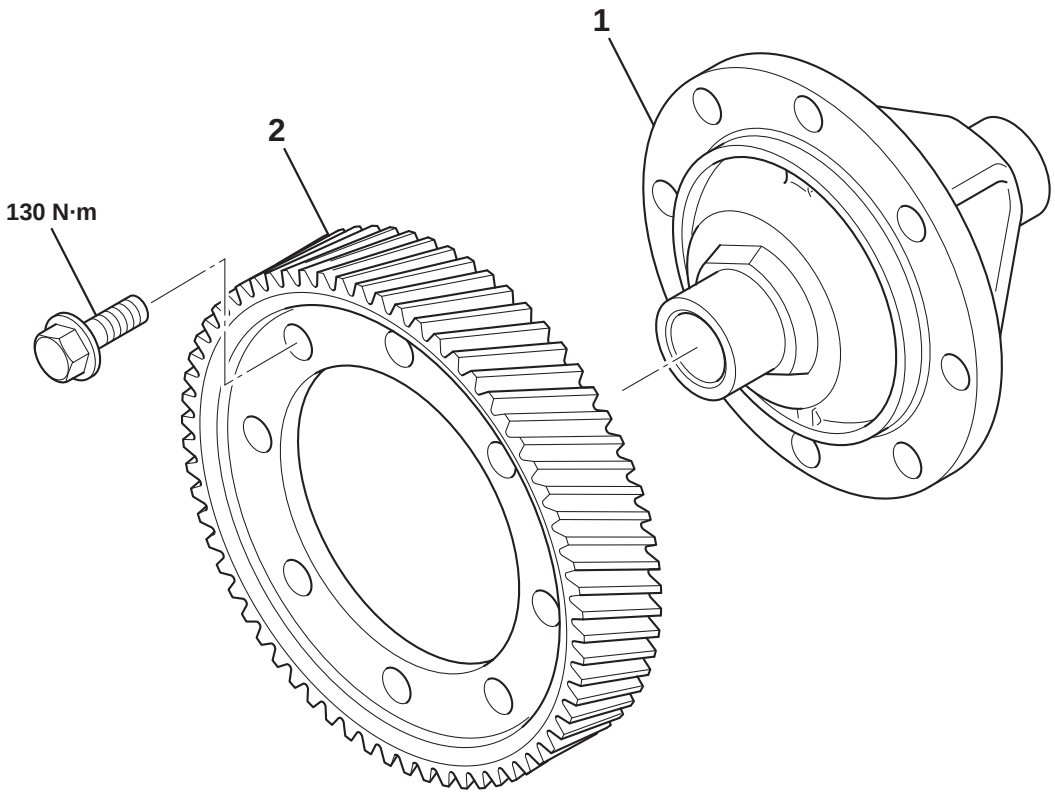
DIFFERENTIAL SUB-ASSEMBLY

ASSEMBLY

M1233201200214

⚠ CAUTION

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



AK503081AD

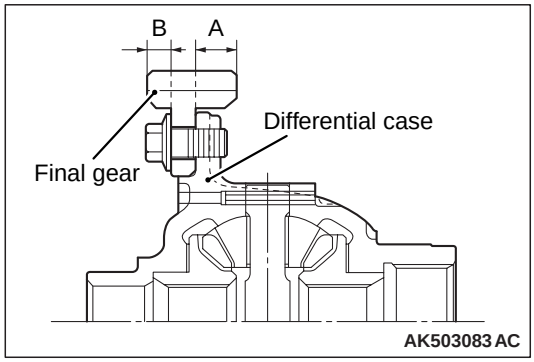
Reassembly steps

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

ASSEMBLY SERVICE POINT

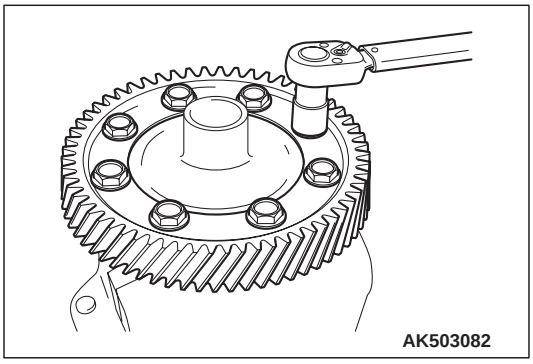
>>A<< DIFFERNTIAL CASE / FINAL GEAR INSTALLATION

⚠ 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.

Distance from gear edge to flange A	**Long**
Distance from gear edge to flange B	**Short**

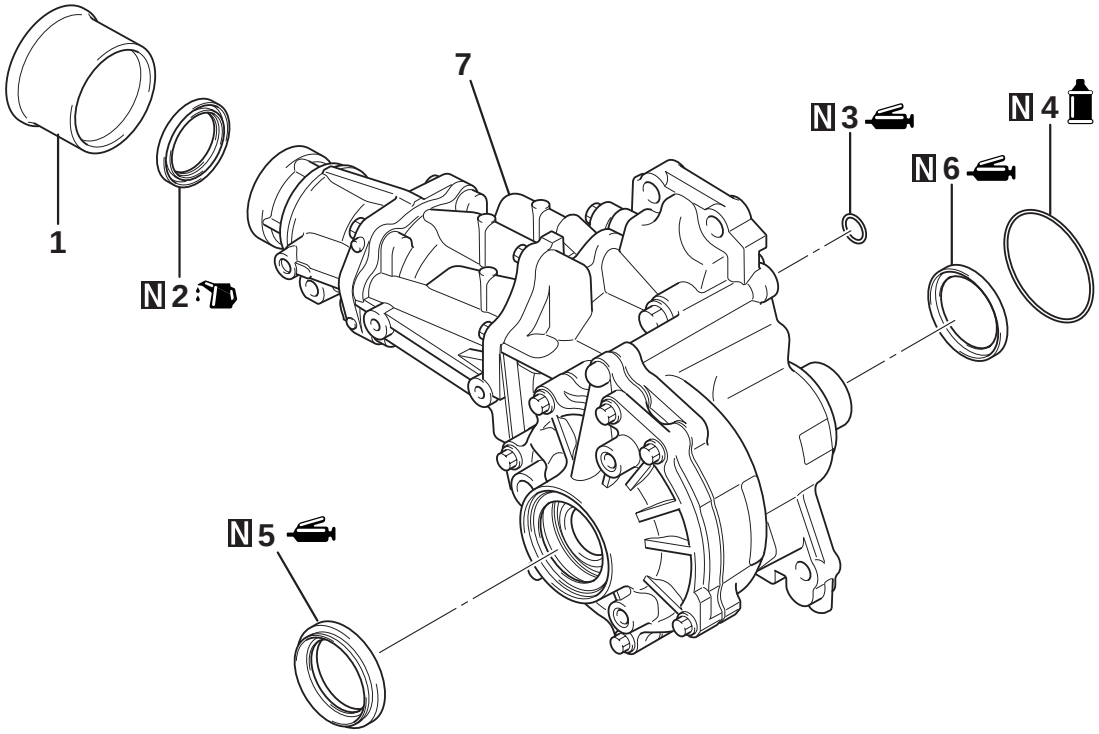


Install the final gear on the differential case, and tighten the fastening bolts to the specified torque of 130 N·m.

TRANSFER

DISASSEMBLY AND REASSEMBLY

M1233006700919



AKC00033AB

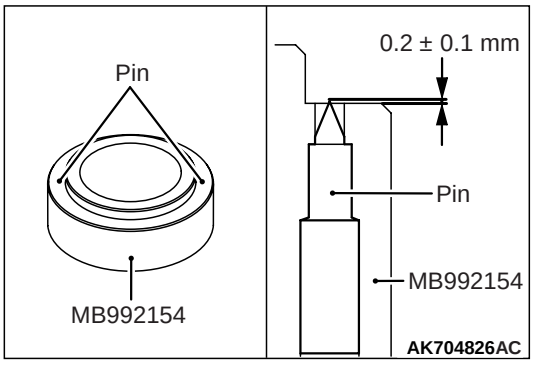
		Disassembly steps
	1.	Dust seal guard
>>C<<	2	Oil seal
	3.	O-ring
	4.	O-ring
>>B<<	5.	Oil seal
>>A<<	6.	Oil seal
	7.	Transfer

REASSEMBLY SERVICE POINT

>>A<< OIL SEAL INSTALLATION

⚠ CAUTION

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

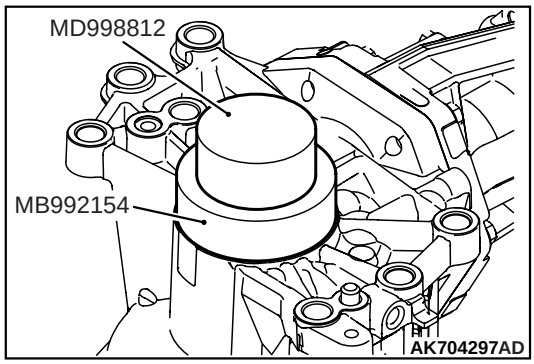


1. Adjust the projection allowances of the two pins of the special tool, Oil Seal Installer (MB992154) to be 0.2 ± 0.1 mm.

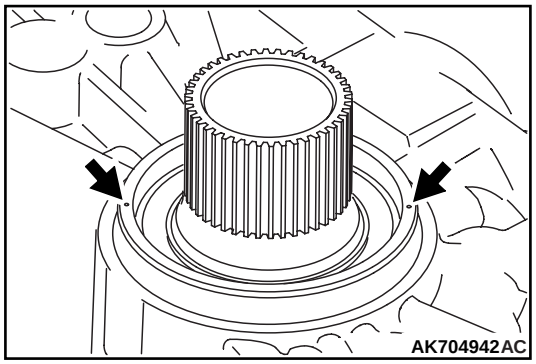
NOTE: The two pins are inserted into the special tool, Oil Seal Installer (MB992154). When the oil seal is replaced, the traces are found on the transfer case so that the replacement using the specified special tool can be recognized.

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

Specified grease: Retinax A

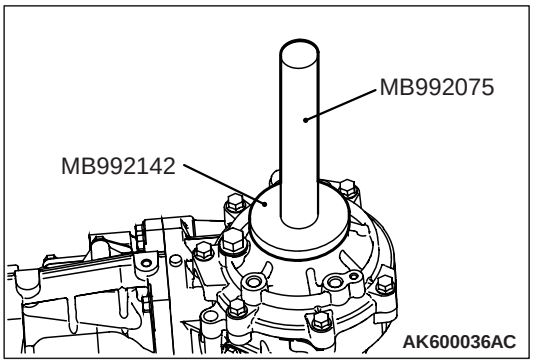


3. Using the special tool, install the oil seal.
   - Oil seal installer (MB992154)
   - Installer cap (MD998812)



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

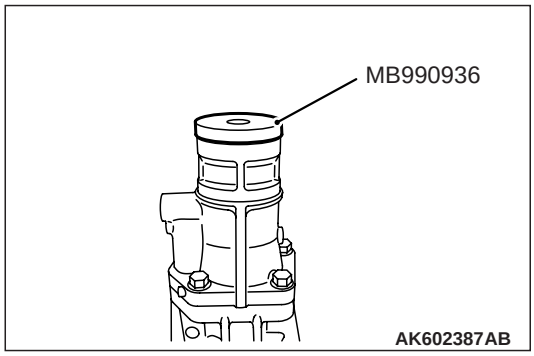
>>B<< OIL SEAL INSTALLATION



1. Using the special tools to install the oil seal.
   - Oil seal installer (MB992142)
   - Handle (MB992075)
2. Apply specified grease to the oil seal lip area.

   Specified grease: Retinax A

>>C<< OIL SEAL INSTALLATION



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